November 15, 2024

An Annual Groundwater Monitoring and Corrective Action Report (Annual Report) documenting the activities completed in 2019 for the Agremax Staging Area at AES Puerto Rico, LP in Guayama, PR (AES-PR) was completed and placed in the facilities operating record on January 31, 2020, as required by 40 CFR Part 257 §257.90(e)(1) through §257.90(e)(6) and subsequently posted to the AES-PR CCR public website.

This Addendum has been prepared to supplement the 2019 Annual Report. AES Puerto Rico is providing the following, as applicable.

- Laboratory Analytical Reports;
- Well Purging and Sampling and Field Data Sheets;
- Statistical Analysis Results; and
- Well Installation Information.

This information is being provided in the appendices to this Addendum as follows:

- Appendix A – Laboratory Analytical Reports
  Includes laboratory data packages with supporting information, such as case narrative, sample and method summary, analytical results, quality control, and chain-of-custody documentation.
- Appendix B – Well Purging and Sampling and Field Data Sheets
  Includes forms documenting well purging and sampling efforts from groundwater sampling events.
- Appendix C – Statistical Analysis Reports
  Includes statistical analysis results presented in a summary table.
- Appendix D – Well Installation Information
  Includes soil boring long and well construction diagrams for the nine (9) temporary wells and two (2) piezometers installed in 2019 at the site.

APPENDIX A
Laboratory Analytical Reports

Daliz Estades Santaliz

Licensed Chemist

To Whom It May Concern:

I, Daliz M. Estades Santaliz, in my capacity as Puerto Rico Certified Chemist, hereby certify the attached Analytical Results from CCR GW Monitoring AES-PR (Job ID:400-169314-1) Project and ID Numbers:

400-169314-1
400-169314-2
400-169314-3
400-169314-4
400-169314-5
400-169314-6
400-169314-7
400-169314-8

ESTADO LIBRE ASOCIADO DE PUERTO RICO
Daliz M. Estades Santaliz
Lic. 4026
A 1939892
QUIMICO LICENCIADO

Lcda. Daliz M. Estades Santaliz

PO Box 727
Dorado, PR 00646-0727

ANALYTICAL REPORT

Job Number: 400-169314-1

Job Description: CCR GW Monitoring, AES Puerto Rico, LP

For:
DNA-Environment, LLC
35 Calle Juan C Borbon
Ste 67-227
Guaynabo, PR 00969-5375

Attention: Alberto Melendez



Approved for release.
Eric A. Lang
Manager of Project Management
5/28/2019 1:06 PM

Eric A. Lang, Manager of Project Management
2417 Bond Street, University Park, IL, 60484
(708)534-5200
eric.lang@testamericainc.com
05/28/2019

The test results in this report meet all NELAP requirements for accredited parameters, unless otherwise noted, and relate only to the referenced samples. Pursuant to NELAP, this report may not be reproduced, except in full, without written approval from the laboratory. For questions please contact the Project Manager at the e-mail address listed on this page, or the telephone number at the bottom of the page. TestAmerica Pensacola Certifications and Approvals: Alabama (40150), Arizona (AZ0710), Arkansas (88-0689), Florida (E81010), Illinois (200041), Iowa (367), Kansas (E-10253), Kentucky UST (53), Louisiana (30748), Maryland (233), Massachusetts (M-FL094), Michigan (9912), New Hampshire (250510), New Jersey (FL006), North Carolina (314), Oklahoma (9810), Pennsylvania (68-00467), Rhode Island (LAO00307), South Carolina (96026), Tennessee (TN02907), Texas (T104704286-10-2), Virginia (00008), Washington (C2043), West Virginia (136), USDA Foreign Soil Permit (P330-08-00006).

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Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job Narrative
400-169314-1

Comments
No additional comments.

Receipt
The samples were received on 4/25/2019 9:08 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.4º C and 4.0º C.

Metals
Method(s) 6020: The following samples were diluted to bring the concentration of target analytes within the calibration range: AES-MW1-042319 (400-169314-1), AES-MW3-042319 (400-169314-3), AES-MW4-042419 (400-169314-5), AES-MW4-DUP-042419 (400-169314-6) and AES-MW5-042419 (400-169314-7). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Field Service / Mobile Lab
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method(s) 375.4, 9038, SM 4500 SO4 E: The following samples were diluted to bring the concentration of target analytes within the calibration range: AES-MW1-042319 (400-169314-1), AES-MW3-042319 (400-169314-3), AES-MW4-042419 (400-169314-5), AES-MW4-DUP-042419 (400-169314-6) and AES-MW5-042419 (400-169314-7). Elevated reporting limits (RLs) are provided.

Method(s) SM 4500 Cl- E: The following samples were diluted to bring the concentration of target analytes within the calibration range: AES-MW1-042319 (400-169314-1), AES-MW2-042319 (400-169314-2), AES-MW2-042319 (400-169314-2[MS]), AES-MW2-042319 (400-169314-2[MSD]), AES-MW3-042319 (400-169314-3), AES-MW4-042419 (400-169314-5), AES-MW4-DUP-042419 (400-169314-6) and AES-MW5-042419 (400-169314-7). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: DNA-Environment, LLC
Job ID: 400-169314-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW1-042319 — Lab Sample ID: 400-169314-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.019		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.23		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	65		0.25	0.13	mg/L	5		6020	Total Recoverable
Magnesium	27		0.13	0.032	mg/L	5		6020	Total Recoverable
Potassium	0.52		0.25	0.11	mg/L	5		6020	Total Recoverable
Selenium	0.0020		0.0013	0.00071	mg/L	5		6020	Total Recoverable
Iron	0.21		0.13	0.053	mg/L	5		6020	Total Recoverable
Manganese	0.034		0.013	0.0054	mg/L	5		6020	Total Recoverable
Sodium - DL	240		1.3	0.84	mg/L	25		6020	Total Recoverable
Alkalinity, Total	410		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	410		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	900		10	6.8	mg/L	1		SM 2540C	Total/NA
Chloride	160		40	28	mg/L	20		SM 4500 Cl- E	Total/NA
Fluoride	0.75		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	170		25	7.0	mg/L	5		SM 4500 SO4 E	Total/NA
Field pH	7.61				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-MW2-042319 — Lab Sample ID: 400-169314-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.13		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.14		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	110		0.25	0.13	mg/L	5		6020	Total Recoverable
Magnesium	51		0.13	0.032	mg/L	5		6020	Total Recoverable
Potassium	0.64		0.25	0.11	mg/L	5		6020	Total Recoverable
Sodium	75		0.25	0.17	mg/L	5		6020	Total Recoverable
Manganese	0.84		0.013	0.0054	mg/L	5		6020	Total Recoverable
Alkalinity, Total	600		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	600		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	660		10	6.8	mg/L	1		SM 2540C	Total/NA
Chloride	72		4.0	2.8	mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.68		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	6.6		5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA
Field pH	7.22				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-MW3-042319 — Lab Sample ID: 400-169314-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0016		0.0013	0.00046	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: AES-MW3-042319 (Continued) — Lab Sample ID: 400-169314-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.17		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.90		0.050	0.021	mg/L	5		6020	Total Recoverable
Cobalt	0.0023	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0052		0.0050	0.0011	mg/L	5		6020	Total Recoverable
Molybdenum	0.17		0.015	0.0020	mg/L	5		6020	Total Recoverable
Potassium	21		0.25	0.11	mg/L	5		6020	Total Recoverable
Selenium	0.13		0.0013	0.00071	mg/L	5		6020	Total Recoverable
Iron	1.7		0.13	0.053	mg/L	5		6020	Total Recoverable
Manganese	1.2		0.013	0.0054	mg/L	5		6020	Total Recoverable
Calcium - DL	290		5.0	2.5	mg/L	100		6020	Total Recoverable
Magnesium - DL	400		2.5	0.64	mg/L	100		6020	Total Recoverable
Sodium - DL	2700		5.0	3.4	mg/L	100		6020	Total Recoverable
Alkalinity, Total	530		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	530		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	10000		130	85	mg/L	1		SM 2540C	Total/NA
Chloride	4200		200	140	mg/L	100		SM 4500 Cl- E	Total/NA
Fluoride	1.6		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	2200		500	140	mg/L	100		SM 4500 SO4 E	Total/NA
Field pH	7.56				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-FB-042319 — Lab Sample ID: 400-169314-4

No Detections.

Client Sample ID: AES-MW4-042419 — Lab Sample ID: 400-169314-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0021		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.045		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	1.8		0.050	0.021	mg/L	5		6020	Total Recoverable
Cobalt	0.00083	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.28		0.0050	0.0011	mg/L	5		6020	Total Recoverable
Magnesium	38		0.13	0.032	mg/L	5		6020	Total Recoverable
Molybdenum	0.66		0.015	0.0020	mg/L	5		6020	Total Recoverable
Selenium	0.0012	J	0.0013	0.00071	mg/L	5		6020	Total Recoverable
Iron	5.7		0.13	0.053	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: AES-MW4-042419 (Continued)
Lab Sample ID: 400-169314-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	1.1		0.013	0.0054	mg/L	5		6020	Total Recoverable
Calcium - DL	150		10	5.0	mg/L	200		6020	Total Recoverable
Potassium - DL	690		10	4.4	mg/L	200		6020	Total Recoverable
Sodium - DL	3600		10	6.7	mg/L	200		6020	Total Recoverable
Alkalinity, Total	940		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	940		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	12000		130	85	mg/L	1		SM 2540C	Total/NA
Chloride	3500		160	110	mg/L	80		SM 4500 Cl- E	Total/NA
Fluoride	0.94		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	3300		500	140	mg/L	100		SM 4500 SO4 E	Total/NA
Field pH	7.43				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-MW4-DUP-042419
Lab Sample ID: 400-169314-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0017		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.046		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	1.7		0.050	0.021	mg/L	5		6020	Total Recoverable
Cobalt	0.00083	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.29		0.0050	0.0011	mg/L	5		6020	Total Recoverable
Magnesium	38		0.13	0.032	mg/L	5		6020	Total Recoverable
Molybdenum	0.65		0.015	0.0020	mg/L	5		6020	Total Recoverable
Selenium	0.0011	J	0.0013	0.00071	mg/L	5		6020	Total Recoverable
Iron	5.5		0.13	0.053	mg/L	5		6020	Total Recoverable
Manganese	1.2		0.013	0.0054	mg/L	5		6020	Total Recoverable
Calcium - DL	150		10	5.0	mg/L	200		6020	Total Recoverable
Potassium - DL	690		10	4.4	mg/L	200		6020	Total Recoverable
Sodium - DL	3600		10	6.7	mg/L	200		6020	Total Recoverable
Alkalinity, Total	900		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	900		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	11000		250	170	mg/L	1		SM 2540C	Total/NA
Chloride	3600		160	110	mg/L	80		SM 4500 Cl- E	Total/NA
Fluoride	0.96		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	3200		500	140	mg/L	100		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: DNA-Environment, LLC
Job ID: 400-169314-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW5-042419
Lab Sample ID: 400-169314-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0084		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.032		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.38		0.050	0.021	mg/L	5		6020	Total Recoverable
Cobalt	0.0030		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0031	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Molybdenum	0.0036	J	0.015	0.0020	mg/L	5		6020	Total Recoverable
Potassium	6.6		0.25	0.11	mg/L	5		6020	Total Recoverable
Iron	9.2		0.13	0.053	mg/L	5		6020	Total Recoverable
Manganese	11		0.013	0.0054	mg/L	5		6020	Total Recoverable
Calcium - DL	680		5.0	2.5	mg/L	100		6020	Total Recoverable
Magnesium - DL	380		2.5	0.64	mg/L	100		6020	Total Recoverable
Sodium - DL	2200		5.0	3.4	mg/L	100		6020	Total Recoverable
Alkalinity, Total	490		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	490		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	9300		130	85	mg/L	1		SM 2540C	Total/NA
Chloride	3700		160	110	mg/L	80		SM 4500 Cl- E	Total/NA
Fluoride	0.43		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	2300		500	140	mg/L	100		SM 4500 SO4 E	Total/NA
Field pH	6.77				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-FB-042419
Lab Sample ID: 400-169314-8

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: AES-MW1-042319

Date Collected: 04/23/19 10:10
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-1
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		05/06/19 16:45	05/07/19 10:07	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		05/06/19 16:45	05/07/19 10:07	5
Barium	**0.019**		0.0025	0.00049	mg/L		05/06/19 16:45	05/07/19 10:07	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:07	5
Boron	**0.23**		0.050	0.021	mg/L		05/06/19 16:45	05/07/19 10:07	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:07	5
Calcium	**65**		0.25	0.13	mg/L		05/06/19 16:45	05/07/19 10:07	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		05/06/19 16:45	05/07/19 10:07	5
Cobalt	0.00040	U	0.0025	0.00040	mg/L		05/06/19 16:45	05/07/19 10:07	5
Lead	0.00035	U	0.0013	0.00035	mg/L		05/06/19 16:45	05/07/19 10:07	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		05/06/19 16:45	05/07/19 10:07	5
Magnesium	**27**		0.13	0.032	mg/L		05/06/19 16:45	05/07/19 10:07	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		05/06/19 16:45	05/07/19 10:07	5
Potassium	**0.52**		0.25	0.11	mg/L		05/06/19 16:45	05/07/19 10:07	5
Selenium	**0.0020**		0.0013	0.00071	mg/L		05/06/19 16:45	05/07/19 10:07	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		05/06/19 16:45	05/07/19 10:07	5
Iron	**0.21**		0.13	0.053	mg/L		05/06/19 16:45	05/07/19 10:07	5
Manganese	**0.034**		0.013	0.0054	mg/L		05/06/19 16:45	05/07/19 10:07	5

Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**240**		1.3	0.84	mg/L		05/06/19 16:45	05/07/19 15:36	25

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		05/06/19 09:46	05/07/19 12:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**410**		1.0	0.98	mg/L			04/30/19 12:37	1
Bicarbonate Alkalinity as CaCO3	**410**		1.0	0.98	mg/L			04/30/19 12:37	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 12:37	1
Total Dissolved Solids	**900**		10	6.8	mg/L			04/30/19 13:01	1
Chloride	**160**		40	28	mg/L			05/06/19 14:23	20
Fluoride	**0.75**		0.10	0.032	mg/L			05/01/19 11:12	1
Sulfate	**170**		25	7.0	mg/L			05/06/19 09:53	5

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.61**				SU			04/23/19 08:10	1

Client Sample ID: AES-MW2-042319

Date Collected: 04/23/19 11:55
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-2
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		05/06/19 16:45	05/07/19 10:11	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		05/06/19 16:45	05/07/19 10:11	5
Barium	**0.13**		0.0025	0.00049	mg/L		05/06/19 16:45	05/07/19 10:11	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:11	5

Client Sample ID: AES-MW2-042319

Date Collected: 04/23/19 11:55
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-2
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**0.14**		0.050	0.021	mg/L		05/06/19 16:45	05/07/19 10:11	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:11	5
Calcium	**110**		0.25	0.13	mg/L		05/06/19 16:45	05/07/19 10:11	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		05/06/19 16:45	05/07/19 10:11	5
Cobalt	0.00040	U	0.0025	0.00040	mg/L		05/06/19 16:45	05/07/19 10:11	5
Lead	0.00035	U	0.0013	0.00035	mg/L		05/06/19 16:45	05/07/19 10:11	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		05/06/19 16:45	05/07/19 10:11	5
Magnesium	**51**		0.13	0.032	mg/L		05/06/19 16:45	05/07/19 10:11	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		05/06/19 16:45	05/07/19 10:11	5
Potassium	**0.64**		0.25	0.11	mg/L		05/06/19 16:45	05/07/19 10:11	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		05/06/19 16:45	05/07/19 10:11	5
Sodium	**75**		0.25	0.17	mg/L		05/06/19 16:45	05/07/19 10:11	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		05/06/19 16:45	05/07/19 10:11	5
Iron	0.053	U	0.13	0.053	mg/L		05/06/19 16:45	05/07/19 10:11	5
Manganese	**0.84**		0.013	0.0054	mg/L		05/06/19 16:45	05/07/19 10:11	5

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		05/06/19 09:46	05/07/19 12:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**600**		1.0	0.98	mg/L			04/30/19 11:41	1
Bicarbonate Alkalinity as CaCO3	**600**		1.0	0.98	mg/L			04/30/19 11:41	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 11:41	1
Total Dissolved Solids	**660**		10	6.8	mg/L			04/29/19 10:36	1
Chloride	**72**		4.0	2.8	mg/L			05/06/19 14:20	2
Fluoride	**0.68**		0.10	0.032	mg/L			05/01/19 11:06	1
Sulfate	**6.6**		5.0	1.4	mg/L			05/06/19 09:07	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.22**				SU			04/23/19 09:55	1

Client Sample ID: AES-MW3-042319

Date Collected: 04/23/19 15:10
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-3
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		05/06/19 16:45	05/07/19 10:50	5
Arsenic	**0.0016**		0.0013	0.00046	mg/L		05/06/19 16:45	05/07/19 10:50	5
Barium	**0.17**		0.0025	0.00049	mg/L		05/06/19 16:45	05/07/19 10:50	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:50	5
Boron	**0.90**		0.050	0.021	mg/L		05/06/19 16:45	05/07/19 10:50	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:50	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		05/06/19 16:45	05/07/19 10:50	5
Cobalt	**0.0023**	**J**	0.0025	0.00040	mg/L		05/06/19 16:45	05/07/19 10:50	5
Lead	0.00035	U	0.0013	0.00035	mg/L		05/06/19 16:45	05/07/19 10:50	5
Lithium	**0.0052**		0.0050	0.0011	mg/L		05/06/19 16:45	05/07/19 10:50	5
Molybdenum	**0.17**		0.015	0.0020	mg/L		05/06/19 16:45	05/07/19 10:50	5

Client Sample ID: AES-MW3-042319

Date Collected: 04/23/19 15:10
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-3
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	21		0.25	0.11	mg/L		05/06/19 16:45	05/07/19 10:50	5
Selenium	0.13		0.0013	0.00071	mg/L		05/06/19 16:45	05/07/19 10:50	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		05/06/19 16:45	05/07/19 10:50	5
Iron	1.7		0.13	0.053	mg/L		05/06/19 16:45	05/07/19 10:50	5
Manganese	1.2		0.013	0.0054	mg/L		05/06/19 16:45	05/07/19 10:50	5

Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	290		5.0	2.5	mg/L		05/06/19 16:45	05/07/19 15:40	100
Magnesium	400		2.5	0.64	mg/L		05/06/19 16:45	05/07/19 15:40	100
Sodium	2700		5.0	3.4	mg/L		05/06/19 16:45	05/07/19 15:40	100

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		05/06/19 09:46	05/07/19 12:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	530		1.0	0.98	mg/L			04/30/19 12:45	1
Bicarbonate Alkalinity as CaCO3	530		1.0	0.98	mg/L			04/30/19 12:45	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 12:45	1
Total Dissolved Solids	10000		130	85	mg/L			04/30/19 13:01	1
Chloride	4200		200	140	mg/L			05/06/19 14:49	100
Fluoride	1.6		0.10	0.032	mg/L			05/01/19 11:15	1
Sulfate	2200		500	140	mg/L			05/06/19 10:20	100

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.56				SU			04/23/19 13:10	1

Client Sample ID: AES-FB-042319

Date Collected: 04/23/19 15:32
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-4
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		05/06/19 16:45	05/07/19 10:54	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		05/06/19 16:45	05/07/19 10:54	5
Barium	0.00049	U	0.0025	0.00049	mg/L		05/06/19 16:45	05/07/19 10:54	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:54	5
Boron	0.021	U	0.050	0.021	mg/L		05/06/19 16:45	05/07/19 10:54	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:54	5
Calcium	0.13	U	0.25	0.13	mg/L		05/06/19 16:45	05/07/19 10:54	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		05/06/19 16:45	05/07/19 10:54	5
Cobalt	0.00040	U	0.0025	0.00040	mg/L		05/06/19 16:45	05/07/19 10:54	5
Lead	0.00035	U	0.0013	0.00035	mg/L		05/06/19 16:45	05/07/19 10:54	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		05/06/19 16:45	05/07/19 10:54	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		05/06/19 16:45	05/07/19 10:54	5
Potassium	0.11	U	0.25	0.11	mg/L		05/06/19 16:45	05/07/19 10:54	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		05/06/19 16:45	05/07/19 10:54	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		05/06/19 16:45	05/07/19 10:54	5

Client Sample ID: AES-FB-042319

Date Collected: 04/23/19 15:32
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-4
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.053	U	0.13	0.053	mg/L		05/06/19 16:45	05/07/19 10:54	5
Manganese	0.0054	U	0.013	0.0054	mg/L		05/06/19 16:45	05/07/19 10:54	5

Method: 6020 - Metals (ICP/MS) - Total Recoverable - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	0.032	U	0.13	0.032	mg/L		05/06/19 16:45	05/07/19 15:44	5
Sodium	0.17	U	0.25	0.17	mg/L		05/06/19 16:45	05/07/19 15:44	5

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		05/06/19 09:46	05/07/19 12:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	0.98	U	1.0	0.98	mg/L			04/30/19 13:44	1
Bicarbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 13:44	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 13:44	1
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			04/30/19 13:01	1
Chloride	1.4	U	2.0	1.4	mg/L			05/06/19 13:43	1
Fluoride	0.032	U	0.10	0.032	mg/L			05/01/19 11:27	1
Sulfate	1.4	U	5.0	1.4	mg/L			05/06/19 09:12	1

Client Sample ID: AES-MW4-042419

Date Collected: 04/24/19 10:25
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-5
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		05/06/19 16:45	05/07/19 10:58	5
Arsenic	**0.0021**		0.0013	0.00046	mg/L		05/06/19 16:45	05/07/19 10:58	5
Barium	**0.045**		0.0025	0.00049	mg/L		05/06/19 16:45	05/07/19 10:58	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:58	5
Boron	**1.8**		0.050	0.021	mg/L		05/06/19 16:45	05/07/19 10:58	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:58	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		05/06/19 16:45	05/07/19 10:58	5
Cobalt	**0.00083**	**J**	0.0025	0.00040	mg/L		05/06/19 16:45	05/07/19 10:58	5
Lead	0.00035	U	0.0013	0.00035	mg/L		05/06/19 16:45	05/07/19 10:58	5
Lithium	**0.28**		0.0050	0.0011	mg/L		05/06/19 16:45	05/07/19 10:58	5
Magnesium	**38**		0.13	0.032	mg/L		05/06/19 16:45	05/07/19 10:58	5
Molybdenum	**0.66**		0.015	0.0020	mg/L		05/06/19 16:45	05/07/19 10:58	5
Selenium	**0.0012**	**J**	0.0013	0.00071	mg/L		05/06/19 16:45	05/07/19 10:58	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		05/06/19 16:45	05/07/19 10:58	5
Iron	**5.7**		0.13	0.053	mg/L		05/06/19 16:45	05/07/19 10:58	5
Manganese	**1.1**		0.013	0.0054	mg/L		05/06/19 16:45	05/07/19 10:58	5

Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**150**		10	5.0	mg/L		05/06/19 16:45	05/07/19 15:48	200
Potassium	**690**		10	4.4	mg/L		05/06/19 16:45	05/07/19 15:48	200
Sodium	**3600**		10	6.7	mg/L		05/06/19 16:45	05/07/19 15:48	200

Client Sample ID: AES-MW4-042419

Lab Sample ID: 400-169314-5
Matrix: Water

Date Collected: 04/24/19 10:25
Date Received: 04/25/19 09:08

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		05/06/19 09:46	05/07/19 12:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**940**		1.0	0.98	mg/L			04/30/19 13:06	1
Bicarbonate Alkalinity as CaCO3	**940**		1.0	0.98	mg/L			04/30/19 13:06	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 13:06	1
Total Dissolved Solids	**12000**		130	85	mg/L			04/30/19 13:01	1
Chloride	**3500**		160	110	mg/L			05/07/19 13:33	80
Fluoride	**0.94**		0.10	0.032	mg/L			05/01/19 11:17	1
Sulfate	**3300**		500	140	mg/L			05/06/19 12:55	100

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.43**				SU			04/24/19 08:25	1

Client Sample ID: AES-MW4-DUP-042419

Lab Sample ID: 400-169314-6
Matrix: Water

Date Collected: 04/24/19 10:42
Date Received: 04/25/19 09:08

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		05/06/19 16:45	05/07/19 11:02	5
Arsenic	**0.0017**		0.0013	0.00046	mg/L		05/06/19 16:45	05/07/19 11:02	5
Barium	**0.046**		0.0025	0.00049	mg/L		05/06/19 16:45	05/07/19 11:02	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 11:02	5
Boron	**1.7**		0.050	0.021	mg/L		05/06/19 16:45	05/07/19 11:02	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 11:02	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		05/06/19 16:45	05/07/19 11:02	5
Cobalt	**0.00083**	**J**	0.0025	0.00040	mg/L		05/06/19 16:45	05/07/19 11:02	5
Lead	0.00035	U	0.0013	0.00035	mg/L		05/06/19 16:45	05/07/19 11:02	5
Lithium	**0.29**		0.0050	0.0011	mg/L		05/06/19 16:45	05/07/19 11:02	5
Magnesium	**38**		0.13	0.032	mg/L		05/06/19 16:45	05/07/19 11:02	5
Molybdenum	**0.65**		0.015	0.0020	mg/L		05/06/19 16:45	05/07/19 11:02	5
Selenium	**0.0011**	**J**	0.0013	0.00071	mg/L		05/06/19 16:45	05/07/19 11:02	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		05/06/19 16:45	05/07/19 11:02	5
Iron	**5.5**		0.13	0.053	mg/L		05/06/19 16:45	05/07/19 11:02	5
Manganese	**1.2**		0.013	0.0054	mg/L		05/06/19 16:45	05/07/19 11:02	5

Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**150**		10	5.0	mg/L		05/06/19 16:45	05/07/19 15:52	200
Potassium	**690**		10	4.4	mg/L		05/06/19 16:45	05/07/19 15:52	200
Sodium	**3600**		10	6.7	mg/L		05/06/19 16:45	05/07/19 15:52	200

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		05/06/19 09:46	05/07/19 12:44	1

Client Sample ID: AES-MW4-DUP-042419

Date Collected: 04/24/19 10:42
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-6
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	900		1.0	0.98	mg/L			04/30/19 13:30	1
Bicarbonate Alkalinity as CaCO3	900		1.0	0.98	mg/L			04/30/19 13:30	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 13:30	1
Total Dissolved Solids	11000		250	170	mg/L			04/30/19 13:01	1
Chloride	3600		160	110	mg/L			05/07/19 13:33	80
Fluoride	0.96		0.10	0.032	mg/L			05/01/19 11:20	1
Sulfate	3200		500	140	mg/L			05/06/19 12:55	100

Client Sample ID: AES-MW5-042419

Date Collected: 04/24/19 12:37
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-7
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		05/06/19 16:45	05/07/19 11:06	5
Arsenic	0.0084		0.0013	0.00046	mg/L		05/06/19 16:45	05/07/19 11:06	5
Barium	0.032		0.0025	0.00049	mg/L		05/06/19 16:45	05/07/19 11:06	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 11:06	5
Boron	0.38		0.050	0.021	mg/L		05/06/19 16:45	05/07/19 11:06	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 11:06	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		05/06/19 16:45	05/07/19 11:06	5
Cobalt	0.0030		0.0025	0.00040	mg/L		05/06/19 16:45	05/07/19 11:06	5
Lead	0.00035	U	0.0013	0.00035	mg/L		05/06/19 16:45	05/07/19 11:06	5
Lithium	0.0031	J	0.0050	0.0011	mg/L		05/06/19 16:45	05/07/19 11:06	5
Molybdenum	0.0036	J	0.015	0.0020	mg/L		05/06/19 16:45	05/07/19 11:06	5
Potassium	6.6		0.25	0.11	mg/L		05/06/19 16:45	05/07/19 11:06	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		05/06/19 16:45	05/07/19 11:06	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		05/06/19 16:45	05/07/19 11:06	5
Iron	9.2		0.13	0.053	mg/L		05/06/19 16:45	05/07/19 11:06	5
Manganese	11		0.013	0.0054	mg/L		05/06/19 16:45	05/07/19 11:06	5

Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	680		5.0	2.5	mg/L		05/06/19 16:45	05/07/19 15:56	100
Magnesium	380		2.5	0.64	mg/L		05/06/19 16:45	05/07/19 15:56	100
Sodium	2200		5.0	3.4	mg/L		05/06/19 16:45	05/07/19 15:56	100

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		05/06/19 09:46	05/07/19 12:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	490		1.0	0.98	mg/L			04/30/19 13:38	1
Bicarbonate Alkalinity as CaCO3	490		1.0	0.98	mg/L			04/30/19 13:38	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 13:38	1
Total Dissolved Solids	9300		130	85	mg/L			04/30/19 13:01	1
Chloride	3700		160	110	mg/L			05/07/19 13:33	80
Fluoride	0.43		0.10	0.032	mg/L			05/01/19 11:23	1
Sulfate	2300		500	140	mg/L			05/06/19 12:55	100

Client Sample ID: AES-MW5-042419

Lab Sample ID: 400-169314-7
Matrix: Water
Date Collected: 04/24/19 12:37
Date Received: 04/25/19 09:08

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.77				SU			04/24/19 10:37	1

Client Sample ID: AES-FB-042419

Lab Sample ID: 400-169314-8
Matrix: Water
Date Collected: 04/24/19 12:56
Date Received: 04/25/19 09:08

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		05/06/19 16:45	05/07/19 10:30	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		05/06/19 16:45	05/07/19 10:30	5
Barium	0.00049	U	0.0025	0.00049	mg/L		05/06/19 16:45	05/07/19 10:30	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:30	5
Boron	0.021	U	0.050	0.021	mg/L		05/06/19 16:45	05/07/19 10:30	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 10:30	5
Calcium	0.13	U	0.25	0.13	mg/L		05/06/19 16:45	05/07/19 10:30	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		05/06/19 16:45	05/07/19 10:30	5
Cobalt	0.00040	U	0.0025	0.00040	mg/L		05/06/19 16:45	05/07/19 10:30	5
Lead	0.00035	U	0.0013	0.00035	mg/L		05/06/19 16:45	05/07/19 10:30	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		05/06/19 16:45	05/07/19 10:30	5
Magnesium	0.032	U	0.13	0.032	mg/L		05/06/19 16:45	05/07/19 10:30	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		05/06/19 16:45	05/07/19 10:30	5
Potassium	0.11	U	0.25	0.11	mg/L		05/06/19 16:45	05/07/19 10:30	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		05/06/19 16:45	05/07/19 10:30	5
Sodium	0.17	U	0.25	0.17	mg/L		05/06/19 16:45	05/07/19 10:30	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		05/06/19 16:45	05/07/19 10:30	5
Iron	0.053	U	0.13	0.053	mg/L		05/06/19 16:45	05/07/19 10:30	5
Manganese	0.0054	U	0.013	0.0054	mg/L		05/06/19 16:45	05/07/19 10:30	5

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		05/06/19 09:46	05/07/19 12:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	0.98	U	1.0	0.98	mg/L			04/30/19 13:49	1
Bicarbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 13:49	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 13:49	1
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			04/30/19 13:01	1
Chloride	1.4	U	2.0	1.4	mg/L			05/07/19 10:41	1
Fluoride	0.032	U	0.10	0.032	mg/L			05/01/19 11:31	1
Sulfate	1.4	U	5.0	1.4	mg/L			05/06/19 11:30	1

Default Detection Limits

Client: DNA-Environment, LLC
Job ID: 400-169314-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Prep: 3005A

Analyte	RL	MDL	Units
Antimony	0.0025	0.0010	mg/L
Arsenic	0.0013	0.00046	mg/L
Barium	0.0025	0.00049	mg/L
Beryllium	0.0025	0.00034	mg/L
Boron	0.050	0.021	mg/L
Cadmium	0.0025	0.00034	mg/L
Calcium	0.25	0.13	mg/L
Chromium	0.0025	0.0011	mg/L
Cobalt	0.0025	0.00040	mg/L
Iron	0.13	0.053	mg/L
Lead	0.0013	0.00035	mg/L
Lithium	0.0050	0.0011	mg/L
Magnesium	0.13	0.032	mg/L
Manganese	0.013	0.0054	mg/L
Molybdenum	0.015	0.0020	mg/L
Potassium	0.25	0.11	mg/L
Selenium	0.0013	0.00071	mg/L
Sodium	0.25	0.17	mg/L
Thallium	0.00050	0.000085	mg/L

Method: 7470A - Mercury (CVAA)

Prep: 7470A

Analyte	RL	MDL	Units
Mercury	0.00020	0.000070	mg/L

General Chemistry

Analyte	RL	MDL	Units
Alkalinity, Total	1.0	0.98	mg/L
Bicarbonate Alkalinity as CaCO3	1.0	0.98	mg/L
Carbonate Alkalinity as CaCO3	1.0	0.98	mg/L
Total Dissolved Solids	5.0	3.4	mg/L
Chloride	2.0	1.4	mg/L
Fluoride	0.10	0.032	mg/L
Sulfate	5.0	1.4	mg/L

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-439856/1-A ^5
Matrix: Water
Analysis Batch: 439959

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 439856

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0010	U	0.0025	0.0010	mg/L		05/06/19 16:45	05/07/19 09:23	5
Arsenic	0.00046	U	0.0013	0.00046	mg/L		05/06/19 16:45	05/07/19 09:23	5
Barium	0.00049	U	0.0025	0.00049	mg/L		05/06/19 16:45	05/07/19 09:23	5
Beryllium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 09:23	5
Boron	0.021	U	0.050	0.021	mg/L		05/06/19 16:45	05/07/19 09:23	5
Cadmium	0.00034	U	0.0025	0.00034	mg/L		05/06/19 16:45	05/07/19 09:23	5
Calcium	0.13	U	0.25	0.13	mg/L		05/06/19 16:45	05/07/19 09:23	5
Chromium	0.0011	U	0.0025	0.0011	mg/L		05/06/19 16:45	05/07/19 09:23	5
Cobalt	0.00040	U	0.0025	0.00040	mg/L		05/06/19 16:45	05/07/19 09:23	5
Lead	0.00035	U	0.0013	0.00035	mg/L		05/06/19 16:45	05/07/19 09:23	5
Lithium	0.0011	U	0.0050	0.0011	mg/L		05/06/19 16:45	05/07/19 09:23	5
Magnesium	0.032	U	0.13	0.032	mg/L		05/06/19 16:45	05/07/19 09:23	5
Molybdenum	0.0020	U	0.015	0.0020	mg/L		05/06/19 16:45	05/07/19 09:23	5
Potassium	0.11	U	0.25	0.11	mg/L		05/06/19 16:45	05/07/19 09:23	5
Selenium	0.00071	U	0.0013	0.00071	mg/L		05/06/19 16:45	05/07/19 09:23	5
Sodium	0.17	U	0.25	0.17	mg/L		05/06/19 16:45	05/07/19 09:23	5
Thallium	0.000085	U	0.00050	0.000085	mg/L		05/06/19 16:45	05/07/19 09:23	5
Iron	0.053	U	0.13	0.053	mg/L		05/06/19 16:45	05/07/19 09:23	5
Manganese	0.0054	U	0.013	0.0054	mg/L		05/06/19 16:45	05/07/19 09:23	5

Lab Sample ID: LCS 400-439856/2-A
Matrix: Water
Analysis Batch: 439959

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 439856

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0469		mg/L		94	80 - 120
Arsenic	0.0500	0.0479		mg/L		96	80 - 120
Barium	0.0500	0.0469		mg/L		94	80 - 120
Beryllium	0.0500	0.0464		mg/L		93	80 - 120
Boron	0.100	0.0973		mg/L		97	80 - 120
Cadmium	0.0500	0.0501		mg/L		100	80 - 120
Calcium	5.00	4.77		mg/L		95	80 - 120
Chromium	0.0500	0.0478		mg/L		96	80 - 120
Cobalt	0.0500	0.0487		mg/L		97	80 - 120
Lead	0.0500	0.0495		mg/L		99	80 - 120
Lithium	0.0500	0.0493		mg/L		99	80 - 120
Magnesium	5.00	4.86		mg/L		97	80 - 120
Molybdenum	0.0500	0.0492		mg/L		98	80 - 120
Potassium	5.00	4.79		mg/L		96	80 - 120
Selenium	0.0500	0.0487		mg/L		97	80 - 120
Sodium	5.00	4.86		mg/L		97	80 - 120
Thallium	0.0100	0.00989		mg/L		99	80 - 120
Iron	5.00	4.87		mg/L		97	80 - 120
Manganese	0.500	0.492		mg/L		98	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-169314-2 MS
Matrix: Water
Analysis Batch: 439959

Client Sample ID: AES-MW2-042319
Prep Type: Total Recoverable
Prep Batch: 439856

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0010	U	0.0500	0.0495		mg/L		99	75 - 125
Arsenic	0.00046	U	0.0500	0.0488		mg/L		98	75 - 125
Barium	0.13		0.0500	0.182		mg/L		100	75 - 125
Beryllium	0.00034	U	0.0500	0.0473		mg/L		95	75 - 125
Boron	0.14		0.100	0.242		mg/L		97	75 - 125
Cadmium	0.00034	U	0.0500	0.0513		mg/L		103	75 - 125
Calcium	110		5.00	118	E 4	mg/L		116	75 - 125
Chromium	0.0011	U	0.0500	0.0470		mg/L		94	75 - 125
Cobalt	0.00040	U	0.0500	0.0484		mg/L		97	75 - 125
Lead	0.00035	U	0.0500	0.0494		mg/L		99	75 - 125
Lithium	0.0011	U	0.0500	0.0527		mg/L		105	75 - 125
Magnesium	51		5.00	55.9	4	mg/L		100	75 - 125
Molybdenum	0.0020	U	0.0500	0.0524		mg/L		105	75 - 125
Potassium	0.64		5.00	5.62		mg/L		100	75 - 125
Selenium	0.00071	U	0.0500	0.0512		mg/L		102	75 - 125
Sodium	75		5.00	80.8	4	mg/L		122	75 - 125
Thallium	0.000085	U	0.0100	0.00990		mg/L		99	75 - 125
Iron	0.053	U	5.00	4.88		mg/L		98	75 - 125
Manganese	0.84		0.500	1.34		mg/L		101	75 - 125

Lab Sample ID: 400-169314-2 MSD
Matrix: Water
Analysis Batch: 439959

Client Sample ID: AES-MW2-042319
Prep Type: Total Recoverable
Prep Batch: 439856

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	0.0010	U	0.0500	0.0513		mg/L		103	75 - 125	4	20
Arsenic	0.00046	U	0.0500	0.0518		mg/L		104	75 - 125	6	20
Barium	0.13		0.0500	0.189		mg/L		113	75 - 125	4	20
Beryllium	0.00034	U	0.0500	0.0483		mg/L		97	75 - 125	2	20
Boron	0.14		0.100	0.242		mg/L		97	75 - 125	0	20
Cadmium	0.00034	U	0.0500	0.0533		mg/L		107	75 - 125	4	20
Calcium	110		5.00	122	E 4	mg/L		199	75 - 125	3	20
Chromium	0.0011	U	0.0500	0.0496		mg/L		99	75 - 125	5	20
Cobalt	0.00040	U	0.0500	0.0512		mg/L		102	75 - 125	6	20
Lead	0.00035	U	0.0500	0.0503		mg/L		101	75 - 125	2	20
Lithium	0.0011	U	0.0500	0.0521		mg/L		104	75 - 125	1	20
Magnesium	51		5.00	58.0	4	mg/L		142	75 - 125	4	20
Molybdenum	0.0020	U	0.0500	0.0558		mg/L		112	75 - 125	6	20
Potassium	0.64		5.00	5.85		mg/L		104	75 - 125	4	20
Selenium	0.00071	U	0.0500	0.0438		mg/L		88	75 - 125	16	20
Sodium	75		5.00	82.4	4	mg/L		154	75 - 125	2	20
Thallium	0.000085	U	0.0100	0.0101		mg/L		101	75 - 125	2	20
Iron	0.053	U	5.00	4.24		mg/L		85	75 - 125	14	20
Manganese	0.84		0.500	1.39		mg/L		110	75 - 125	4	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 400-439749/14-A
Matrix: Water
Analysis Batch: 439973

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439749

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000070	U	0.00020	0.000070	mg/L		05/06/19 09:46	05/07/19 12:19	1

Lab Sample ID: LCS 400-439749/15-A
Matrix: Water
Analysis Batch: 439973

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439749

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.00111		mg/L		110	80 - 120

Lab Sample ID: 400-169314-2 MS
Matrix: Water
Analysis Batch: 439973

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA
Prep Batch: 439749

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.000070	U	0.00201	0.00189		mg/L		94	80 - 120

Lab Sample ID: 400-169314-2 MSD
Matrix: Water
Analysis Batch: 439973

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA
Prep Batch: 439749

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.000070	U	0.00201	0.00186		mg/L		92	80 - 120	2	20

Lab Sample ID: LRC 400-439749/10-A
Matrix: Water
Analysis Batch: 439973

Client Sample ID: Lab Control Sample
Prep Batch: 439749

Analyte	Spike Added	LRC Result	LRC Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	10.1	9.96		ug/L		99	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 400-439069/4
Matrix: Water
Analysis Batch: 439069

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	0.98	U	1.0	0.98	mg/L			04/30/19 11:16	1
Bicarbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 11:16	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			04/30/19 11:16	1

Lab Sample ID: LCS 400-439069/5
Matrix: Water
Analysis Batch: 439069

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	100	101		mg/L		101	80 - 120

QC Sample Results

Client: DNA-Environment, LLC
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Job ID: 400-169314-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: 400-169314-2 DU
Matrix: Water
Analysis Batch: 439069

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity, Total	600		604		mg/L		0.2	20
Bicarbonate Alkalinity as CaCO3	600		604		mg/L		0.2	20
Carbonate Alkalinity as CaCO3	0.98	U	0.98	U	mg/L		NC	20

Lab Sample ID: 400-169314-5 DU
Matrix: Water
Analysis Batch: 439069

Client Sample ID: AES-MW4-042419
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity, Total	940		943		mg/L		0.3	20
Bicarbonate Alkalinity as CaCO3	940		943		mg/L		0.3	20
Carbonate Alkalinity as CaCO3	0.98	U	0.98	U	mg/L		NC	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 400-438846/1
Matrix: Water
Analysis Batch: 438846

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			04/29/19 10:36	1

Lab Sample ID: LCS 400-438846/2
Matrix: Water
Analysis Batch: 438846

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	262		mg/L		89	78 - 122

Lab Sample ID: MB 400-439058/1
Matrix: Water
Analysis Batch: 439058

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			04/30/19 13:01	1

Lab Sample ID: LCS 400-439058/2
Matrix: Water
Analysis Batch: 439058

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	240		mg/L		82	78 - 122

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QC Sample Results

Client: DNA-Environment, LLC
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Job ID: 400-169314-1

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 400-439825/6
Matrix: Water
Analysis Batch: 439825

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.4	U	2.0	1.4	mg/L			05/06/19 13:33	1

Lab Sample ID: LCS 400-439825/7
Matrix: Water
Analysis Batch: 439825

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	30.0	31.2		mg/L		104	90 - 110

Lab Sample ID: MRL 400-439825/3
Matrix: Water
Analysis Batch: 439825

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.00	1.38	J	mg/L		69	50 - 150

Lab Sample ID: 400-169314-2 MS
Matrix: Water
Analysis Batch: 439825

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	72		10.0	77.5	4	mg/L		56	73 - 120

Lab Sample ID: 400-169314-2 MSD
Matrix: Water
Analysis Batch: 439825

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	72		10.0	78.5	4	mg/L		66	73 - 120	1	8

Lab Sample ID: MB 400-439988/6
Matrix: Water
Analysis Batch: 439988

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.4	U	2.0	1.4	mg/L			05/07/19 10:38	1

ESTADO LIBRE ASOCIADO DE PUERTO RICO
Dalia M. Estades Santaliz
LIC 4026
QUIMICO LICENCIADO

Lab Sample ID: LCS 400-439988/7
Matrix: Water
Analysis Batch: 439988

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	30.0	31.2		mg/L		104	90 - 110

Lab Sample ID: MRL 400-439988/3
Matrix: Water
Analysis Batch: 439988

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.00	1.57	J	mg/L		79	50 - 150

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 400-439193/3
Matrix: Water
Analysis Batch: 439193

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.032	U	0.10	0.032	mg/L			05/01/19 10:52	1

Lab Sample ID: LCS 400-439193/4
Matrix: Water
Analysis Batch: 439193

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	4.00	3.68		mg/L		92	90 - 110

Lab Sample ID: 400-169314-2 MS
Matrix: Water
Analysis Batch: 439193

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.68		1.00	1.68		mg/L		100	75 - 125

Lab Sample ID: 400-169314-2 MSD
Matrix: Water
Analysis Batch: 439193

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.68		1.00	1.68		mg/L		100	75 - 125	0	4

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 400-439767/6
Matrix: Water
Analysis Batch: 439767

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.4	U	5.0	1.4	mg/L			05/06/19 09:01	1

Lab Sample ID: LCS 400-439767/7
Matrix: Water
Analysis Batch: 439767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	15.0	14.3		mg/L		95	90 - 110

Lab Sample ID: MRL 400-439767/3
Matrix: Water
Analysis Batch: 439767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	4.46	J	mg/L		89	50 - 150

Method: SM 4500 SO4 E - Sulfate, Total (Continued)

Lab Sample ID: 400-169314-2 MS
Matrix: Water
Analysis Batch: 439767

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	6.6		10.0	16.8		mg/L		102	77 - 128

Lab Sample ID: 400-169314-2 MSD
Matrix: Water
Analysis Batch: 439767

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	6.6		10.0	16.4		mg/L		98	77 - 128	2	5

Lab Sample ID: MB 400-439789/6
Matrix: Water
Analysis Batch: 439789

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.4	U	5.0	1.4	mg/L			05/06/19 10:59	1

Lab Sample ID: LCS 400-439789/7
Matrix: Water
Analysis Batch: 439789

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	15.0	14.3		mg/L		95	90 - 110

Lab Sample ID: MRL 400-439789/3
Matrix: Water
Analysis Batch: 439789

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	4.56	J	mg/L		91	50 - 150



Metals

Prep Batch: 439749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total/NA	Water	7470A	
400-169314-2	AES-MW2-042319	Total/NA	Water	7470A	
400-169314-3	AES-MW3-042319	Total/NA	Water	7470A	
400-169314-4	AES-FB-042319	Total/NA	Water	7470A	
400-169314-5	AES-MW4-042419	Total/NA	Water	7470A	
400-169314-6	AES-MW4-DUP-042419	Total/NA	Water	7470A	
400-169314-7	AES-MW5-042419	Total/NA	Water	7470A	
400-169314-8	AES-FB-042419	Total/NA	Water	7470A	
MB 400-439749/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-439749/15-A	Lab Control Sample	Total/NA	Water	7470A	
LRC 400-439749/10-A	Lab Control Sample		Water	7470A	
400-169314-2 MS	AES-MW2-042319	Total/NA	Water	7470A	
400-169314-2 MSD	AES-MW2-042319	Total/NA	Water	7470A	

Prep Batch: 439856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total Recoverable	Water	3005A	
400-169314-1 - DL	AES-MW1-042319	Total Recoverable	Water	3005A	
400-169314-2	AES-MW2-042319	Total Recoverable	Water	3005A	
400-169314-3 - DL	AES-MW3-042319	Total Recoverable	Water	3005A	
400-169314-3	AES-MW3-042319	Total Recoverable	Water	3005A	
400-169314-4 - RA	AES-FB-042319	Total Recoverable	Water	3005A	
400-169314-4	AES-FB-042319	Total Recoverable	Water	3005A	
400-169314-5	AES-MW4-042419	Total Recoverable	Water	3005A	
400-169314-5 - DL	AES-MW4-042419	Total Recoverable	Water	3005A	
400-169314-6 - DL	AES-MW4-DUP-042419	Total Recoverable	Water	3005A	
400-169314-6	AES-MW4-DUP-042419	Total Recoverable	Water	3005A	
400-169314-7 - DL	AES-MW5-042419	Total Recoverable	Water	3005A	
400-169314-7	AES-MW5-042419	Total Recoverable	Water	3005A	
400-169314-8	AES-FB-042419	Total Recoverable	Water	3005A	
MB 400-439856/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-439856/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-169314-2 MS	AES-MW2-042319	Total Recoverable	Water	3005A	
400-169314-2 MSD	AES-MW2-042319	Total Recoverable	Water	3005A	

Analysis Batch: 439959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total Recoverable	Water	6020	439856
400-169314-2	AES-MW2-042319	Total Recoverable	Water	6020	439856
400-169314-3	AES-MW3-042319	Total Recoverable	Water	6020	439856
400-169314-4	AES-FB-042319	Total Recoverable	Water	6020	439856
400-169314-5	AES-MW4-042419	Total Recoverable	Water	6020	439856
400-169314-6	AES-MW4-DUP-042419	Total Recoverable	Water	6020	439856
400-169314-7	AES-MW5-042419	Total Recoverable	Water	6020	439856
400-169314-8	AES-FB-042419	Total Recoverable	Water	6020	439856
MB 400-439856/1-A ^5	Method Blank	Total Recoverable	Water	6020	439856
LCS 400-439856/2-A	Lab Control Sample	Total Recoverable	Water	6020	439856
400-169314-2 MS	AES-MW2-042319	Total Recoverable	Water	6020	439856
400-169314-2 MSD	AES-MW2-042319	Total Recoverable	Water	6020	439856

Metals

Analysis Batch: 439973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total/NA	Water	7470A	439749
400-169314-2	AES-MW2-042319	Total/NA	Water	7470A	439749
400-169314-3	AES-MW3-042319	Total/NA	Water	7470A	439749
400-169314-4	AES-FB-042319	Total/NA	Water	7470A	439749
400-169314-5	AES-MW4-042419	Total/NA	Water	7470A	439749
400-169314-6	AES-MW4-DUP-042419	Total/NA	Water	7470A	439749
400-169314-7	AES-MW5-042419	Total/NA	Water	7470A	439749
400-169314-8	AES-FB-042419	Total/NA	Water	7470A	439749
MB 400-439749/14-A	Method Blank	Total/NA	Water	7470A	439749
LCS 400-439749/15-A	Lab Control Sample	Total/NA	Water	7470A	439749
LRC 400-439749/10-A	Lab Control Sample		Water	7470A	439749
400-169314-2 MS	AES-MW2-042319	Total/NA	Water	7470A	439749
400-169314-2 MSD	AES-MW2-042319	Total/NA	Water	7470A	439749

Analysis Batch: 440308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1 - DL	AES-MW1-042319	Total Recoverable	Water	6020	439856
400-169314-3 - DL	AES-MW3-042319	Total Recoverable	Water	6020	439856
400-169314-4 - RA	AES-FB-042319	Total Recoverable	Water	6020	439856
400-169314-5 - DL	AES-MW4-042419	Total Recoverable	Water	6020	439856
400-169314-6 - DL	AES-MW4-DUP-042419	Total Recoverable	Water	6020	439856
400-169314-7 - DL	AES-MW5-042419	Total Recoverable	Water	6020	439856

General Chemistry

Analysis Batch: 438846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-2	AES-MW2-042319	Total/NA	Water	SM 2540C	
MB 400-438846/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-438846/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 439058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total/NA	Water	SM 2540C	
400-169314-3	AES-MW3-042319	Total/NA	Water	SM 2540C	
400-169314-4	AES-FB-042319	Total/NA	Water	SM 2540C	
400-169314-5	AES-MW4-042419	Total/NA	Water	SM 2540C	
400-169314-6	AES-MW4-DUP-042419	Total/NA	Water	SM 2540C	
400-169314-7	AES-MW5-042419	Total/NA	Water	SM 2540C	
400-169314-8	AES-FB-042419	Total/NA	Water	SM 2540C	
MB 400-439058/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-439058/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 439069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total/NA	Water	SM 2320B	
400-169314-2	AES-MW2-042319	Total/NA	Water	SM 2320B	
400-169314-3	AES-MW3-042319	Total/NA	Water	SM 2320B	
400-169314-4	AES-FB-042319	Total/NA	Water	SM 2320B	
400-169314-5	AES-MW4-042419	Total/NA	Water	SM 2320B	
400-169314-6	AES-MW4-DUP-042419	Total/NA	Water	SM 2320B	

General Chemistry (Continued)

Analysis Batch: 439069 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-7	AES-MW5-042419	Total/NA	Water	SM 2320B	
400-169314-8	AES-FB-042419	Total/NA	Water	SM 2320B	
MB 400-439069/4	Method Blank	Total/NA	Water	SM 2320B	
LCS 400-439069/5	Lab Control Sample	Total/NA	Water	SM 2320B	
400-169314-2 DU	AES-MW2-042319	Total/NA	Water	SM 2320B	
400-169314-5 DU	AES-MW4-042419	Total/NA	Water	SM 2320B	

Analysis Batch: 439193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total/NA	Water	SM 4500 F C	
400-169314-2	AES-MW2-042319	Total/NA	Water	SM 4500 F C	
400-169314-3	AES-MW3-042319	Total/NA	Water	SM 4500 F C	
400-169314-4	AES-FB-042319	Total/NA	Water	SM 4500 F C	
400-169314-5	AES-MW4-042419	Total/NA	Water	SM 4500 F C	
400-169314-6	AES-MW4-DUP-042419	Total/NA	Water	SM 4500 F C	
400-169314-7	AES-MW5-042419	Total/NA	Water	SM 4500 F C	
400-169314-8	AES-FB-042419	Total/NA	Water	SM 4500 F C	
MB 400-439193/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-439193/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
400-169314-2 MS	AES-MW2-042319	Total/NA	Water	SM 4500 F C	
400-169314-2 MSD	AES-MW2-042319	Total/NA	Water	SM 4500 F C	

Analysis Batch: 439767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total/NA	Water	SM 4500 SO4 E	
400-169314-2	AES-MW2-042319	Total/NA	Water	SM 4500 SO4 E	
400-169314-3	AES-MW3-042319	Total/NA	Water	SM 4500 SO4 E	
400-169314-4	AES-FB-042319	Total/NA	Water	SM 4500 SO4 E	
MB 400-439767/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-439767/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-439767/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
400-169314-2 MS	AES-MW2-042319	Total/NA	Water	SM 4500 SO4 E	
400-169314-2 MSD	AES-MW2-042319	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 439789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-5	AES-MW4-042419	Total/NA	Water	SM 4500 SO4 E	
400-169314-6	AES-MW4-DUP-042419	Total/NA	Water	SM 4500 SO4 E	
400-169314-7	AES-MW5-042419	Total/NA	Water	SM 4500 SO4 E	
400-169314-8	AES-FB-042419	Total/NA	Water	SM 4500 SO4 E	
MB 400-439789/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-439789/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-439789/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 439825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total/NA	Water	SM 4500 Cl- E	
400-169314-2	AES-MW2-042319	Total/NA	Water	SM 4500 Cl- E	
400-169314-3	AES-MW3-042319	Total/NA	Water	SM 4500 Cl- E	
400-169314-4	AES-FB-042319	Total/NA	Water	SM 4500 Cl- E	
MB 400-439825/6	Method Blank	Total/NA	Water	SM 4500 Cl- E	

General Chemistry (Continued)

Analysis Batch: 439825 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-439825/7	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
MRL 400-439825/3	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
400-169314-2 MS	AES-MW2-042319	Total/NA	Water	SM 4500 Cl- E	
400-169314-2 MSD	AES-MW2-042319	Total/NA	Water	SM 4500 Cl- E	

Analysis Batch: 439988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-5	AES-MW4-042419	Total/NA	Water	SM 4500 Cl- E	
400-169314-6	AES-MW4-DUP-042419	Total/NA	Water	SM 4500 Cl- E	
400-169314-7	AES-MW5-042419	Total/NA	Water	SM 4500 Cl- E	
400-169314-8	AES-FB-042419	Total/NA	Water	SM 4500 Cl- E	
MB 400-439988/6	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 400-439988/7	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
MRL 400-439988/3	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	

Field Service / Mobile Lab

Analysis Batch: 440855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total/NA	Water	Field Sampling	
400-169314-2	AES-MW2-042319	Total/NA	Water	Field Sampling	
400-169314-3	AES-MW3-042319	Total/NA	Water	Field Sampling	
400-169314-5	AES-MW4-042419	Total/NA	Water	Field Sampling	
400-169314-7	AES-MW5-042419	Total/NA	Water	Field Sampling	

Client Sample ID: AES-MW1-042319
Lab Sample ID: 400-169314-1
Date Collected: 04/23/19 10:10
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	439959	05/07/19 10:07	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	440308	05/07/19 15:36	DRE	TAL PEN
Total/NA	Prep	7470A			439749	05/06/19 09:46	JAP	TAL PEN
Total/NA	Analysis	7470A		1	439973	05/07/19 12:23	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	439069	04/30/19 12:37	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	439058	04/30/19 13:01	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		20	439825	05/06/19 14:23	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	439193	05/01/19 11:12	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		5	439767	05/06/19 09:53	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	440855	04/23/19 08:10	JVB	TAL PEN

Client Sample ID: AES-MW2-042319
Lab Sample ID: 400-169314-2
Date Collected: 04/23/19 11:55
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	439959	05/07/19 10:11	DRE	TAL PEN
Total/NA	Prep	7470A			439749	05/06/19 09:46	JAP	TAL PEN
Total/NA	Analysis	7470A		1	439973	05/07/19 12:24	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	439069	04/30/19 11:41	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	438846	04/29/19 10:36	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		2	439825	05/06/19 14:20	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	439193	05/01/19 11:06	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	439767	05/06/19 09:07	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	440855	04/23/19 09:55	JVB	TAL PEN

Client Sample ID: AES-MW3-042319
Lab Sample ID: 400-169314-3
Date Collected: 04/23/19 15:10
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	439959	05/07/19 10:50	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	100	440308	05/07/19 15:40	DRE	TAL PEN
Total/NA	Prep	7470A			439749	05/06/19 09:46	JAP	TAL PEN
Total/NA	Analysis	7470A		1	439973	05/07/19 12:32	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	439069	04/30/19 12:45	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	439058	04/30/19 13:01	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		100	439825	05/06/19 14:49	RRC	TAL PEN

Lab Chronicle

Client: DNA-Environment, LLC
Job ID: 400-169314-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW3-042319
Lab Sample ID: 400-169314-3
Date Collected: 04/23/19 15:10
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 F C		1	439193	05/01/19 11:15	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		100	439767	05/06/19 10:20	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	440855	04/23/19 13:10	JVB	TAL PEN

Client Sample ID: AES-FB-042319
Lab Sample ID: 400-169314-4
Date Collected: 04/23/19 15:32
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	439959	05/07/19 10:54	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020	RA	5	440308	05/07/19 15:44	DRE	TAL PEN
Total/NA	Prep	7470A			439749	05/06/19 09:46	JAP	TAL PEN
Total/NA	Analysis	7470A		1	439973	05/07/19 12:34	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	439069	04/30/19 13:44	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	439058	04/30/19 13:01	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		1	439825	05/06/19 13:43	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	439193	05/01/19 11:27	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	439767	05/06/19 09:12	RRC	TAL PEN

Client Sample ID: AES-MW4-042419
Lab Sample ID: 400-169314-5
Date Collected: 04/24/19 10:25
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	439959	05/07/19 10:58	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	200	440308	05/07/19 15:48	DRE	TAL PEN
Total/NA	Prep	7470A			439749	05/06/19 09:46	JAP	TAL PEN
Total/NA	Analysis	7470A		1	439973	05/07/19 12:36	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	439069	04/30/19 13:06	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	439058	04/30/19 13:01	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		80	439988	05/07/19 13:33	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	439193	05/01/19 11:17	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		100	439789	05/06/19 12:55	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	440855	04/24/19 08:25	JVB	TAL PEN

Client Sample ID: AES-MW4-DUP-042419
Lab Sample ID: 400-169314-6

Date Collected: 04/24/19 10:42
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	439959	05/07/19 11:02	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	200	440308	05/07/19 15:52	DRE	TAL PEN
Total/NA	Prep	7470A			439749	05/06/19 09:46	JAP	TAL PEN
Total/NA	Analysis	7470A		1	439973	05/07/19 12:44	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	439069	04/30/19 13:30	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	439058	04/30/19 13:01	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		80	439988	05/07/19 13:33	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	439193	05/01/19 11:20	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		100	439789	05/06/19 12:55	RRC	TAL PEN

Client Sample ID: AES-MW5-042419
Lab Sample ID: 400-169314-7

Date Collected: 04/24/19 12:37
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	439959	05/07/19 11:06	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	100	440308	05/07/19 15:56	DRE	TAL PEN
Total/NA	Prep	7470A			439749	05/06/19 09:46	JAP	TAL PEN
Total/NA	Analysis	7470A		1	439973	05/07/19 12:46	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	439069	04/30/19 13:38	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	439058	04/30/19 13:01	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		80	439988	05/07/19 13:33	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	439193	05/01/19 11:23	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		100	439789	05/06/19 12:55	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	440855	04/24/19 10:37	JVB	TAL PEN

Client Sample ID: AES-FB-042419
Lab Sample ID: 400-169314-8

Date Collected: 04/24/19 12:56
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			439856	05/06/19 16:45	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	439959	05/07/19 10:30	DRE	TAL PEN
Total/NA	Prep	7470A			439749	05/06/19 09:46	JAP	TAL PEN
Total/NA	Analysis	7470A		1	439973	05/07/19 12:48	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	439069	04/30/19 13:49	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	439058	04/30/19 13:01	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		1	439988	05/07/19 10:41	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	439193	05/01/19 11:31	BAB	TAL PEN

Lab Chronicle

Client: DNA-Environment, LLC
Job ID: 400-169314-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-FB-042419
Lab Sample ID: 400-169314-8

Date Collected: 04/24/19 12:56
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		1	439789	05/06/19 11:30	RRC	TAL PEN

Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: DNA-Environment, LLC
Job ID: 400-169314-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Laboratory: Eurofins TestAmerica, Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Florida	NELAP	4	E81010	06-30-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Field Sampling		Water	Field pH
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3

Method Summary

Client: DNA-Environment, LLC
Job ID: 400-169314-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL PEN
7470A	Mercury (CVAA)	SW846	TAL PEN
SM 2320B	Alkalinity	SM	TAL PEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PEN
SM 4500 Cl- E	Chloride, Total	SM	TAL PEN
SM 4500 F C	Fluoride	SM	TAL PEN
SM 4500 SO4 E	Sulfate, Total	SM	TAL PEN
Field Sampling	Field Sampling	EPA	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN
7470A	Preparation, Mercury	SW846	TAL PEN

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Sample Summary

Client: DNA-Environment, LLC
Job ID: 400-169314-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-169314-1	AES-MW1-042319	Water	04/23/19 10:10	04/25/19 09:08
400-169314-2	AES-MW2-042319	Water	04/23/19 11:55	04/25/19 09:08
400-169314-3	AES-MW3-042319	Water	04/23/19 15:10	04/25/19 09:08
400-169314-4	AES-FB-042319	Water	04/23/19 15:32	04/25/19 09:08
400-169314-5	AES-MW4-042419	Water	04/24/19 10:25	04/25/19 09:08
400-169314-6	AES-MW4-DUP-042419	Water	04/24/19 10:42	04/25/19 09:08
400-169314-7	AES-MW5-042419	Water	04/24/19 12:37	04/25/19 09:08
400-169314-8	AES-FB-042419	Water	04/24/19 12:56	04/25/19 09:08

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
ALK-CCV-W_00067	05/15/19	02/15/19	REAGENT WATER, Lot NA	1000 mL	ALK-CCV-S_00042	100 mL	Alkalinity, Total	100 mg/L
							Bicarbonate Alkalinity as CaCO3	106 mg/L
							Carbonate Alkalinity as CaCO3	106 mg/L
.ALK-CCV-S_00042	05/15/19	11/15/18	REAGENT WATER, Lot NA	1000 mL	Sodium_Carbon_00005	1.06 g	Alkalinity, Total	1000 mg/L
							Bicarbonate Alkalinity as CaCO3	1060 mg/L
							Carbonate Alkalinity as CaCO3	1060 mg/L
..Sodium_Carbon_00005	10/31/22	Fisher, Lot 174819			(Purchased Reagent)		Alkalinity, Total	943396 mg/L
							Bicarbonate Alkalinity as CaCO3	1000000 mg/L
							Carbonate Alkalinity as CaCO3	1000000 mg/L
ALK-ICV-W_00083	05/12/19	02/14/19	WATER, Lot N/A	1000 mL	ALK-ICV-S_00028	10 mL	Alkalinity, Total	100 mg/L
.ALK-ICV-S_00028	05/12/19	11/12/18	WATER, Lot N/A	1000 mL	Na2C03_00002	10.6 g	Alkalinity, Total	10000 mg/L
..Na2C03_00002	12/02/19	Alfa Aesar, Lot A16Z011			(Purchased Reagent)		Alkalinity, Total	943396 mg/L
CL-CCV-35ppm_00031	06/14/19	03/04/19	DI H2O, Lot NA	200 mL	CL-CCV-S_00017	7 mL	Chloride	35 ppm
.CL-CCV-S_00017	01/30/20	Aqua Solutions, Lot 8123126			(Purchased Reagent)		Chloride	1000 mg/L
							Chloride	1000 mg/L
CL-CCVL-2ppm_00028	05/31/19	03/04/19	DI H2O, Lot NA	250 mL	CL-CCV-S_00017	0.5 mL	Chloride	2 ppm
.CL-CCV-S_00017	01/30/20	Aqua Solutions, Lot 8123126			(Purchased Reagent)		Chloride	1000 mg/L
CL-ICV-W_00054	08/12/19	03/04/19	WATER, Lot NA	200 mL	CL-ICV-S_00015	6 mL	Chloride	30 mg/L
.CL-ICV-S_00015	08/30/19	Aqua Solutions, Lot 8081677			(Purchased Reagent)		Chloride	1000 mg/L
Conc. HCL_00399	05/05/22	J.T. Baker, Lot 1			(Purchased Reagent)		Hydrogen Chloride	36.46 mL
FL-CCV-S_00007	11/05/19	LabChem, Lot H299-20			(Purchased Reagent)		Fluoride	100 mg/L
FL-LCS-S_00013	01/30/20	RICCA, Lot 2901970			(Purchased Reagent)		Fluoride	100 mg/L
GTDS-LCS-W_00095	05/28/19	02/07/19	REAGENT GRADE WATER, Lot N/A	1000 mL	TDS-LCS-Stock_00009	5 mL	Total Dissolved Solids	293 mg/L
.TDS-LCS-Stock_00009	10/31/19	FISHER, Lot 051549 / 120731			(Purchased Reagent)		Total Dissolved Solids	58600 mg/L
Hg VER.STD_00006	07/30/19	SPEX CertiPrep, Lot CL11-15HGY			(Purchased Reagent)		Mercury	1 ug/mL
HG002B6-19_00137	05/09/19	04/25/19	DI WATER, Lot N/A	100 mL	Hg020116Cal_00007	40 uL	Mercury	0.4028 mg/L
					Nitric Acid_00057	2 mL	Nitric acid	2000 mg/L
.Hg020116Cal_00007	12/01/19	Inorganic Ventures, Lot N2-HG669550			(Purchased Reagent)		Mercury	1007 mg/L
.Nitric Acid_00057	06/19/23	Macron, Lot 0000203839			(Purchased Reagent)		Nitric acid	100 L
HN03_00369	05/03/23	Macron, Lot 0000216908			(Purchased Reagent)		Nitric acid	63.01 %
ICPMS_ RL_00039	05/21/19	12/07/18	2 % HNO3, Lot 200458	100 mL	RL_ICPMS_00012	0.5 mL	Antimony	50 ug/L
							Arsenic	25 ug/L
							Barium	50 ug/L
							Beryllium	25 ug/L
							Boron	500 ug/L
							Cadmium	25 ug/L
							Calcium	5000 ug/L
							Chromium	50 ug/L
							Cobalt	50 ug/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Iron	2500 ug/L
							Lead	25 ug/L
							Lithium	50 ug/L
							Magnesium	2500 ug/L
							Manganese	250 ug/L
							Molybdenum	50 ug/L
							Potassium	2500 ug/L
							Selenium	25 ug/L
							Sodium	5000 ug/L
							Thallium	10 ug/L
.RL_ICPMS_00012	05/21/19		CPI, Lot 1097708		(Purchased Reagent)		Antimony	10 ug/mL
							Arsenic	5 ug/mL
							Barium	10 ug/mL
							Beryllium	5 ug/mL
							Boron	100 ug/mL
							Cadmium	5 ug/mL
							Calcium	1000 ug/mL
							Chromium	10 ug/mL
							Cobalt	10 ug/mL
							Iron	500 ug/mL
							Lead	5 ug/mL
							Lithium	10 ug/mL
							Magnesium	500 ug/mL
							Manganese	50 ug/mL
							Molybdenum	10 ug/mL
							Potassium	500 ug/mL
							Selenium	5 ug/mL
							Sodium	1000 ug/mL
							Thallium	2 ug/mL
ICPMS_CALSTD_00020	08/23/19		CPI, Lot 10067385-2		(Purchased Reagent)		Ag	10 ug/mL
							Al	100 ug/mL
							Antimony	10 ug/mL
							Arsenic	10 ug/mL
							Barium	10 ug/mL
							Beryllium	10 ug/mL
							Boron	20 ug/mL
							Cadmium	10 ug/mL
							Calcium	1000 ug/mL
							Calcium hardness as calcium carbonate	2500 ug/mL
							Chromium	10 ug/mL
							Cobalt	10 ug/mL
							Cu	10 ug/mL
							Hardness as calcium carbonate	6600 ug/mL
							Iron	1000 ug/mL
							Lead	10 ug/mL
							Lithium	10 ug/mL
							Magnesium	1000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Magnesium hardness as calcium carbonate	4100 ug/mL
							Manganese	100 ug/mL
							Molybdenum	10 ug/mL
							Ni	10 ug/mL
							P	10 ug/mL
							Potassium	1000 ug/mL
							Selenium	10 ug/mL
							Si	10 ug/mL
							SiO2	21.4 ug/mL
							Sn	10 ug/mL
							Sodium	1000 ug/mL
							Sr	10 ug/mL
							Th	10 ug/mL
							Thallium	2 ug/mL
							Ti	10 ug/mL
							U-240	10 ug/mL
							V	10 ug/mL
							Zn	10 ug/mL
							Zr	100 ug/mL
ICPMS_ICV_S_00013	08/23/19		CPI, Lot 10084458-1		(Purchased Reagent)		Antimony	4 ug/mL
							Arsenic	4 ug/mL
							Barium	4 ug/mL
							Beryllium	4 ug/mL
							Boron	8 ug/mL
							Cadmium	4 ug/mL
							Calcium	400 ug/mL
							Chromium	4 ug/mL
							Cobalt	4 ug/mL
							Iron	400 ug/mL
							Lead	4 ug/mL
							Lithium	8 ug/mL
							Magnesium	400 ug/mL
							Manganese	40 ug/mL
							Molybdenum	4 ug/mL
							Potassium	400 ug/mL
							Selenium	4 ug/mL
							Sodium	400 ug/mL
							Thallium	0.8 ug/mL
ICPMS_INT_A_00013	05/31/19		HighPurityStandards, Lot 1734737		(Purchased Reagent)		Al	1000 mg/L
							Calcium	3000 mg/L
							Iron	2500 mg/L
							Magnesium	1000 mg/L
							Molybdenum	20 mg/L
							Potassium	1000 mg/L
							Sodium	2500 mg/L
							Ti	20 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
ICPMS_INT_B_00014	05/31/19	HighPurityStandards, Lot 1621112			(Purchased Reagent)		Ag	20 mg/L
							Arsenic	10 mg/L
							Cadmium	10 mg/L
							Chromium	20 mg/L
							Cobalt	20 mg/L
							Cu	20 mg/L
							Manganese	20 mg/L
							Ni	20 mg/L
							Selenium	10 mg/L
							V	20 mg/L
							Zn	10 mg/L
SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-CCV-W_00032	06/30/19	04/11/19	WATER, Lot NA	200 mL	SO4-CCV-C-S_00016	3 mL	Sulfate	15 mg/L
.SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-CCVL-W_00037	06/30/19	04/11/19	WATER, Lot NA	200 mL	SO4-CCV-C-S_00016	1 mL	Sulfate	5 mg/L
.SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-ICV-W_00062	06/30/19	04/11/19	DI WATER, Lot NA	200 mL	SO4-Cal-Stock_00013	3 mL	Sulfate	15 mg/L
.SO4-Cal-Stock_00013	03/31/20	Ricca, Lot 2809B22			(Purchased Reagent)		Sulfate	1000 mg/L

Reagent

FL-CCV-S_00007

LabChem
performance through chemistry
Jackson's Pointe Commerce Park - Building 1000
1010 Jackson's Pointe Court, Zelienople, PA 16063
Ph: 412-826-5230 | Fax: 724-473-0647 | www.labchem.com

CERTIFICATE OF ANALYSIS

Description: FLUORIDE STANDARD, 100ppm (1mL = 0.1mg F)

Catalog Number: LC14580
Lot Number: H299-20

Mfg Date: 11/05/2018
Expiration Date: 11/05/2019

ANALYTICAL SECTION

Test	Specification	Test Result
Appearance	clear, colorless solution	Pass Test
Concentration	100.0ppm +/- 0.5ppm	100.0ppm
Concentration	0.1000 +/- 0.0005 mg F/mL	0.1000 mg F/mL
Traceable to NIST	Potassium Fluoride	2203

Intended Use - Product is intended for use in manufacturing procedures and laboratory procedures and protocols.

Storage Information - Unless otherwise noted on the product label, store the product under normal lab conditions in its tightly closed, original container. Do not pipet directly from the container or return unused portions to the container.

Instructions for Handling and Use - Please refer to the associated product label and Safety Data Sheet (SDS) for information regarding safety and handling of this product.

Preparation - All products are manufactured and tested according to established, documented procedures and methodology. Production documentation records manufacturing data, raw material traceability and testing history on a per lot basis. Balances, thermometers, and glassware are calibrated before first use and on a regular schedule with references traceable to NIST standards.

Submitted By: Greg Albright, Chemist Supervisor

Greg Albright

An ISO9001:2008 certified company. Registration # 0306-01

11/14/2018 3:50:01 PM

Form #17.13 07/28/2016

Reagent

FL-LCS-S_00013

RICCA CHEMICAL COMPANY®

1841 Broad Street
Pocomoke City, MD 21851
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

Certificate of Analysis

Fluoride Standard, 100 ppm F^-

Lot Number: 2901970 **Product Number:** 3171

Manufacture Date: JAN 14, 2019
Expiration Date: JAN 2020

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.
The concentration is confirmed by Fluoride ISE and is certified traceable to NIST SRM 2203.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Fluoride	7681-49-4	High Purity

Test	Specification	Result
Appearance	Colorless liquid	Passed
Fluoride (F)	99.5-100.5 ppm	100.5 ppm

Specification	Reference
Stock Fluoride Solution	APHA (4500-F- C)
Stock Fluoride Solution	EPA (340.1)
Fluoride Standard Solution (100 mg/L F-)	EPA (SW-846) (9214)
Sodium Fluoride, Stock Solution, 1.0 mL = 0.1 mg F	EPA (340.2)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
3171-16	500 mL natural poly	12 months
3171-32	1 L natural poly	12 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Tara Jones

Tara Jones (01/14/2019)
Quality Control Supervisor
This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This test report shall not be reproduced, except in full, without the written approval of Ricca Chemical Company.

Reagent

Hg VER.STD_00006

ACCREDITED
Reference Materials Producer
Cert #2495.01

SPEXertificate®

Certificate of Reference Material

ilac-MRA ACCREDITED
Chemical Testing
Cert #2495.02

Catalog Number: CLHG6-1BY **Lot No.** CL11-15HGY

Description: 1 µg/mL Mercury

Matrix: 0.7% HNO_3 / 0.4% HCl

4484434
ID Hg VER STD 00006
Exp.07/30/19 Prpd.JAP Opn:02/04/19
Hg Reg Parent Verificatio

This **CLARITAS PPT®** Certified Reference Material, CRM, is intended primarily for use as a calibration standard or quality control standard for inorganic spectroscopic instrumentation such as ICP-OES, DCP, AA, ICP-MS, and XRF. It can be employed in USEPA, ASTM and other methods relevant to the certified properties listed below.

Certified Value: 0.984 µg/mL ±0.05 µg/mL

Certified Value is Traceable to: 3133*

* - indicates NIST SRM † - indicates SPEX CertiPrep CRM (when NIST SRM is not available)

The CRM is prepared gravimetrically using high purity Mercury Metal, Lot# 03141E. The certified value listed is the average of values obtained by classical wet assay and ICP spectrometer analysis.

Refer to side 2 for details of measurement uncertainties.

Classical Wet Assay: 1.00 µg/mL

Method: The classical wet assay value listed above was derived from dilution calculations of a Mercury concentrate. This concentrate was analyzed by titration with Ammonium Thiocyanate using Ferric Nitrate as indicator.

Instrumental Analysis by ICP Spectrometer: 0.969 µg/mL

Uncertified Properties

Density: 1.003 g/mL @ 20.0°C

Trace Metallic Impurities in the Actual Solution via ICP-MS Analysis:

Element	µg/L	Element	µg/L	Element	µg/L	Element	µg/L	Element	µg/L	Element	µg/L
Ag	<0.5	Cr	0.2	Ho	<0.01	Nb	<0.01	Ru	<0.07	Th	<0.01
Al	<0.4	Cs	<0.01	In	<0.01	Nd	0.04	Sb	<0.01	Ti	<0.05
As	<0.06	Cu	<0.04	Ir	<0.01	Ni	<0.01	Sc	<0.02	Tl	<0.05
Au	<0.01	Dy	<0.01	K	<20	P	<30	Se	<4	Tm	<0.01
B	<0.1	Er	<0.2	La	<0.01	Pb	0.02	Si	<30	U	<0.01
Ba	<0.01	Eu	<0.01	Li	<0.1	Pd	<0.01	Sm	<0.01	V	<0.02
Be	<0.05	Fe	0.6	Lu	<0.01	Pr	<0.01	Sn	<0.02	W	<0.3
Bi	<0.01	Ga	<0.01	Mg	0.2	Pt	<0.01	Sr	<0.01	Y	<0.01
Ca	6	Gd	<0.01	Mn	<0.02	Rb	<0.03	Ta	<0.01	Yb	<0.01
Cd	<0.01	Ge	<0.01	Mo	<0.08	Re	<0.01	Tb	<0.01	Zn	2
Ce	<0.01	Hf	<0.02	Na	<1	Rh	<0.01	Te	<0.01	Zr	<0.01
Co	<0.01										

Balances are calibrated regularly with weight sets traceable to NIST #32856, #32867 and others. This CRM is guaranteed stable and accurate to +/- 5% of the certified value. This includes uncertainty components due to preparation, homogeneity by the most precise method, and short-term and long-term stability. This guarantee is valid for a period of six months from the date of certification only when the material is kept tightly capped and stored under ambient laboratory conditions.

Date of Certification: JAN - - 2019

Certifying Officer: Katherine Cullinan

Katherine Cullinan, QC Manager

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Report of Certification

This Certified Reference Material (CRM) has been prepared and certified under an ISO 9001 (certified by DQS), ISO 17025 (accredited by A2LA) and ISO 17034 (accredited by A2LA) quality system consistent with the following guides:

- ISO 9001: Quality management systems – Requirements
- ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories
- ISO 17034: General requirements for the competence of reference material producers
- ISO Guide 30: Reference Materials – Selected terms and definitions
- ISO Guide 31: Reference Materials – Contents of certificates and labels
- ISO Guide 35: Reference Materials – General and principals for certification
- Guide to the Expression of Uncertainty in Measurement, 2008
- EURACHEM/CITAC Guide: Qualifying Uncertainty in Analytical Measurement – Third Edition
- NIST Technical Note 1297

Material Source:

All analytes and matrix materials are obtained and verified by SPEX CertiPrep from pre-qualified vendors as per ISO 9001, ISO 17025, and ISO 17034 guidelines. Vendor identifications are proprietary; however, sources of all materials used in the preparation and testing of SPEX CertiPrep CRMs are tracked and documented. For further assistance, please contact Sales Support at crmsales@spexcsp.com.

Instructions for Use:

Primary usage of this CRM is in neat form or diluted serially with matrix of a purity at or greater than the purity of the original matrix solution. If dilution is required, the diluent must be compatible with all certified analytes and contain stabilizers appropriate for the period of intended use. The CRM can also be used as a spike or with a spike, again with appropriate compatibility considerations. All solutions should be thoroughly mixed, by shaking, prior to use and never pipetted directly from the bottle. Do not return excess solution to the bottle. All surfaces that come in contact with the solution must be thoroughly cleaned and leached prior to use. Dilutions should be performed only with Class A volumetric glassware. See SDS for health and safety information.

Method of Preparation:

Clean laboratory procedures and techniques have been used throughout the preparation. All materials, equipment, analytical instrumentation and personnel have been qualified prior to use. The highest purity acids applicable, 18 megohm, double deionized water, acid-leached triple-rinsed bottles (where appropriate), and Class A/calibrated volumetrics have been used in all preparations.

Homogeneity:

The homogeneity of the CRM has been confirmed by procedures consistent with ISO 17025, ISO 17034, and ASTM D6362-98 Appendix X2. Random, replicate samples of the final, packaged material have been analyzed to prove homogeneity in accordance with our internal procedure 4600-HOMOGEN-1A. Since the product is highly homogeneous, any sample size taken for analysis would be within the uncertainty budget. This is consistent with the intended use of the CRM.

Statistical Estimator and Confidence Limits:

The certified value 'X' listed on the reverse of this document is at the 95% level of confidence and can be expressed as:

- $X = x \pm U$ where X=certified value, U=expanded uncertainty, x=property value
- $U = ku_c$ where k=2 is the coverage factor at the 95% confidence level
- u_c=combined standard uncertainty obtained by combining the individual element standard uncertainty components u_i, and $u_c = \sqrt{\Sigma u_i^2}$

Certification Report:

All certified values reported were derived from the Certification Report, SPEX CertiPrep's traceability documentation, identified by the lot number of this CRM. During the stated period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution. For further assistance, please contact Sales Support at crmsales@spexcsp.com.

Legal Notice:

SPEX CertiPrep reference materials are not for any cosmetic, drug or household application and are to be used only by qualified individuals who are trained in appropriate procedures. No claims against SPEX CertiPrep, LLC. of any kind whatsoever, whether based on breach of warranty, alleged negligence, or otherwise, with respect to this Reference Material shall be greater than the purchase price. In no event shall SPEX CertiPrep, LLC. be liable for any loss of profits or any incidental, special, or consequential damages.

SPEX CertiPrep®
Your Science is Our Passion.®

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Reagent

Hg020116Cal_00007

INORGANIC VENTURES
300 Technology Drive
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CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGHG1
Lot Number:	N2-HG669550
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Mercury
Starting Material:	Hg metal
Starting Material Lot#:	1959
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 3 µg/mL

Density: 1.026 g/mL (measured at 20 ± 4 ºC)

Assay Information:

Assay Method #1 **999 ± 5 µg/mL**
ICP Assay NIST SRM 3133 Lot Number: 061204

Assay Method #2 **1003 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{½}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag		0.001159	M	Eu	<	0.000201	O	Na		0.000435	M	Se	<	0.015915	O	Zn	<	0.001510
O	Al		0.000090	O	Fe		0.000113	M	Nb	<	0.000201	O	Si		0.000526	M	Zr	<	0.000201
M	As	<	0.000402	M	Ga	<	0.000201	M	Nd	<	0.000201	M	Sm	<	0.000201				
M	Au	<	0.003631	M	Gd	<	0.000201	M	Ni	<	0.000402	M	Sn	<	0.001007				
M	B	<	0.001208	M	Ge	<	0.000201	M	Os	<	0.000605	M	Sr	<	0.000201				
M	Ba	<	0.000201	M	Hf	<	0.000201	O	P	<	0.032370	M	Ta	<	0.000201				
M	Be	<	0.000201	s	Hg	<		M	Pb	<	0.000201	M	Tb	<	0.000201				
M	Bi	<	0.000201	M	Ho	<	0.000201	M	Pd	<	0.000403	M	Te	<	0.002216				
O	Ca		0.000746	M	In	<	0.000201	M	Pr	<	0.000201	M	Th	<	0.000201				
M	Cd	<	0.000201	M	Ir	<	0.000201	M	Pt	<	0.000402	M	Ti	<	0.000402				
M	Ce	<	0.000201	O	K		0.002008	M	Rb	<	0.000201	O	Tl	<	0.016508				
M	Co	<	0.000201	M	La	<	0.000201	M	Re	<	0.000201	M	Tm	<	0.000201				
O	Cr	<	0.003021	O	Li	<	0.000107	M	Rh	<	0.000201	M	U	<	0.008058				
M	Cs	<	0.001208	M	Lu	<	0.000201	M	Ru	<	0.000201	M	V	<	0.000201				
M	Cu	<	0.000402	O	Mg		0.000096	O	S	<	0.053950	M	W	<	0.000604				
M	Dy	<	0.000201	M	Mn	<	0.000604	M	Sb	<	0.001208	M	Y	<	0.000201				
M	Er	<	0.000201	M	Mo		0.000971	M	Sc	<	0.000201	M	Yb	<	0.000201				

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.
Stability - 2-100 ppb levels not stable in 1% HNO3 / LDPE container, stable in 10% HNO3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO3 / LDPE container.
Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxide (Soluble in HNO3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 10, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **August 10, 2022**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director



Reagent

ICPMS_CALSTD_00020

CPI INTERNATIONAL

REPORT OF ANALYSIS

Multi-Element Aqueous RM

Product #: 4400-060117RH01

Custom ICPMS Cal Standard

Lot #: 10067385-2

Matrix: 2% HNO_3/tr. HF

Element	Certified Concentration	Element	Certified Concentration	Element	Certified Concentration
Ag	10.0 µg/mL	Fe	1001 µg/mL	Se	10.0 µg/mL
Al	100 µg/mL	K	1000 µg/mL	Si	10.0 µg/mL
As	10.0 µg/mL	Li	10.0 µg/mL	Sn	10.0 µg/mL
B	20.0 µg/mL	Mg	1000 µg/mL	Sr	10.0 µg/mL
Ba	10.0 µg/mL	Mn	100 µg/mL	Th	10.0 µg/mL
Be	10.0 µg/mL	Mo	10.0 µg/mL	Ti	10.0 µg/mL
Ca	1001 µg/mL	Na	1000 µg/mL	Tl	2.0 µg/mL
Cd	10.0 µg/mL	Ni	10.0 µg/mL	U	10.0 µg/mL
Co	10.0 µg/mL	P	10.0 µg/mL	V	10.0 µg/mL
Cr	10.0 µg/mL	Pb	10.0 µg/mL	Zn	10.0 µg/mL
Cu	10.0 µg/mL	Sb	10.0 µg/mL	Zr	100 µg/mL

Intended Use: This solution is intended for use as a reference material (RM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This RM was manufactured, processed, and/or certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO Guide 34**, and **ISO/IEC 17025**. This RM was prepared to the certified concentrations shown above by gravimetric methods using single-element concentrates, and was stabilized using high purity nitric acid (HNO_3), trace hydrofluoric acid (HF) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this RM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against **NIST SRMs (see reverse side)**. The uncertainty associated with the certified concentration is ±0.5% relative, which is the sum of the estimated errors due to the purity of the raw materials, the gravimetric preparation of the solution, and transpiration through the container. This represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the RM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original RM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **12 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

August 23, 2018
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

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Europe
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1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

This RM is traceable to the following NIST SRMs:

Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM
Ag	3151	1077a		Hf	3122	—		S	3154	2770
Al	3101a	1075a		Hg	3133	3133		Sb	3102a	3102a
As	3103a	3103a		Ho	3123a	—		Sc	3148a	3148a
Au	3121	—		In	3124a	3124a		Se	3149	3149
B	3107	3107		K	3141a	3141a		Si	3150	1066a
Ba	3104a	1051b		La	3127a	3127a		Sm	3147a	—
Be	3105a	3105a		Li	3129a	3129a		Sn	3161a	1057b
Bi	3106	3106		Lu	3130a	—		SO_4^{-2}	3181	—
Br^-	3184	—		Mg	3131a	3131a		Sr	3153a	3153a
Ca	3109a	3109a		Mn	3132	3132		Ta	3155	—
Cd	3108	1053a		Mo	3134	3134		Tb	3157a	—
Ce	3110	3110		Na	3152a	3152a		Te	3156	—
Cl^-	3182	1818a		Nb	3137	—		Th	3159	—
Co	3113	3113		Nd	3135a	—		Ti	3162a	3162a
Cr	3112a	1078b		Ni	3136	1065b		Tl	3158	3158
Cs	3111a	—		NO_3^-	3185	—		Tm	3160a	—
Cu	3114	1080a		P	3139a	3139a		U	3164	—
Dy	3115a	—		Pb	3128	3128		V	3165	1052b
Er	3116a	—		Pd	3138	—		W	3163	3163
Eu	3117a	—		PO_4^{-3}	3186	—		Y	3167a	3167a
F^-	3183	—		Pr	3142a	—		Yb	3166a	—
Fe	3126a	1079b		Pt	3140	3140		Zn	3168a	3168a
Ga	3119a	—		Rb	3145a	—		Zr	3169	3169
Gd	3118a	—		Re	3143	—				
Ge	3120a	—		Rh	3144	3144				

Reagent

ICPMS_ICV_S_00013

CPI INTERNATIONAL

REPORT OF ANALYSIS

Multi-Element Aqueous RM

Product #: 4400-130607AM01-100

Custom ICPMS ICV Standard

Lot #: 10084458-1

Matrix: 5% HNO_3/tr. HF

Element	Certified Concentration	Element	Certified Concentration	Element	Certified Concentration
Ag	0.8 µg/mL	Fe	400 µg/mL	Se	4.0 µg/mL
Al	40.0 µg/mL	K	400 µg/mL	Si	8.0 µg/mL
As	4.0 µg/mL	Li	8.0 µg/mL	Sn	4.0 µg/mL
B	8.0 µg/mL	Mg	400 µg/mL	Sr	4.0 µg/mL
Ba	4.0 µg/mL	Mn	40.0 µg/mL	Th	4.0 µg/mL
Be	4.0 µg/mL	Mo	4.1 µg/mL	Ti	4.0 µg/mL
Ca	400 µg/mL	Na	400 µg/mL	Tl	0.8 µg/mL
Cd	4.0 µg/mL	Ni	4.0 µg/mL	U	4.0 µg/mL
Co	4.0 µg/mL	P	8.0 µg/mL	V	4.0 µg/mL
Cr	4.0 µg/mL	Pb	4.0 µg/mL	Zn	4.0 µg/mL
Cu	4.0 µg/mL	Sb	4.0 µg/mL	Zr	40.1 µg/mL

Intended Use: This solution is intended for use as a reference material (RM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This RM was manufactured, processed, and/or certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO Guide 34**, and **ISO/IEC 17025**. This RM was prepared to the certified concentrations shown above by gravimetric methods using single-element concentrates, and was stabilized using high purity nitric acid (HNO_3), trace hydrofluoric acid (HF) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this RM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against **NIST SRMs (see reverse side)**. The uncertainty associated with the certified concentration is ±0.5% relative, which is the sum of the estimated errors due to the purity of the raw materials, the gravimetric preparation of the solution, and transpiration through the container. This represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the RM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original RM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **12 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

August 23, 2018
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

This RM is traceable to the following NIST SRMs:

Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM
Ag	3151	1077a		Hf	3122	—		S	3154	2770
Al	3101a	1075a		Hg	3133	3133		Sb	3102a	3102a
As	3103a	3103a		Ho	3123a	—		Sc	3148a	3148a
Au	3121	—		In	3124a	3124a		Se	3149	3149
B	3107	3107		K	3141a	3141a		Si	3150	1066a
Ba	3104a	1051b		La	3127a	3127a		Sm	3147a	—
Be	3105a	3105a		Li	3129a	3129a		Sn	3161a	1057b
Bi	3106	3106		Lu	3130a	—		SO_4^{-2}	3181	—
Br^-	3184	—		Mg	3131a	3131a		Sr	3153a	3153a
Ca	3109a	3109a		Mn	3132	3132		Ta	3155	—
Cd	3108	1053a		Mo	3134	3134		Tb	3157a	—
Ce	3110	3110		Na	3152a	3152a		Te	3156	—
Cl^-	3182	1818a		Nb	3137	—		Th	3159	—
Co	3113	3113		Nd	3135a	—		Ti	3162a	3162a
Cr	3112a	1078b		Ni	3136	1065b		Tl	3158	3158
Cs	3111a	—		NO_3^-	3185	—		Tm	3160a	—
Cu	3114	1080a		P	3139a	3139a		U	3164	—
Dy	3115a	—		Pb	3128	3128		V	3165	1052b
Er	3116a	—		Pd	3138	—		W	3163	3163
Eu	3117a	—		PO_4^{-3}	3186	—		Y	3167a	3167a
F^-	3183	—		Pr	3142a	—		Yb	3166a	—
Fe	3126a	1079b		Pt	3140	3140		Zn	3168a	3168a
Ga	3119a	—		Rb	3145a	—		Zr	3169	3169
Gd	3118a	—		Re	3143	—				
Ge	3120a	—		Rh	3144	3144				

Reagent

ICPMS_INT_A_00013

HIGH-PURITY STANDARDS
www.highpuritystandards.com

P.O. Box 41727
Charleston, SC 29423
Phone (843) 767-7900
Fax (843) 767-7906

Certificate of Analysis

Certified Reference Material

ISO Guide 34:2009 (RMP) Accreditation
Certificate Number AR-1436

ISO/IEC 17025:2005 Accreditation
Certificate Number AT-1529

Product Description:

Name:	6020-ICSA
Part Number:	**ICP-MS-ICS-3 Solution A**
Lot Number:	**1734737**
Matrix:	Tr HF + 2% HNO_3
Purity:	99.98% - 99.999%

Certified Values:

Element	(µg/mL)	SRM ID	SRM Lot#	Element	(µg/mL)	SRM ID	SRM Lot#
Al	1000 ± 6	3101a	140903	K	1000 ± 10	3141a	140813
Ca	3000 ± 18	3109a	130213	Na	2500 ± 15	3152a	120715
Fe	2500 ± 15	3126a	140812	S	1000 ± 20	3154	892205
Mg	1000 ± 6	3131a	140110	Ti	20.0 ± 0.2	3162a	130925
Mo	20.0 ± 0.2	3134	130418	C	2000 ± 20	*	
P	1000 ± 15	3139a	060717	Cl	18,000 ± 180	3182	060925

Certified values are based on gravimetric and volumetric preparation, and verified against NIST SRM 3100 series when available via inductively coupled plasma optical emission spectrometry (ICP-OES) and/or inductively coupled plasma mass spectrometry (ICP-MS) using an internal laboratory-developed method. The uncertainty in the certified value is calculated for a 95% confidence interval and coverage factor *k* is about 2.

* Refer to Traceability Information, Section d

Uncertified Values:

Density: 1.073 g/mL ± 0.002 g/mL @ 21.8°C

Packaging and Storage Conditions:

The standard is packaged in a pre-cleaned polyethylene bottle. To maintain the integrity of this product, the solution should be kept tightly capped and stored under normal laboratory conditions.

Expiration Information:

The expiry date is guaranteed to be valid for twelve months from the shipping date provided and is guaranteed through the month of expiration. For this reason, standards from the same lot may have different expiration dates.

Shipped Date:May 2018

Certificate Issue Date: December 14, 2017

Moven Mutuvari

Moven Mutuvari PhD., Laboratory Manager

Preparation Information:

The Certified Reference Material (CRM) is generally prepared from single element standard solutions that are ISO Guide 34 certified reference materials and manufactured under appropriate laboratory conditions using the methods developed at NIST for SRM Spectrometric Standard Solutions. Sub-boiling distilled high-purity acid has been used to place the materials in solution and to stabilize the standard. The matrix is as noted above in 18 megaohm deionized water.

Stability of this product is based upon rigorous short term and long term testing of the solution for the certified value. This testing includes, but is not limited to, the effect of temperature and packaging on the product. If during the period of validity, a recall is instituted due to substantial changes in the stability of this product, the purchaser will be notified.

Homogeneity:

This product is determined to be homogeneous following in-house procedures developed in accordance with the requirements of ISO Guide 34 and ISO Guide 35.

Intended Use:

This product is intended for use as a calibration standard, quality control standard, and/or for the validation of analytical methods.

Traceability Information:

The traceability of this standard is maintained through an unbroken chain of comparisons to appropriate standards with suitable procedure and measurement uncertainties. The maintenance of the base and derived units of International System of Units (SI) with traceability of measurement results (contemporary metrology) to SI ensures their comparability over time as follows.

a. **Standard Weight and Analytical Balance**
The standard weights (NBS weights Inventory No 20231A) are calibrated every two years by South Carolina Metrology Laboratory that is a participant in "NIST Weights and Measures Measurement Assurance Program" with a certificate of measurement traceability to NIST primary standards.
The balances are calibrated yearly by the ISO 17025 accredited metrology service, and are verified weekly by an in-house method using standard weights.

b. **Volumetric Device**
The calibration of volumetric vessels is checked annually using the ASTM method E542.

c. **Thermometer**
The standard thermometers are calibrated every year by the ISO 17025 accredited metrology service. The thermometers used in-house are verified against the standard thermometers yearly.

d. **Calibration Standards**
The Calibration Standard is traceable to SRM 3100 Series Spectrometric Standard Solutions. If a SRM is not available, a second source standard or independent lot is used.

Refer to Safety Datasheet (SDS) for hazardous information.

NOTICE: HPS products are intended for laboratory use only. All products should be handled and used by trained professional personnel. The responsibility for the safe handling and use of these products rests solely with the buyer and/or user. The data and information as stated was furnished by the manufacturer of the product. The information provided in this certificate pertains only to the lot number specified. None of the information provided in this certificate may be used, reproduced or transmitted in any form or by any means without written approval from High Purity Standards.

Reagent

ICPMS_INT_B_00014

HIGH-PURITY STANDARDS
www.highpuritystandards.com

P.O. Box 41727
Charleston, SC 29423
Phone (843) 767-7900
Fax (843) 767-7906

Certificate of Analysis

Certified Reference Material

ISO Guide 34:2009 (RMP) Accreditation
Certificate Number AR-1436

ISO/IEC 17025:2005 Accreditation
Certificate Number AT-1529

Product Description:

Name:	6020-ICSAB
Part Number:	**ICP-MS-ICS-3 Solution AB**
Lot Number:	**1621112**
Matrix:	2% HNO_3
Purity:	99.99% - 99.9999%

Certified Values:

Element	(µg/mL)	SRM ID	SRM Lot#	Element	(µg/mL)	SRM ID	SRM Lot#
As	10.0 ± 0.1	3103a	100818	Ni	20.0 ± 0.1	3136	120619
Cd	10.0 ± 0.1	3108	130116	Se	10.0 ± 0.1	3149	100901
Cr	20.0 ± 0.1	3112a	030730	Ag	20.0 ± 0.1	3151	992212
Co	20.0 ± 0.1	3113	000630	V	20.0 ± 0.2	3165	992706
Cu	20.0 ± 0.1	3114	121207	Zn	10.0 ± 0.1	3168a	120629
Mn	20.0 ± 0.3	3132	050429				

Certified values are based on gravimetric and volumetric preparation, and verified against NIST SRM 3100 series when available via inductively coupled plasma optical emission spectrometry (ICP-OES) and/or inductively coupled plasma mass spectrometry (ICP-MS) using an internal laboratory-developed method. The uncertainty in the certified value is calculated for a 95% confidence interval and coverage factor *k* is about 2.

* Refer to Traceability Information, Section d

Uncertified Values:

Density: 1.010 g/mL ± 0.002 g/mL @ 23.1°C

Packaging and Storage Conditions:

The standard is packaged in a pre-cleaned polyethylene bottle. To maintain the integrity of this product, the solution should be kept tightly capped and stored under normal laboratory conditions.

Expiration Information:

The expiry date is guaranteed to be valid for twelve months from the shipping date provided. For this reason, standards from the same lot may have different expiration dates.

Preparation Date: July 29, 2016
Shipped Date:May 2018

Certificate Issue Date: August 1, 2016

Moven Mutuvari

Moven Mutuvari PhD., Laboratory Manager

Preparation Information:

The Certified Reference Material (CRM) is generally prepared from single element standard solutions that are ISO Guide 34 certified reference materials and manufactured under appropriate laboratory conditions using the methods developed at NIST for SRM Spectrometric Standard Solutions. Sub-boiling distilled high-purity acid has been used to place the materials in solution and to stabilize the standard. The matrix is as noted above in 18 megaohm deionized water.

Stability of this product is based upon rigorous short term and long term testing of the solution for the certified value. This testing includes, but is not limited to, the effect of temperature and packaging on the product.

Intended Use:

This product is intended for use as a calibration standard, quality control standard, and/or for the validation of analytical methods.

Traceability Information:

The traceability of this standard is maintained through an unbroken chain of comparisons to appropriate standards with suitable procedure and measurement uncertainties. The maintenance of the base and derived units of International System of Units (SI) with traceability of measurement results (contemporary metrology) to SI ensures their comparability over time as follows.

a. **Standard Weight and Analytical Balance**
The standard weights (NBS weights Inventory No 20231A) are calibrated every two years by South Carolina Metrology Laboratory that is a participant in "NIST Weights and Measures Measurement Assurance Program" with a certificate of measurement traceability to NIST primary standards.
The balances are calibrated yearly by the ISO 17025 accredited metrology service, and are verified weekly by an in-house method using standard weights.

b. **Volumetric Device**
The calibration of volumetric vessels is checked annually using the ASTM method E542.

c. **Thermometer**
The standard thermometers are calibrated every year by the ISO 17025 accredited metrology service. The thermometers used in-house are verified against the standard thermometers yearly.

d. **Calibration Standards**
The Calibration Standard is traceable to SRM 3100 Series Spectrometric Standard Solutions. If a SRM is not availabe, a second source standard or independent lot is used.

Refer to Safety Datasheet (SDS) for hazardous information.

NOTICE: HPS products are intended for laboratory use only. All products should be handled and used by trained professional personnel. The responsibility for the safe handling and use of these products rests solely with the buyer and/or user. The data and information as stated was furnished by the manufacturer of the product. The information provided in this certificate pertains only to the lot number specified. None of the information provided in this certificate may be used, reproduced or transmitted in any form or by any means without written approval from High Purity Standards.

Reagent

Na2C03_00002

Certificate of Analysis

Alfa Aesar®
A Johnson Matthey Company

Product No.: 33377

Product: Sodium carbonate, ACS primary standard, 99.95-100.05% (dried basis)

Lot No.: A16Z011

Appearance	White, fine granular
Clarity of solution (10 g/100 mL)	Clear and complete

Test	Limits	Results
Loss on drying at 285°C	1.0 % max	0.1%
Insoluble matter	0.01 % max	0.003%
Nitrogen compounds	0.001 % max	0.0003 %
Chloride	0.001 % max	0.0003 %
Phosphate	0.001 % max	0.0004 %
Heavy metals	5 ppm max	3 ppm
Ammonium hydroxide precipitate	0.01 % max	0.004 %
Iron	5 ppm max	3 ppm
Potassium	0.005 % max	0.002 %
Sulfur compounds	0.003 % max	0.0009 %
Silica	0.005 % max	0.001 %
Assay	99.95 – 100.05 %	99.99 %
Calcium (by AA)	0.03 % max	0.004 %
Magnesium	0.004 % max	0.002 %
Arsenic	1 ppm max	0.1 ppm

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Reagent

RL_ICPMS_00012

CPI INTERNATIONAL

REPORT OF ANALYSIS

Multi-Element Aqueous RM

Product #: 4400-130521AM01

Custom Standard

Lot #: 10079461-1

Matrix: 5% HNO_3/1% HF

Element	Certified Concentration	Element	Certified Concentration	Element	Certified Concentration
Ag	1.0 µg/mL	Fe	500 µg/mL	Se	5.0 µg/mL
Al	100 µg/mL	K	501 µg/mL	Si	10.0 µg/mL
As	5.0 µg/mL	Li	10.0 µg/mL	Sn	10.0 µg/mL
B	100 µg/mL	Mg	500 µg/mL	Sr	10.1 µg/mL
Ba	10.1 µg/mL	Mn	50.3 µg/mL	Th	10.0 µg/mL
Be	5.0 µg/mL	Mo	10.0 µg/mL	Ti	10.0 µg/mL
Ca	1002 µg/mL	Na	1000 µg/mL	Tl	2.0 µg/mL
Cd	5.0 µg/mL	Ni	10.0 µg/mL	U	10.0 µg/mL
Co	10.0 µg/mL	P	10.0 µg/mL	V	10.0 µg/mL
Cr	10.0 µg/mL	Pb	5.1 µg/mL	Zn	8.0 µg/mL
Cu	10.0 µg/mL	Sb	10.0 µg/mL	Zr	100 µg/mL

Intended Use: This solution is intended for use as a reference material (RM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This RM was manufactured, processed, and/or certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO Guide 34**, and **ISO/IEC 17025**. This RM was prepared to the certified concentrations shown above by gravimetric methods using single-element concentrates, and was stabilized using high purity nitric acid (HNO_3), hydrofluoric acid (HF) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this RM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentrations were determined based upon gravimetric procedures. Secondary verification of the certified concentrations was performed using ICP-OES that was calibrated and/or referenced against **NIST SRMs (see reverse side)**. The uncertainty associated with the certified concentration is ±0.5% relative, which is the sum of the estimated errors due to the purity of the raw materials, the gravimetric preparation of the solution, and transpiration through the container. This represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the RM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original RM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

May 9, 2018

Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
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F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

This RM is traceable to the following NIST SRMs:

Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM		Analyte	Aq. SRM	MO SRM
Ag	3151	1077a		Hf	3122	—		S	3154	2770
Al	3101a	1075a		Hg	3133	3133		Sb	3102a	3102a
As	3103a	3103a		Ho	3123a	—		Sc	3148a	3148a
Au	3121	—		In	3124a	3124a		Se	3149	3149
B	3107	3107		K	3141a	3141a		Si	3150	1066a
Ba	3104a	1051b		La	3127a	3127a		Sm	3147a	—
Be	3105a	3105a		Li	3129a	3129a		Sn	3161a	1057b
Bi	3106	3106		Lu	3130a	—		SO_4^{-2}	3181	—
Br^-	3184	—		Mg	3131a	3131a		Sr	3153a	3153a
Ca	3109a	3109a		Mn	3132	3132		Ta	3155	—
Cd	3108	1053a		Mo	3134	3134		Tb	3157a	—
Ce	3110	3110		Na	3152a	3152a		Te	3156	—
Cl^-	3182	1818a		Nb	3137	—		Th	3159	—
Co	3113	3113		Nd	3135a	—		Ti	3162a	3162a
Cr	3112a	1078b		Ni	3136	1065b		Tl	3158	3158
Cs	3111a	—		NO_3^-	3185	—		Tm	3160a	—
Cu	3114	1080a		P	3139a	3139a		U	3164	—
Dy	3115a	—		Pb	3128	3128		V	3165	1052b
Er	3116a	—		Pd	3138	—		W	3163	3163
Eu	3117a	—		PO_4^{-3}	3186	—		Y	3167a	3167a
F^-	3183	—		Pr	3142a	—		Yb	3166a	—
Fe	3126a	1079b		Pt	3140	3140		Zn	3168a	3168a
Ga	3119a	—		Rb	3145a	—		Zr	3169	3169
Gd	3118a	—		Re	3143	—				
Ge	3120a	—		Rh	3144	3144				

Reagent

SO4-Cal-Stock_00013

RICCA CHEMICAL COMPANY®

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Pocomoke City, MD 21851
http://www.riccachemical.com
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customerservice@riccachemical.com

Certificate of Analysis

Sulfate Standard, 1000 ppm SO_4^{2-}

Lot Number: 2809B22 **Product Number:** 8112

Manufacture Date: SEP 14, 2018
Expiration Date: MAR 2020

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Sulfate Anhydrous	7757-82-6	ACS

Test	Specification	Result
Appearance	Colorless liquid	Passed
Sulfate (SO_4)	995-1005 ppm	1000 ppm

Specification	Reference
Sulfate Solution Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5542)
Sulfate Stock Solution, 1 mL = 1 mg SO4	EPA (SW-846) (9036)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	EPA (SW-846) (9056)
Sulfate solution (1000 ppm)	TAPPI (T 699 om-87)
Sulfate Stock Solution, 1 mL = 1 mg SO42	EPA (375.2)
Sulfate Solution, Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5996)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
8112-16	500 mL natural poly	18 months
8112-4	120 mL natural poly	18 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Andy Baumgartner (09/14/2018)
Quality Control Supervisor
This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

Sulfate ICV

This test report shall not be reproduced, except in full, without the written approval of Ricca Chemical Company.

Reagent

SO4-CCV-C-S_00016

RICCA CHEMICAL COMPANY®

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Arlington, TX 76012
http://www.riccachemical.com
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customerservice@riccachemical.com

Certificate of Analysis

Sulfate Standard, 1000 ppm SO_4^{2-}

Lot Number: 1810H42 **Product Number:** 8112

Manufacture Date: OCT 23, 2018
Expiration Date: APR 2020

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Sulfate Anhydrous	7757-82-6	ACS

Test	Specification	Result
Appearance	Colorless liquid	Passed
Sulfate (SO_4)	995-1005 ppm	1000 ppm

Specification	Reference
Sulfate Solution Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5542)
Sulfate Stock Solution, 1 mL = 1 mg SO4	EPA (SW-846) (9036)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	EPA (SW-846) (9056)
Sulfate solution (1000 ppm)	TAPPI (T 699 om-87)
Sulfate Stock Solution, 1 mL = 1 mg SO42	EPA (375.2)
Sulfate Solution, Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5996)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
8112-16	500 mL natural poly	18 months
8112-4	120 mL natural poly	18 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Sulfate CCV

Israel Alamudun (10/23/2018)
Quality Control Supervisor
This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This test report shall not be reproduced, except in full, without the written approval of Ricca Chemical Company.

Reagent

Sodium_Carbon_00005

ThermoFisher SCIENTIFIC

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

ThermoFisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0090918

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. ThermoFisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing.ThermoFisher does not maintain DMF's with the FDA. The following are the actual analytical results obtained:

Catalog Number	S263	Quality Test / Release Date	10/13/2017
Lot Number	174819		
Description	SODIUM CARBONATE, ANHYDROUS, CERTIFIED A.C.S.		
Country of Origin	China	Suggested Retest Date	Oct/2022
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		
Chemical Comment			

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	White crystalline powder or powder
SULFUR COMPOUNDS	%	<= 0.003	<0.003
SILICA (SiO2)	%	<= 0.005	<0.005
PHOSPHATE (PO4)	%	<= 0.001	<0.001
POTASSIUM (K)	%	<= 0.005	<0.005
MAGNESIUM	%	<= 0.005	<0.005
ASSAY	%	>= 99.5	100.4
HEAVY METALS (as Pb)	ppm	<= 5	<5
INSOLUBLE MATTER	%	<= 0.01	0.004
LOSS ON HEATING @ 285 DEG C	%	<= 1.0	0.33
CHLORIDE	%	<= 0.001	<0.001
CALCIUM	%	<= 0.03	<0.03
IRON (Fe)	ppm	<= 5	<5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST

Teresa Bailey-Wyche

Quality Assurance Specialist - Certificate of Analysis Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

METALS

COVER PAGE
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG No.:

Project: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID	Lab Sample ID
AES-MW1-042319	400-169314-1
AES-MW1-042319	400-169314-1 DL
AES-MW2-042319	400-169314-2
AES-MW3-042319	400-169314-3
AES-MW3-042319	400-169314-3 DL
AES-FB-042319	400-169314-4
AES-FB-042319	400-169314-4 RA
AES-MW4-042419	400-169314-5
AES-MW4-042419	400-169314-5 DL
AES-MW4-DUP-042419	400-169314-6
AES-MW4-DUP-042419	400-169314-6 DL
AES-MW5-042419	400-169314-7
AES-MW5-042419	400-169314-7 DL
AES-FB-042419	400-169314-8

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: AES-MW1-042319 | Lab Sample ID: 400-169314-1

Lab Name: Eurofins TestAmerica, Pensacola | Job No.: 400-169314-1

SDG ID.:

Matrix: Water | Date Sampled: 04/23/2019 10:10

Reporting Basis: WET | Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.000070	0.00020	0.000070	mg/L	U		1	7470A



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW1-042319 | Lab Sample ID: 400-169314-1

Lab Name: Eurofins TestAmerica, Pensacola | Job No.: 400-169314-1

SDG ID.:

Matrix: Water | Date Sampled: 04/23/2019 10:10

Reporting Basis: WET | Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-36-0	Antimony	0.0010	0.0025	0.0010	mg/L	U		5	6020
7440-38-2	Arsenic	0.00046	0.0013	0.00046	mg/L	U		5	6020
7440-39-3	Barium	0.019	0.0025	0.00049	mg/L			5	6020
7440-41-7	Beryllium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-42-8	Boron	0.23	0.050	0.021	mg/L			5	6020
7440-43-9	Cadmium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-70-2	Calcium	65	0.25	0.13	mg/L			5	6020
7440-47-3	Chromium	0.0011	0.0025	0.0011	mg/L	U		5	6020
7440-48-4	Cobalt	0.00040	0.0025	0.00040	mg/L	U		5	6020
7439-92-1	Lead	0.00035	0.0013	0.00035	mg/L	U		5	6020
7439-93-2	Lithium	0.0011	0.0050	0.0011	mg/L	U		5	6020
7439-95-4	Magnesium	27	0.13	0.032	mg/L			5	6020
7439-98-7	Molybdenum	0.0020	0.015	0.0020	mg/L	U		5	6020
7440-09-7	Potassium	0.52	0.25	0.11	mg/L			5	6020
7782-49-2	Selenium	0.0020	0.0013	0.00071	mg/L			5	6020
7440-23-5	Sodium	240	1.3	0.84	mg/L			25	6020
7440-28-0	Thallium	0.000085	0.00050	0.000085	mg/L	U		5	6020
7439-89-6	Iron	0.21	0.13	0.053	mg/L			5	6020
7439-96-5	Manganese	0.034	0.013	0.0054	mg/L			5	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: AES-MW2-042319 Lab Sample ID: 400-169314-2

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/23/2019 11:55

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.000070	0.00020	0.000070	mg/L	U		1	7470A



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW2-042319
Lab Sample ID: 400-169314-2
Lab Name: Eurofins TestAmerica, Pensacola
Job No.: 400-169314-1
SDG ID.:
Matrix: Water
Date Sampled: 04/23/2019 11:55
Reporting Basis: WET
Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-36-0	Antimony	0.0010	0.0025	0.0010	mg/L	U		5	6020
7440-38-2	Arsenic	0.00046	0.0013	0.00046	mg/L	U		5	6020
7440-39-3	Barium	0.13	0.0025	0.00049	mg/L			5	6020
7440-41-7	Beryllium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-42-8	Boron	0.14	0.050	0.021	mg/L			5	6020
7440-43-9	Cadmium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-70-2	Calcium	110	0.25	0.13	mg/L			5	6020
7440-47-3	Chromium	0.0011	0.0025	0.0011	mg/L	U		5	6020
7440-48-4	Cobalt	0.00040	0.0025	0.00040	mg/L	U		5	6020
7439-92-1	Lead	0.00035	0.0013	0.00035	mg/L	U		5	6020
7439-93-2	Lithium	0.0011	0.0050	0.0011	mg/L	U		5	6020
7439-95-4	Magnesium	51	0.13	0.032	mg/L			5	6020
7439-98-7	Molybdenum	0.0020	0.015	0.0020	mg/L	U		5	6020
7440-09-7	Potassium	0.64	0.25	0.11	mg/L			5	6020
7782-49-2	Selenium	0.00071	0.0013	0.00071	mg/L	U		5	6020
7440-23-5	Sodium	75	0.25	0.17	mg/L			5	6020
7440-28-0	Thallium	0.000085	0.00050	0.000085	mg/L	U		5	6020
7439-89-6	Iron	0.053	0.13	0.053	mg/L	U		5	6020
7439-96-5	Manganese	0.84	0.013	0.0054	mg/L			5	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: AES-MW3-042319 Lab Sample ID: 400-169314-3

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/23/2019 15:10

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.000070	0.00020	0.000070	mg/L	U		1	7470A



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW3-042319 | Lab Sample ID: 400-169314-3

Lab Name: Eurofins TestAmerica, Pensacola | Job No.: 400-169314-1

SDG ID.:

Matrix: Water | Date Sampled: 04/23/2019 15:10

Reporting Basis: WET | Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-36-0	Antimony	0.0010	0.0025	0.0010	mg/L	U		5	6020
7440-38-2	Arsenic	0.0016	0.0013	0.00046	mg/L			5	6020
7440-39-3	Barium	0.17	0.0025	0.00049	mg/L			5	6020
7440-41-7	Beryllium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-42-8	Boron	0.90	0.050	0.021	mg/L			5	6020
7440-43-9	Cadmium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-70-2	Calcium	290	5.0	2.5	mg/L			100	6020
7440-47-3	Chromium	0.0011	0.0025	0.0011	mg/L	U		5	6020
7440-48-4	Cobalt	0.0023	0.0025	0.00040	mg/L	J		5	6020
7439-92-1	Lead	0.00035	0.0013	0.00035	mg/L	U		5	6020
7439-93-2	Lithium	0.0052	0.0050	0.0011	mg/L			5	6020
7439-95-4	Magnesium	400	2.5	0.64	mg/L			100	6020
7439-98-7	Molybdenum	0.17	0.015	0.0020	mg/L			5	6020
7440-09-7	Potassium	21	0.25	0.11	mg/L			5	6020
7782-49-2	Selenium	0.13	0.0013	0.00071	mg/L			5	6020
7440-23-5	Sodium	2700	5.0	3.4	mg/L			100	6020
7440-28-0	Thallium	0.000085	0.00050	0.000085	mg/L	U		5	6020
7439-89-6	Iron	1.7	0.13	0.053	mg/L			5	6020
7439-96-5	Manganese	1.2	0.013	0.0054	mg/L			5	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: AES-FB-042319
Lab Sample ID: 400-169314-4
Lab Name: Eurofins TestAmerica, Pensacola
Job No.: 400-169314-1
SDG ID.:
Matrix: Water
Date Sampled: 04/23/2019 15:32
Reporting Basis: WET
Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.000070	0.00020	0.000070	mg/L	U		1	7470A



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-FB-042319
Lab Sample ID: 400-169314-4
Lab Name: Eurofins TestAmerica, Pensacola
Job No.: 400-169314-1
SDG ID.:
Matrix: Water
Date Sampled: 04/23/2019 15:32
Reporting Basis: WET
Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-36-0	Antimony	0.0010	0.0025	0.0010	mg/L	U		5	6020
7440-38-2	Arsenic	0.00046	0.0013	0.00046	mg/L	U		5	6020
7440-39-3	Barium	0.00049	0.0025	0.00049	mg/L	U		5	6020
7440-41-7	Beryllium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-42-8	Boron	0.021	0.050	0.021	mg/L	U		5	6020
7440-43-9	Cadmium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-70-2	Calcium	0.13	0.25	0.13	mg/L	U		5	6020
7440-47-3	Chromium	0.0011	0.0025	0.0011	mg/L	U		5	6020
7440-48-4	Cobalt	0.00040	0.0025	0.00040	mg/L	U		5	6020
7439-92-1	Lead	0.00035	0.0013	0.00035	mg/L	U		5	6020
7439-93-2	Lithium	0.0011	0.0050	0.0011	mg/L	U		5	6020
7439-95-4	Magnesium	0.032	0.13	0.032	mg/L	U		5	6020
7439-98-7	Molybdenum	0.0020	0.015	0.0020	mg/L	U		5	6020
7440-09-7	Potassium	0.11	0.25	0.11	mg/L	U		5	6020
7782-49-2	Selenium	0.00071	0.0013	0.00071	mg/L	U		5	6020
7440-23-5	Sodium	0.17	0.25	0.17	mg/L	U		5	6020
7440-28-0	Thallium	0.000085	0.00050	0.000085	mg/L	U		5	6020
7439-89-6	Iron	0.053	0.13	0.053	mg/L	U		5	6020
7439-96-5	Manganese	0.0054	0.013	0.0054	mg/L	U		5	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: AES-MW4-042419 | Lab Sample ID: 400-169314-5

Lab Name: Eurofins TestAmerica, Pensacola | Job No.: 400-169314-1

SDG ID.:

Matrix: Water | Date Sampled: 04/24/2019 10:25

Reporting Basis: WET | Date Received: 04/25/2019 09:08

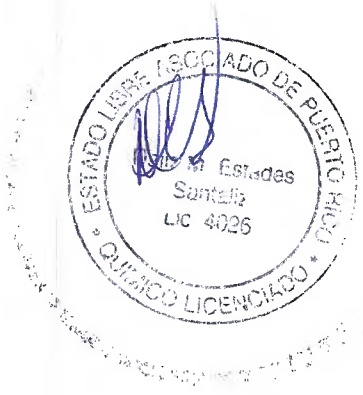
CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.000070	0.00020	0.000070	mg/L	U		1	7470A



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW4-042419
Lab Sample ID: 400-169314-5
Lab Name: Eurofins TestAmerica, Pensacola
Job No.: 400-169314-1
SDG ID.:
Matrix: Water
Date Sampled: 04/24/2019 10:25
Reporting Basis: WET
Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-36-0	Antimony	0.0010	0.0025	0.0010	mg/L	U		5	6020
7440-38-2	Arsenic	0.0021	0.0013	0.00046	mg/L			5	6020
7440-39-3	Barium	0.045	0.0025	0.00049	mg/L			5	6020
7440-41-7	Beryllium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-42-8	Boron	1.8	0.050	0.021	mg/L			5	6020
7440-43-9	Cadmium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-70-2	Calcium	150	10	5.0	mg/L			200	6020
7440-47-3	Chromium	0.0011	0.0025	0.0011	mg/L	U		5	6020
7440-48-4	Cobalt	0.00083	0.0025	0.00040	mg/L	J		5	6020
7439-92-1	Lead	0.00035	0.0013	0.00035	mg/L	U		5	6020
7439-93-2	Lithium	0.28	0.0050	0.0011	mg/L			5	6020
7439-95-4	Magnesium	38	0.13	0.032	mg/L			5	6020
7439-98-7	Molybdenum	0.66	0.015	0.0020	mg/L			5	6020
7440-09-7	Potassium	690	10	4.4	mg/L			200	6020
7782-49-2	Selenium	0.0012	0.0013	0.00071	mg/L	J		5	6020
7440-23-5	Sodium	3600	10	6.7	mg/L			200	6020
7440-28-0	Thallium	0.000085	0.00050	0.000085	mg/L	U		5	6020
7439-89-6	Iron	5.7	0.13	0.053	mg/L			5	6020
7439-96-5	Manganese	1.1	0.013	0.0054	mg/L			5	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: AES-MW4-DUP-042419
Lab Sample ID: 400-169314-6
Lab Name: Eurofins TestAmerica, Pensacola
Job No.: 400-169314-1
SDG ID.:
Matrix: Water
Date Sampled: 04/24/2019 10:42
Reporting Basis: WET
Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.000070	0.00020	0.000070	mg/L	U		1	7470A



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW4-DUP-042419 Lab Sample ID: 400-169314-6

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/24/2019 10:42

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-36-0	Antimony	0.0010	0.0025	0.0010	mg/L	U		5	6020
7440-38-2	Arsenic	0.0017	0.0013	0.00046	mg/L			5	6020
7440-39-3	Barium	0.046	0.0025	0.00049	mg/L			5	6020
7440-41-7	Beryllium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-42-8	Boron	1.7	0.050	0.021	mg/L			5	6020
7440-43-9	Cadmium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-70-2	Calcium	150	10	5.0	mg/L			200	6020
7440-47-3	Chromium	0.0011	0.0025	0.0011	mg/L	U		5	6020
7440-48-4	Cobalt	0.00083	0.0025	0.00040	mg/L	J		5	6020
7439-92-1	Lead	0.00035	0.0013	0.00035	mg/L	U		5	6020
7439-93-2	Lithium	0.29	0.0050	0.0011	mg/L			5	6020
7439-95-4	Magnesium	38	0.13	0.032	mg/L			5	6020
7439-98-7	Molybdenum	0.65	0.015	0.0020	mg/L			5	6020
7440-09-7	Potassium	690	10	4.4	mg/L			200	6020
7782-49-2	Selenium	0.0011	0.0013	0.00071	mg/L	J		5	6020
7440-23-5	Sodium	3600	10	6.7	mg/L			200	6020
7440-28-0	Thallium	0.000085	0.00050	0.000085	mg/L	U		5	6020
7439-89-6	Iron	5.5	0.13	0.053	mg/L			5	6020
7439-96-5	Manganese	1.2	0.013	0.0054	mg/L			5	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: AES-MW5-042419 Lab Sample ID: 400-169314-7

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/24/2019 12:37

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.000070	0.00020	0.000070	mg/L	U		1	7470A



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW5-042419
Lab Sample ID: 400-169314-7
Lab Name: Eurofins TestAmerica, Pensacola
Job No.: 400-169314-1
SDG ID.:
Matrix: Water
Date Sampled: 04/24/2019 12:37
Reporting Basis: WET
Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-36-0	Antimony	0.0010	0.0025	0.0010	mg/L	U		5	6020
7440-38-2	Arsenic	0.0084	0.0013	0.00046	mg/L			5	6020
7440-39-3	Barium	0.032	0.0025	0.00049	mg/L			5	6020
7440-41-7	Beryllium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-42-8	Boron	0.38	0.050	0.021	mg/L			5	6020
7440-43-9	Cadmium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-70-2	Calcium	680	5.0	2.5	mg/L			100	6020
7440-47-3	Chromium	0.0011	0.0025	0.0011	mg/L	U		5	6020
7440-48-4	Cobalt	0.0030	0.0025	0.00040	mg/L			5	6020
7439-92-1	Lead	0.00035	0.0013	0.00035	mg/L	U		5	6020
7439-93-2	Lithium	0.0031	0.0050	0.0011	mg/L	J		5	6020
7439-95-4	Magnesium	380	2.5	0.64	mg/L			100	6020
7439-98-7	Molybdenum	0.0036	0.015	0.0020	mg/L	J		5	6020
7440-09-7	Potassium	6.6	0.25	0.11	mg/L			5	6020
7782-49-2	Selenium	0.00071	0.0013	0.00071	mg/L	U		5	6020
7440-23-5	Sodium	2200	5.0	3.4	mg/L			100	6020
7440-28-0	Thallium	0.000085	0.00050	0.000085	mg/L	U		5	6020
7439-89-6	Iron	9.2	0.13	0.053	mg/L			5	6020
7439-96-5	Manganese	11	0.013	0.0054	mg/L			5	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: AES-FB-042419 Lab Sample ID: 400-169314-8

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/24/2019 12:56

Reporting Basis: WET Date Received: 04/25/2019 09:08

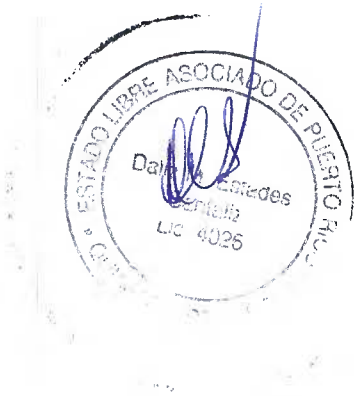
CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.000070	0.00020	0.000070	mg/L	U		1	7470A



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-FB-042419
Lab Sample ID: 400-169314-8
Lab Name: Eurofins TestAmerica, Pensacola
Job No.: 400-169314-1
SDG ID.:
Matrix: Water
Date Sampled: 04/24/2019 12:56
Reporting Basis: WET
Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-36-0	Antimony	0.0010	0.0025	0.0010	mg/L	U		5	6020
7440-38-2	Arsenic	0.00046	0.0013	0.00046	mg/L	U		5	6020
7440-39-3	Barium	0.00049	0.0025	0.00049	mg/L	U		5	6020
7440-41-7	Beryllium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-42-8	Boron	0.021	0.050	0.021	mg/L	U		5	6020
7440-43-9	Cadmium	0.00034	0.0025	0.00034	mg/L	U		5	6020
7440-70-2	Calcium	0.13	0.25	0.13	mg/L	U		5	6020
7440-47-3	Chromium	0.0011	0.0025	0.0011	mg/L	U		5	6020
7440-48-4	Cobalt	0.00040	0.0025	0.00040	mg/L	U		5	6020
7439-92-1	Lead	0.00035	0.0013	0.00035	mg/L	U		5	6020
7439-93-2	Lithium	0.0011	0.0050	0.0011	mg/L	U		5	6020
7439-95-4	Magnesium	0.032	0.13	0.032	mg/L	U		5	6020
7439-98-7	Molybdenum	0.0020	0.015	0.0020	mg/L	U		5	6020
7440-09-7	Potassium	0.11	0.25	0.11	mg/L	U		5	6020
7782-49-2	Selenium	0.00071	0.0013	0.00071	mg/L	U		5	6020
7440-23-5	Sodium	0.17	0.25	0.17	mg/L	U		5	6020
7440-28-0	Thallium	0.000085	0.00050	0.000085	mg/L	U		5	6020
7439-89-6	Iron	0.053	0.13	0.053	mg/L	U		5	6020
7439-96-5	Manganese	0.0054	0.013	0.0054	mg/L	U		5	6020



2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICV Source: ICPMS_ICV_S_00013 Concentration Units: ug/L

CCV Source: ICPMS_CALSTD_00020

Analyte	ICV 400-439959/14 05/06/2019 13:26				CCV 400-439959/213 05/07/2019 08:38				CCV 400-439959/224 05/07/2019 09:39			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Antimony	38.5		40.0	96	49.1		50.0	98	50.4		50.0	101
Arsenic	38.2		40.0	95	47.0		50.0	94	47.0		50.0	94
Barium	37.5		40.0	94	47.3		50.0	95	47.7		50.0	95
Beryllium	38.2		40.0	96	46.4		50.0	93	47.1		50.0	94
Boron	79.1		80.0	99	96.9		100	97	95.2		100	95
Cadmium	38.3		40.0	96	50.4		50.0	101	49.4		50.0	99
Calcium	3800		4000	95	4720		5000	94	4750		5000	95
Chromium	40.1		40.0	100	47.2		50.0	94	47.4		50.0	95
Cobalt	38.4		40.0	96	47.7		50.0	95	47.6		50.0	95
Iron	3870		4000	97	4800		5000	96	4860		5000	97
Lead	37.9		40.0	95	49.1		50.0	98	49.1		50.0	98
Lithium	76.6		80.0	96	49.4		50.0	99	48.8		50.0	98
Magnesium	3910		4000	98	4860		5000	97	4800		5000	96
Manganese	391		400	98	491		500	98	489		500	98
Molybdenum	39.9		40.0	100	49.1		50.0	98	49.5		50.0	99
Potassium	3860		4000	96	4850		5000	97	4820		5000	96
Selenium	37.5		40.0	94	48.8		50.0	98	50.7		50.0	101
Sodium	3840		4000	96	4820		5000	96	4840		5000	97
Thallium	7.71		8.00	96	9.89		10.0	99	10.0		10.0	100

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICV Source: ICPMS_ICV_S_00013 Concentration Units: ug/L

CCV Source: ICPMS_CALSTD_00020

Analyte	CCV 400-439959/236 05/07/2019 10:38				CCV 400-439959/243 05/07/2019 11:22							
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Antimony	50.6		50.0	101	49.6		50.0	99				
Arsenic	47.6		50.0	95	47.5		50.0	95				
Barium	48.2		50.0	96	48.2		50.0	96				
Beryllium	46.8		50.0	94	45.0		50.0	90				
Boron	92.7		100	93	94.6		100	95				
Cadmium	50.6		50.0	101	52.6		50.0	105				
Calcium	4740		5000	95	4620		5000	92				
Chromium	47.8		50.0	96	46.4		50.0	93				
Cobalt	47.6		50.0	95	47.3		50.0	95				
Iron	5440		5000	109	4830		5000	97				
Lead	45.2		50.0	90	48.7		50.0	97				
Lithium	47.0		50.0	94	48.5		50.0	97				
Magnesium	4870		5000	97	4680		5000	94				
Manganese	495		500	99	486		500	97				
Molybdenum	49.7		50.0	99	48.9		50.0	98				
Potassium	4850		5000	97	4670		5000	93				
Selenium	54.3		50.0	109	50.4		50.0	101				
Sodium	4820		5000	96	4680		5000	94				
Thallium	9.21		10.0	92	10.6		10.0	106				

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICV Source: ICPMS_ICV_S_00013 Concentration Units: ug/L

CCV Source: ICPMS_CALSTD_00020

Analyte	ICV 400-440308/13 05/07/2019 14:27				CCV 400-440308/21 05/07/2019 15:24				CCV 400-440308/32 05/07/2019 16:20			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Calcium	3860		4000	96	4880		5000	98	5040		5000	101
Magnesium	3880		4000	97	4930		5000	99	5120		5000	102
Potassium	3920		4000	98	5020		5000	100	5150		5000	103
Sodium	3830		4000	96	4890		5000	98	5070		5000	101
Antimony	36.5		40.0	91	48.7		50.0	97	52.8		50.0	106
Arsenic	39.6		40.0	99	48.6		50.0	97	49.4		50.0	99
Barium	37.7		40.0	94	45.8		50.0	92	47.8		50.0	96
Beryllium	38.9		40.0	97	51.3		50.0	103	52.8		50.0	106
Boron	73.4		80.0	92	103		100	103	103		100	103
Cadmium	39.6		40.0	99	49.5		50.0	99	49.1		50.0	98
Chromium	38.3		40.0	96	49.1		50.0	98	50.3		50.0	101
Cobalt	39.2		40.0	98	48.8		50.0	98	49.8		50.0	100
Iron	3930		4000	98	5120		5000	102	5090		5000	102
Lead	38.0		40.0	95	49.2		50.0	98	48.2		50.0	96
Lithium	79.4		80.0	99	51.8		50.0	104	52.3		50.0	105
Manganese	393		400	98	500		500	100	516		500	103
Molybdenum	38.1		40.0	95	46.8		50.0	94	49.0		50.0	98
Selenium	37.9		40.0	95	50.6		50.0	101	50.2		50.0	100
Thallium	7.74		8.00	97	10.2		10.0	102	9.93		10.0	99

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICV Source: Hg VER.STD_00006 Concentration Units: ug/L

CCV Source: Hg VER.STD_00006

Analyte	ICV 400-439749/9-A 05/07/2019 12:06				CCV 400-439749/11-A 05/07/2019 12:42				CCV 400-439749/11-A 05/07/2019 13:03			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Mercury	5.96		6.00	99	6.31		6.00	105	6.14		6.00	102

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICV Source: Hg VER.STD_00006 Concentration Units: ug/L

CCV Source: Hg VER.STD_00006

Analyte	CCV 400-439744/11-A 05/07/2019 13:27				CCV 400-439744/11-A 05/07/2019 13:50				CCV 400-439744/11-A 05/07/2019 14:14			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Mercury	6.55		6.00	109	6.05		6.00	101	6.50		6.00	108

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Method: 6020 Instrument ID: ICPMS7700

Lab Sample ID: CRI 400-439959/15 Concentration Units: ug/L

CRQL Check Standard Source: ICPMS_ RL_00039

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Antimony	0.500	0.445	J	89	50-150
Arsenic	0.250	0.231	J	92	50-150
Barium	0.500	0.463	J	93	50-150
Beryllium	0.250	0.228	J	91	50-150
Boron	5.00	4.2	U	68	50-150
Cadmium	0.250	0.232	J	93	50-150
Calcium	50.0	43.1	J	86	50-150
Chromium	0.500	0.495	J	99	50-150
Cobalt	0.500	0.478	J	96	50-150
Lead	0.250	0.230	J	92	50-150
Lithium	0.500	0.64	U	107	50-150
Magnesium	25.0	24.5	J	98	50-150
Molybdenum	0.500	0.431	J	86	50-150
Potassium	25.0	27.4	J	109	50-150
Selenium	0.250	0.167	J	67	50-150
Sodium	50.0	48.7	J	97	50-150
Thallium	0.100	0.0940	J	94	50-150
Iron	25.0	23.1	J	92	50-150
Manganese	2.50	2.45	J	98	50-150

Lab Sample ID: CRI 400-440308/14 Concentration Units: ug/L

CRQL Check Standard Source: ICPMS_ RL_00039

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Antimony	0.500	0.435	J	87	50-150
Arsenic	0.250	0.240	J	96	50-150
Barium	0.500	0.461	J	92	50-150
Beryllium	0.250	0.240	J	96	50-150
Boron	5.00	4.2	U	76	50-150
Cadmium	0.250	0.285	J	114	50-150
Calcium	50.0	52.5		105	50-150
Chromium	0.500	0.508		102	50-150
Cobalt	0.500	0.509		102	50-150
Lead	0.250	0.201	J	80	50-150
Lithium	0.500	0.64	U	89	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Method: 6020 Instrument ID: ICPMS7700

Lab Sample ID: CRI 400-440308/14 Concentration Units: ug/L

CRQL Check Standard Source: ICPMS_ RL_00039

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Magnesium	25.0	26.6		106	50-150
Molybdenum	0.500	0.470	J	94	50-150
Potassium	25.0	24.2	J	97	50-150
Selenium	0.250	0.172	J	69	50-150
Sodium	50.0	52.3		105	50-150
Thallium	0.100	0.0990	J	99	50-150
Iron	25.0	24.6	J	98	50-150
Manganese	2.50	2.61		104	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Method: 7470A Instrument ID: HYDRA AA2

Lab Sample ID: CRA 400-439749/13-A Concentration Units: ug/L

CRQL Check Standard Source: HG002B6-19_00137

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Mercury	0.201	0.151	J	75	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 400-439959/17 05/06/2019 13:46		CCB 400-439959/214 05/07/2019 08:46		CCB 400-439959/225 05/07/2019 09:47		CCB 400-439959/237 05/07/2019 10:46	
		Found	C	Found	C	Found	C	Found	C
Antimony	0.50	0.20	U	0.20	U	0.20	U	0.20	U
Arsenic	0.25	0.092	U	0.092	U	0.092	U	0.092	U
Barium	0.50	0.098	U	0.098	U	0.098	U	0.098	U
Beryllium	0.50	0.068	U	0.068	U	0.068	U	0.068	U
Boron	10	4.2	U	4.2	U	4.2	U	4.2	U
Cadmium	0.50	0.068	U	0.068	U	0.068	U	0.068	U
Calcium	50	25	U	25	U	25	U	25	U
Chromium	0.50	0.22	U	0.22	U	0.22	U	0.22	U
Cobalt	0.50	0.080	U	0.080	U	0.080	U	0.080	U
Iron	25	11	U	11	U	11	U	11	U
Lead	0.25	0.070	U	0.070	U	0.070	U	0.070	U
Lithium	0.50	0.64	U	0.64	U	0.64	U	0.64	U
Magnesium	25	6.4	U	6.4	U	6.4	U	6.4	U
Manganese	2.5	1.1	U	1.1	U	1.1	U	1.1	U
Molybdenum	3.0	0.17	U	0.17	U	0.17	U	0.17	U
Potassium	50	22	U	22	U	22	U	22	U
Selenium	0.25	0.048	U	0.048	U	0.048	U	0.048	U
Sodium	50	34	U	34	U	34	U	34	U
Thallium	0.10	0.017	U	0.017	U	0.017	U	0.017	U

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	CCB 400-439959/244 05/07/2019 11:30							
		Found	C	Found	C	Found	C	Found	C
Antimony	0.50	0.20	U						
Arsenic	0.25	0.092	U						
Barium	0.50	0.098	U						
Beryllium	0.50	0.068	U						
Boron	10	4.2	U						
Cadmium	0.50	0.068	U						
Calcium	50	25	U						
Chromium	0.50	0.22	U						
Cobalt	0.50	0.080	U						
Iron	25	11	U						
Lead	0.25	0.070	U						
Lithium	0.50	0.64	U						
Magnesium	25	6.4	U						
Manganese	2.5	1.1	U						
Molybdenum	3.0	0.17	U						
Potassium	50	22	U						
Selenium	0.25	0.048	U						
Sodium	50	34	U						
Thallium	0.10	0.017	U						

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 400-440308/16 05/07/2019 14:48		CCB 400-440308/22 05/07/2019 15:32		CCB 400-440308/33 05/07/2019 16:28			
		Found	C	Found	C	Found	C	Found	C
Calcium	50	25	U	25	U	25	U		
Magnesium	25	6.4	U	6.4	U	6.4	U		
Potassium	50	22	U	22	U	22	U		
Sodium	50	34	U	34	U	34	U		
Antimony	0.50	0.20	U	0.20	U	0.20	U		
Arsenic	0.25	0.092	U	0.092	U	0.092	U		
Barium	0.50	0.098	U	0.098	U	0.098	U		
Beryllium	0.50	0.068	U	0.068	U	0.068	U		
Boron	10	4.2	U	4.2	U	4.2	U		
Cadmium	0.50	0.068	U	0.068	U	0.068	U		
Chromium	0.50	0.22	U	0.22	U	0.22	U		
Cobalt	0.50	0.080	U	0.080	U	0.080	U		
Iron	25	11	U	11	U	11	U		
Lead	0.25	0.070	U	0.070	U	0.070	U		
Lithium	0.50	0.64	U	0.64	U	0.64	U		
Manganese	2.5	1.1	U	1.1	U	1.1	U		
Molybdenum	3.0	0.17	U	0.17	U	0.17	U		
Selenium	0.25	0.048	U	0.048	U	0.048	U		
Thallium	0.10	0.017	U	0.017	U	0.017	U		

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 400-439749/8-A 05/07/2019 12:11		CCB 400-439749/12-A 05/07/2019 12:39		CCB 400-439749/12-A 05/07/2019 13:05		CCB 400-439744/12-A 05/07/2019 13:28	
		Found	C	Found	C	Found	C	Found	C
Mercury	0.20	0.070	U	0.070	U	0.070	U	0.070	U

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	CCB 400-439744/12-A 05/07/2019 13:52		CCB 400-439744/12-A 05/07/2019 14:16					
		Found	C	Found	C	Found	C	Found	C
Mercury	0.20	0.070	U	0.070	U				

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Concentration Units: mg/L Lab Sample ID: MB 400-439856/1-A ^5

Instrument Code: ICPMS7700 Batch No.: 439959

CAS No.	Analyte	Concentration	C	Q	Method
7440-36-0	Antimony	0.0010	U		6020
7440-38-2	Arsenic	0.00046	U		6020
7440-39-3	Barium	0.00049	U		6020
7440-41-7	Beryllium	0.00034	U		6020
7440-42-8	Boron	0.021	U		6020
7440-43-9	Cadmium	0.00034	U		6020
7440-70-2	Calcium	0.13	U		6020
7440-47-3	Chromium	0.0011	U		6020
7440-48-4	Cobalt	0.00040	U		6020
7439-92-1	Lead	0.00035	U		6020
7439-93-2	Lithium	0.0011	U		6020
7439-95-4	Magnesium	0.032	U		6020
7439-98-7	Molybdenum	0.0020	U		6020
7440-09-7	Potassium	0.11	U		6020
7782-49-2	Selenium	0.00071	U		6020
7440-23-5	Sodium	0.17	U		6020
7440-28-0	Thallium	0.000085	U		6020
7439-89-6	Iron	0.053	U		6020
7439-96-5	Manganese	0.0054	U		6020

3-IN
METHOD BLANK
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Concentration Units: mg/L Lab Sample ID: MB 400-439749/14-A

Instrument Code: HYDRA AA2 Batch No.: 439973

CAS No.	Analyte	Concentration	C	Q	Method
7439-97-6	Mercury	0.000070	U		7470A

FORM III-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Lab Sample ID: ICSA 400-439959/18 Instrument ID: ICPMS7700

Lab File ID: 027ICSA.d ICS Source: ICPMS_INT_A_00013

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Antimony		**-0.0400**	
Arsenic		**0.0000**	
Barium		**0.0320**	
Beryllium		**-0.0030**	
Boron		**-1.84**	
Cadmium		**0.0120**	
Calcium	**6000**	**5816**	**97**
Chromium		**0.119**	
Cobalt		**0.125**	
Iron	**5000**	**5026**	**101**
Lead		**0.0220**	
Lithium		**-0.0910**	
Magnesium	**2000**	**2002**	**100**
Manganese		**0.211**	
Molybdenum	**40.0**	**40.3**	**101**
Potassium	**2000**	**2004**	**100**
Selenium		**-0.0710**	
Sodium	**5000**	**4905**	**98**
Thallium		**-0.0010**	
Aluminum	*2000*	*2056*	*103*
Copper		*0.0910*	
Nickel		*0.202*	
Silicon		*-1.72*	
Silver		*0.0020*	
Strontium		*0.324*	
Tin		*-0.0310*	
Titanium	*40.0*	*41.0*	*103*
Vanadium		*-0.0140*	
Zinc		*0.131*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Lab Sample ID: ICSAB 400-439959/19 Instrument ID: ICPMS7700

Lab File ID: 028ICSB.d ICS Source: ICPMS_INT_A_00013

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Antimony		**-0.0370**	
Arsenic	**20.0**	**20.0**	**100**
Barium		**0.0250**	
Beryllium		**-0.0010**	
Boron		**-2.02**	
Cadmium	**20.0**	**19.4**	**97**
Calcium	**6000**	**5814**	**97**
Chromium	**40.0**	**39.0**	**97**
Cobalt	**40.0**	**39.6**	**99**
Iron	**5000**	**4929**	**99**
Lead		**0.0180**	
Lithium		**-0.153**	
Magnesium	**2000**	**2036**	**102**
Manganese	**40.0**	**41.1**	**103**
Molybdenum	**40.0**	**40.2**	**101**
Potassium	**2000**	**2017**	**101**
Selenium	**20.0**	**19.5**	**97**
Sodium	**5000**	**4962**	**99**
Thallium		**-0.0020**	
Aluminum	*2000*	*2049*	*102*
Copper	*40.0*	*39.5*	*99*
Nickel	*40.0*	*40.3*	*101*
Silicon		*-0.696*	
Silver	*40.0*	*40.0*	*100*
Strontium		*0.347*	
Tin		*-0.0580*	
Titanium	*40.0*	*41.1*	*103*
Vanadium	*40.0*	*38.7*	*97*
Zinc	*20.0*	*19.6*	*98*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Lab Sample ID: ICSAB 400-439959/19 Instrument ID: ICPMS7700

Lab File ID: 028ICSB.d ICS Source: ICPMS_INT_B_00014

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Antimony		**-0.0370**	
Arsenic	**20.0**	**20.0**	**100**
Barium		**0.0250**	
Beryllium		**-0.0010**	
Boron		**-2.02**	
Cadmium	**20.0**	**19.4**	**97**
Calcium	**6000**	**5814**	**97**
Chromium	**40.0**	**39.0**	**97**
Cobalt	**40.0**	**39.6**	**99**
Iron	**5000**	**4929**	**99**
Lead		**0.0180**	
Lithium		**-0.153**	
Magnesium	**2000**	**2036**	**102**
Manganese	**40.0**	**41.1**	**103**
Molybdenum	**40.0**	**40.2**	**101**
Potassium	**2000**	**2017**	**101**
Selenium	**20.0**	**19.5**	**97**
Sodium	**5000**	**4962**	**99**
Thallium		**-0.0020**	
Aluminum	*2000*	*2049*	*102*
Copper	*40.0*	*39.5*	*99*
Nickel	*40.0*	*40.3*	*101*
Silicon		*-0.696*	
Silver	*40.0*	*40.0*	*100*
Strontium		*0.347*	
Tin		*-0.0580*	
Titanium	*40.0*	*41.1*	*103*
Vanadium	*40.0*	*38.7*	*97*
Zinc	*20.0*	*19.6*	*98*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Lab Sample ID: ICSA 400-440308/17 Instrument ID: ICPMS7700

Lab File ID: 025ICSA.d ICS Source: ICPMS_INT_A_00013

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Calcium	**6000**	**6220**	**104**
Magnesium	**2000**	**2121**	**106**
Potassium	**2000**	**2138**	**107**
Sodium	**5000**	**5249**	**105**
Aluminum	*2000*	*2162*	*108*
Antimony		*-0.0470*	
Arsenic		*0.0050*	
Barium		*0.0300*	
Beryllium		*-0.0010*	
Boron		*-1.76*	
Cadmium		*0.0020*	
Chromium		*0.153*	
Cobalt		*0.132*	
Copper		*0.104*	
Iron	*5000*	*5231*	*105*
Lead		*-0.0090*	
Lithium		*-0.101*	
Manganese		*0.147*	
Molybdenum	*40.0*	*40.4*	*101*
Nickel		*0.168*	
Selenium		*-0.0800*	
Silicon		*-0.870*	
Silver		*0.0000*	
Strontium		*0.355*	
Thallium		*-0.0010*	
Tin		*-0.0460*	
Titanium	*40.0*	*40.9*	*102*
Vanadium		*-0.0030*	
Zinc		*0.293*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Lab Sample ID: ICSAB 400-440308/18 Instrument ID: ICPMS7700

Lab File ID: 026ICSB.d ICS Source: ICPMS_INT_A_00013

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Calcium	**6000**	**6206**	**103**
Magnesium	**2000**	**2110**	**105**
Potassium	**2000**	**2128**	**106**
Sodium	**5000**	**5168**	**103**
Aluminum	*2000*	*2152*	*108*
Antimony		*-0.0530*	
Arsenic	*20.0*	*21.7*	*109*
Barium		*0.0270*	
Beryllium		*0.0000*	
Boron		*-1.92*	
Cadmium	*20.0*	*21.0*	*105*
Chromium	*40.0*	*41.1*	*103*
Cobalt	*40.0*	*42.3*	*106*
Copper	*40.0*	*42.2*	*105*
Iron	*5000*	*5298*	*106*
Lead		*0.0020*	
Lithium		*0.0030*	
Manganese	*40.0*	*43.8*	*110*
Molybdenum	*40.0*	*41.1*	*103*
Nickel	*40.0*	*42.6*	*107*
Selenium	*20.0*	*20.8*	*104*
Silicon		*-0.934*	
Silver	*40.0*	*42.9*	*107*
Strontium		*0.358*	
Thallium		*-0.0010*	
Tin		*-0.0210*	
Titanium	*40.0*	*41.8*	*105*
Vanadium	*40.0*	*41.6*	*104*
Zinc	*20.0*	*21.7*	*108*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Lab Sample ID: ICSAB 400-440308/18 Instrument ID: ICPMS7700

Lab File ID: 026ICSB.d ICS Source: ICPMS_INT_B_00014

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Calcium	**6000**	**6206**	**103**
Magnesium	**2000**	**2110**	**105**
Potassium	**2000**	**2128**	**106**
Sodium	**5000**	**5168**	**103**
Aluminum	*2000*	*2152*	*108*
Antimony		*-0.0530*	
Arsenic	*20.0*	*21.7*	*109*
Barium		*0.0270*	
Beryllium		*0.0000*	
Boron		*-1.92*	
Cadmium	*20.0*	*21.0*	*105*
Chromium	*40.0*	*41.1*	*103*
Cobalt	*40.0*	*42.3*	*106*
Copper	*40.0*	*42.2*	*105*
Iron	*5000*	*5298*	*106*
Lead		*0.0020*	
Lithium		*0.0030*	
Manganese	*40.0*	*43.8*	*110*
Molybdenum	*40.0*	*41.1*	*103*
Nickel	*40.0*	*42.6*	*107*
Selenium	*20.0*	*20.8*	*104*
Silicon		*-0.934*	
Silver	*40.0*	*42.9*	*107*
Strontium		*0.358*	
Thallium		*-0.0010*	
Tin		*-0.0210*	
Titanium	*40.0*	*41.8*	*105*
Vanadium	*40.0*	*41.6*	*104*
Zinc	*20.0*	*21.7*	*108*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS

Client ID: AES-MW2-042319 MS
Lab ID: 400-169314-2 MS
Lab Name: Eurofins TestAmerica, Pensacola
Job No.: 400-169314-1
SDG No.:
Matrix: Water
Concentration Units: mg/L
% Solids:

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Mercury	0.00189		0.000070	U	0.00201	94	80-120		7470A

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VA - IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS - TOTAL RECOVERABLE

Client ID: AES-MW2-042319 MS
Lab ID: 400-169314-2 MS
Lab Name: Eurofins TestAmerica, Pensacola
Job No.: 400-169314-1
SDG No.:
Matrix: Water
Concentration Units: mg/L
% Solids:

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Antimony	0.0495		0.0010	U	0.0500	99	75-125		6020
Arsenic	0.0488		0.00046	U	0.0500	98	75-125		6020
Barium	0.182		0.13		0.0500	100	75-125		6020
Beryllium	0.0473		0.00034	U	0.0500	95	75-125		6020
Boron	0.242		0.14		0.100	97	75-125		6020
Cadmium	0.0513		0.00034	U	0.0500	103	75-125		6020
Calcium	118		110		5.00	116	75-125	E 4	6020
Chromium	0.0470		0.0011	U	0.0500	94	75-125		6020
Cobalt	0.0484		0.00040	U	0.0500	97	75-125		6020
Lead	0.0494		0.00035	U	0.0500	99	75-125		6020
Lithium	0.0527		0.0011	U	0.0500	105	75-125		6020
Magnesium	55.9		51		5.00	100	75-125	4	6020
Molybdenum	0.0524		0.0020	U	0.0500	105	75-125		6020
Potassium	5.62		0.64		5.00	100	75-125		6020
Selenium	0.0512		0.00071	U	0.0500	102	75-125		6020
Sodium	80.8		75		5.00	122	75-125	4	6020
Thallium	0.00990		0.000085	U	0.0100	99	75-125		6020
Iron	4.88		0.053	U	5.00	98	75-125		6020
Manganese	1.34		0.84		0.500	101	75-125		6020

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VA - IN

5A-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
METALS

Client ID: AES-MW2-042319 MSD
Lab ID: 400-169314-2 MSD
Lab Name: Eurofins TestAmerica, Pensacola
Job No.: 400-169314-1
SDG No.:
Matrix: Water
Concentration Units: mg/L
% Solids:

Analyte	(SDR) C		Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Mercury	0.00186		0.00201	92	80-120	2	20		7470A

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VD - IN

5A-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
METALS - TOTAL RECOVERABLE

Client ID: AES-MW2-042319 MSD Lab ID: 400-169314-2 MSD

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Matrix: Water Concentration Units: mg/L

% Solids:

Analyte	(SDR)	C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Antimony	0.0513		0.0500	103	75-125	4	20		6020
Arsenic	0.0518		0.0500	104	75-125	6	20		6020
Barium	0.189		0.0500	113	75-125	4	20		6020
Beryllium	0.0483		0.0500	97	75-125	2	20		6020
Boron	0.242		0.100	97	75-125	0	20		6020
Cadmium	0.0533		0.0500	107	75-125	4	20		6020
Calcium	122		5.00	199	75-125	3	20	E 4	6020
Chromium	0.0496		0.0500	99	75-125	5	20		6020
Cobalt	0.0512		0.0500	102	75-125	6	20		6020
Lead	0.0503		0.0500	101	75-125	2	20		6020
Lithium	0.0521		0.0500	104	75-125	1	20		6020
Magnesium	58.0		5.00	142	75-125	4	20	4	6020
Molybdenum	0.0558		0.0500	112	75-125	6	20		6020
Potassium	5.85		5.00	104	75-125	4	20		6020
Selenium	0.0438		0.0500	88	75-125	16	20		6020
Sodium	82.4		5.00	154	75-125	2	20	4	6020
Thallium	0.0101		0.0100	101	75-125	2	20		6020
Iron	4.24		5.00	85	75-125	14	20		6020
Manganese	1.39		0.500	110	75-125	4	20		6020

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VD - IN

5B-IN
POST DIGESTION SPIKE SAMPLE RECOVERY
METALS - TOTAL RECOVERABLE

Client ID: AES-MW2-042319 PDS | Lab ID: 400-169314-2 PDS

Lab Name: Eurofins TestAmerica, Pensacola | Job No.: 400-169314-1

SDG No.:

Matrix: Water | Concentration Units: mg/L

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Antimony	0.221		0.0010	U	0.250	89	75-125		6020
Arsenic	0.242		0.00046	U	0.250	97	75-125		6020
Barium	0.388		0.13		0.250	102	75-125		6020
Beryllium	0.245		0.00034	U	0.250	98	75-125		6020
Boron	0.643		0.14		0.500	100	75-125		6020
Cadmium	0.262		0.00034	U	0.250	105	75-125		6020
Calcium	138		110		25.0	106	75-125	E	6020
Chromium	0.249		0.0011	U	0.250	99	75-125		6020
Cobalt	0.249		0.00040	U	0.250	100	75-125		6020
Lead	0.265		0.00035	U	0.250	106	75-125		6020
Lithium	0.259		0.0011	U	0.250	104	75-125		6020
Magnesium	76.2		51		25.0	101	75-125		6020
Molybdenum	0.265		0.0020	U	0.250	106	75-125		6020
Potassium	25.9		0.64		25.0	101	75-125		6020
Selenium	0.286		0.00071	U	0.250	115	75-125		6020
Sodium	101		75		25.0	105	75-125		6020
Thallium	0.0522		0.000085	U	0.0500	104	75-125		6020
Iron	28.0		0.053	U	25.0	112	75-125		6020
Manganese	3.38		0.84		2.50	102	75-125		6020

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VB - IN

7A-IN
LAB CONTROL SAMPLE
METALS - TOTAL RECOVERABLE

Lab ID: LCS 400-439856/2-A

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

Sample Matrix: Water LCS Source: ICPMS_CALSTD_00020

Analyte	Water(mg/L)							
	True	Found	C	%R	Limits		Q	Method
Antimony	0.0500	0.0469		94	80	120		6020
Arsenic	0.0500	0.0479		96	80	120		6020
Barium	0.0500	0.0469		94	80	120		6020
Beryllium	0.0500	0.0464		93	80	120		6020
Boron	0.100	0.0973		97	80	120		6020
Cadmium	0.0500	0.0501		100	80	120		6020
Calcium	5.00	4.77		95	80	120		6020
Chromium	0.0500	0.0478		96	80	120		6020
Cobalt	0.0500	0.0487		97	80	120		6020
Lead	0.0500	0.0495		99	80	120		6020
Lithium	0.0500	0.0493		99	80	120		6020
Magnesium	5.00	4.86		97	80	120		6020
Molybdenum	0.0500	0.0492		98	80	120		6020
Potassium	5.00	4.79		96	80	120		6020
Selenium	0.0500	0.0487		97	80	120		6020
Sodium	5.00	4.86		97	80	120		6020
Thallium	0.0100	0.00989		99	80	120		6020
Iron	5.00	4.87		97	80	120		6020
Manganese	0.500	0.492		98	80	120		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

LINEAR RANGE CHECK STANDARD
METALS -

Lab ID: LRC 400-439749/10-A

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

Sample Matrix: Water LCS Source: HG002B6-19_00137

Analyte	Water(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Mercury	10.1	9.96		99	90	110		7470A

Calculations are performed before rounding to avoid round-off errors in calculated results.

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 400-439749/15-A

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

Sample Matrix: Water LCS Source: HG002B6-19_00137

Analyte	Water(mg/L)							
	True	Found	C	%R	Limits		Q	Method
Mercury	0.00101	0.00111		110	80	120		7470A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS - TOTAL RECOVERABLE

Lab ID: 400-169314-2

SDG No:

Lab Name: Eurofins TestAmerica, Pensacola Job No: 400-169314-1

Matrix: Water Concentration Units: mg/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Antimony	0.0010	U	0.0050	U	NC		6020
Arsenic	0.00046	U	0.0023	U	NC		6020
Barium	0.13		0.130		2.0		6020
Beryllium	0.00034	U	0.0017	U	NC		6020
Boron	0.14		0.11	U	NC		6020
Cadmium	0.00034	U	0.0017	U	NC		6020
Calcium	110		114		2.3		6020
Chromium	0.0011	U	0.0055	U	NC		6020
Cobalt	0.00040	U	0.0020	U	NC		6020
Lead	0.00035	U	0.0018	U	NC		6020
Lithium	0.0011	U	0.0055	U	NC		6020
Magnesium	51		51.3		0.76		6020
Molybdenum	0.0020	U	0.0099	U	NC		6020
Potassium	0.64		0.623	J	NC		6020
Selenium	0.00071	U	0.0036	U	NC		6020
Sodium	75		74.3		0.56		6020
Thallium	0.000085	U	0.00043	U	NC		6020
Iron	0.053	U	0.27	U	NC		6020
Manganese	0.84		0.841		0.50		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 400-169314-2

SDG No:

Lab Name: Eurofins TestAmerica, Pensacola Job No: 400-169314-1

Matrix: Water Concentration Units: mg/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Mercury	0.000070	U	0.00035	U	NC		7470A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

9-IN
DETECTION LIMITS
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7700

Method: 6020 MDL Date: 10/11/2018 17:00

Prep Method: 3005A

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (ug/L)
Antimony		0.0025	1
Arsenic		0.00125	0.46
Barium		0.0025	0.49
Beryllium		0.0025	0.34
Boron		0.05	21
Cadmium		0.0025	0.34
Calcium		0.25	125
Chromium		0.0025	1.1
Cobalt		0.0025	0.4
Lead		0.00125	0.35
Lithium		0.005	1.1
Molybdenum		0.015	1.98
Selenium		0.00125	0.71
Thallium		0.0005	0.085

9-IN
DETECTION LIMITS
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7700

Method: 6020 MDL Date: 10/11/2018 17:00

Prep Method: 3005A

Analyte	Wavelength/ Mass	RL (ug/L)	MDL (ug/L)
Iron		125	53
Magnesium		125	32
Manganese		12.5	5.4
Potassium		250	111
Sodium		250	168

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: ICPMS7700

Method: 6020 XMDL Date: 06/28/2017 08:30

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Antimony		2.5	1
Arsenic		1.25	0.46
Barium		2.5	0.49
Beryllium		2.5	0.34
Boron		50	21
Cadmium		2.5	0.34
Calcium		250	125
Chromium		2.5	1.1
Cobalt		2.5	0.4
Iron		125	53
Lead		1.25	0.35
Lithium		2.5	3.2
Magnesium		125	32
Manganese		12.5	5.4
Molybdenum		15	0.85
Potassium		250	111
Selenium		1.25	0.24
Sodium		250	168
Thallium		0.5	0.085

9-IN
DETECTION LIMITS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: HYDRA AA2

Method: 7470A MDL Date: 09/16/2014 21:19

Prep Method: 7470A

Analyte	Wavelength/ Mass	RL (ug/L)	MDL (ug/L)
Mercury		0.2	0.07

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: HYDRA AA2

Method: 7470A XMDL Date: 09/16/2014 21:31

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Mercury		0.2	0.07

11-IN
LINEAR RANGES
METALS

Lab Name: Eurofins TestAmerica, Pensacol Job No: 400-169314-1

SDG No.:

Instrument ID: ICPMS7700 Date: 03/24/2017 09:08

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Antimony		180	6020
Arsenic		180	6020
Barium		890	6020
Beryllium		180	6020
Boron		360	6020
Cadmium		180	6020
Calcium		22380	6020
Chromium		180	6020
Cobalt		180	6020
Lead		180	6020
Lithium		180	6020
Magnesium		44860	6020
Molybdenum		180	6020
Potassium		45010	6020
Selenium		180	6020
Sodium		44950	6020
Thallium		36	6020
Iron		45010	6020
Manganese		2260	6020

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Prep Method: 3005A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 400-439856/1-A ^5	05/06/2019 16:45	439856		50	50
LCS 400-439856/2-A	05/06/2019 16:45	439856		50	50
400-169314-1	05/06/2019 16:45	439856		50	50
400-169314-1 DL	05/06/2019 16:45	439856		50	50
400-169314-2	05/06/2019 16:45	439856		50	50
400-169314-2 MS	05/06/2019 16:45	439856		50	50
400-169314-2 MSD	05/06/2019 16:45	439856		50	50
400-169314-3	05/06/2019 16:45	439856		50	50
400-169314-3 DL	05/06/2019 16:45	439856		50	50
400-169314-4	05/06/2019 16:45	439856		50	50
400-169314-4 RA	05/06/2019 16:45	439856		50	50
400-169314-5	05/06/2019 16:45	439856		50	50
400-169314-5 DL	05/06/2019 16:45	439856		50	50
400-169314-6	05/06/2019 16:45	439856		50	50
400-169314-6 DL	05/06/2019 16:45	439856		50	50
400-169314-7	05/06/2019 16:45	439856		50	50
400-169314-7 DL	05/06/2019 16:45	439856		50	50
400-169314-8	05/06/2019 16:45	439856		50	50

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Prep Method: 7470A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 400-439749/14-A	05/06/2019 09:46	439749		40	40
LCS 400-439749/15-A	05/06/2019 09:46	439749		40	40
400-169314-1	05/06/2019 09:46	439749		40	40
400-169314-2	05/06/2019 09:46	439749		40	40
400-169314-2 MS	05/06/2019 09:46	439749		40	40
400-169314-2 MSD	05/06/2019 09:46	439749		40	40
400-169314-3	05/06/2019 09:46	439749		40	40
400-169314-4	05/06/2019 09:46	439749		40	40
400-169314-5	05/06/2019 09:46	439749		40	40
400-169314-6	05/06/2019 09:46	439749		40	40
400-169314-7	05/06/2019 09:46	439749		40	40
400-169314-8	05/06/2019 09:46	439749		40	40

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020

Start Date: 05/06/2019 12:22 End Date: 05/07/2019 11:30

Lab Sample Id	D/F	Type	Time	Analytes																								
				As	B	Ba	Be	Ca	Cd	Co	Cr	Fe	K	Li	Mg	Mn	Mo	Na	Pb	Sb	Se	Tl							
ICIS 400-439959/1			12:22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
ICIS 400-439959/2			12:26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
ZZZZZZ			12:30																									
ZZZZZZ			12:34																									
ZZZZZZ			12:38																									
ZZZZZZ			12:42																									
ZZZZZZ			12:46																									
ZZZZZZ			12:50																									
ZZZZZZ			12:54																									
ZZZZZZ			12:58																									
ZZZZZZ			13:02																									
ICIS 400-439959/12			13:10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
ZZZZZZ			13:18																									
ICV 400-439959/14	1		13:26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CRI 400-439959/15	1		13:38	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
ZZZZZZ			13:42																									
ICB 400-439959/17	1		13:46	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
ICSA 400-439959/18	1		13:50	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
ICSAB 400-439959/19	1		13:54	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
ZZZZZZ			13:58																									
ZZZZZZ			14:06																									
CCV 400-439959/22			14:22																									
CCB 400-439959/23			14:30																									
ZZZZZZ			14:34																									
ZZZZZZ			14:38																									
ZZZZZZ			14:42																									
ZZZZZZ			14:46																									
ZZZZZZ			14:50																									
ZZZZZZ			14:54																									
ZZZZZZ			14:58																									
ZZZZZZ			15:17																									
ZZZZZZ			15:21																									
ZZZZZZ			15:25																									
CCV 400-439959/34			15:33																									
CCB 400-439959/35			15:41																									
ZZZZZZ			15:44																									
ZZZZZZ			15:48																									
ZZZZZZ			15:52																									
ZZZZZZ			15:56																									
ZZZZZZ			16:00																									
ZZZZZZ			16:04																									
ZZZZZZ			16:08																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020

Start Date: 05/06/2019 12:22 End Date: 05/07/2019 11:30

Lab Sample Id	D/F	Type	Time	Analytes																									
				As	B	Ba	Be	Ca	Cd	Co	Cr	Fe	K	Li	Mg	Mn	Mo	Na	Pb	Sb	Se	Tl							
ZZZZZZ			16:12																										
ZZZZZZ			16:16																										
ZZZZZZ			16:20																										
CCV 400-439959/46			16:28																										
CCB 400-439959/47			16:36																										
ZZZZZZ			16:40																										
ZZZZZZ			16:44																										
ZZZZZZ			16:48																										
ZZZZZZ			16:52																										
ZZZZZZ			16:56																										
ZZZZZZ			17:00																										
ZZZZZZ			17:04																										
ZZZZZZ			17:08																										
ZZZZZZ			17:12																										
ZZZZZZ			17:16																										
CCV 400-439959/58			17:23																										
CCB 400-439959/59			17:31																										
ZZZZZZ			17:35																										
ZZZZZZ			17:39																										
ZZZZZZ			17:43																										
ZZZZZZ			17:47																										
ZZZZZZ			17:51																										
ZZZZZZ			17:55																										
ZZZZZZ			17:59																										
ZZZZZZ			18:03																										
ZZZZZZ			18:07																										
ZZZZZZ			18:11																										
CCV 400-439959/70			18:19																										
CCB 400-439959/71			18:27																										
ZZZZZZ			18:31																										
ZZZZZZ			18:34																										
ZZZZZZ			18:38																										
ZZZZZZ			18:42																										
ZZZZZZ			18:46																										
ZZZZZZ			18:50																										
ZZZZZZ			18:54																										
ZZZZZZ			18:58																										
ZZZZZZ			19:02																										
ZZZZZZ			19:06																										
CCV 400-439959/82			19:14																										
CCB 400-439959/83			19:22																										
ZZZZZZ			19:26																										

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020

Start Date: 05/06/2019 12:22 End Date: 05/07/2019 11:30

Lab Sample Id	D/F	Type	Time	Analytes																									
				As	B	Ba	Be	Ca	Cd	Co	Cr	Fe	K	Li	Mg	Mn	Mo	Na	Pb	Sb	Se	Tl							
ZZZZZZ			19:30																										
ZZZZZZ			19:34																										
ZZZZZZ			19:38																										
ZZZZZZ			19:41																										
ZZZZZZ			19:45																										
ZZZZZZ			19:49																										
ZZZZZZ			19:53																										
ZZZZZZ			19:57																										
ZZZZZZ			20:01																										
CCV 400-439959/94			20:09																										
CCB 400-439959/95			20:17																										
ZZZZZZ			20:21																										
ZZZZZZ			20:25																										
ZZZZZZ			20:29																										
ZZZZZZ			20:33																										
ZZZZZZ			20:37																										
ZZZZZZ			20:41																										
ZZZZZZ			20:45																										
ZZZZZZ			20:48																										
ZZZZZZ			20:52																										
ZZZZZZ			20:56																										
CCV 400-439959/106			21:04																										
CCB 400-439959/107			21:12																										
ZZZZZZ			21:16																										
ZZZZZZ			21:20																										
ZZZZZZ			21:24																										
ZZZZZZ			21:28																										
ZZZZZZ			21:32																										
ZZZZZZ			21:36																										
ZZZZZZ			21:40																										
ZZZZZZ			21:44																										
ZZZZZZ			21:48																										
ZZZZZZ			21:52																										
CCV 400-439959/118			22:00																										
CCB 400-439959/119			22:07																										
ZZZZZZ			22:11																										
ZZZZZZ			22:15																										
ZZZZZZ			22:19																										
ZZZZZZ			22:23																										
ZZZZZZ			22:27																										
ZZZZZZ			22:31																										
ZZZZZZ			22:35																										

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020

Start Date: 05/06/2019 12:22 End Date: 05/07/2019 11:30

Lab Sample Id	D/F	Type	Time	Analytes																									
				As	B	Ba	Be	Ca	Cd	Co	Cr	Fe	K	Li	Mg	Mn	Mo	Na	Pb	Sb	Se	Tl							
ZZZZZZ			22:39																										
ZZZZZZ			22:43																										
ZZZZZZ			22:47																										
CCV 400-439959/130			22:55																										
CCB 400-439959/131			23:03																										
ZZZZZZ			23:07																										
ZZZZZZ			23:11																										
ZZZZZZ			23:15																										
ZZZZZZ			23:19																										
ZZZZZZ			23:23																										
ZZZZZZ			23:27																										
ZZZZZZ			23:31																										
ZZZZZZ			23:34																										
ZZZZZZ			23:38																										
ZZZZZZ			23:42																										
CCV 400-439959/142			23:50																										
CCB 400-439959/143			23:58																										
ZZZZZZ			00:02																										
ZZZZZZ			00:06																										
ZZZZZZ			00:10																										
ZZZZZZ			00:14																										
ZZZZZZ			00:18																										
ZZZZZZ			00:22																										
ZZZZZZ			00:26																										
ZZZZZZ			00:30																										
ZZZZZZ			00:34																										
ZZZZZZ			00:38																										
CCV 400-439959/154			00:46																										
CCB 400-439959/155			00:53																										
ZZZZZZ			00:57																										
ZZZZZZ			01:01																										
ZZZZZZ			01:05																										
ZZZZZZ			01:09																										
ZZZZZZ			01:13																										
ZZZZZZ			01:17																										
ZZZZZZ			01:21																										
ZZZZZZ			01:25																										
ZZZZZZ			01:29																										
ZZZZZZ			01:33																										
CCV 400-439959/166			01:41																										
CCB 400-439959/167			01:49																										
ZZZZZZ			01:53																										

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020

Start Date: 05/06/2019 12:22 End Date: 05/07/2019 11:30

Lab Sample Id	D/F	Type	Time	Analytes																									
				As	B	Ba	Be	Ca	Cd	Co	Cr	Fe	K	Li	Mg	Mn	Mo	Na	Pb	Sb	Se	Tl							
ZZZZZZ			01:57																										
ZZZZZZ			02:01																										
ZZZZZZ			02:05																										
ZZZZZZ			02:09																										
ZZZZZZ			02:12																										
ZZZZZZ			02:16																										
ZZZZZZ			02:20																										
ZZZZZZ			02:24																										
ZZZZZZ			02:28																										
CCV 400-439959/178			02:36																										
CCB 400-439959/179			02:44																										
ZZZZZZ			02:48																										
ZZZZZZ			02:52																										
ZZZZZZ			02:55																										
ZZZZZZ			02:59																										
ZZZZZZ			03:03																										
ZZZZZZ			03:07																										
ZZZZZZ			03:11																										
ZZZZZZ			03:15																										
ZZZZZZ			03:19																										
ZZZZZZ			03:23																										
CCV 400-439959/190			03:31																										
CCB 400-439959/191			03:39																										
ZZZZZZ			03:43																										
ZZZZZZ			03:47																										
ZZZZZZ			03:51																										
ZZZZZZ			03:55																										
ZZZZZZ			03:59																										
ZZZZZZ			04:03																										
ZZZZZZ			04:07																										
ZZZZZZ			04:11																										
ZZZZZZ			04:15																										
ZZZZZZ			04:19																										
CCV 400-439959/202			04:27																										
CCB 400-439959/203			04:34																										
ZZZZZZ			04:38																										
ZZZZZZ			04:42																										
ZZZZZZ			04:46																										
ZZZZZZ			04:50																										
ZZZZZZ			04:54																										
ZZZZZZ			04:58																										
ZZZZZZ			05:02																										

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020

Start Date: 05/06/2019 12:22 End Date: 05/07/2019 11:30

Lab Sample Id	D/F	Type	Time	Analytes																								
				As	B	Ba	Be	Ca	Cd	Co	Cr	Fe	K	Li	Mg	Mn	Mo	Na	Pb	Sb	Se	Tl							
CCV 400-439959/211			05:14																									
CCB 400-439959/212			05:22																									
CCV 400-439959/213	1		08:38	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CCB 400-439959/214	1		08:46	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
ZZZZZZ			08:56																									
ZZZZZZ			09:00																									
ZZZZZZ			09:03																									
ZZZZZZ			09:07																									
ZZZZZZ			09:11																									
ZZZZZZ			09:15																									
ZZZZZZ			09:19																									
MB 400-439856/1-A ^5	5	R	09:23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
LCS 400-439856/2-A	1	R	09:27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CCV 400-439959/224	1		09:39	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CCB 400-439959/225	1		09:47	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
ZZZZZZ			09:51																									
ZZZZZZ			09:55																									
ZZZZZZ			10:03																									
400-169314-1	5	R	10:07	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X							
400-169314-2	5	R	10:11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
400-169314-2 SD	25	R	10:15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
400-169314-2 PDS	5	R	10:19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
400-169314-2 MS	5	R	10:23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
400-169314-2 MSD	5	R	10:26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
400-169314-8	5	R	10:30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CCV 400-439959/236	1		10:38	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CCB 400-439959/237	1		10:46	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
400-169314-3	5	R	10:50	X	X	X	X		X	X	X	X	X	X		X	X		X	X	X	X							
400-169314-4	5	R	10:54	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X							
400-169314-5	5	R	10:58	X	X	X	X		X	X	X	X		X	X	X	X		X	X	X	X							
400-169314-6	5	R	11:02	X	X	X	X		X	X	X	X		X	X	X	X		X	X	X	X							
400-169314-7	5	R	11:06	X	X	X	X		X	X	X	X	X	X		X	X		X	X	X	X							
CCV 400-439959/243	1		11:22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
CCB 400-439959/244	1		11:30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							

Prep Types:
R = Total Recoverable

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020

Start Date: 05/07/2019 13:31 End Date: 05/07/2019 19:53

Lab Sample Id	D/F	Type	Time	Analytes																									
				Ca	K	Mg	Na																						
ICIS 400-440308/1			13:31	X	X	X	X																						
ICIS 400-440308/2			13:35	X	X	X	X																						
ZZZZZZ			13:39																										
ZZZZZZ			13:43																										
ZZZZZZ			13:47																										
ZZZZZZ			13:51																										
ZZZZZZ			13:55																										
ZZZZZZ			13:59																										
ZZZZZZ			14:03																										
ZZZZZZ			14:07																										
ZZZZZZ			14:11																										
ICIS 400-440308/12			14:23	X	X	X	X																						
ICV 400-440308/13	1		14:27	X	X	X	X																						
CRI 400-440308/14	1		14:40	X	X	X	X																						
ZZZZZZ			14:44																										
ICB 400-440308/16	1		14:48	X	X	X	X																						
ICSA 400-440308/17	1		14:52	X	X	X	X																						
ICSAB 400-440308/18	1		14:56	X	X	X	X																						
ZZZZZZ			15:00																										
ZZZZZZ			15:08																										
CCV 400-440308/21	1		15:24	X	X	X	X																						
CCB 400-440308/22	1		15:32	X	X	X	X																						
400-169314-1 DL	25	R	15:36				X																						
400-169314-3 DL	100	R	15:40	X		X	X																						
400-169314-4 RA	5	R	15:44			X	X																						
400-169314-5 DL	200	R	15:48	X	X		X																						
400-169314-6 DL	200	R	15:52	X	X		X																						
400-169314-7 DL	100	R	15:56	X		X	X																						
ZZZZZZ			16:00																										
ZZZZZZ			16:04																										
ZZZZZZ			16:08																										
CCV 400-440308/32	1		16:20	X	X	X	X																						
CCB 400-440308/33	1		16:28	X	X	X	X																						
ZZZZZZ			16:32																										
ZZZZZZ			16:36																										
ZZZZZZ			16:40																										
ZZZZZZ			16:44																										
ZZZZZZ			16:48																										
ZZZZZZ			16:52																										
ZZZZZZ			16:56																										
ZZZZZZ			17:00																										
ZZZZZZ			17:04																										

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020

Start Date: 05/07/2019 13:31 End Date: 05/07/2019 19:53

Lab Sample Id	D/F	Type	Time	Analytes																										
				Ca	K	Mg	Na																							
CCV 400-440308/43			17:17																											
CCB 400-440308/44			17:25																											
ZZZZZZ			17:29																											
ZZZZZZ			17:32																											
ZZZZZZ			17:37																											
ZZZZZZ			17:41																											
ZZZZZZ			17:45																											
ZZZZZZ			17:49																											
ZZZZZZ			17:53																											
ZZZZZZ			17:57																											
ZZZZZZ			18:01																											
ZZZZZZ			18:05																											
CCV 400-440308/55			18:13																											
CCB 400-440308/56			18:21																											
ZZZZZZ			18:25																											
ZZZZZZ			18:29																											
ZZZZZZ			18:33																											
ZZZZZZ			18:37																											
ZZZZZZ			18:41																											
ZZZZZZ			18:45																											
ZZZZZZ			18:49																											
ZZZZZZ			18:53																											
ZZZZZZ			18:57																											
ZZZZZZ			19:01																											
CCV 400-440308/67			19:09																											
CCB 400-440308/68			19:17																											
ZZZZZZ			19:21																											
ZZZZZZ			19:25																											
ZZZZZZ			19:29																											
ZZZZZZ			19:33																											
ZZZZZZ			19:37																											
CCV 400-440308/74			19:45																											
CCB 400-440308/75			19:53																											

Prep Types:
R = Total Recoverable

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: HYDRA AA2 Analysis Method: 7470A

Start Date: 05/07/2019 11:52 End Date: 05/07/2019 14:16

Lab Sample Id	D/F	Type	Time	Analytes																								
				Hg																								
IC 400-439749/1-A			11:52	X																								
IC 400-439749/2-A			11:54	X																								
IC 400-439749/3-A			11:56	X																								
IC 400-439749/4-A			11:57	X																								
IC 400-439749/5-A			11:59	X																								
IC 400-439749/6-A			12:01	X																								
IC 400-439749/7-A			12:03	X																								
ICV 400-439749/9-A	1		12:06	X																								
CRA 400-439749/13-A	1		12:07	X																								
LRC 400-439749/10-A	1		12:09	X																								
ICB 400-439749/8-A	1		12:11	X																								
MB 400-439749/14-A	1	T	12:19	X																								
LCS 400-439749/15-A	1	T	12:21	X																								
400-169314-1	1	T	12:23	X																								
400-169314-2	1	T	12:24	X																								
400-169314-2 SD	5	T	12:26	X																								
400-169314-2 MS	1	T	12:28	X																								
400-169314-2 MSD	1	T	12:30	X																								
400-169314-3	1	T	12:32	X																								
400-169314-4	1	T	12:34	X																								
400-169314-5	1	T	12:36	X																								
ZZZZZZ			12:38																									
CCB 400-439749/12-A	1		12:39	X																								
ZZZZZZ			12:41																									
CCV 400-439749/11-A	1		12:42	X																								
400-169314-6	1	T	12:44	X																								
400-169314-7	1	T	12:46	X																								
400-169314-8	1	T	12:48	X																								
ZZZZZZ			12:50																									
ZZZZZZ			12:52																									
ZZZZZZ			12:54																									
ZZZZZZ			12:55																									
ZZZZZZ			12:57																									
ZZZZZZ			12:59																									
ZZZZZZ			13:01																									
CCV 400-439749/11-A	1		13:03	X																								
CCB 400-439749/12-A	1		13:05	X																								
ZZZZZZ			13:07																									
ZZZZZZ			13:10																									
ZZZZZZ			13:12																									
ZZZZZZ			13:13																									
ZZZZZZ			13:15																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: HYDRA AA2 Analysis Method: 7470A

Start Date: 05/07/2019 11:52 End Date: 05/07/2019 14:16

Lab Sample Id	D/F	Type	Time	Analytes																								
				Hg																								
ZZZZZZ			13:17																									
ZZZZZZ			13:19																									
ZZZZZZ			13:21																									
ZZZZZZ			13:23																									
ZZZZZZ			13:25																									
CCV 400-439744/11-A	1		13:27	X																								
CCB 400-439744/12-A	1		13:28	X																								
ZZZZZZ			13:30																									
ZZZZZZ			13:32																									
ZZZZZZ			13:34																									
ZZZZZZ			13:36																									
ZZZZZZ			13:38																									
ZZZZZZ			13:40																									
ZZZZZZ			13:42																									
ZZZZZZ			13:44																									
ZZZZZZ			13:46																									
ZZZZZZ			13:48																									
CCV 400-439744/11-A	1		13:50	X																								
CCB 400-439744/12-A	1		13:52	X																								
ZZZZZZ			13:54																									
ZZZZZZ			13:56																									
ZZZZZZ			13:58																									
ZZZZZZ			14:00																									
ZZZZZZ			14:02																									
ZZZZZZ			14:04																									
ZZZZZZ			14:06																									
ZZZZZZ			14:08																									
ZZZZZZ			14:10																									
ZZZZZZ			14:12																									
CCV 400-439744/11-A	1		14:14	X																								
CCB 400-439744/12-A	1		14:16	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 05/06/2019 End Date: 05/07/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc/1	Q	Element Sc/2	Q	Element Sc/3	Q	Element Ge/1	Q
ICV 400-439959/14	13:26	103		102		101		104		100	
CRI 400-439959/15	13:38	103		101		100		103		101	
ICB 400-439959/17	13:46	112		102		112		76		100	
ICSA 400-439959/18	13:50	100		101		98		105		101	
ICSAB 400-439959/19	13:54	102		101		99		103		100	
CCV 400-439959/213	08:38	96		88		88		92		87	
CCB 400-439959/214	08:46	93		85		86		89		87	
MB 400-439856/1-A ^5	09:23	94		89		90		89		91	
LCS 400-439856/2-A	09:27	96		92		91		91		91	
CCV 400-439959/224	09:39	97		92		91		89		93	
CCB 400-439959/225	09:47	95		90		89		89		90	
400-169314-1	10:07	97		91		93		89		92	
400-169314-2	10:11	93		90		91		86		91	
400-169314-2 SD	10:15	96		89		91		67		92	
400-169314-2 PDS	10:19	95		89		90		83		89	
400-169314-2 MS	10:23	94		89		88		85		90	
400-169314-2 MSD	10:26	94		83		89		102		86	
400-169314-8	10:30	94		90		90		87		91	
CCV 400-439959/236	10:38	99		90		97		72		90	
CCB 400-439959/237	10:46	98		88		87		85		89	
400-169314-3	10:50	108		99		105		82		94	
400-169314-4	10:54	97		94		90		88		94	
400-169314-5	10:58	109		101		109		81		93	
400-169314-6	11:02	110		101		101		76		93	
400-169314-7	11:06	103		97		93		76		90	
CCV 400-439959/243	11:22	88		77		77		72		79	
CCB 400-439959/244	11:30	89		77		76		72		78	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 05/06/2019 End Date: 05/07/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Ge/2	Q	Element Ge/3	Q	Element Y-89	Q	Element In/1	Q	Element In/2	Q
ICV 400-439959/14	13:26	101		101		98		100		101	
CRI 400-439959/15	13:38	101		102		98		102		100	
ICB 400-439959/17	13:46	109		81		98		100		113	
ICSA 400-439959/18	13:50	101		103		98		99		98	
ICSAB 400-439959/19	13:54	101		103		98		99		100	
CCV 400-439959/213	08:38	90		90		87		89		98	
CCB 400-439959/214	08:46	89		90		86		88		97	
MB 400-439856/1-A ^5	09:23	92		92		90		92		99	
LCS 400-439856/2-A	09:27	93		94		92		93		97	
CCV 400-439959/224	09:39	93		92		91		93		97	
CCB 400-439959/225	09:47	91		91		90		92		97	
400-169314-1	10:07	95		93		92		93		98	
400-169314-2	10:11	92		90		90		91		95	
400-169314-2 SD	10:15	94		74		90		92		99	
400-169314-2 PDS	10:19	90		83		88		90		92	
400-169314-2 MS	10:23	90		89		88		90		93	
400-169314-2 MSD	10:26	90		102		84		86		95	
400-169314-8	10:30	91		90		90		93		96	
CCV 400-439959/236	10:38	94		81		89		91		102	
CCB 400-439959/237	10:46	89		89		88		91		95	
400-169314-3	10:50	96		87		93		88		88	
400-169314-4	10:54	92		91		94		92		95	
400-169314-5	10:58	97		86		92		86		86	
400-169314-6	11:02	90		80		91		84		84	
400-169314-7	11:06	87		79		90		84		83	
CCV 400-439959/243	11:22	79		77		80		83		84	
CCB 400-439959/244	11:30	77		77		81		84		85	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 05/06/2019 End Date: 05/07/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element In/3	Q	Element Tb/1	Q	Element Tb/2	Q	Element Bi	Q	Element	Q
ICV 400-439959/14	13:26	103		100		103		100			
CRI 400-439959/15	13:38	104		102		101		100			
ICB 400-439959/17	13:46	78		100		116		111			
ICSA 400-439959/18	13:50	105		101		100		97			
ICSAB 400-439959/19	13:54	104		102		101		99			
CCV 400-439959/213	08:38	101		95		103		102			
CCB 400-439959/214	08:46	101		94		99		102			
MB 400-439856/1-A ^5	09:23	105		96		101		101			
LCS 400-439856/2-A	09:27	106		96		101		99			
CCV 400-439959/224	09:39	105		97		100		99			
CCB 400-439959/225	09:47	106		95		101		100			
400-169314-1	10:07	110		97		103		98			
400-169314-2	10:11	104		96		101		96			
400-169314-2 SD	10:15	81		95		101		100			
400-169314-2 PDS	10:19	100		94		99		93			
400-169314-2 MS	10:23	102		96		99		95			
400-169314-2 MSD	10:26			90		98		93			
400-169314-8	10:30	107		95		99		99			
CCV 400-439959/236	10:38	89		96		108		103			
CCB 400-439959/237	10:46	103		95		98		100			
400-169314-3	10:50	102		91		89		74			
400-169314-4	10:54	106		95		98		98			
400-169314-5	10:58	98		86		86		69			
400-169314-6	11:02	92		85		85		70			
400-169314-7	11:06	91		86		88		75			
CCV 400-439959/243	11:22	91		89		88		91			
CCB 400-439959/244	11:30	92		89		89		91			

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 05/07/2019 End Date: 05/07/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc/1	Q	Element Sc/2	Q	Element Sc/3	Q	Element Ge/1	Q
ICV 400-440308/13	14:27	100		102		100		100		102	
CRI 400-440308/14	14:40	100		105		99		99		105	
ICB 400-440308/16	14:48	99		101		100		100		101	
ICSA 400-440308/17	14:52	102		103		101		99		104	
ICSAB 400-440308/18	14:56	100		105		101		100		105	
CCV 400-440308/21	15:24	102		111		102		101		106	
CCB 400-440308/22	15:32	101		104		101		99		103	
400-169314-1 DL	15:36	101		104		101		100		106	
400-169314-3 DL	15:40	103		105		103		102		106	
400-169314-4 RA	15:44	104		106		105		104		106	
400-169314-5 DL	15:48	103		107		104		102		108	
400-169314-6 DL	15:52	105		108		104		105		108	
400-169314-7 DL	15:56	102		105		103		102		107	
CCV 400-440308/32	16:20	102		113		106		107		110	
CCB 400-440308/33	16:28	103		112		108		108		109	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 05/07/2019 End Date: 05/07/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Ge/2	Q	Element Ge/3	Q	Element Y-89	Q	Element In/1	Q	Element In/2	Q
ICV 400-440308/13	14:27	103		102		99		100		99	
CRI 400-440308/14	14:40	102		100		102		103		99	
ICB 400-440308/16	14:48	101		101		100		99		100	
ICSA 400-440308/17	14:52	104		103		99		101		98	
ICSAB 400-440308/18	14:56	104		103		100		101		100	
CCV 400-440308/21	15:24	105		103		105		105		98	
CCB 400-440308/22	15:32	102		101		101		101		100	
400-169314-1 DL	15:36	105		102		100		101		99	
400-169314-3 DL	15:40	105		105		101		100		98	
400-169314-4 RA	15:44	106		105		102		102		102	
400-169314-5 DL	15:48	106		105		102		102		100	
400-169314-6 DL	15:52	107		106		103		101		99	
400-169314-7 DL	15:56	106		106		102		100		98	
CCV 400-440308/32	16:20	109		107		105		103		103	
CCB 400-440308/33	16:28	108		109		106		105		103	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 05/07/2019 End Date: 05/07/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element In/3	Q	Element Tb/1	Q	Element Tb/2	Q	Element Bi	Q	Element	Q
ICV 400-440308/13	14:27	100		101		101		97			
CRI 400-440308/14	14:40	100		101		97		99			
ICB 400-440308/16	14:48	100		98		99		99			
ICSA 400-440308/17	14:52	100		100		99		97			
ICSAB 400-440308/18	14:56	100		98		99		97			
CCV 400-440308/21	15:24	100		104		98		95			
CCB 400-440308/22	15:32	102		97		97		96			
400-169314-1 DL	15:36	101		100		99		95			
400-169314-3 DL	15:40	101		99		98		94			
400-169314-4 RA	15:44	105		99		101		101			
400-169314-5 DL	15:48	101		98		101		95			
400-169314-6 DL	15:52	102		98		98		94			
400-169314-7 DL	15:56	103		99		99		94			
CCV 400-440308/32	16:20	105		100		102		97			
CCB 400-440308/33	16:28	107		101		101		98			

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439856 Batch Start Date: 05/06/19 16:45 Batch Analyst: Etscheid, Daniel R

Batch Method: 3005A Batch End Date: 05/06/19 19:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	Initial pH	InitialAmount	FinalAmount	Conc. HCL 00399	HN03 00369	ICPMS_CALSTD 00020
MB 400-439856/1		3005A, 6020			50 mL	50 mL	0.5 mL	1 mL	
LCS 400-439856/2		3005A, 6020			50 mL	50 mL	0.5 mL	1 mL	0.25 mL
400-169314-C-1	AES-MW1-042319	3005A, 6020	R	<2 SU	50 mL	50 mL	0.5 mL	1 mL	
400-169314-C-2	AES-MW2-042319	3005A, 6020	R	<2 SU	50 mL	50 mL	0.5 mL	1 mL	
400-169314-C-2 MS	AES-MW2-042319	3005A, 6020	R	<2 SU	50 mL	50 mL	0.5 mL	1 mL	0.25 mL
400-169314-C-2 MSD	AES-MW2-042319	3005A, 6020	R	<2 SU	50 mL	50 mL	0.5 mL	1 mL	0.25 mL
400-169314-C-3	AES-MW3-042319	3005A, 6020	R	<2 SU	50 mL	50 mL	0.5 mL	1 mL	
400-169314-C-4	AES-FB-042319	3005A, 6020	R	<2 SU	50 mL	50 mL	0.5 mL	1 mL	
400-169314-C-5	AES-MW4-042419	3005A, 6020	R	<2 SU	50 mL	50 mL	0.5 mL	1 mL	
400-169314-C-6	AES-MW4-DUP-042419	3005A, 6020	R	<2 SU	50 mL	50 mL	0.5 mL	1 mL	
400-169314-C-7	AES-MW5-042419	3005A, 6020	R	<2 SU	50 mL	50 mL	0.5 mL	1 mL	
400-169314-C-8	AES-FB-042419	3005A, 6020	R	<2 SU	50 mL	50 mL	0.5 mL	1 mL	

Batch Notes	
Temperature - Corrected - End	96 Degrees C
Temperature - Corrected - Start	96 Degrees C
Digestion End Time	05/06/2019 19:45
Digestion Start Time	05/06/2019 16:45
Digestion Unit ID	B5
Hydrochloric Acid ID	C+O+N+C. HCL%O00399
Nitric Acid ID	HN03%O00369
Pipette/Syringe/Dispenser ID	P+R+E+P/MA/M1000/M1/M+P+I+P+E+T
Analyst ID - Spike Analyst	DE
Sufficient Volume for Batch QC	Y
Thermometer ID	626020
Digestion Tube/Cup ID	91419
Temperature - Uncorrected - End	96 A5 Degrees C
Temperature - Uncorrected - Start	96 A5 Degrees C

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439856 Batch Start Date: 05/06/19 16:45 Batch Analyst: Etscheid, Daniel R

Batch Method: 3005A Batch End Date: 05/06/19 19:45

Basis	Basis Description
R	Total Recoverable

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439744 Batch Start Date: 05/06/19 09:34 Batch Analyst: Parker, Jane A

Batch Method: 7470A Batch End Date: 05/07/19 10:50

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Hg VER.STD 00006			
CCV 400-439744/11		7470A, 7470A		40 mL	40 mL	0.24 mL			
CCB 400-439744/12		7470A, 7470A		40 mL	40 mL				

Batch Notes	
Temperature - Corrected - End	96 Degrees C
Temperature - Corrected - Start	96 Degrees C
Digestion End Time	1050
Digestion Start Time	0832
Digestion Unit ID	B1
Sulfuric Acid ID	H2SO4_00060
Nitric Acid ID	Nitric Acid_00055
Hydroxylamine ID	7470_HydCL_00134
Potassium Persulfate ID	7470K2S2O8_00096
Potassium Permanganate ID	7470_KMNO4_00266
Pipette/Syringe/Dispenser ID	HG-200-1, HG-1000-1, Fisherbrand HandyStep (17E49812)
Analyst ID - Spike Analyst	JAP
Sufficient Volume for Batch QC	Yes.
Thermometer ID	662177/B2
Digestion Tube/Cup ID	330280-4566
Temperature - Uncorrected - End	96 Degrees C
Temperature - Uncorrected - Start	96 Degrees C

Basis	Basis Description

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439749 Batch Start Date: 05/06/19 09:46 Batch Analyst: Parker, Jane A

Batch Method: 7470A Batch End Date: 05/07/19 10:50

Lab Sample ID	Client Sample ID	Method Chain	Basis	Initial pH	InitialAmount	FinalAmount	Hg VER.STD 00006	HG002B6-19 00137	
ICB 400-439749/8		7470A, 7470A			40 mL	40 mL			
ICV 400-439749/9		7470A, 7470A			40 mL	40 mL	0.24 mL		
LRC 400-439749/10		7470A, 7470A			40 mL	40 mL		1000 uL	
CCV 400-439749/11		7470A, 7470A			40 mL	40 mL	0.24 mL		
CCB 400-439749/12		7470A, 7470A			40 mL	40 mL			
CRA 400-439749/13		7470A, 7470A			40 mL	40 mL		20 uL	
MB 400-439749/14		7470A, 7470A			40 mL	40 mL			
LCS 400-439749/15		7470A, 7470A			40 mL	40 mL		100 uL	
400-169314-C-1	AES-MW1-042319	7470A, 7470A	T	<2 SU	40 mL	40 mL			
400-169314-C-2	AES-MW2-042319	7470A, 7470A	T	<2 SU	40 mL	40 mL			
400-169314-C-2 MS	AES-MW2-042319	7470A, 7470A	T	<2 SU	40 mL	40 mL		200 uL	
400-169314-C-2 MSD	AES-MW2-042319	7470A, 7470A	T	<2 SU	40 mL	40 mL		200 uL	
400-169314-C-3	AES-MW3-042319	7470A, 7470A	T	<2 SU	40 mL	40 mL			
400-169314-C-4	AES-FB-042319	7470A, 7470A	T	<2 SU	40 mL	40 mL			
400-169314-C-5	AES-MW4-042419	7470A, 7470A	T	<2 SU	40 mL	40 mL			
400-169314-C-6	AES-MW4-DUP-042419	7470A, 7470A	T	<2 SU	40 mL	40 mL			
400-169314-C-7	AES-MW5-042419	7470A, 7470A	T	<2 SU	40 mL	40 mL			
400-169314-C-8	AES-FB-042419	7470A, 7470A	T	<2 SU	40 mL	40 mL			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439749 Batch Start Date: 05/06/19 09:46 Batch Analyst: Parker, Jane A

Batch Method: 7470A Batch End Date: 05/07/19 10:50

Batch Notes	
Temperature - Corrected - End	96 Degrees C
Temperature - Corrected - Start	96 Degrees C
Digestion End Time	1050
Digestion Start Time	0832
Digestion Unit ID	B1
Sulfuric Acid ID	H2SO4_00060
Nitric Acid ID	Nitric Acid_00055
Hydroxylamine ID	7470_HydCL_00134
Potassium Persulfate ID	7470K2S2O8_00096
Potassium Permanganate ID	7470_KMNO4_00266
Pipette/Syringe/Dispenser ID	HG-200-1, HG-1000-1, Fisherbrand HandyStep (17E49812)
Analyst ID - Spike Analyst	JAP
Sufficient Volume for Batch QC	Yes.
Thermometer ID	662177/B2
Digestion Tube/Cup ID	330280-4566
Temperature - Uncorrected - End	96 Degrees C
Temperature - Uncorrected - Start	96 Degrees C

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

PDK ✓ 1st 05/07/19

Sample						
Data File	Acq. Date-Time	Type	Level	Sample Name	Vial Number	Comment
001QBLK.d	5/6/2019 12:06	FQBlk			4101	
002QBLK.d	5/6/2019 12:10	FQBlk			4102	
003QBLK.d	5/6/2019 12:14	FQBlk			4202	
004QBLK.d	5/6/2019 12:18	FQBlk			4201	
005CALB.d	5/6/2019 12:22	CalBlk	1	ICIS	4202	
006CALB.d	5/6/2019 12:26	CalBlk	1	ICIS	4201	
007CALS.d	5/6/2019 12:30	CalStd	13	ic13-4308522	3103	1:40000 ICPMS_calstd_00020
008CALS.d	5/6/2019 12:34	CalStd	2	ic2-4308522	3104	1:20000 ICPMS_calstd_00020
009CALS.d	5/6/2019 12:38	CalStd	4	ic4-4308522	3105	1:5000 ICPMS_calstd_00020
010CALS.d	5/6/2019 12:42	CalStd	5	ic5-4308522	3106	1:2000 ICPMS_calstd_00020
011CALS.d	5/6/2019 12:46	CalStd	7	ic7-4308522	3107	1:500 ICPMS_calstd_00020
012CALS.d	5/6/2019 12:50	CalStd	8	ic8-4308522	4207	1:200 ICPMS_calstd_00020
013CALS.d	5/6/2019 12:54	CalStd	9	ic9-4308522	3108	1:100 ICPMS_calstd_00020
014CALS.d	5/6/2019 12:58	CalStd	10	ic10-4308522	3109	1:50 ICPMS_calstd_00020
015CALS.d	5/6/2019 13:02	CalStd	15	ic15-4583048	3111	1:10 ICPMS Cal_MIN_00031
016QBLK.d	5/6/2019 13:06	FQBlk			4101	
017CALB.d	5/6/2019 13:10	CalBlk	1	ICIS	4201	
018QBLK.d	5/6/2019 13:14	FQBlk			4102	
019_ICV.d	5/6/2019 13:18	ICV		xicv-4308555	3501	1:100 ICPMS_icv_s_00013
020QBLK.d	5/6/2019 13:22	FQBlk			4101	
021_ICV.d	5/6/2019 13:26	ICV		icv-4308555	3501	1:100 ICPMS_icv_s_00013
022QBLK.d	5/6/2019 13:30	FQBlk			4101	
023QBLK.d	5/6/2019 13:34	FQBlk			4201	
024New1.d	5/6/2019 13:38	CRI		cri-4428089	3507	1:100 ICPMS_RL_00034
025LICV.d	5/6/2019 13:42	LLICV	13	lloq-4308522	3103	readback CAL13
026_ICB.d	5/6/2019 13:46	ICB		ICB	4201	ICB
027ICSA.d	5/6/2019 13:50	ICSA		icsa-4211414	3404	1:500 ICPMS_int_A_00013
028ICSB.d	5/6/2019 13:54	ICSB		icsab-4211415	3405	1:500 intA+ICPMS_int_B_000014
029_QC1.d	5/6/2019 13:58	QC1	10	xlra-4308522	3109	readback 1:50 ICPMS_calstd_00020
030QBLK.d	5/6/2019 14:02	FQBlk			4101	
031_QC2.d	5/6/2019 14:06	QC2	15	xlra-4583048	3111	1:10 ICPMS_calMIN_00031 cal15
032QBLK.d	5/6/2019 14:10	FQBlk			4102	
033QBLK.d	5/6/2019 14:15	FQBlk			4101	
034QBLK.d	5/6/2019 14:19	FQBlk			4202	
035_CCV.d	5/6/2019 14:22	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
036QBLK.d	5/6/2019 14:27	FQBlk			4102	
037_CCB.d	5/6/2019 14:30	CCB		CCB	4201	CCB
038SMPL.d	5/6/2019 14:34	Sample		MB 400-439737/1-A^10	1101	439737_1
039SMPL.d	5/6/2019 14:38	Sample		xLCS 400-439737/2-A^10	1102	439737_2
040SMPL.d	5/6/2019 14:42	Sample		400-169643-B-1-B^10	1103	439737_3
041SMPL.d	5/6/2019 14:46	Sample		400-169643-D-2-B^10	1104	439737_4
042SMPL.d	5/6/2019 14:50	Sample		400-169643-D-2-B SD^50	1105	439737_5
043SMPL.d	5/6/2019 14:54	Sample		400-169643-D-2-B PDS^10	1106	439737_6
044SMPL.d	5/6/2019 14:58	Sample		400-169643-D-2-C MS^10	1107	439737_7
046SMPL.d	5/6/2019 15:17	Sample		400-169643-D-2-D MSD^10	1108	439737_8
047SMPL.d	5/6/2019 15:21	Sample		400-169643-B-1-B^100	1109	439737_9
048SMPL.d	5/6/2019 15:25	Sample		LCS 400-439737/2-A^10	1110	439737_2
049QBLK.d	5/6/2019 15:29	FQBlk			4202	
050_CCV.d	5/6/2019 15:33	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
051QBLK.d	5/6/2019 15:37	FQBlk			4102	
052_CCB.d	5/6/2019 15:41	CCB		CCB	4201	CCB
053SMPL.d	5/6/2019 15:44	Sample		400-169195-A-4-A^5	1205	439455_6

054SMPL.d	5/6/2019 15:48	Sample		400-169195-A-10-A^5	1303	439455_16
055SMPL.d	5/6/2019 15:52	Sample		x400-169195-A-11-A^5	1304	439455_17
056SMPL.d	5/6/2019 15:56	Sample		400-169195-F-12-A^5	1305	439455_18
057SMPL.d	5/6/2019 16:00	Sample		400-169195-A-13-A^5	1306	439455_19
058SMPL.d	5/6/2019 16:04	Sample		400-169195-A-11-A^5	1304	439455_17
059SMPL.d	5/6/2019 16:08	Sample		400-169195-A-14-A^5	1307	439455_20
060SMPL.d	5/6/2019 16:12	Sample		400-169195-F-15-A^5	1308	439455_21
061SMPL.d	5/6/2019 16:16	Sample		400-169195-F-16-A^5	1309	439455_22
062SMPL.d	5/6/2019 16:20	Sample		400-169513-C-1-A	1310	439455_23
063QBLK.d	5/6/2019 16:24	FQBlk			4202	
064_CCV.d	5/6/2019 16:28	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
065QBLK.d	5/6/2019 16:32	FQBlk			4102	
066_CCB.d	5/6/2019 16:36	CCB		CCB	4201	CCB
067SMPL.d	5/6/2019 16:40	Sample		400-169513-C-2-A	1311	439455_24
068SMPL.d	5/6/2019 16:44	Sample		400-169513-C-3-A	1312	439455_25
069SMPL.d	5/6/2019 16:48	Sample		MB 400-439456/1-A^5	1401	439456_1
070SMPL.d	5/6/2019 16:52	Sample		LCS 400-439456/2-A	1402	439456_2
071SMPL.d	5/6/2019 16:56	Sample		400-169195-F-3-A^5	1403	439456_3
072SMPL.d	5/6/2019 17:00	Sample		400-169195-I-5-A^5	1404	439456_4
073SMPL.d	5/6/2019 17:04	Sample		400-169195-J-6-B^5	1405	439456_5
074SMPL.d	5/6/2019 17:08	Sample		400-169195-J-6-B SD^25	1406	439456_6
075SMPL.d	5/6/2019 17:12	Sample		400-169195-J-6-B PDS^5	1407	439456_7
076SMPL.d	5/6/2019 17:16	Sample		400-169195-J-6-C MS^5	1408	439456_8
077QBLK.d	5/6/2019 17:19	FQBlk			4202	
078_CCV.d	5/6/2019 17:23	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
079QBLK.d	5/6/2019 17:27	FQBlk			4102	
080_CCB.d	5/6/2019 17:31	CCB		CCB	4201	CCB
081SMPL.d	5/6/2019 17:35	Sample		400-169195-J-6-D MSD^5	1409	439456_9
082SMPL.d	5/6/2019 17:39	Sample		400-169195-I-7-A^5	1410	439456_10
083SMPL.d	5/6/2019 17:43	Sample		400-169195-I-8-A^5	1411	439456_11
084SMPL.d	5/6/2019 17:47	Sample		400-169195-E-12-A^5	1412	439456_12
085SMPL.d	5/6/2019 17:51	Sample		400-169195-E-15-A^5	1501	439456_13
086SMPL.d	5/6/2019 17:55	Sample		400-169195-E-16-A^5	1502	439456_14
087SMPL.d	5/6/2019 17:59	Sample		400-169513-C-4-A	1503	439456_15
088SMPL.d	5/6/2019 18:03	Sample		400-169513-C-5-A	1504	439456_16
089SMPL.d	5/6/2019 18:07	Sample		400-169513-C-6-A	1505	439456_17
090SMPL.d	5/6/2019 18:11	Sample		400-169515-A-1-A	1506	439456_18
091QBLK.d	5/6/2019 18:15	FQBlk			4202	
092_CCV.d	5/6/2019 18:19	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
093QBLK.d	5/6/2019 18:23	FQBlk			4102	
094_CCB.d	5/6/2019 18:27	CCB		CCB	4201	CCB
095SMPL.d	5/6/2019 18:31	Sample		400-169515-A-2-A	1507	439456_19
096SMPL.d	5/6/2019 18:34	Sample		400-169515-A-3-A	1508	439456_20
097SMPL.d	5/6/2019 18:38	Sample		400-169515-A-4-A	1509	439456_21
098SMPL.d	5/6/2019 18:42	Sample		400-169515-A-5-A	1510	439456_22
099SMPL.d	5/6/2019 18:46	Sample		400-169515-A-6-A	1511	439456_23
100SMPL.d	5/6/2019 18:50	Sample		MB 400-439515/1-A^5	2101	439515_1
101SMPL.d	5/6/2019 18:54	Sample		LCS 400-439515/2-A	2102	439515_2
102SMPL.d	5/6/2019 18:58	Sample		400-169273-E-17-A^5	2103	439515_3
103SMPL.d	5/6/2019 19:02	Sample		400-169273-F-17-A^5	2104	439515_4
104SMPL.d	5/6/2019 19:06	Sample		400-169273-F-18-A^5	2105	439515_5
105QBLK.d	5/6/2019 19:10	FQBlk			4202	
106_CCV.d	5/6/2019 19:14	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
107QBLK.d	5/6/2019 19:18	FQBlk			4102	
108_CCB.d	5/6/2019 19:22	CCB		CCB	4201	CCB

109SMPL.d	5/6/2019 19:26	Sample		400-169273-E-18-A^5	2106	439515_6
110SMPL.d	5/6/2019 19:30	Sample		400-169273-E-19-A^5	2107	439515_7
111SMPL.d	5/6/2019 19:34	Sample		400-169273-F-20-A^5	2108	439515_8
112SMPL.d	5/6/2019 19:38	Sample		400-169273-E-20-A^5	2109	439515_9
113SMPL.d	5/6/2019 19:41	Sample		400-169273-B-21-A^5	2110	439515_10
114SMPL.d	5/6/2019 19:45	Sample		400-169273-B-21-A SD^25	2111	439515_11
115SMPL.d	5/6/2019 19:49	Sample		400-169273-B-21-A PDS^5	2112	439515_12
116SMPL.d	5/6/2019 19:53	Sample		400-169273-B-21-B MS^5	2201	439515_13
117SMPL.d	5/6/2019 19:57	Sample		400-169273-B-21-C MSD^5	2202	439515_14
118SMPL.d	5/6/2019 20:01	Sample		400-169273-F-22-A^5	2203	439515_15
119QBLK.d	5/6/2019 20:05	FQBlk			4202	
120_CCV.d	5/6/2019 20:09	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
121QBLK.d	5/6/2019 20:13	FQBlk			4102	
122_CCB.d	5/6/2019 20:17	CCB		CCB	4201	CCB
123SMPL.d	5/6/2019 20:21	Sample		400-169273-E-22-A^5	2204	439515_16
124SMPL.d	5/6/2019 20:25	Sample		400-169273-C-23-A^5	2205	439515_17
125SMPL.d	5/6/2019 20:29	Sample		400-169273-B-23-A^5	2206	439515_18
126SMPL.d	5/6/2019 20:33	Sample		400-169273-B-24-A^5	2207	439515_19
127SMPL.d	5/6/2019 20:37	Sample		400-169273-E-25-A^5	2208	439515_20
128SMPL.d	5/6/2019 20:41	Sample		400-169273-F-25-A^5	2209	439515_21
129SMPL.d	5/6/2019 20:45	Sample		400-169273-E-26-A^5	2210	439515_22
130SMPL.d	5/6/2019 20:48	Sample		400-169273-F-26-A^5	2211	439515_23
131SMPL.d	5/6/2019 20:52	Sample		400-169273-B-27-A^5	2212	439515_24
132SMPL.d	5/6/2019 20:56	Sample		400-169273-B-28-A^5	2301	439515_25
133QBLK.d	5/6/2019 21:00	FQBlk			4202	
134_CCV.d	5/6/2019 21:04	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
135QBLK.d	5/6/2019 21:08	FQBlk			4102	
136_CCB.d	5/6/2019 21:12	CCB		CCB	4201	CCB
137SMPL.d	5/6/2019 21:16	Sample		MB 400-439514/1-A^5	2311	439514_1
138SMPL.d	5/6/2019 21:20	Sample		LCS 400-439514/2-A	2312	439514_2
139SMPL.d	5/6/2019 21:24	Sample		400-169273-B-1-A^5	2401	439514_3
140SMPL.d	5/6/2019 21:28	Sample		400-169273-K-2-A^5	2402	439514_4
141SMPL.d	5/6/2019 21:32	Sample		400-169273-J-2-A^5	2403	439514_5
142SMPL.d	5/6/2019 21:36	Sample		400-169273-B-3-A^5	2404	439514_6
143SMPL.d	5/6/2019 21:40	Sample		400-169273-B-4-A^5	2405	439514_7
144SMPL.d	5/6/2019 21:44	Sample		400-169273-J-5-A^5	2406	439514_8
145SMPL.d	5/6/2019 21:48	Sample		400-169273-K-5-A^5	2407	439514_9
146SMPL.d	5/6/2019 21:52	Sample		400-169273-B-6-A^5	2408	439514_10
147QBLK.d	5/6/2019 21:56	FQBlk			4202	
148_CCV.d	5/6/2019 22:00	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
149QBLK.d	5/6/2019 22:04	FQBlk			4102	
150_CCB.d	5/6/2019 22:07	CCB		CCB	4201	CCB
151SMPL.d	5/6/2019 22:11	Sample		400-169273-B-7-A^5	2409	439514_11
152SMPL.d	5/6/2019 22:15	Sample		400-169273-K-8-A^5	2410	439514_12
153SMPL.d	5/6/2019 22:19	Sample		400-169273-J-8-A^5	2411	439514_13
154SMPL.d	5/6/2019 22:23	Sample		400-169273-B-9-A^5	2412	439514_14
155SMPL.d	5/6/2019 22:27	Sample		400-169273-B-10-A^5	2501	439514_15
156SMPL.d	5/6/2019 22:31	Sample		400-169273-B-11-A^5	2502	439514_16
157SMPL.d	5/6/2019 22:35	Sample		400-169273-B-12-A^5	2503	439514_17
158SMPL.d	5/6/2019 22:39	Sample		400-169273-B-12-A SD^25	2504	439514_18
159SMPL.d	5/6/2019 22:43	Sample		400-169273-B-12-A PDS^5	2505	439514_19
160SMPL.d	5/6/2019 22:47	Sample		400-169273-B-12-B MS^5	2506	439514_20
161QBLK.d	5/6/2019 22:51	FQBlk			4202	
162_CCV.d	5/6/2019 22:55	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
163QBLK.d	5/6/2019 22:59	FQBlk			4102	

164_CCB.d	5/6/2019 23:03	CCB		CCB	4201	CCB
165SMPL.d	5/6/2019 23:07	Sample		400-169273-B-12-C MSD^5	2507	439514_21
166SMPL.d	5/6/2019 23:11	Sample		400-169273-B-13-A^5	2508	439514_22
167SMPL.d	5/6/2019 23:15	Sample		400-169273-E-14-A^5	2509	439514_23
168SMPL.d	5/6/2019 23:19	Sample		400-169273-F-14-A^5	2510	439514_24
169SMPL.d	5/6/2019 23:23	Sample		400-169273-B-15-A^5	2511	439514_25
170SMPL.d	5/6/2019 23:27	Sample		400-169273-B-16-A^5	2512	439514_26
171SMPL.d	5/6/2019 23:31	Sample		MB 400-439758/1-A^5	3101	439758_1
172SMPL.d	5/6/2019 23:34	Sample		LCS 400-439758/2-A	3103	439758_3
173SMPL.d	5/6/2019 23:38	Sample		400-169644-A-7-A^5	3110	439758_10
174SMPL.d	5/6/2019 23:42	Sample		400-169337-P-1-B^5	3104	439758_4
175QBLK.d	5/6/2019 23:46	FQBlk			4202	
176_CCV.d	5/6/2019 23:50	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
177QBLK.d	5/6/2019 23:54	FQBlk			4102	
178_CCB.d	5/6/2019 23:58	CCB		CCB	4201	CCB
179SMPL.d	5/7/2019 0:02	Sample		400-169337-P-1-B SD^25	3105	439758_5
180SMPL.d	5/7/2019 0:06	Sample		400-169337-P-1-B PDS^5	3106	439758_6
181SMPL.d	5/7/2019 0:10	Sample		400-169337-P-1-C MS^5	3107	439758_7
182SMPL.d	5/7/2019 0:14	Sample		400-169337-P-1-D MSD^5	3108	439758_8
183SMPL.d	5/7/2019 0:18	Sample		400-169324-B-1-A^5	3109	439758_9
184SMPL.d	5/7/2019 0:22	Sample		680-168415-C-1-A^5	3111	439758_11
185SMPL.d	5/7/2019 0:26	Sample		680-168415-C-1-A^25	3112	439758_12
186SMPL.d	5/7/2019 0:30	Sample		680-168414-C-1-A^5	3201	439758_13
187SMPL.d	5/7/2019 0:34	Sample		680-168414-C-1-A^25	3202	439758_14
188SMPL.d	5/7/2019 0:38	Sample		400-169351-B-1-B^5	3203	439758_15
189QBLK.d	5/7/2019 0:42	FQBlk			4202	
190_CCV.d	5/7/2019 0:46	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
191QBLK.d	5/7/2019 0:49	FQBlk			4102	
192_CCB.d	5/7/2019 0:53	CCB		CCB	4201	CCB
193SMPL.d	5/7/2019 0:57	Sample		400-169549-K-1-A^5	3204	439758_16
194SMPL.d	5/7/2019 1:01	Sample		x400-169549-K-1-B MS^5	3205	439758_17
195SMPL.d	5/7/2019 1:05	Sample		MB 400-439758/1-A^1	3102	439758_2
196SMPL.d	5/7/2019 1:09	Sample		400-169321-A-2-A^1	3206	439758_18
197SMPL.d	5/7/2019 1:13	Sample		400-169321-A-3-A^1	3207	439758_19
198SMPL.d	5/7/2019 1:17	Sample		MB 400-439757/1-B^5	3208	439758_20
199SMPL.d	5/7/2019 1:21	Sample		400-169658-A-1-B^5	3211	439758_23
200SMPL.d	5/7/2019 1:25	Sample		400-169658-A-2-B^5	3301	439758_25
201SMPL.d	5/7/2019 1:29	Sample		400-169658-A-3-B^5	3303	439758_27
202SMPL.d	5/7/2019 1:33	Sample		400-169658-A-4-B^5	3305	439758_29
203QBLK.d	5/7/2019 1:37	FQBlk			4202	
204_CCV.d	5/7/2019 1:41	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
205QBLK.d	5/7/2019 1:45	FQBlk			4102	
206_CCB.d	5/7/2019 1:49	CCB		CCB	4201	CCB
207SMPL.d	5/7/2019 1:53	Sample		400-169658-A-5-B^5	3307	439758_31
208SMPL.d	5/7/2019 1:57	Sample		400-169658-A-6-B^5	3309	439758_33
209SMPL.d	5/7/2019 2:01	Sample		400-169658-A-7-B^5	3311	439758_35
210SMPL.d	5/7/2019 2:05	Sample		400-169658-A-8-B^5	3401	439758_37
211SMPL.d	5/7/2019 2:09	Sample		MB 400-439757/1-B^1	3209	439758_21
212SMPL.d	5/7/2019 2:12	Sample		400-169658-A-9-B	3210	439758_22
213SMPL.d	5/7/2019 2:16	Sample		400-169658-A-1-B	3212	439758_24
214SMPL.d	5/7/2019 2:20	Sample		400-169658-A-2-B	3302	439758_26
215SMPL.d	5/7/2019 2:24	Sample		400-169658-A-3-B	3304	439758_28
216SMPL.d	5/7/2019 2:28	Sample		400-169658-A-4-B	3306	439758_30
217QBLK.d	5/7/2019 2:32	FQBlk			4202	
218_CCV.d	5/7/2019 2:36	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020

219QBLK.d	5/7/2019 2:40	FQBlk			4102	
220_CCB.d	5/7/2019 2:44	CCB		CCB	4201	CCB
221SMPL.d	5/7/2019 2:48	Sample		400-169658-A-5-B	3308	439758_32
222SMPL.d	5/7/2019 2:52	Sample		400-169658-A-6-B	3310	439758_34
223SMPL.d	5/7/2019 2:55	Sample		400-169658-A-7-B	3312	439758_36
224SMPL.d	5/7/2019 2:59	Sample		400-169658-A-8-B	3402	439758_38
225SMPL.d	5/7/2019 3:03	Sample		MB 400-439769/1-A^5	3403	439769_1
226SMPL.d	5/7/2019 3:07	Sample		LCS 400-439769/2-A	3404	439769_2
227SMPL.d	5/7/2019 3:11	Sample		400-169468-I-1-C^5	3405	439769_3
228SMPL.d	5/7/2019 3:15	Sample		400-169468-I-1-C SD^25	3406	439769_4
229SMPL.d	5/7/2019 3:19	Sample		400-169468-I-1-C PDS^5	3407	439769_5
230SMPL.d	5/7/2019 3:23	Sample		400-169468-I-1-D MS^5	3408	439769_6
231QBLK.d	5/7/2019 3:27	FQBlk			4202	
232_CCV.d	5/7/2019 3:31	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
233QBLK.d	5/7/2019 3:35	FQBlk			4102	
234_CCB.d	5/7/2019 3:39	CCB		CCB	4201	CCB
235SMPL.d	5/7/2019 3:43	Sample		400-169468-I-1-E MSD^5	3409	439769_7
236SMPL.d	5/7/2019 3:47	Sample		400-169468-F-2-C^5	3410	439769_8
237SMPL.d	5/7/2019 3:51	Sample		400-169312-A-1-A^5	3411	439769_9
238SMPL.d	5/7/2019 3:55	Sample		400-169357-H-1-A^5	3412	439769_10
239SMPL.d	5/7/2019 3:59	Sample		400-169586-A-1-A	3501	439769_11
240SMPL.d	5/7/2019 4:03	Sample		400-169586-A-2-A	3502	439769_12
241SMPL.d	5/7/2019 4:07	Sample		400-169586-A-3-A	3503	439769_13
242SMPL.d	5/7/2019 4:11	Sample		400-169586-A-4-A	3504	439769_14
243SMPL.d	5/7/2019 4:15	Sample		400-169586-A-5-A	3505	439769_15
244SMPL.d	5/7/2019 4:19	Sample		400-169586-A-6-A	3506	439769_16
245QBLK.d	5/7/2019 4:23	FQBlk			4202	
246_CCV.d	5/7/2019 4:27	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
247QBLK.d	5/7/2019 4:31	FQBlk			4102	
248_CCB.d	5/7/2019 4:34	CCB		CCB	4201	CCB
249SMPL.d	5/7/2019 4:38	Sample		400-169700-C-1-A	3507	439769_17
250SMPL.d	5/7/2019 4:42	Sample		400-169700-C-2-A	3508	439769_18
251SMPL.d	5/7/2019 4:46	Sample		400-169700-C-3-A	3509	439769_19
252SMPL.d	5/7/2019 4:50	Sample		400-169700-C-4-A	3510	439769_20
253SMPL.d	5/7/2019 4:54	Sample		400-169700-C-5-A	3511	439769_21
254SMPL.d	5/7/2019 4:58	Sample		400-169700-C-6-A	3512	439769_22
255SMPL.d	5/7/2019 5:02	Sample		400-169700-A-7-A	1101	439769_23
256QBLK.d	5/7/2019 5:06	FQBlk			4101	
257QBLK.d	5/7/2019 5:10	FQBlk			4202	
258_CCV.d	5/7/2019 5:14	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
259QBLK.d	5/7/2019 5:18	FQBlk			4102	
260_CCB.d	5/7/2019 5:22	CCB		CCB	4201	CCB
261QBLK.d	5/7/2019 5:26	FQBlk		rinse blank	1	5% HNO3 rinse
262QBLK.d	5/7/2019 5:30	FQBlk		rinse blank	4202	2%HNO3 1%HCl
263QBLK.d	5/7/2019 8:30	FQBlk			4101	
264QBLK.d	5/7/2019 8:34	FQBlk			4202	
265_CCV.d	5/7/2019 8:38	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
266QBLK.d	5/7/2019 8:42	FQBlk			4102	
267_CCB.d	5/7/2019 8:46	CCB		CCB	4201	CCB
268SMPL.d	5/7/2019 8:56	Sample		MB 400-439769/1-A^5	1101	RA/DL
269SMPL.d	5/7/2019 9:00	Sample		LCS 400-439769/2-A	1102	RA/DL
270SMPL.d	5/7/2019 9:03	Sample		400-169468-I-1-C^5	1103	RA/DL
271SMPL.d	5/7/2019 9:07	Sample		400-169468-F-2-C^5	1104	RA/DL
272SMPL.d	5/7/2019 9:11	Sample		400-169658-A-9-B^5	1105	RA/DL
273SMPL.d	5/7/2019 9:15	Sample		400-169273-F-20-A^25	1106	RA/DL

274SMPL.d	5/7/2019 9:19	Sample		400-169273-E-20-A^25	1107	RA/DL
275SMPL.d	5/7/2019 9:23	Sample		MB 400-439856/1-A^5	1501	439856_1
276SMPL.d	5/7/2019 9:27	Sample		LCS 400-439856/2-A	1502	439856_2
277QBLK.d	5/7/2019 9:31	FQBlk			4202	
278QBLK.d	5/7/2019 9:35	FQBlk			4202	
279_CCV.d	5/7/2019 9:39	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
280QBLK.d	5/7/2019 9:43	FQBlk			4102	
281_CCB.d	5/7/2019 9:47	CCB		CCB	4201	CCB
282SMPL.d	5/7/2019 9:51	Sample		MB 400-439747/1-A^5	2501	439747_1
283SMPL.d	5/7/2019 9:55	Sample		LCS 400-439747/2-A^100	2502	439747_2
284QBLK.d	5/7/2019 9:59	FQBlk			4101	
285SMPL.d	5/7/2019 10:03	Sample		400-169700-B-7-A^5	2503	439747_3
286SMPL.d	5/7/2019 10:07	Sample		400-169314-C-1-B^5	2103	439856_3
287SMPL.d	5/7/2019 10:11	Sample		400-169314-C-2-D^5	2104	439856_4
288SMPL.d	5/7/2019 10:15	Sample		400-169314-C-2-D SD^25	2105	439856_5
289SMPL.d	5/7/2019 10:19	Sample		400-169314-C-2-D PDS^5	2106	439856_6
290SMPL.d	5/7/2019 10:23	Sample		400-169314-C-2-E MS^5	2107	439856_7
291SMPL.d	5/7/2019 10:26	Sample		400-169314-C-2-F MSD^5	2108	439856_8
292SMPL.d	5/7/2019 10:30	Sample		400-169314-C-8-B^5	2202	439856_14
293QBLK.d	5/7/2019 10:34	FQBlk			4202	
294_CCV.d	5/7/2019 10:38	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
295QBLK.d	5/7/2019 10:42	FQBlk			4102	
296_CCB.d	5/7/2019 10:46	CCB		CCB	4201	CCB
297SMPL.d	5/7/2019 10:50	Sample		400-169314-C-3-B^5	2109	439856_9
298SMPL.d	5/7/2019 10:54	Sample		400-169314-C-4-B^5	2110	439856_10
299SMPL.d	5/7/2019 10:58	Sample		400-169314-C-5-B^5	2111	439856_11
300SMPL.d	5/7/2019 11:02	Sample		400-169314-C-6-B^5	2112	439856_12
301SMPL.d	5/7/2019 11:06	Sample		400-169314-C-7-B^5	2201	439856_13
302QBLK.d	5/7/2019 11:10	FQBlk			4101	
303QBLK.d	5/7/2019 11:14	FQBlk			4101	
304QBLK.d	5/7/2019 11:18	FQBlk			4202	
305_CCV.d	5/7/2019 11:22	CCV		CCV-4308522	4105	1:200 ICPMS_calstd_00020
306QBLK.d	5/7/2019 11:26	FQBlk			4102	
307_CCB.d	5/7/2019 11:30	CCB		CCB	4201	CCB

Tune Report

Batch Folder C:\Agilent\ICPMH\1\DATA\06May19.b
Report Comment ICM_tune_W_00014 10.0ppb
Instrument Name G3281A JP11050866

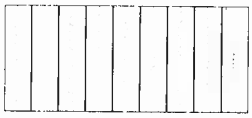
[no gas]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Res. Ratio (Actual)	Res. Ratio (Required)	Res. Ratio (Flag)
7		100682				NaN	-	
59		127453				NaN	-	
115		180846				NaN	-	
89		196502				NaN	-	
140		182601				NaN	-	
205		122674				NaN	-	
9		27943				NaN	-	
208		88965				NaN	-	
24		84987				NaN	-	

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
7	0.42	5.00				
59	0.69	5.00				
115	0.60	5.00				
89	0.57	5.00				
140	0.59	5.00				
205	1.03	5.00				
9	0.92	5.00				
208	1.31	5.00				
24	0.31	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	100506	100019	101034	101000	100853
59	126606	127911	126435	127893	128419
115	179449	179965	181611	182000	181204
89	195069	195948	196918	198082	196494
140	181366	182342	182342	182613	184340
205	120504	123185	122679	123433	123571
9	28175	27501	28041	27999	27998
208	87686	87804	89590	89446	90302
24	85144	84605	84805	85203	85175

Integration Time [sec] 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
7	26148.29	6.950	6.9 - 7.1		0.391	0.471	0.900	
59	32741.31	58.950	58.9 - 59.1		0.398	0.481	0.900	
115	50610.69	115.000	114.9 - 115.1		0.357	0.446	0.900	
89	53446.67	89.000	88.9 - 89.1		0.377	0.439	0.900	
140	54009.29	140.000	139.9 - 140.1		0.335	0.438	0.900	
205	34612.65	205.000	204.8 - 205.2		0.354	0.472	0.800	
9	7254.23	9.000	8.8 - 9.2		0.388	0.472	0.800	
208	24862.15	208.000	207.8 - 208.2		0.351	0.488	0.800	
24	21409.54	23.900	23.8 - 24.2		0.409	0.486	0.800	

X = 10 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 320.3 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.57 L/min	S/C Temp	2 °C
RF Matching	1.80 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.57 L/min
Smpl Depth	9.2 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

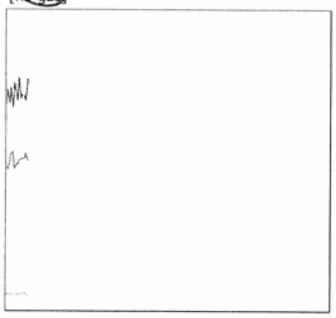
Extract 1	0.0 V	Omega Lens	9.7 V	Deflect	10.0 V
Extract 2	-160.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-80 V	Cell Exit	-50 V		

Cell Parameters

OctP Bias	-8.0 V	He Flow	0.0 mL/min	Energy Discrimination	1.9 V
OctP RF	155 V	H2 Flow	0.0 mL/min		
Use Gas	false	3rd Gas Flow	0 %		

Current Signal

(no gas)



Mass	Range	Count	Avg. Count	RSD [%]
7	5000	2496	2500.9	3.81
89	1E+05	5075	5291.3	2.82
205	5000	3857	3608.2	4.35
70/140	200	2.735 %	2.792 %	19.10
115	1E+05	4670	5148.3	4.11
156/140	2	0.970 %	0.743 %	22.03

05/06/19

Integration Time [sec] 0.10

Tune Parameters

Plasma Parameters

Plasma Mode	HMI		Smpl Depth	9.2	mm	Nebulizer Pump	0.10	rps	Makeup/Dilution Gas		0.57
RF Power	1600	W	Carrier Gas	0.57	L/min	S/C Temp	2	°C	Plasma Gas		15.0
RF Matching	1.80	V	Option Gas	0.0	%	Gas Switch	Dilution Gas		Auxiliary Gas		0.9

Lenses Parameters

Extract 1	0.0	V	Omega Bias	-80	V	Cell Entrance	-30	V	Deflect	10.0	V
Extract 2	-160.0	V	Omega Lens	9.7	V	Cell Exit	-50	V	Plate Bias	-40	V

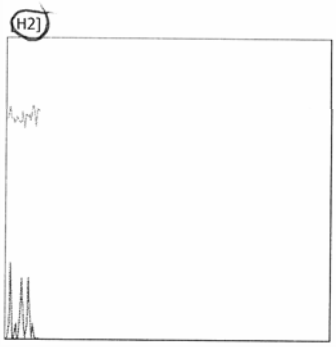
Cell Parameters

Use Gas	false		H2 Flow	0.0	mL/min	OctP Bias	-8.0	V	Energy Discrimination	1.9
He Flow	3.5	mL/min	3rd Gas Flow	0	%	OctP RF	155	V		

Meters

IF/BK Press	2.54E+2	Pa	Carrier Gas	0.57	L/min	Forward Power	1601	W
Analyzer Press	5.69E-5	Pa	Reflected Power	116	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
59	2000	2445	2427.5	4.07
89	10000	7535	7364.4	3.13
205	5000	3590	3469.5	3.66
70/140	2	1.097 %	1.401 %	11.89
78	20	0	1.0	146.25
75	20	8	3.6	62.08

Integration Time [sec] 0.10

05/06/19

Tune Parameters

Plasma Parameters

Plasma Mode	HMI		Smpl Depth	9.2	mm	Nebulizer Pump	0.10	rps	Makeup/Dilution Gas	0.57			
RF Power	1600	W	Carrier Gas	0.57	L/min	S/C Temp	2	℃	Plasma Gas	15.0			
RF Matching	1.80	V	Option Gas	0.0	%	Gas Switch	Dilution Gas		Auxiliary Gas	0.9			

Lenses Parameters

Extract 1	0.0	V	Omega Bias	-80	V	Cell Entrance	-30	V	Deflect	0.0	V
Extract 2	-160.0	V	Omega Lens	9.7	V	Cell Exit	-60	V	Plate Bias	-60	V

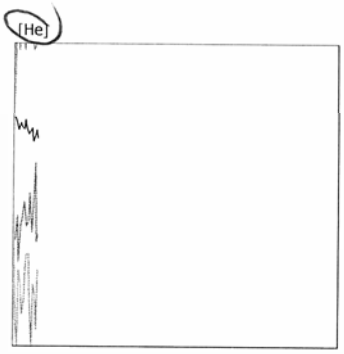
Cell Parameters

Use Gas	true		H2 Flow	3.6	mL/min	OctP Bias	-18.0	V	Energy Discrimination	1.9
He Flow	0.0	mL/min	3rd Gas Flow	0	%	OctP RF	150	V		

Meters

IF/BK Press	2.61E+2	Pa	Carrier Gas	0.58	L/min	Forward Power	1599	W
Analyzer Press	4.08E-4	Pa	Reflected Power	114	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
59	2000	2248	2194.7	4.36
205	2000	2923	2877.3	3.81
115	5000	4155	4050.9	3.98
107	20	6	5.1	59.25
51/59	5	1.824 %	2.049 %	18.63
156/140	1	0.664 %	0.857 %	24.59
63	100	156	164.2	9.71
88	100	31	48.6	21.15
89	5000	3420	3588.1	3.22
78	100	106	108.7	12.32
75	20	5	3.5	60.83
70/140	2	1.389 %	1.299 %	15.40

Integration Time [sec] 0.10

05/06/19

Tune Parameters

Plasma Parameters

Plasma Mode	HMI		Smpl Depth	9.2	mm	Nebulizer Pump	0.10	rps	Makeup/Dilution Gas		0.57
RF Power	1600	W	Carrier Gas	0.57	L/min	S/C Temp	2	°C	Plasma Gas		15.0
RF Matching	1.80	V	Option Gas	0.0	%	Gas Switch	Dilution Gas		Auxiliary Gas		0.9

Lenses Parameters

Extract 1	0.0	V	Omega Bias	-80	V	Cell Entrance	-40	V	Deflect	0.0	V
Extract 2	-160.0	V	Omega Lens	9.7	V	Cell Exit	-60	V	Plate Bias	-60	V

Cell Parameters

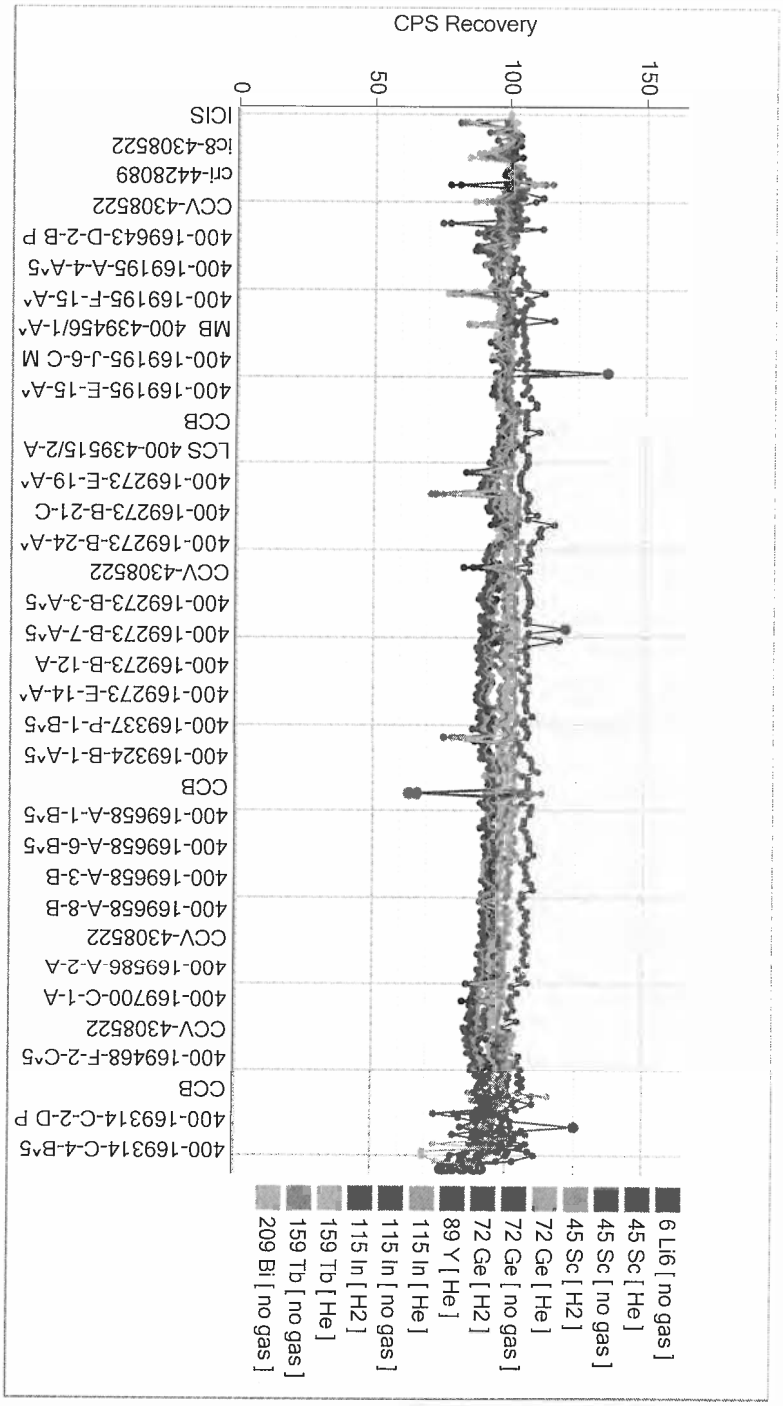
Use Gas	true		H2 Flow	0.0	mL/min	OctP Bias	-18.0	V	Energy Discrimination	1.9
He Flow	3.7	mL/min	3rd Gas Flow	0	%	OctP RF	90	V		

Meters

IF/BK Press	2.56E+2	Pa	Carrier Gas	0.57	L/min	Forward Power	1600	W
Analyzer Press	2.05E-4	Pa	Reflected Power	113	W			

Tune Step	Mass	Name	R	a	b (blank)	DL	BEC	Units
2	7	Lithium	0.999881809	0.013970275	0.06868203	0.373978376	4.916297503	ug/l
2	9	Be	0.999881985	0.004292977	5.11E-05	0.010431155	0.01190443	ug/l
2	11	B	0.999813124	0.002326529	0.018449116	0.471419976	7.929887261	ug/l
1	23	Na	0.999875453	0.013500868	0.17759753	1.031490519	13.15452641	ug/l
1	24	Mg	0.999872397	0.007881769	0.015548071	0.797190657	1.972662668	ug/l
3	27	Al	0.999995972	0.004212868	0.009225989	0.17765656	2.189954541	ug/l
3	28	Si	0.9997735	0.002188958	0.026251614	2.525093197	11.99274366	ug/l
1	39	K	0.999809626	0.011857975	1.236871891	4.15570648	104.3071755	ug/l
1	44	Ca	0.999788434	0.000535177	0.006446979	0.815747378	12.04643672	ug/l
1	49	Ti	0.999835668	0.002127105	0.000489586	0.121456284	0.230165511	ug/l
1	51	V	0.999358838	0.053756985	0.032908718	0.086246354	0.612175672	ug/l
1	52	Cr	0.999663131	0.057321357	0.009042303	0.033721633	0.157747537	ug/l
1	55	Mn	0.999129661	0.050301552	0.010677822	0.139069891	0.212276189	ug/l
3	56	Fe	0.999917736	0.049530606	0.498678537	1.805896824	10.06808876	ug/l
1	59	Co	0.999690975	0.073625411	0.000524085	0.004544556	0.007118256	ug/l
1	60	Ni	0.999787861	0.017224998	0.000520508	0.015262271	0.030218199	ug/l
1	63	copper	0.999528372	0.044090153	0.001673226	0.009788412	0.037950113	ug/l
2	63	dwCu63	0.999865198	0.030726145	0.00104981	0.004374522	0.034166676	ug/l
1	66	Zn	0.999821963	0.009012889	-0.003593706	0.13562641	-0.398729695	ug/l
1	75	arsenic	0.999314928	0.00707956	0.002054735	0.049605385	0.290234873	ug/l
2	75	dwAs75	0.999808043	0.006784696	-6.99E-05	0.638765432	-0.010302924	ug/l
2	77	[Se]	0.935184141	4.29E-05	0.002882217	2.554636375	67.22317965	ug/l
3	78	selenium	0.999899608	0.001365019	0.000298624	0.056873942	0.21876939	ug/l
2	82	dwSe82	0.999921217	0.000523534	0.000424868	0.239552327	0.811537945	ug/l
1	88	Sr	0.999544255	0.073734964	0.001979658	0.015600759	0.026848289	ug/l
1	95	Mo	0.999487548	0.00228462	0.00034207	0.071111591	0.149727249	ug/l
1	107	Ag	0.999485854	0.006353284	0.00012964	0.019005333	0.020405188	ug/l
1	111	Cd	0.999542326	0.011785187	2.09E-05	0.0092044	0.001771388	ug/l
1	120	Sn	0.9995585	0.004693152	0.001650855	0.032743282	0.351758187	ug/l
1	121	antimony	0.999766288	0.002454128	0.00061024	0.067460556	0.248658775	ug/l
2	121	dwSb121	0.999883326	0.00261816	0.001184882	0.058032071	0.452562803	ug/l
1	137	Ba	0.999975332	0.001766191	6.63E-05	0.028378295	0.03752898	ug/l
2	205	Tl	0.999598335	0.006966962	-0.000682574	0.001429061	-0.097972991	ug/l
2	206	[Pb]	0.999516602	0.00388599	0.001746265	0.080964279	0.449374479	ug/l
2	207	[Pb]	0.999553925	0.003393316	0.001360658	0.124100142	0.400981881	ug/l
2	208	Pb	0.999094275	0.015908246	0.006570517	0.031918033	0.413025857	ug/l
2	6	Li6						ug/l
1	45	Sc						ug/l
2	45	Sc						ug/l
3	45	Sc						ug/l
1	72	Ge						ug/l
2	72	Ge						ug/l
3	72	Ge						ug/l
1	89	Y						ug/l
1	115	In						ug/l
2	115	In						ug/l
3	115	In						
1	159	Tb						ug/l
2	159	Tb						ug/l
2	209	Bi						ug/l

03/17/16


CPS Recovery
0
50
100
150
ICIS
ic8-4308522
cri-4428089
CCV-4308522
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400-169195-A-4-A^5
400-169195-F-15-A^
MB 400-439456/1-A^
400-169195-J-6-C M
400-169195-E-15-A^
CCB
LCS 400-439515/2-A
400-169273-E-19-A^
400-169273-B-21-C
400-169273-B-24-A^
CCV-4308522
400-169273-B-3-A^5
400-169273-B-7-A^5
400-169273-B-12-A
400-169273-E-14-A^
400-169337-P-1-B^5
400-169324-B-1-A^5
CCB
400-169658-A-1-B^5
400-169658-A-6-B^5
400-169658-A-3-B
400-169658-A-8-B
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400-169700-C-1-A
CCV-4308522
400-169468-F-2-C^5
CCB
400-169314-C-2-D P
400-169314-C-4-B^5
6 Li6 [no gas]
45 Sc [He]
45 Sc [no gas]
45 Sc [H2]
72 Ge [He]
72 Ge [no gas]
72 Ge [H2]
89 Y [He]
115 In [He]
115 In [no gas]
115 In [H2]
159 Tb [He]
159 Tb [no gas]
209 Bi [no gas]

05/07/19

Sample Table

Sample Name	ICIS
Data File Name	005CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T12:22:08-05:00
Sample Type	CalBlk
Dilution	1
Comment	
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.159	-0.159	-77.57	135571	0.00	200	
Be	6	9	2	no gas	-0.001	-0.001	-93.70	31	105.22	200	
B	6	11	2	no gas	0.234	0.234	6.11	9423	0.02	200	
Na	72	23	1	He	1.363	1.363	97.95	58923	0.02	200	
Mg	72	24	1	He	0.121	0.121	21.91	1187	0.43	200	
Al	45	27	3	H2	-1.001	-1.001	-4.41	11821	0.03	200	
Si	45	28	3	H2	0.221	0.221	100.34	90872	0.00	200	
K	72	39	1	He	0.360	0.360	208.00	409754	0.00	200	
Ca	72	44	1	He	3.148	3.148	28.00	2427	0.27	200	
V	72	51	1	He	0.030	0.030	14.97	13336	0.01	200	
Cr	72	52	1	He	0.003	0.003	560.15	3060	0.36	200	
Mn	72	55	1	He	0.090	0.090	141.27	5154	0.80	200	
Fe	72	56	3	H2	0.352	0.352	3.81	43646	0.01	200	
Co	72	59	1	He	0.002	0.002	105.55	161	15.95	200	
Ni	72	60	1	He	0.004	0.004	77.22	170	5.99	200	
copper	72	63	1	He	0.009	0.009	28.15	578	0.92	200	
dwCu63	72	63	2	no gas	0.004	0.004	172.68	777	2.74	200	
Zn	72	66	1	He	1.354	1.354	2.62	2814	0.16	200	
arsenic	72	75	1	He	-0.005	-0.005	-310.85	613	0.98	200	
[Se]	115	77	2	no gas	5.266	5.266	33.86	15754	0.01	200	
selenium	72	78	3	H2	0.004	0.004	150.24	26	103.55	200	
dwSe82	72	82	2	no gas	-0.065	-0.065	-49.86	203	2.46	200	
Sr	72	88	1	He	0.003	0.003	101.77	350	6.16	200	
Mo	115	95	1	He	-0.004	-0.004	-60.53	100	17.32	200	
Ag	115	107	1	He	0.003	0.003	50.78	254	4.13	200	
antimony	159	121	1	He	0.002	0.002	78.42	203	5.81	200	
dwSb121	159	121	2	no gas	0.005	0.005	83.48	472	2.90	200	
Ba	115	137	1	He	0.010	0.010	92.54	100	50.33	200	
Tl	159	205	2	no gas	0.100	0.100	0.49	93	23.56	200	
[Pb]	209	206	2	no gas	0.015	0.015	48.93	5895	0.03	200	
[Pb]	209	207	2	no gas	-0.020	-0.020	-45.57	4974	0.04	200	
Pb	209	208	2	no gas	0.008	0.008	132.78	22868	0.01	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1982131	2.38	1982131	100.00	70	120	
Sc	45	1	He	799313	0.83	799313	100.00	70	120	
Ge	72	1	He	326642	0.93	326642	100.00	70	125	
Ge	72	2	no gas	671907	1.48	671907	100.00	70	125	
Ge	72	3	H2	855135	0.88	855135	100.00	70	120	
Y	89	1	He	2862447	0.71	2862447	100.00	70	120	
In	115	1	He	3244464	0.79	3244464	100.00	70	120	
In	115	2	no gas	4620454	1.19	4620454	100.00	70	120	
In	115	3	H2	6215909	1.92	6215909	100.00	70	120	
Tb	159	1	He	4874225	0.83	4874225	100.00	70	120	
Tb	159	2	no gas	5790664	0.53	5790664	100.00	70	120	
Bi	209	2	no gas	3571256	0.17	3571256	100.00	60	120	

Sample Report

Sample Table

Sample Name	ICIS
Data File Name	006CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T12:26:17-05:00
Sample Type	CalBlk
Dilution	1
Comment	
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.000	0.000	#DIV/0!	138245	0.00	200	
Be	6	9	2	no gas	0.000	0.000	#DIV/0!	42	47.07	200	
B	6	11	2	no gas	0.000	0.000	#DIV/0!	8216	0.08	200	
Na	72	23	1	He	0.000	0.000	#DIV/0!	53194	0.02	200	
Mg	72	24	1	He	0.000	0.000	#DIV/0!	880	1.88	200	
Al	45	27	3	H2	-1.192	-1.192	-0.91	8726	0.02	200	
Si	45	28	3	H2	0.000	0.000	#DIV/0!	87262	0.00	200	
K	72	39	1	He	0.000	0.000	#DIV/0!	410692	0.00	200	
Ca	72	44	1	He	0.000	0.000	#DIV/0!	1887	0.28	200	
V	72	51	1	He	0.000	0.000	#DIV/0!	12893	0.02	200	
Cr	72	52	1	He	0.000	0.000	#DIV/0!	3017	0.46	200	
Mn	72	55	1	He	0.000	0.000	#DIV/0!	3694	1.31	200	
Fe	72	56	3	H2	0.000	0.000	#DIV/0!	28236	0.01	200	
Co	72	59	1	He	0.000	0.000	#DIV/0!	123	14.37	200	
Ni	72	60	1	He	0.000	0.000	#DIV/0!	150	7.70	200	
copper	72	63	1	He	0.000	0.000	#DIV/0!	453	1.87	200	
dwCu63	72	63	2	no gas	0.000	0.000	#DIV/0!	687	2.74	200	
Zn	72	66	1	He	0.875	0.875	9.67	1413	1.26	200	
arsenic	72	75	1	He	0.000	0.000	#DIV/0!	627	0.45	200	
[Se]	115	77	2	no gas	0.000	0.000	#DIV/0!	15167	0.02	200	
selenium	72	78	3	H2	0.000	0.000	#DIV/0!	21	238.90	200	
dwSe82	72	82	2	no gas	0.000	0.000	#DIV/0!	226	3.04	200	
Sr	72	88	1	He	0.000	0.000	#DIV/0!	280	2.55	200	
Mo	115	95	1	He	0.000	0.000	#DIV/0!	127	66.64	200	
Ag	115	107	1	He	0.000	0.000	#DIV/0!	201	9.76	200	
Cd	72	111	1	He	0.000	0.000	#DIV/0!	7	1299.04	200	
antimony	159	121	1	He	0.000	0.000	#DIV/0!	173	13.45	200	
dwSb121	159	121	2	no gas	0.000	0.000	#DIV/0!	391	4.37	200	
Ba	115	137	1	He	0.000	0.000	#DIV/0!	44	136.40	200	
Tl	159	205	2	no gas	0.100	0.100	0.46	77	27.85	200	
[Pb]	209	206	2	no gas	0.000	0.000	#DIV/0!	5728	0.08	200	
[Pb]	209	207	2	no gas	0.000	0.000	#DIV/0!	5244	0.10	200	
Pb	209	208	2	no gas	0.000	0.000	#DIV/0!	22524	0.01	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1957500	1.20	1957500	100.00	70	120	
Sc	45	1	He	799506	0.19	799506	100.00	70	120	
Ge	72	1	He	328506	0.84	328506	100.00	70	125	
Ge	72	2	no gas	672627	0.63	672627	100.00	70	125	
Ge	72	3	H2	840739	0.71	840739	100.00	70	120	
Y	89	1	He	2882012	0.52	2882012	100.00	70	120	
In	115	1	He	3223520	1.14	3223520	100.00	70	120	
In	115	2	no gas	4728427	0.68	4728427	100.00	70	120	
In	115	3	H2	6126085	1.00	6126085	100.00	70	120	
Tb	159	1	He	4863630	1.96	4863630	100.00	70	120	
Tb	159	2	no gas	5757533	2.47	5757533	100.00	70	120	
Bi	209	2	no gas	3593022	0.49	3593022	100.00	60	120	

Sample Table

Sample Name	ic13-4308522
Data File Name	007CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T12:30:15-05:00
Sample Type	CalStd
Dilution	1
Comment	1:40000 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.259	0.259	41.64	129009	0.01	1	
Be	6	9	2	no gas	0.262	0.262	8.69	1982	0.08	1	
B	6	11	2	no gas	-0.192	-0.192	-78.51	6482	0.10	1	
Na	72	23	1	He	22.805	22.805	6.11	154664	0.00	1	
Mg	72	24	1	He	21.735	21.735	2.98	57278	0.00	1	
Al	45	27	3	H2	1.192	1.192	6.58	43787	0.00	1	
Si	45	28	3	H2	-1.116	-1.116	-27.33	77338	0.00	1	
K	72	39	1	He	21.368	21.368	0.31	495036	0.00	1	
Ca	72	44	1	He	17.590	17.590	3.91	4991	0.05	1	
V	72	51	1	He	0.143	0.143	13.04	15446	0.02	1	
Cr	72	52	1	He	0.199	0.199	5.60	6778	0.06	1	
Mn	72	55	1	He	2.224	2.224	3.01	40531	0.01	1	
Fe	72	56	3	H2	21.684	21.684	1.93	931289	0.00	1	
Co	72	59	1	He	0.211	0.211	2.43	5231	0.03	1	
Ni	72	60	1	He	0.230	0.230	14.54	1457	0.86	1	
copper	72	63	1	He	0.210	0.210	8.80	3500	0.21	1	
dwCu63	72	63	2	no gas	0.252	0.252	10.61	5168	0.06	1	
Zn	72	66	1	He	1.046	1.046	6.38	1924	0.52	1	
arsenic	72	75	1	He	0.154	0.154	2.18	987	0.06	1	
[Se]	115	77	2	no gas	16.787	16.787	56.44	14773	0.01	1	
selenium	72	78	3	H2	0.207	0.207	6.55	258	2.27	1	
dwSe82	72	82	2	no gas	0.259	0.259	18.87	280	2.83	1	
Sr	72	88	1	He	0.208	0.208	5.35	5334	0.09	1	
Mo	115	95	1	He	0.188	0.188	4.60	1510	0.27	1	
Ag	115	107	1	He	0.185	0.185	2.13	3997	0.06	1	
Cd	72	111	1	He	0.202	0.202	16.00	790	1.95	1	
antimony	159	121	1	He	0.206	0.206	2.08	2688	0.08	1	
dwSb121	159	121	2	no gas	0.271	0.271	15.83	3710	0.16	1	
Ba	115	137	1	He	0.207	0.207	11.61	1225	0.87	1	
Tl	159	205	2	no gas	0.149	0.149	3.24	1697	0.31	1	
[Pb]	209	206	2	no gas	0.250	0.250	14.62	7715	0.08	1	
[Pb]	209	207	2	no gas	0.202	0.202	23.25	6445	0.07	1	
Pb	209	208	2	no gas	0.257	0.257	13.80	31184	0.02	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1738445	7.55	1957500	88.81	70	120	
Sc	45	1	He	804141	1.64	799506	100.58	70	120	
Ge	72	1	He	329235	0.67	328506	100.22	70	125	
Ge	72	2	no gas	592550	8.08	672627	88.09	70	125	
Ge	72	3	H2	840703	0.98	840739	100.00	70	120	
Y	89	1	He	2885297	2.36	2882012	100.11	70	120	
In	115	1	He	3221022	0.57	3223520	99.92	70	120	
In	115	2	no gas	3860728	10.75	4728427	81.65	70	120	
In	115	3	H2	6028252	0.95	6126085	98.40	70	120	
Tb	159	1	He	4948253	1.97	4863630	101.74	70	120	
Tb	159	2	no gas	4773149	8.99	5757533	82.90	70	120	
Bi	209	2	no gas	3016679	9.66	3593022	83.96	60	120	

Sample Report

Sample Table

Sample Name	ic2-4308522
Data File Name	008CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T12:34:15-05:00
Sample Type	CalStd
Dilution	1
Comment	1:20000 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.459	0.459	31.54	151831	0.00	1	
Be	6	9	2	no gas	0.445	0.445	5.35	3808	0.10	1	
B	6	11	2	no gas	0.049	0.049	236.92	8496	0.05	1	
Na	72	23	1	He	46.065	46.065	0.98	256630	0.00	1	
Mg	72	24	1	He	44.147	44.147	2.00	114798	0.00	1	
Al	45	27	3	H2	3.760	3.760	2.94	82973	0.00	1	
Si	45	28	3	H2	-1.106	-1.106	-17.85	78619	0.00	1	
K	72	39	1	He	46.722	46.722	2.91	590686	0.00	1	
Ca	72	44	1	He	39.438	39.438	3.03	8792	0.03	1	
V	72	51	1	He	0.284	0.284	8.91	17844	0.01	1	
Cr	72	52	1	He	0.391	0.391	1.15	10340	0.01	1	
Mn	72	55	1	He	4.477	4.477	2.54	77408	0.00	1	
Fe	72	56	3	H2	46.136	46.136	1.58	1952238	0.00	1	
Co	72	59	1	He	0.422	0.422	2.11	10301	0.02	1	
Ni	72	60	1	He	0.491	0.491	3.12	2917	0.09	1	
copper	72	63	1	He	0.425	0.425	3.49	6592	0.04	1	
dwCu63	72	63	2	no gas	0.440	0.440	2.28	9796	0.03	1	
Zn	72	66	1	He	1.338	1.338	4.32	2774	0.25	1	
arsenic	72	75	1	He	0.380	0.380	1.39	1505	0.11	1	
dwAs75	72	75	2	no gas	0.601	0.601	25.54	2430	1.15	1	
[Se]	115	77	2	no gas	-7.170	-7.170	-12.65	13652	0.02	1	
selenium	72	78	3	H2	0.415	0.415	2.57	499	0.43	1	
dwSe82	72	82	2	no gas	0.433	0.433	11.32	380	1.51	1	
Sr	72	88	1	He	0.422	0.422	4.15	10467	0.04	1	
Mo	115	95	1	He	0.407	0.407	9.30	3077	0.29	1	
Ag	115	107	1	He	0.391	0.391	2.95	8077	0.05	1	
Cd	72	111	1	He	0.447	0.447	11.89	1730	0.64	1	
antimony	159	121	1	He	0.419	0.419	2.67	5220	0.05	1	
dwSb121	159	121	2	no gas	0.463	0.463	5.26	7402	0.04	1	
Ba	115	137	1	He	0.404	0.404	15.80	2302	0.60	1	
Tl	159	205	2	no gas	0.183	0.183	2.51	3400	0.11	1	
[Pb]	209	206	2	no gas	0.410	0.410	11.55	11458	0.04	1	
[Pb]	209	207	2	no gas	0.393	0.393	3.97	10033	0.01	1	
Pb	209	208	2	no gas	0.415	0.415	7.25	46258	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1970127	1.80	1957500	100.65	70	120	
Sc	45	1	He	797617	0.32	799506	99.76	70	120	
Ge	72	1	He	327405	0.87	328506	99.67	70	125	
Ge	72	2	no gas	674324	2.23	672627	100.25	70	125	
Ge	72	3	H2	841806	0.93	840739	100.13	70	120	
Y	89	1	He	2871462	0.97	2882012	99.63	70	120	
In	115	1	He	3167635	1.84	3223520	98.27	70	120	
In	115	2	no gas	4655929	2.48	4728427	98.47	70	120	
In	115	3	H2	6087170	2.73	6126085	99.36	70	120	
Tb	159	1	He	4886941	0.31	4863630	100.48	70	120	
Tb	159	2	no gas	5730090	2.95	5757533	99.52	70	120	
Bi	209	2	no gas	3596023	2.46	3593022	100.08	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-2-B
Data File Name	214SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:20:44-05:00
Sample Type	Sample
Dilution	1
Comment	439758_26
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.620	0.620	32.82	140748	0.00	200	
Be	6	9	2	no gas	0.000	0.000	754.33	122	0.00	200	
B	6	11	2	no gas	31.116	31.116	2.04	193105	0.02	400	
Na	72	23	1	He	29070.484	29070.484	3.49	117537345	0.02	50000	
Mg	72	24	1	He	2357.258	2357.258	2.57	5568536	0.04	50000	
Al	45	27	3	H2	771.499	771.499	3.73	9818442	0.01	50000	
Si	45	28	3	H2	2058.902	2058.902	3.62	13676821	0.02	2000	>LDR
K	72	39	1	He	1085.590	1085.590	1.95	4241529	0.03	50000	
Ca	72	44	1	He	25483.573	25483.573	2.19	4084949	0.62	25000	>LDR
Ti	72	49	1	He	24.871	24.871	2.98	16030	0.16	200	
V	72	51	1	He	3.371	3.371	2.55	59310	0.01	200	
Cr	72	52	1	He	5.165	5.165	1.09	90779	0.01	200	
Mn	72	55	1	He	63.544	63.544	2.21	961578	0.01	2500	
Fe	72	56	3	H2	7426.131	7426.131	0.71	280122742	0.00	50000	
Co	72	59	1	He	0.303	0.303	1.73	7183	0.00	200	
Ni	72	60	1	He	2.802	2.802	5.08	14696	0.02	200	
copper	72	63	1	He	4.799	4.799	1.29	64147	0.01	200	
Zn	72	66	1	He	4.913	4.913	3.54	14339	0.03	200	
arsenic	72	75	1	He	402.071	402.071	1.90	852813	0.05	200	>LDR
selenium	72	78	3	H2	1.280	1.280	1.05	1557	0.08	200	
Sr	72	88	1	He	181.089	181.089	2.29	3998231	0.00	500	
Mo	115	95	1	He	2.271	2.271	2.83	16508	0.01	200	
Ag	115	107	1	He	-0.018	-0.018	-11.94	236	-0.01	200	
Cd	72	111	1	He	0.009	0.009	45.13	103	0.01	200	
Sn	115	120	1	He	0.262	0.262	17.87	7996	0.00	200	
antimony	159	121	1	He	3.160	3.160	3.74	37810	0.01	200	
Ba	115	137	1	He	11.437	11.437	1.81	56290	0.02	1000	
Tl	159	205	2	no gas	0.006	0.006	33.68	420	0.00	40	
[Pb]	209	206	2	no gas	0.173	0.173	3.20	8469	0.00	200	
[Pb]	209	207	2	no gas	0.196	0.196	6.80	7098	0.00	200	
Pb	209	208	2	no gas	0.181	0.181	7.17	33427	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1860604	2.37	1982866	93.83	70	120	
Sc	45	1	He	706586	0.74	767851	92.02	70	120	
Ge	72	1	He	299438	1.75	320058	93.56	70	125	
Ge	72	2	no gas	629539	1.24	673177	93.52	70	125	
Ge	72	3	H2	760747	1.07	821457	92.61	70	120	
Y	89	1	He	2547380	0.22	2786775	91.41	70	120	
In	115	1	He	2776761	1.06	3045232	91.18	70	120	
In	115	2	no gas	4408211	1.44	4564130	96.58	70	120	
In	115	3	H2	6216826	1.30	5826290	106.70	70	120	
Tb	159	1	He	4520835	1.01	4638687	97.46	70	120	
Tb	159	2	no gas	5702621	1.12	5623529	101.41	70	120	
Bi	209	2	no gas	3385271	0.44	3475006	97.42	60	120	

Sample Report

Sample Table

Sample Name	680-168414-C-1-A^5
Data File Name	186SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:30:12-05:00
Sample Type	Sample
Dilution	1
Comment	439758_13
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	3.038	3.038	4.92	205327	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-33.56	82	-0.01	200	
B	6	11	2	no gas	1125.361	1125.361	2.19	4893560	0.02	400	>LDR
Na	72	23	1	He	1837.321	1837.321	0.43	7565780	0.02	50000	
Mg	72	24	1	He	2870.115	2870.115	2.48	6848395	0.04	50000	
Al	45	27	3	H2	4.053	4.053	1.34	66792	0.01	50000	
Si	45	28	3	H2	427.942	427.942	0.82	2971754	0.01	2000	
K	72	39	1	He	1755.273	1755.273	0.80	6679061	0.03	50000	
Ca	72	44	1	He	24258.000	24258.000	2.33	3928977	0.62	25000	>LDR
Ti	72	49	1	He	0.307	0.307	19.10	353	0.09	200	
V	72	51	1	He	0.248	0.248	9.76	9386	0.00	200	
Cr	72	52	1	He	0.046	0.046	2.85	3077	0.00	200	
Mn	72	55	1	He	199.441	199.441	0.91	3039317	0.01	2500	
Fe	72	56	3	H2	-0.033	-0.033	-79.98	291968	0.00	50000	
Co	72	59	1	He	0.528	0.528	1.42	12163	0.00	200	
Ni	72	60	1	He	1.027	1.027	2.97	5501	0.02	200	
copper	72	63	1	He	0.212	0.212	5.39	3613	0.01	200	
Zn	72	66	1	He	0.307	0.307	32.61	1974	0.02	200	
arsenic	72	75	1	He	0.747	0.747	7.45	2191	0.03	200	
selenium	72	78	3	H2	4.171	4.171	2.06	4759	0.09	200	
Sr	72	88	1	He	267.986	267.986	1.44	5978005	0.00	500	
Mo	115	95	1	He	78.781	78.781	1.37	525975	0.01	200	
Ag	115	107	1	He	-0.021	-0.021	-8.94	202	-0.01	200	
Cd	72	111	1	He	0.040	0.040	10.45	217	0.02	200	
Sn	115	120	1	He	-0.172	-0.172	-8.49	2454	-0.01	200	
antimony	159	121	1	He	0.799	0.799	3.10	11797	0.01	200	
Ba	115	137	1	He	8.918	8.918	1.05	45989	0.02	1000	
Tl	159	205	2	no gas	0.166	0.166	1.95	6829	0.00	40	
[Pb]	209	206	2	no gas	-0.048	-0.048	-33.84	5925	0.00	200	
[Pb]	209	207	2	no gas	-0.063	-0.063	-11.14	5041	0.00	200	
Pb	209	208	2	no gas	-0.042	-0.042	-26.77	23258	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1860496	2.08	1982866	93.83	70	120	
Sc	45	1	He	718049	0.85	767851	93.51	70	120	
Ge	72	1	He	302528	1.17	320058	94.52	70	125	
Ge	72	2	no gas	640471	0.65	673177	95.14	70	125	
Ge	72	3	H2	794316	0.78	821457	96.70	70	120	
Y	89	1	He	2582916	0.37	2786775	92.68	70	120	
In	115	1	He	2912901	0.32	3045232	95.65	70	120	
In	115	2	no gas	4546149	0.95	4564130	99.61	70	120	
In	115	3	H2	6364253	1.79	5826290	109.23	70	120	
Tb	159	1	He	4590028	2.24	4638687	98.95	70	120	
Tb	159	2	no gas	5748795	1.42	5623529	102.23	70	120	
Bi	209	2	no gas	3547882	0.39	3475006	102.10	60	120	

Sample Table

Sample Name	ic4-4308522
Data File Name	009CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T12:38:21-05:00
Sample Type	CalStd
Dilution	1
Comment	1:5000 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.001	2.001	5.79	188034	0.00	1	
Be	6	9	2	no gas	1.953	1.953	4.95	16018	0.01	1	
B	6	11	2	no gas	3.051	3.051	10.88	21807	0.01	1	
Na	72	23	1	He	187.239	187.239	0.20	903229	0.00	1	
Mg	72	24	1	He	184.683	184.683	1.11	489722	0.00	1	
Al	45	27	3	H2	18.828	18.828	2.21	313012	0.00	1	
Si	45	28	3	H2	0.272	0.272	130.57	90587	0.00	1	
K	72	39	1	He	189.509	189.509	2.06	1174392	0.00	1	
Ca	72	44	1	He	172.272	172.272	0.84	32889	0.00	1	
V	72	51	1	He	1.608	1.608	1.54	42185	0.00	1	
Cr	72	52	1	He	1.769	1.769	0.92	37144	0.00	1	
Mn	72	55	1	He	18.280	18.280	0.48	312526	0.00	1	
Fe	72	56	3	H2	185.742	185.742	0.98	7875975	0.00	1	
Co	72	59	1	He	1.791	1.791	2.72	44402	0.01	1	
Ni	72	60	1	He	1.835	1.835	4.34	10767	0.04	1	
copper	72	63	1	He	1.812	1.812	1.19	27294	0.01	1	
dwCu63	72	63	2	no gas	1.967	1.967	7.46	40087	0.01	1	
Zn	72	66	1	He	2.642	2.642	1.59	6791	0.02	1	
arsenic	72	75	1	He	1.639	1.639	1.56	4537	0.02	1	
dwAs75	72	75	2	no gas	1.962	1.962	13.20	8363	0.11	1	
[Se]	115	77	2	no gas	-4.603	-4.603	-98.06	13208	0.01	1	
selenium	72	78	3	H2	1.777	1.777	3.91	2093	0.21	1	
dwSe82	72	82	2	no gas	1.885	1.885	8.79	864	0.24	1	
Sr	72	88	1	He	1.794	1.794	0.24	44719	0.00	1	
Mo	115	95	1	He	1.737	1.737	0.93	12882	0.01	1	
Ag	115	107	1	He	1.650	1.650	1.00	33828	0.00	1	
Cd	72	111	1	He	1.694	1.694	4.00	6712	0.06	1	
antimony	159	121	1	He	1.819	1.819	1.20	22265	0.00	1	
dwSb121	159	121	2	no gas	2.013	2.013	9.12	29380	0.01	1	
Ba	115	137	1	He	1.663	1.663	2.65	9465	0.02	1	
Tl	159	205	2	no gas	0.489	0.489	4.17	14828	0.02	1	
[Pb]	209	206	2	no gas	1.927	1.927	5.42	30809	0.00	1	
[Pb]	209	207	2	no gas	1.809	1.809	6.88	25751	0.01	1	
Pb	209	208	2	no gas	1.826	1.826	5.75	119776	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1907311	3.55	1957500	97.44	70	120	
Sc	45	1	He	811452	1.77	799506	101.49	70	120	
Ge	72	1	He	335788	0.48	328506	102.22	70	125	
Ge	72	2	no gas	653689	5.13	672627	97.18	70	125	
Ge	72	3	H2	852772	0.60	840739	101.43	70	120	
Y	89	1	He	2882974	1.87	2882012	100.03	70	120	
In	115	1	He	3208092	1.03	3223520	99.52	70	120	
In	115	2	no gas	4366359	5.31	4728427	92.34	70	120	
In	115	3	H2	6129933	0.97	6126085	100.06	70	120	
Tb	159	1	He	4932210	1.82	4863630	101.41	70	120	
Tb	159	2	no gas	5463335	6.69	5757533	94.89	70	120	
Bi	209	2	no gas	3394960	4.24	3593022	94.49	60	120	

Sample Table

Sample Name	ic5-4308522
Data File Name	010CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T12:42:18-05:00
Sample Type	CalStd
Dilution	1
Comment	1:2000 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.977	4.977	1.05	280808	0.00	1	
Be	6	9	2	no gas	4.713	4.713	0.85	40601	0.00	1	
B	6	11	2	no gas	8.351	8.351	0.94	48209	0.00	1	
Na	72	23	1	He	448.890	448.890	2.42	2089702	0.00	1	
Mg	72	24	1	He	461.040	461.040	1.45	1221572	0.00	1	
Al	45	27	3	H2	48.348	48.348	0.75	766129	0.00	1	
Si	45	28	3	H2	2.918	2.918	8.40	112278	0.00	1	
K	72	39	1	He	463.993	463.993	0.22	2267887	0.00	1	
Ca	72	44	1	He	430.239	430.239	0.80	79274	0.00	1	
V	72	51	1	He	4.115	4.115	1.20	87419	0.00	1	
Cr	72	52	1	He	4.390	4.390	1.20	87608	0.00	1	
Mn	72	55	1	He	45.789	45.789	0.95	777323	0.00	1	
Fe	72	56	3	H2	459.590	459.590	1.69	19481490	0.00	1	
Co	72	59	1	He	4.391	4.391	1.08	108717	0.00	1	
Ni	72	60	1	He	4.399	4.399	1.84	25601	0.00	1	
copper	72	63	1	He	4.350	4.350	1.14	64874	0.00	1	
dwCu63	72	63	2	no gas	4.584	4.584	0.78	98412	0.00	1	
Zn	72	66	1	He	5.286	5.286	2.44	14793	0.01	1	
arsenic	72	75	1	He	4.171	4.171	2.29	10560	0.01	1	
dwAs75	72	75	2	no gas	4.237	4.237	8.07	19618	0.04	1	
[Se]	115	77	2	no gas	-13.299	-13.299	-24.90	12938	0.04	1	
selenium	72	78	3	H2	4.408	4.408	1.98	5169	0.02	1	
dwSe82	72	82	2	no gas	4.442	4.442	2.15	1848	0.09	1	
Sr	72	88	1	He	4.528	4.528	0.76	112416	0.00	1	
Mo	115	95	1	He	4.436	4.436	3.21	32670	0.01	1	
Ag	115	107	1	He	4.009	4.009	1.13	81851	0.00	1	
Cd	72	111	1	He	4.494	4.494	1.39	17796	0.01	1	
antimony	159	121	1	He	4.629	4.629	1.79	54982	0.00	1	
dwSb121	159	121	2	no gas	4.669	4.669	1.24	73290	0.00	1	
Ba	115	137	1	He	4.347	4.347	3.81	24651	0.01	1	
Tl	159	205	2	no gas	0.982	0.982	0.60	36307	0.00	1	
[Pb]	209	206	2	no gas	4.453	4.453	1.84	67374	0.00	1	
[Pb]	209	207	2	no gas	4.507	4.507	2.34	59671	0.00	1	
Pb	209	208	2	no gas	4.377	4.377	0.30	270485	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2004478	0.72	1957500	102.40	70	120	
Sc	45	1	He	806293	1.48	799506	100.85	70	120	
Ge	72	1	He	335877	1.04	328506	102.24	70	125	
Ge	72	2	no gas	693655	0.62	672627	103.13	70	125	
Ge	72	3	H2	854425	1.33	840739	101.63	70	120	
Y	89	1	He	2907641	0.72	2882012	100.89	70	120	
In	115	1	He	3206113	1.45	3223520	99.46	70	120	
In	115	2	no gas	4797146	0.24	4728427	101.45	70	120	
In	115	3	H2	6185662	0.72	6126085	100.97	70	120	
Tb	159	1	He	4809679	0.67	4863630	98.89	70	120	
Tb	159	2	no gas	5896772	1.56	5757533	102.42	70	120	
Bi	209	2	no gas	3563148	0.55	3593022	99.17	60	120	

Sample Report

Sample Table

Sample Name	ic7-4308522
Data File Name	011CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T12:46:19-05:00
Sample Type	CalStd
Dilution	1
Comment	1:500 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	20.659	20.659	15.31	704561	0.00	1	
Be	6	9	2	no gas	19.447	19.447	17.73	162996	0.00	1	
B	6	11	2	no gas	38.627	38.627	17.36	187729	0.00	1	
Na	72	23	1	He	1811.062	1811.062	0.63	8267246	0.00	1	
Mg	72	24	1	He	1816.188	1816.188	1.59	4809104	0.00	1	
Al	45	27	3	H2	208.003	208.003	3.34	3032078	0.00	1	
Si	45	28	3	H2	18.281	18.281	7.05	222118	0.00	1	
K	72	39	1	He	1849.628	1849.628	0.68	7786579	0.00	1	
Ca	72	44	1	He	1796.814	1796.814	0.62	324941	0.00	1	
V	72	51	1	He	17.265	17.265	0.36	324651	0.00	1	
Cr	72	52	1	He	17.770	17.770	0.29	345209	0.00	1	
Mn	72	55	1	He	185.886	185.886	0.82	3144413	0.00	1	
Fe	72	56	3	H2	1907.473	1907.473	1.26	78708660	0.00	1	
Co	72	59	1	He	17.919	17.919	0.25	443257	0.00	1	
Ni	72	60	1	He	18.650	18.650	0.83	108057	0.00	1	
copper	72	63	1	He	18.112	18.112	0.76	268703	0.00	1	
dwCu63	72	63	2	no gas	18.822	18.822	19.87	388131	0.00	1	
Zn	72	66	1	He	18.647	18.647	1.60	55242	0.00	1	
arsenic	72	75	1	He	17.334	17.334	0.45	41866	0.00	1	
dwAs75	72	75	2	no gas	17.963	17.963	19.97	81350	0.00	1	
[Se]	115	77	2	no gas	-5.479	-5.479	-285.56	14026	0.02	1	
selenium	72	78	3	H2	18.684	18.684	2.21	21282	0.00	1	
dwSe82	72	82	2	no gas	18.961	18.961	18.23	6902	0.00	1	
Sr	72	88	1	He	18.411	18.411	1.04	456290	0.00	1	
Mo	115	95	1	He	17.980	17.980	2.71	131503	0.00	1	
Ag	115	107	1	He	16.583	16.583	1.00	336612	0.00	1	
Cd	72	111	1	He	18.187	18.187	0.55	72000	0.00	1	
antimony	159	121	1	He	18.539	18.539	1.37	224865	0.00	1	
dwSb121	159	121	2	no gas	19.601	19.601	24.37	298647	0.00	1	
Ba	115	137	1	He	17.583	17.583	1.78	99197	0.00	1	
Tl	159	205	2	no gas	3.811	3.811	22.96	148837	0.00	1	
[Pb]	209	206	2	no gas	18.591	18.591	23.36	258580	0.00	1	
[Pb]	209	207	2	no gas	18.621	18.621	22.57	226475	0.00	1	
Pb	209	208	2	no gas	17.869	17.869	23.21	1017463	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1987457	15.24	1957500	101.53	70	120	
Sc	45	1	He	819888	0.25	799506	102.55	70	120	
Ge	72	1	He	335882	0.36	328506	102.25	70	125	
Ge	72	2	no gas	685620	17.31	672627	101.93	70	125	
Ge	72	3	H2	832670	1.68	840739	99.04	70	120	
Y	89	1	He	2870838	0.61	2882012	99.61	70	120	
In	115	1	He	3193062	1.11	3223520	99.06	70	120	
In	115	2	no gas	4822386	22.41	4728427	101.99	70	120	
In	115	3	H2	5827423	2.87	6126085	95.12	70	120	
Tb	159	1	He	4923087	1.01	4863630	101.22	70	120	
Tb	159	2	no gas	5969412	23.14	5757533	103.68	70	120	
Bi	209	2	no gas	3615867	21.08	3593022	100.64	60	120	

Sample Table

Sample Name	ic8-4308522
Data File Name	012CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T12:50:25-05:00
Sample Type	CalStd
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	47.138	47.138	4.40	1473729	0.00	1	
Be	6	9	2	no gas	49.012	49.012	2.04	425768	0.00	1	
B	6	11	2	no gas	98.499	98.499	2.55	482265	0.00	1	
Na	72	23	1	He	4770.610	4770.610	1.02	21446346	0.00	1	
Mg	72	24	1	He	4721.049	4721.049	2.21	12359701	0.00	1	
Al	45	27	3	H2	510.430	510.430	1.55	7688586	0.00	1	
Si	45	28	3	H2	46.466	46.466	1.33	451823	0.00	1	
K	72	39	1	He	4816.493	4816.493	0.32	19384313	0.00	1	
Ca	72	44	1	He	4710.005	4710.005	1.13	839165	0.00	1	
V	72	51	1	He	45.986	45.986	1.63	833378	0.00	1	
Cr	72	52	1	He	46.551	46.551	1.14	889280	0.00	1	
Mn	72	55	1	He	480.652	480.652	0.86	8034142	0.00	1	
Fe	72	56	3	H2	4887.803	4887.803	1.07	203316650	0.00	1	
Co	72	59	1	He	46.414	46.414	0.98	1135111	0.00	1	
Ni	72	60	1	He	47.383	47.383	1.42	271229	0.00	1	
copper	72	63	1	He	46.519	46.519	0.84	681703	0.00	1	
dwCu63	72	63	2	no gas	47.831	47.831	0.34	1002922	0.00	1	
Zn	72	66	1	He	48.375	48.375	1.63	143612	0.00	1	
arsenic	72	75	1	He	46.043	46.043	1.14	108913	0.00	1	
dwAs75	72	75	2	no gas	47.139	47.139	1.42	217869	0.00	1	
[Se]	115	77	2	no gas	29.886	29.886	5.56	20265	0.01	1	
selenium	72	78	3	H2	47.399	47.399	1.43	54417	0.00	1	
dwSe82	72	82	2	no gas	47.667	47.667	0.40	17268	0.00	1	
Sr	72	88	1	He	47.971	47.971	0.88	1175134	0.00	1	
Mo	115	95	1	He	47.816	47.816	1.28	346222	0.00	1	
Ag	115	107	1	He	44.207	44.207	0.99	888450	0.00	1	
Cd	72	111	1	He	46.458	46.458	2.35	181847	0.00	1	
antimony	159	121	1	He	49.653	49.653	1.84	590087	0.00	1	
dwSb121	159	121	2	no gas	50.192	50.192	0.81	780203	0.00	1	
Ba	115	137	1	He	45.547	45.547	1.23	254436	0.00	1	
Tl	159	205	2	no gas	9.598	9.598	1.07	388356	0.00	1	
[Pb]	209	206	2	no gas	47.590	47.590	1.24	656815	0.00	1	
[Pb]	209	207	2	no gas	47.654	47.654	1.27	574007	0.00	1	
Pb	209	208	2	no gas	46.770	46.770	0.89	2642079	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2023661	1.61	1957500	103.38	70	120	
Sc	45	1	He	809867	0.83	799506	101.30	70	120	
Ge	72	1	He	332142	0.51	328506	101.11	70	125	
Ge	72	2	no gas	681947	0.43	672627	101.39	70	125	
Ge	72	3	H2	839518	0.75	840739	99.85	70	120	
Y	89	1	He	2818787	2.19	2882012	97.81	70	120	
In	115	1	He	3162442	1.02	3223520	98.11	70	120	
In	115	2	no gas	4652248	0.79	4728427	98.39	70	120	
In	115	3	H2	5912462	1.47	6126085	96.51	70	120	
Tb	159	1	He	4826435	1.75	4863630	99.24	70	120	
Tb	159	2	no gas	5867962	1.09	5757533	101.92	70	120	
Bi	209	2	no gas	3520022	2.28	3593022	97.97	60	120	

Sample Report

Sample Table

Sample Name	ic9-4308522
Data File Name	013CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T12:54:20-05:00
Sample Type	CalStd
Dilution	1
Comment	1:100 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	100.595	100.595	1.57	2913781	0.00	1	
Be	6	9	2	no gas	102.546	102.546	0.59	869973	0.00	1	
B	6	11	2	no gas	198.991	198.991	0.72	943117	0.00	1	
Na	72	23	1	He	9832.104	9832.104	0.97	42721003	0.00	1	
Mg	72	24	1	He	9737.740	9737.740	0.95	24672179	0.00	1	
Al	45	27	3	H2	1067.012	1067.012	2.85	15528199	0.00	1	
Si	45	28	3	H2	100.474	100.474	1.73	847377	0.00	1	
K	72	39	1	He	9841.767	9841.767	0.52	37911776	0.00	1	
Ca	72	44	1	He	9644.628	9644.628	0.67	1661010	0.00	1	
V	72	51	1	He	95.051	95.051	2.33	1653466	0.00	1	
Cr	72	52	1	He	96.966	96.966	1.81	1789408	0.00	1	
Mn	72	55	1	He	982.577	982.577	1.56	15889498	0.00	1	
Fe	72	56	3	H2	10111.626	10111.626	0.32	412296727	0.00	1	
Co	72	59	1	He	97.351	97.351	1.22	2303884	0.00	1	
Ni	72	60	1	He	97.393	97.393	1.83	539359	0.00	1	
copper	72	63	1	He	95.777	95.777	2.64	1357693	0.00	1	
dwCu63	72	63	2	no gas	102.088	102.088	0.81	2089403	0.00	1	
Zn	72	66	1	He	98.033	98.033	0.85	282859	0.00	1	
arsenic	72	75	1	He	94.798	94.798	1.19	216358	0.00	1	
dwAs75	72	75	2	no gas	98.238	98.238	1.03	443675	0.00	1	
[Se]	115	77	2	no gas	116.158	116.158	2.50	34212	0.00	1	
selenium	72	78	3	H2	99.578	99.578	0.60	112038	0.00	1	
dwSe82	72	82	2	no gas	99.527	99.527	1.26	34960	0.00	1	
Sr	72	88	1	He	101.418	101.418	1.21	2403938	0.00	1	
Mo	115	95	1	He	101.530	101.530	1.55	698275	0.00	1	
Ag	115	107	1	He	98.918	98.918	1.18	1888519	0.00	1	
Cd	72	111	1	He	95.899	95.899	1.48	363259	0.00	1	
antimony	159	121	1	He	101.002	101.002	0.41	1177044	0.00	1	
dwSb121	159	121	2	no gas	115.177	115.177	2.92	1732674	0.00	1	
Ba	115	137	1	He	95.256	95.256	2.00	505491	0.00	1	
Tl	159	205	2	no gas	20.237	20.237	1.97	797117	0.00	1	
[Pb]	209	206	2	no gas	101.516	101.516	2.01	1342973	0.00	1	
[Pb]	209	207	2	no gas	101.478	101.478	1.94	1171413	0.00	1	
Pb	209	208	2	no gas	102.076	102.076	2.34	5525256	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1976052	0.66	1957500	100.95	70	120	
Sc	45	1	He	794599	1.00	799506	99.39	70	120	
Ge	72	1	He	321430	0.67	328506	97.85	70	125	
Ge	72	2	no gas	665905	1.17	672627	99.00	70	125	
Ge	72	3	H2	822945	0.77	840739	97.88	70	120	
Y	89	1	He	2754721	1.43	2882012	95.58	70	120	
In	115	1	He	3004694	1.30	3223520	93.21	70	120	
In	115	2	no gas	4461326	1.39	4728427	94.35	70	120	
In	115	3	H2	5883863	1.44	6126085	96.05	70	120	
Tb	159	1	He	4732865	1.05	4863630	97.31	70	120	
Tb	159	2	no gas	5682783	2.27	5757533	98.70	70	120	
Bi	209	2	no gas	3389843	2.41	3593022	94.35	60	120	

Sample Report

Sample Table

Sample Name	ic10-4308522
Data File Name	014CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T12:58:11-05:00
Sample Type	CalStd
Dilution	1
Comment	1:50 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	200.353	200.353	1.92	5666185	0.00	1	
Be	6	9	2	no gas	199.037	199.037	1.65	1688942	0.00	1	
B	6	11	2	no gas	402.992	402.992	1.99	1901844	0.00	1	
Na	72	23	1	He	20641.962	20641.962	5.20	84344094	0.00	1	
Mg	72	24	1	He	20617.865	20617.865	5.91	49144078	0.00	1	
Al	45	27	3	H2	2134.526	2134.526	1.76	30813750	0.00	1	
Si	45	28	3	H2	200.901	200.901	1.87	1598066	0.00	1	
K	72	39	1	He	20836.693	20836.693	4.98	75112587	0.00	1	
Ca	72	44	1	He	20362.385	20362.385	5.21	3298033	0.00	1	
V	72	51	1	He	203.778	203.778	5.55	3322058	0.00	1	
Cr	72	52	1	He	202.620	202.620	5.78	3515022	0.00	1	
Mn	72	55	1	He	2093.527	2093.527	4.98	31856503	0.00	1	
Fe	72	56	3	H2	20538.794	20538.794	0.69	823507774	0.00	1	
Co	72	59	1	He	202.447	202.447	4.46	4509470	0.00	1	
Ni	72	60	1	He	202.109	202.109	4.97	1053192	0.00	1	
copper	72	63	1	He	203.189	203.189	5.93	2709584	0.00	1	
dwCu63	72	63	2	no gas	199.627	199.627	1.04	4020617	0.00	1	
Zn	72	66	1	He	201.508	201.508	4.56	548336	0.00	1	
arsenic	72	75	1	He	203.882	203.882	4.77	437263	0.00	1	
dwAs75	72	75	2	no gas	201.819	201.819	1.08	897461	0.00	1	
[Se]	115	77	2	no gas	281.292	281.292	2.64	61857	0.00	1	
selenium	72	78	3	H2	201.010	201.010	0.33	222380	0.00	1	
dwSe82	72	82	2	no gas	200.937	200.937	0.48	69250	0.00	1	
Sr	72	88	1	He	213.140	213.140	5.59	4753334	0.00	1	
Mo	115	95	1	He	226.309	226.309	4.02	1474929	0.00	1	
Ag	115	107	1	He	202.360	202.360	4.31	3660667	0.00	1	
Cd	72	111	1	He	203.133	203.133	5.47	724023	0.00	1	
antimony	159	121	1	He	228.697	228.697	5.12	2546534	0.00	1	
dwSb121	159	121	2	no gas	232.792	232.792	1.22	3476685	0.00	1	
Ba	115	137	1	He	202.470	202.470	3.72	1018295	0.00	1	
Tl	159	205	2	no gas	45.095	45.095	1.07	1768214	0.00	1	
[Pb]	209	206	2	no gas	226.682	226.682	2.33	2923586	0.00	1	
[Pb]	209	207	2	no gas	230.015	230.015	1.80	2588278	0.00	1	
Pb	209	208	2	no gas	217.826	217.826	2.09	11497921	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1976785	1.46	1957500	100.99	70	120	
Sc	45	1	He	774960	3.94	799506	96.93	70	120	
Ge	72	1	He	302913	4.33	328506	92.21	70	125	
Ge	72	2	no gas	655405	0.67	672627	97.44	70	125	
Ge	72	3	H2	809245	0.46	840739	96.25	70	120	
Y	89	1	He	2596329	5.24	2882012	90.09	70	120	
In	115	1	He	2849737	3.37	3223520	88.40	70	120	
In	115	2	no gas	4414407	0.16	4728427	93.36	70	120	
In	115	3	H2	5919272	1.06	6126085	96.62	70	120	
Tb	159	1	He	4528498	3.93	4863630	93.11	70	120	
Tb	159	2	no gas	5640014	0.89	5757533	97.96	70	120	
Bi	209	2	no gas	3312027	2.07	3593022	92.18	60	120	

Sample Table

Sample Name	ic15-4583048
Data File Name	015CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T13:02:10-05:00
Sample Type	CalStd
Dilution	1
Comment	1:10 ICPMS Cal_MIN_00031
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.203	0.203	29.68	149794	0.00	1	
Be	6	9	2	no gas	0.021	0.021	29.18	229	10.07	1	
B	6	11	2	no gas	401.083	401.083	1.21	1952580	0.00	1	
Na	72	23	1	He	49762.685	49762.685	1.41	214076050	0.00	1	
Mg	72	24	1	He	49690.534	49690.534	2.01	124761075	0.00	1	
Al	45	27	3	H2	49993.145	49993.145	1.04	746551509	0.00	1	
Si	45	28	3	H2	1766.238	1766.238	1.45	13864397	0.00	1	
K	72	39	1	He	49721.742	49721.742	1.87	188202591	0.00	1	
Ca	72	44	1	He	24928.140	24928.140	2.33	4251623	0.00	1	
V	72	51	1	He	-0.476	-0.476	-4.52	4354	0.17	1	
Cr	72	52	1	He	0.225	0.225	8.63	7035	0.09	1	
Mn	72	55	1	He	2455.182	2455.182	1.37	39345277	0.00	1	
Fe	72	56	3	H2	49792.611	49792.611	0.34	2077732662	0.00	1	
Co	72	59	1	He	0.158	0.158	1.91	3832	0.07	1	
Ni	72	60	1	He	0.215	0.215	12.38	1327	0.80	1	
copper	72	63	1	He	0.335	0.335	0.26	5151	0.03	1	
dwCu63	72	63	2	no gas	1.015	1.015	4.97	21917	0.02	1	
Zn	72	66	1	He	2.161	2.161	8.23	5058	0.17	1	
arsenic	72	75	1	He	0.241	0.241	21.27	1152	0.75	1	
dwAs75	72	75	2	no gas	0.569	0.569	108.85	2319	5.33	1	CalStd Main CR1 Failed
[Se]	115	77	2	no gas	-23.129	-23.129	-24.26	9973	0.09	1	
selenium	72	78	3	H2	1.299	1.299	2.97	1517	0.18	1	
dwSe82	72	82	2	no gas	1.105	1.105	3.78	624	0.59	1	
Sr	72	88	1	He	495.743	495.743	2.47	11643912	0.00	1	
Mo	115	95	1	He	0.975	0.975	28.99	6521	0.41	1	
Ag	115	107	1	He	0.058	0.058	8.55	1242	0.42	1	
Cd	72	111	1	He	0.045	0.045	27.11	177	15.14	1	
antimony	159	121	1	He	1.114	1.114	11.55	12785	0.08	1	
dwSb121	159	121	2	no gas	1.939	1.939	2.24	28148	0.01	1	
Ba	115	137	1	He	1000.255	1000.255	1.86	5092402	0.00	1	
Tl	159	205	2	no gas	0.128	0.128	2.10	1132	0.73	1	
[Pb]	209	206	2	no gas	0.303	0.303	11.64	8453	0.06	1	
[Pb]	209	207	2	no gas	0.296	0.296	6.25	7515	0.04	1	
Pb	209	208	2	no gas	0.297	0.297	6.52	33539	0.01	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2038790	0.97	1957500	104.15	70	120	
Sc	45	1	He	778589	0.34	799506	97.38	70	120	
Ge	72	1	He	318594	1.40	328506	96.98	70	125	
Ge	72	2	no gas	680938	1.35	672627	101.24	70	125	
Ge	72	3	H2	842222	0.31	840739	100.18	70	120	
Y	89	1	He	2722146	0.43	2882012	94.45	70	120	
In	115	1	He	2883137	2.10	3223520	89.44	70	120	
In	115	2	no gas	4300314	0.59	4728427	90.95	70	120	
In	115	3	H2	6217269	1.91	6126085	101.49	70	120	
Tb	159	1	He	4608104	1.33	4863630	94.75	70	120	
Tb	159	2	no gas	5410195	0.63	5757533	93.97	70	120	
Bi	209	2	no gas	3049889	0.62	3593022	84.88	60	120	

Sample Report

Sample Table

Sample Name	ICIS
Data File Name	017CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T13:10:06-05:00
Sample Type	CalBlk
Dilution	1
Comment	
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.000	0.000	#DIV/0!	136161	0.00	200	
Be	6	9	2	no gas	0.000	0.000	#DIV/0!	101	27.73	200	
B	6	11	2	no gas	0.000	0.000	#DIV/0!	36576	0.00	200	
Na	72	23	1	He	0.000	0.000	#DIV/0!	56843	0.00	200	
Mg	72	24	1	He	0.000	0.000	#DIV/0!	4977	0.28	200	
Al	45	27	3	H2	-0.776	-0.776	-5.16	20064	0.04	200	
Si	45	28	3	H2	0.000	0.000	#DIV/0!	88120	0.00	200	
K	72	39	1	He	0.000	0.000	#DIV/0!	395857	0.00	200	
Ca	72	44	1	He	0.000	0.000	#DIV/0!	2064	0.13	200	
V	72	51	1	He	0.000	0.000	#DIV/0!	10531	0.04	200	
Cr	72	52	1	He	0.000	0.000	#DIV/0!	2894	0.24	200	
Mn	72	55	1	He	0.000	0.000	#DIV/0!	3417	0.64	200	
Fe	72	56	3	H2	0.000	0.000	#DIV/0!	409215	0.00	200	
Co	72	59	1	He	0.000	0.000	#DIV/0!	168	12.77	200	
Ni	72	60	1	He	0.000	0.000	#DIV/0!	167	10.39	200	
copper	72	63	1	He	0.000	0.000	#DIV/0!	536	1.63	200	
dwCu63	72	63	2	no gas	0.000	0.000	#DIV/0!	707	0.61	200	
Zn	72	66	1	He	0.872	0.872	5.19	1363	0.67	200	
arsenic	72	75	1	He	0.000	0.000	#DIV/0!	658	0.90	200	
[Se]	115	77	2	no gas	0.000	0.000	#DIV/0!	13155	0.02	200	
selenium	72	78	3	H2	0.000	0.000	#DIV/0!	245	2.75	200	
dwSe82	72	82	2	no gas	0.000	0.000	#DIV/0!	286	3.42	200	
Sr	72	88	1	He	0.000	0.000	#DIV/0!	633	3.02	200	
Mo	115	95	1	He	0.000	0.000	#DIV/0!	1043	1.67	200	
Ag	115	107	1	He	0.000	0.000	#DIV/0!	393	7.54	200	
Cd	72	111	1	He	0.000	0.000	#DIV/0!	7	2598.08	200	
antimony	159	121	1	He	0.000	0.000	#DIV/0!	2831	0.34	200	
dwSb121	159	121	2	no gas	0.000	0.000	#DIV/0!	6666	0.09	200	
Ba	115	137	1	He	0.000	0.000	#DIV/0!	202	13.08	200	
Tl	159	205	2	no gas	0.101	0.101	0.47	123	13.11	200	
[Pb]	209	206	2	no gas	0.000	0.000	#DIV/0!	6071	0.12	200	
[Pb]	209	207	2	no gas	0.000	0.000	#DIV/0!	4731	0.24	200	
Pb	209	208	2	no gas	0.000	0.000	#DIV/0!	22834	0.01	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1982866	1.26	1982866	100.00	70	120	
Sc	45	1	He	767851	0.79	767851	100.00	70	120	
Ge	72	1	He	320058	0.45	320058	100.00	70	125	
Ge	72	2	no gas	673177	0.70	673177	100.00	70	125	
Ge	72	3	H2	821457	2.78	821457	100.00	70	120	
Y	89	1	He	2786775	2.09	2786775	100.00	70	120	
In	115	1	He	3045232	1.77	3045232	100.00	70	120	
In	115	2	no gas	4564130	1.38	4564130	100.00	70	120	
In	115	3	H2	5826290	3.86	5826290	100.00	70	120	
Tb	159	1	He	4638687	1.34	4638687	100.00	70	120	
Tb	159	2	no gas	5623529	2.09	5623529	100.00	70	120	
Bi	209	2	no gas	3475006	1.30	3475006	100.00	60	120	

Sample Report

Sample Table

Sample Name	400-169468-F-2-C^5
Data File Name	271SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:07:57-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.094	0.094	107.06	126243	0.00	200	
Be	6	9	2	no gas	-0.003	-0.003	-37.78	54	0.00	200	
B	6	11	2	no gas	335.750	335.750	3.00	1487976	0.02	400	
Na	72	23	1	He	9057.517	9057.517	1.09	34768954	0.03	50000	
Mg	72	24	1	He	5438.988	5438.988	1.77	12177606	0.04	50000	
Al	45	27	3	H2	5.146	5.146	21.09	87195	0.01	50000	
Si	45	28	3	H2	459.319	459.319	1.31	3108049	0.01	2000	
K	72	39	1	He	11274.367	11274.367	0.62	38313808	0.03	50000	
Ca	72	44	1	He	33628.312	33628.312	0.95	5112394	0.66	25000	>LDR
Ti	72	49	1	He	0.250	0.250	49.98	349	0.07	200	
V	72	51	1	He	0.349	0.349	4.13	9909	0.00	200	
Cr	72	52	1	He	0.059	0.059	14.97	3054	0.00	200	
Mn	72	55	1	He	62.715	62.715	0.73	898044	0.01	2500	
Fe	72	56	3	H2	0.384	0.384	63.83	283401	0.00	50000	
Co	72	59	1	He	0.032	0.032	13.13	964	0.00	200	
Ni	72	60	1	He	0.074	0.074	13.98	500	0.01	200	
copper	72	63	1	He	0.044	0.044	16.26	1217	0.00	200	
Zn	72	66	1	He	0.193	0.193	36.83	1380	0.01	200	
arsenic	72	75	1	He	0.149	0.149	9.70	785	0.02	200	
selenium	72	78	3	H2	-0.080	-0.080	-35.91	143	-0.06	200	
Sr	72	88	1	He	167.462	167.462	1.21	3506627	0.00	500	
Mo	115	95	1	He	-0.174	-0.174	-11.26	603	-0.03	200	
Ag	115	107	1	He	-0.012	-0.012	-12.17	242	0.00	200	
Cd	72	111	1	He	-0.007	-0.007	-24.08	3	-0.22	200	
Sn	115	120	1	He	-0.198	-0.198	-4.63	1997	-0.01	200	
antimony	159	121	1	He	-0.189	-0.189	-6.28	643	-0.03	200	
Ba	115	137	1	He	9.915	9.915	1.68	48587	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-8.41	68	0.00	40	
[Pb]	209	206	2	no gas	0.014	0.014	65.86	5948	0.00	200	
[Pb]	209	207	2	no gas	0.008	0.008	386.72	4934	0.00	200	
Pb	209	208	2	no gas	-0.005	-0.005	-232.32	22714	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1888338	1.64	1982866	95.23	70	120	
Sc	45	1	He	676916	0.78	767851	88.16	70	120	
Ge	72	1	He	283961	1.06	320058	88.72	70	125	
Ge	72	2	no gas	619383	0.80	673177	92.01	70	125	
Ge	72	3	H2	757110	0.69	821457	92.17	70	120	
Y	89	1	He	2462120	0.49	2786775	88.35	70	120	
In	115	1	He	2769473	0.28	3045232	90.94	70	120	
In	115	2	no gas	4393901	1.39	4564130	96.27	70	120	
In	115	3	H2	6086152	1.11	5826290	104.46	70	120	
Tb	159	1	He	4372831	0.98	4638687	94.27	70	120	
Tb	159	2	no gas	5605755	1.44	5623529	99.68	70	120	
Bi	209	2	no gas	3384364	0.55	3475006	97.39	60	120	

Sample Report

Sample Table

Sample Name	icv-4308555
Data File Name	021_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T13:26:40-05:00
Sample Type	ICV
Dilution	1
Comment	1:100 ICPMS_icv_s_00013
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	76.641	76.641	1.96	2314048	0.00	80	
Be	6	9	2	no gas	38.202	38.202	0.92	333267	0.01	40	
B	6	11	2	no gas	79.143	79.143	2.50	405047	0.02	80	
Na	72	23	1	He	3839.832	3839.832	1.62	16600123	0.02	4000	
Mg	72	24	1	He	3907.869	3907.869	1.28	9832531	0.04	4000	
Al	45	27	3	H2	400.980	400.980	1.09	5896438	0.01	400	
K	72	39	1	He	3855.764	3855.764	0.57	14994936	0.03	4000	
Ca	72	44	1	He	3795.711	3795.711	1.68	651098	0.58	4000	
Ti	72	49	1	He	40.190	40.190	2.53	27443	0.15	40	
V	72	51	1	He	37.963	37.963	1.48	656636	0.01	40	
Cr	72	52	1	He	40.087	40.087	3.54	730627	0.01	40	
Mn	72	55	1	He	391.094	391.094	2.40	6281162	0.01	400	
Fe	72	56	3	H2	3871.980	3871.980	0.26	159509528	0.00	4000	
Co	72	59	1	He	38.404	38.404	1.71	902638	0.00	40	
Ni	72	60	1	He	39.140	39.140	0.80	215348	0.02	40	
copper	72	63	1	He	38.837	38.837	0.16	547308	0.01	40	
dwCu63	72	63	2	no gas	39.101	39.101	0.44	816473	0.00	40	
Zn	72	66	1	He	37.776	37.776	1.31	111792	0.03	40	
arsenic	72	75	1	He	38.158	38.158	1.20	86796	0.04	40	
dwAs75	72	75	2	no gas	38.134	38.134	0.97	176100	0.02	40	
selenium	72	78	3	H2	37.541	37.541	0.43	42976	0.09	40	
dwSe82	72	82	2	no gas	38.019	38.019	1.94	13830	0.27	40	
Sr	72	88	1	He	39.162	39.162	2.01	922005	0.00	40	
Mo	115	95	1	He	39.893	39.893	1.04	278525	0.01	40	
Ag	115	107	1	He	7.962	7.962	1.14	153866	0.01	8	
Cd	72	111	1	He	38.347	38.347	1.11	144283	0.03	40	
Sn	115	120	1	He	38.265	38.265	0.55	550594	0.01	40	
antimony	159	121	1	He	38.498	38.498	1.30	441519	0.01	40	
dwSb121	159	121	2	no gas	40.102	40.102	1.59	612097	0.01	40	
Ba	115	137	1	He	37.507	37.507	1.28	201205	0.02	40	
Tl	159	205	2	no gas	7.707	7.707	0.40	310741	0.00	8	
[Pb]	209	206	2	no gas	39.216	39.216	0.99	537452	0.01	40	
[Pb]	209	207	2	no gas	38.887	38.887	0.89	465301	0.01	40	
Pb	209	208	2	no gas	37.885	37.885	0.86	2125687	0.00	40	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2031651	1.33	1982866	102.46	70	120	
Sc	45	1	He	781984	1.29	767851	101.84	70	120	
Ge	72	1	He	319170	1.38	320058	99.72	70	125	
Ge	72	2	no gas	678689	0.74	673177	100.82	70	125	
Ge	72	3	H2	830036	1.01	821457	101.04	70	120	
Y	89	1	He	2741867	0.68	2786775	98.39	70	120	
In	115	1	He	3035254	0.49	3045232	99.67	70	120	
In	115	2	no gas	4615835	2.13	4564130	101.13	70	120	
In	115	3	H2	5982038	1.68	5826290	102.67	70	120	
Tb	159	1	He	4651325	1.24	4638687	100.27	70	120	
Tb	159	2	no gas	5781213	2.06	5623529	102.80	70	120	
Bi	209	2	no gas	3487373	0.45	3475006	100.36	60	120	

Sample Report

Sample Table

Sample Name	cri-4428089
Data File Name	024New1.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T13:38:50-05:00
Sample Type	CRI
Dilution	1
Comment	1:100 ICPMS_RL_00034
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.534	0.534	35.68	156928	0.00	0.5	
Be	6	9	2	no gas	0.228	0.228	9.88	2072	0.01	0.25	
B	6	11	2	no gas	3.380	3.380	1.46	39890	0.01	5	
Na	72	23	1	He	48.682	48.682	0.75	260943	0.02	50	
Mg	72	24	1	He	24.541	24.541	1.20	63637	0.04	25	
Al	45	27	3	H2	5.154	5.154	0.92	83981	0.01	5	
K	72	39	1	He	27.354	27.354	5.36	502956	0.01	25	
Ca	72	44	1	He	43.137	43.137	10.19	9096	0.47	50	
Ti	72	49	1	He	0.482	0.482	7.32	470	0.10	0.5	
V	72	51	1	He	0.478	0.478	3.36	13338	0.00	0.5	
Cr	72	52	1	He	0.495	0.495	2.30	11581	0.00	0.5	
Mn	72	55	1	He	2.453	2.453	0.92	41803	0.01	2.5	
Fe	72	56	3	H2	23.068	23.068	1.08	1067252	0.00	25	
Co	72	59	1	He	0.478	0.478	1.75	11495	0.00	0.5	
Ni	72	60	1	He	0.487	0.487	6.23	2844	0.02	0.5	
copper	72	63	1	He	0.472	0.472	0.87	7235	0.01	0.5	
dwCu63	72	63	2	no gas	0.470	0.470	5.99	10590	0.00	0.5	
Zn	72	66	1	He	3.814	3.814	3.00	12288	0.03	4	
arsenic	72	75	1	He	0.231	0.231	12.41	993	0.02	0.25	
selenium	72	78	3	H2	0.167	0.167	4.99	342	0.05	0.25	
Sr	72	88	1	He	0.486	0.486	4.35	11914	0.00	0.5	
Mo	115	95	1	He	0.431	0.431	9.48	3947	0.01	0.5	
Ag	115	107	1	He	0.048	0.048	4.70	1229	0.00	0.05	
Cd	72	111	1	He	0.232	0.232	15.34	883	0.03	0.25	
Sn	115	120	1	He	0.383	0.383	0.53	9259	0.00	0.5	
antimony	159	121	1	He	0.445	0.445	2.06	6121	0.01	0.5	
Ba	115	137	1	He	0.463	0.463	2.18	2571	0.02	0.5	
Tl	159	205	2	no gas	0.094	0.094	9.13	3853	0.00	0.1	
Pb	209	208	2	no gas	0.230	0.230	1.65	35273	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2038078	1.66	1982866	102.78	70	120	
Sc	45	1	He	773007	0.64	767851	100.67	70	120	
Ge	72	1	He	322348	0.21	320058	100.72	70	125	
Ge	72	2	no gas	679460	1.42	673177	100.93	70	125	
Ge	72	3	H2	836850	1.04	821457	101.87	70	120	
Y	89	1	He	2729946	0.99	2786775	97.96	70	120	
In	115	1	He	3093073	1.17	3045232	101.57	70	120	
In	115	2	no gas	4562161	0.57	4564130	99.96	70	120	
In	115	3	H2	6058660	0.86	5826290	103.99	70	120	
Tb	159	1	He	4710818	1.36	4638687	101.55	70	120	
Tb	159	2	no gas	5670805	0.92	5623529	100.84	70	120	
Bi	209	2	no gas	3474077	1.60	3475006	99.97	60	120	

Sample Report

Sample Table

Sample Name	lloq-4308522
Data File Name	025LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T13:42:50-05:00
Sample Type	LLICV
Dilution	1
Comment	readback CAL13
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2032524	1.57	1982866	102.50	70	120	
Sc	45	1	He	779775	0.22	767851	101.55	70	120	
Ge	72	1	He	321599	0.63	320058	100.48	70	125	
Ge	72	2	no gas	672221	0.74	673177	99.86	70	125	
Ge	72	3	H2	831796	0.55	821457	101.26	70	120	
Y	89	1	He	2778656	0.41	2786775	99.71	70	120	
In	115	1	He	3070296	1.09	3045232	100.82	70	120	
In	115	2	no gas	4586178	2.00	4564130	100.48	70	120	
In	115	3	H2	6194251	1.37	5826290	106.32	70	120	
Tb	159	1	He	4607116	0.49	4638687	99.32	70	120	
Tb	159	2	no gas	5685731	1.45	5623529	101.11	70	120	
Bi	209	2	no gas	3538241	1.03	3475006	101.82	60	120	

Sample Table

Sample Name	ICB
Data File Name	026_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T13:46:50-05:00
Sample Type	ICB
Dilution	1
Comment	ICB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.147	-0.147	-16.54	150324	0.00	0.5	
Be	6	9	2	no gas	-0.002	-0.002	-73.72	66	0.00	0.5	
B	6	11	2	no gas	-1.356	-1.356	-27.78	18997	-0.01	5	
Na	72	23	1	He	-0.412	-0.412	-37.62	47111	0.00	100	
Mg	72	24	1	He	-0.047	-0.047	-122.73	1163	0.00	50	
Al	45	27	3	H2	0.186	0.186	24.15	8282	0.00	50	
Si	45	28	3	H2	4.839	4.839	57.90	92002	0.01	10	
K	72	39	1	He	1.104	1.104	76.33	401074	0.00	50	
Ca	72	44	1	He	1.103	1.103	101.55	1837	0.06	50	
Ti	72	49	1	He	-0.002	-0.002	-2305.46	138	0.00	0.5	
V	72	51	1	He	0.080	0.080	23.58	6416	0.00	0.5	
Cr	72	52	1	He	0.009	0.009	77.07	2600	0.00	0.5	
Mn	72	55	1	He	-0.003	-0.003	-536.10	1977	0.00	2	
Fe	72	56	3	H2	-0.781	-0.781	-26.00	62186	0.00	25	
Co	72	59	1	He	-0.001	-0.001	-178.49	129	0.00	0.5	
Ni	72	60	1	He	0.008	0.008	26.88	180	0.00	1.5	
copper	72	63	1	He	-0.005	-0.005	-32.93	460	0.00	0.5	
dwCu63	72	63	2	no gas	0.006	0.006	49.40	967	0.00	0.5	
Zn	72	66	1	He	-0.010	-0.010	-634.41	1173	0.00	4	
arsenic	72	75	1	He	-0.007	-0.007	-150.27	448	0.00	0.25	
dwAs75	72	75	2	no gas	-0.256	-0.256	-112.42	-1520	0.02	5	
selenium	72	78	3	H2	-0.058	-0.058	-37.92	67	-0.09	0.25	
dwSe82	72	82	2	no gas	-0.213	-0.213	-9.34	181	-0.12	5	
Sr	72	88	1	He	0.001	0.001	304.41	387	0.00	0.5	
Mo	115	95	1	He	-0.075	-0.075	-20.98	363	-0.02	1	
Ag	115	107	1	He	-0.004	-0.004	-31.32	198	0.00	0.05	
Cd	72	111	1	He	0.001	0.001	349.79	7	0.01	0.25	
Sn	115	120	1	He	-0.052	-0.052	-66.72	2907	0.00	0.5	
antimony	159	121	1	He	-0.037	-0.037	-34.27	538	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.090	-0.090	-2.43	1241	-0.01	5	
Ba	115	137	1	He	0.002	0.002	86.34	53	0.00	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-36.89	60	0.00	0.1	
[Pb]	209	206	2	no gas	0.004	0.004	454.88	6528	0.00	0.25	
[Pb]	209	207	2	no gas	0.002	0.002	662.57	5531	0.00	0.25	
Pb	209	208	2	no gas	-0.008	-0.008	-83.82	24559	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2226867	4.00	1982866	112.31	70	120	
Sc	45	1	He	780259	0.50	767851	101.62	70	120	
Ge	72	1	He	321114	1.12	320058	100.33	70	125	
Ge	72	2	no gas	731636	3.25	673177	108.68	70	125	
Ge	72	3	H2	667260	11.61	821457	81.23	70	120	
Y	89	1	He	2743195	1.13	2786775	98.44	70	120	
In	115	1	He	3053739	0.64	3045232	100.28	70	120	
In	115	2	no gas	5143695	1.25	4564130	112.70	70	120	
In	115	3	H2	4542497	12.93	5826290	77.97	70	120	
Tb	159	1	He	4637819	0.12	4638687	99.98	70	120	
Tb	159	2	no gas	6506692	2.76	5623529	115.70	70	120	
Bi	209	2	no gas	3854076	2.83	3475006	110.91	60	120	

Sample Report

Sample Table

Sample Name	icsa-4211414
Data File Name	027ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T13:50:58-05:00
Sample Type	ICSA
Dilution	1
Comment	1:500 ICPMS_int_A_00013
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Na	72	23	1	He	4905.116	4905.116	0.72	21471439	0.02	5000	
Mg	72	24	1	He	2002.004	2002.004	0.79	5105653	0.04	2000	
Al	45	27	3	H2	2056.080	2056.080	0.68	30614313	0.01	2000	
K	72	39	1	He	2003.926	2003.926	1.01	8086488	0.02	2000	
Ca	72	44	1	He	5816.405	5816.405	0.09	1008602	0.58	6000	
Ti	72	49	1	He	41.031	41.031	1.10	28373	0.14	40	
Fe	72	56	3	H2	5025.856	5025.856	0.60	210425790	0.00	5000	
Mo	115	95	1	He	40.338	40.338	2.01	279539	0.01	40	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1978128	0.85	1982866	99.76	70	120	
Sc	45	1	He	772883	0.21	767851	100.66	70	120	
Ge	72	1	He	323484	0.41	320058	101.07	70	125	
Ge	72	2	no gas	676950	1.18	673177	100.56	70	125	
Ge	72	3	H2	844839	0.84	821457	102.85	70	120	
Y	89	1	He	2733274	1.04	2786775	98.08	70	120	
In	115	1	He	3024429	1.79	3045232	99.32	70	120	
In	115	2	no gas	4468086	1.80	4564130	97.90	70	120	
In	115	3	H2	6129037	1.61	5826290	105.20	70	120	
Tb	159	1	He	4662907	0.66	4638687	100.52	70	120	
Tb	159	2	no gas	5629981	0.97	5623529	100.11	70	120	
Bi	209	2	no gas	3383630	1.69	3475006	97.37	60	120	

Sample Report

Sample Table

Sample Name	icsab-4211415
Data File Name	028ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T13:54:57-05:00
Sample Type	ICSB
Dilution	1
Comment	1:500 intA+ICPMS_int_B_000014
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Na	72	23	1	He	4961.890	4961.890	1.49	21578593	0.02	5000	
Mg	72	24	1	He	2035.883	2035.883	0.51	5158600	0.04	2000	
Al	45	27	3	H2	2049.125	2049.125	1.30	29980111	0.01	2000	
K	72	39	1	He	2016.744	2016.744	1.44	8083005	0.02	2000	
Ca	72	44	1	He	5814.173	5814.173	1.21	1001697	0.58	6000	
Ti	72	49	1	He	41.128	41.128	1.56	28255	0.15	40	
V	72	51	1	He	38.704	38.704	1.39	673734	0.01	40	
Cr	72	52	1	He	38.997	38.997	1.90	720830	0.01	40	
Mn	72	55	1	He	41.081	41.081	0.52	666191	0.01	40	
Fe	72	56	3	H2	4929.367	4929.367	1.83	205697330	0.00	5000	
Co	72	59	1	He	39.557	39.557	1.09	936179	0.00	40	
Ni	72	60	1	He	40.297	40.297	0.69	223231	0.02	40	
copper	72	63	1	He	39.457	39.457	0.81	559666	0.01	40	
dwCu63	72	63	2	no gas	39.543	39.543	0.17	823510	0.00	40	
Zn	72	66	1	He	19.633	19.633	1.82	58080	0.03	20	
arsenic	72	75	1	He	20.040	20.040	1.37	46060	0.04	20	
dwAs75	72	75	2	no gas	20.340	20.340	3.18	93242	0.02	20	
selenium	72	78	3	H2	19.475	19.475	1.19	22539	0.09	20	
dwSe82	72	82	2	no gas	19.997	19.997	2.22	7331	0.27	20	
Mo	115	95	1	He	40.232	40.232	0.27	278987	0.01	40	
Ag	115	107	1	He	40.047	40.047	0.39	770104	0.01	40	
Cd	72	111	1	He	19.357	19.357	2.05	73318	0.03	20	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2027257	1.37	1982866	102.24	70	120	
Sc	45	1	He	778530	0.57	767851	101.39	70	120	
Ge	72	1	He	321410	0.83	320058	100.42	70	125	
Ge	72	2	no gas	677151	0.80	673177	100.59	70	125	
Ge	72	3	H2	842173	1.49	821457	102.52	70	120	
Y	89	1	He	2716388	0.97	2786775	97.47	70	120	
In	115	1	He	3025678	0.18	3045232	99.36	70	120	
In	115	2	no gas	4579398	2.20	4564130	100.33	70	120	
In	115	3	H2	6083553	1.86	5826290	104.42	70	120	
Tb	159	1	He	4713719	1.30	4638687	101.62	70	120	
Tb	159	2	no gas	5665237	0.97	5623529	100.74	70	120	
Bi	209	2	no gas	3429132	0.36	3475006	98.68	60	120	

Sample Report

Sample Table

Sample Name	xlra-4308522
Data File Name	029_QC1.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T13:58:54-05:00
Sample Type	QC1
Dilution	1
Comment	readback 1:50 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2028143	2.95	1982866	102.28	70	120	
Sc	45	1	He	796296	0.61	767851	103.70	70	120	
Ge	72	1	He	315085	0.39	320058	98.45	70	125	
Ge	72	2	no gas	668701	2.75	673177	99.34	70	125	
Ge	72	3	H2	859123	1.12	821457	104.59	70	120	
Y	89	1	He	2657156	1.75	2786775	95.35	70	120	
In	115	1	He	2928409	0.96	3045232	96.16	70	120	
In	115	2	no gas	4442437	2.15	4564130	97.33	70	120	
In	115	3	H2	6518873	2.55	5826290	111.89	70	120	
Tb	159	1	He	4585521	1.38	4638687	98.85	70	120	
Tb	159	2	no gas	5649335	3.25	5623529	100.46	70	120	
Bi	209	2	no gas	3319007	1.87	3475006	95.51	60	120	

Sample Report

Sample Table

Sample Name	xlra-4583048
Data File Name	031_QC2.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T14:06:55-05:00
Sample Type	QC2
Dilution	1
Comment	1:10 ICPMS_calMIN_00031 cal15
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2013112	0.82	1982866	101.53	70	120	
Sc	45	1	He	761889	0.19	767851	99.22	70	120	
Ge	72	1	He	312875	0.94	320058	97.76	70	125	
Ge	72	2	no gas	668905	1.14	673177	99.37	70	125	
Ge	72	3	H2	810175	0.26	821457	98.63	70	120	
Y	89	1	He	2657128	0.59	2786775	95.35	70	120	
In	115	1	He	2836223	0.91	3045232	93.14	70	120	
In	115	2	no gas	4184837	0.58	4564130	91.69	70	120	
In	115	3	H2	6337245	1.22	5826290	108.77	70	120	
Tb	159	1	He	4491972	0.59	4638687	96.84	70	120	
Tb	159	2	no gas	5451773	1.27	5623529	96.95	70	120	
Bi	209	2	no gas	3029969	0.54	3475006	87.19	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	035_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T14:22:59-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	49.009	49.009	2.54	1480378	0.00	50	
Be	6	9	2	no gas	48.497	48.497	0.86	408876	0.01	50	
B	6	11	2	no gas	97.763	97.763	0.50	475080	0.02	100	
Na	72	23	1	He	4806.132	4806.132	0.80	20104128	0.02	5000	
Mg	72	24	1	He	4836.985	4836.985	1.45	11783388	0.04	5000	
Al	45	27	3	H2	507.018	507.018	2.23	7065386	0.01	500	
K	72	39	1	He	4902.438	4902.438	0.50	18355218	0.03	5000	
Ca	72	44	1	He	4737.135	4737.135	1.21	785805	0.60	5000	
Ti	72	49	1	He	50.457	50.457	2.00	33281	0.15	50	
V	72	51	1	He	47.332	47.332	0.65	797222	0.01	50	
Cr	72	52	1	He	48.051	48.051	0.98	853703	0.01	50	
Mn	72	55	1	He	487.277	487.277	0.27	7577923	0.01	500	
Fe	72	56	3	H2	4849.230	4849.230	1.25	193630197	0.00	5000	
Co	72	59	1	He	47.757	47.757	0.68	1086789	0.00	50	
Ni	72	60	1	He	49.078	49.078	1.92	261517	0.02	50	
copper	72	63	1	He	48.063	48.063	0.74	655488	0.01	50	
dwCu63	72	63	2	no gas	48.676	48.676	0.29	966160	0.01	50	
Zn	72	66	1	He	48.209	48.209	2.99	136965	0.04	50	
arsenic	72	75	1	He	47.023	47.023	0.54	103433	0.05	50	
dwAs75	72	75	2	no gas	48.005	48.005	2.26	209263	0.02	50	
selenium	72	78	3	H2	48.900	48.900	0.50	53837	0.09	50	
Sr	72	88	1	He	49.049	49.049	0.99	1118076	0.00	50	
Mo	115	95	1	He	49.432	49.432	1.54	328708	0.02	50	
Ag	115	107	1	He	46.806	46.806	1.25	864496	0.01	50	
Cd	72	111	1	He	48.674	48.674	0.94	177273	0.03	50	
Sn	115	120	1	He	49.230	49.230	0.94	674427	0.01	50	
antimony	159	121	1	He	49.999	49.999	0.37	562977	0.01	50	
dwSb121	159	121	2	no gas	52.476	52.476	0.08	772560	0.01	50	
Ba	115	137	1	He	47.276	47.276	0.84	242817	0.02	50	
Tl	159	205	2	no gas	9.907	9.907	0.19	387014	0.00	10	
[Pb]	209	206	2	no gas	50.001	50.001	1.01	659986	0.01	50	
[Pb]	209	207	2	no gas	49.312	49.312	1.13	568236	0.01	50	
Pb	209	208	2	no gas	47.862	47.862	0.19	2585737	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1963730	0.73	1982866	99.03	70	120	
Sc	45	1	He	756956	0.94	767851	98.58	70	120	
Ge	72	1	He	309052	1.10	320058	96.56	70	125	
Ge	72	2	no gas	645344	0.83	673177	95.87	70	125	
Ge	72	3	H2	805266	0.35	821457	98.03	70	120	
Y	89	1	He	2661999	0.71	2786775	95.52	70	120	
In	115	1	He	2906292	0.88	3045232	95.44	70	120	
In	115	2	no gas	4453353	1.94	4564130	97.57	70	120	
In	115	3	H2	5994082	0.86	5826290	102.88	70	120	
Tb	159	1	He	4579818	1.59	4638687	98.73	70	120	
Tb	159	2	no gas	5606140	0.66	5623529	99.69	70	120	
Bi	209	2	no gas	3367079	0.80	3475006	96.89	60	120	

Sample Table

Sample Name	CCB
Data File Name	037_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T14:30:55-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.062	-0.062	-83.95	135338	0.00	0.5	
Be	6	9	2	no gas	0.000	0.000	1211.45	94	0.00	0.5	
B	6	11	2	no gas	-1.044	-1.044	-30.88	26279	0.00	5	
Na	72	23	1	He	-1.596	-1.596	-9.77	47184	0.00	100	
Mg	72	24	1	He	-0.872	-0.872	-6.46	1387	-0.06	50	
Al	45	27	3	H2	-0.102	-0.102	-20.41	9396	0.00	50	
K	72	39	1	He	-0.307	-0.307	-11.55	390817	0.00	50	
Ca	72	44	1	He	-0.261	-0.261	-494.89	1810	-0.01	50	
Ti	72	49	1	He	-0.075	-0.075	-64.47	101	-0.07	0.5	
V	72	51	1	He	0.017	0.017	75.01	5107	0.00	0.5	
Cr	72	52	1	He	-0.012	-0.012	-13.57	2340	0.00	0.5	
Mn	72	55	1	He	-0.090	-0.090	-25.80	2000	0.00	2	
Fe	72	56	3	H2	-4.572	-4.572	-0.91	141233	0.00	25	
Co	72	59	1	He	-0.006	-0.006	-18.79	168	0.00	0.5	
Ni	72	60	1	He	-0.007	-0.007	-144.56	140	-0.01	1.5	
copper	72	63	1	He	-0.010	-0.010	-33.85	522	0.00	0.5	
dwCu63	72	63	2	no gas	-0.003	-0.003	-122.51	913	0.00	0.5	
Zn	72	66	1	He	-0.069	-0.069	-27.39	1133	-0.01	4	
arsenic	72	75	1	He	-0.082	-0.082	-19.87	442	-0.02	0.25	
dwAs75	72	75	2	no gas	-0.102	-0.102	-187.74	-429	0.02	5	
selenium	72	78	3	H2	-0.066	-0.066	-15.05	168	-0.04	0.25	
dwSe82	72	82	2	no gas	-0.191	-0.191	-36.71	233	-0.08	5	
Sr	72	88	1	He	-0.013	-0.013	-29.08	303	0.00	0.5	
Mo	115	95	1	He	-0.187	-0.187	-10.53	880	-0.02	1	
Ag	115	107	1	He	-0.010	-0.010	-4.80	276	0.00	0.05	
Cd	72	111	1	He	-0.011	-0.011	-37.72	13	-0.08	0.25	
Sn	115	120	1	He	-0.090	-0.090	-9.54	3654	0.00	0.5	
antimony	159	121	1	He	-0.110	-0.110	-15.92	1545	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.204	-0.204	-5.00	3628	-0.01	5	
Ba	115	137	1	He	-0.007	-0.007	-166.38	76	-0.01	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-27.92	91	0.00	0.1	
[Pb]	209	206	2	no gas	0.059	0.059	70.90	6472	0.00	0.25	
[Pb]	209	207	2	no gas	-0.024	-0.024	-74.41	4668	0.00	0.25	
Pb	209	208	2	no gas	-0.006	-0.006	-305.94	22831	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1992028	0.93	1982866	100.46	70	120	
Sc	45	1	He	739055	0.91	767851	96.25	70	120	
Ge	72	1	He	310150	0.42	320058	96.90	70	125	
Ge	72	2	no gas	653685	1.02	673177	97.10	70	125	
Ge	72	3	H2	808960	0.23	821457	98.48	70	120	
Y	89	1	He	2646348	1.86	2786775	94.96	70	120	
In	115	1	He	2976200	1.35	3045232	97.73	70	120	
In	115	2	no gas	4492600	0.38	4564130	98.43	70	120	
In	115	3	H2	6036780	1.09	5826290	103.61	70	120	
Tb	159	1	He	4554527	1.05	4638687	98.19	70	120	
Tb	159	2	no gas	5583474	1.02	5623529	99.29	70	120	
Bi	209	2	no gas	3411825	1.91	3475006	98.18	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439737/1-A^10
Data File Name	038SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T14:34:52-05:00
Sample Type	Sample
Dilution	1
Comment	439737_1
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.002	0.002	2856.65	139061	0.00	200	
Be	6	9	2	no gas	-0.003	-0.003	-48.72	70	0.00	200	
B	6	11	2	no gas	-2.722	-2.722	-8.26	18770	-0.01	400	
Na	72	23	1	He	-0.597	-0.597	-29.04	51552	0.00	50000	
Mg	72	24	1	He	-0.786	-0.786	-10.98	1603	-0.05	50000	
Al	45	27	3	H2	1.466	1.466	0.58	31683	0.00	50000	
Si	45	28	3	H2	-0.281	-0.281	-236.83	80931	0.00	2000	
K	72	39	1	He	-0.736	-0.736	-155.23	390597	0.00	50000	
Ca	72	44	1	He	-1.521	-1.521	-39.12	1607	-0.09	25000	
Ti	72	49	1	He	0.008	0.008	924.04	157	0.00	200	
V	72	51	1	He	0.107	0.107	15.54	6631	0.00	200	
Cr	72	52	1	He	0.039	0.039	20.39	3257	0.00	200	
Mn	72	55	1	He	-0.014	-0.014	-227.45	3197	0.00	2500	
Fe	72	56	3	H2	-5.059	-5.059	-1.07	123726	0.00	50000	
Co	72	59	1	He	-0.008	-0.008	-9.31	119	-0.01	200	
Ni	72	60	1	He	0.014	0.014	97.91	257	0.01	200	
copper	72	63	1	He	-0.014	-0.014	-8.46	476	0.00	200	
Zn	72	66	1	He	-0.046	-0.046	-91.05	1203	0.00	200	
arsenic	72	75	1	He	-0.050	-0.050	-47.95	515	-0.01	200	
selenium	72	78	3	H2	-0.111	-0.111	-5.30	121	-0.09	200	
Sr	72	88	1	He	0.003	0.003	156.98	663	0.00	500	
Mo	115	95	1	He	-0.238	-0.238	-10.23	537	-0.04	200	
Ag	115	107	1	He	-0.010	-0.010	-9.43	281	0.00	200	
Cd	72	111	1	He	-0.011	-0.011	-28.17	13	-0.08	200	
Sn	115	120	1	He	0.019	0.019	50.31	5174	0.00	200	
antimony	159	121	1	He	-0.144	-0.144	-8.87	1176	-0.01	200	
Ba	115	137	1	He	0.000	0.000	-980.09	109	0.00	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-17.06	64	-0.01	40	
[Pb]	209	206	2	no gas	0.009	0.009	229.64	5815	0.00	200	
[Pb]	209	207	2	no gas	-0.021	-0.021	-95.15	4711	0.00	200	
Pb	209	208	2	no gas	-0.013	-0.013	-79.80	22477	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2019992	0.24	1982866	101.87	70	120	
Sc	45	1	He	753163	0.25	767851	98.09	70	120	
Ge	72	1	He	311236	0.69	320058	97.24	70	125	
Ge	72	2	no gas	657610	0.80	673177	97.69	70	125	
Ge	72	3	H2	822180	0.12	821457	100.09	70	120	
Y	89	1	He	2666678	0.85	2786775	95.69	70	120	
In	115	1	He	2975782	0.79	3045232	97.72	70	120	
In	115	2	no gas	4481126	1.17	4564130	98.18	70	120	
In	115	3	H2	5995381	2.00	5826290	102.90	70	120	
Tb	159	1	He	4576980	1.41	4638687	98.67	70	120	
Tb	159	2	no gas	5606519	1.11	5623529	99.70	70	120	
Bi	209	2	no gas	3417989	1.38	3475006	98.36	60	120	

Sample Report

Sample Table

Sample Name	400-169643-B-1-B^10
Data File Name	040SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T14:42:54-05:00
Sample Type	Sample
Dilution	1
Comment	439737_3
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	3.632	3.632	4.96	229267	0.00	200	
Be	6	9	2	no gas	0.375	0.375	4.09	3174	0.01	200	
B	6	11	2	no gas	-2.066	-2.066	-10.31	20746	-0.01	400	
Na	72	23	1	He	18.057	18.057	8.55	128715	0.01	50000	
Mg	72	24	1	He	380.958	380.958	0.38	929677	0.04	50000	
Al	45	27	3	H2	8924.466	8924.466	10.31	91031679	0.01	50000	
Si	45	28	3	H2	2207.123	2207.123	12.01	11777573	0.02	2000	>LDR
K	72	39	1	He	501.794	501.794	13.21	2223600	0.02	50000	
Ca	72	44	1	He	320.236	320.236	1.87	54712	0.59	25000	
Ti	72	49	1	He	160.672	160.672	2.54	105546	0.15	200	
V	72	51	1	He	16.545	16.545	2.12	279096	0.01	200	
Cr	72	52	1	He	10.101	10.101	1.58	181119	0.01	200	
Mn	72	55	1	He	285.946	285.946	2.18	4439217	0.01	2500	
Fe	72	56	3	H2	9938.219	9938.219	11.99	311172482	0.00	50000	
Co	72	59	1	He	8.825	8.825	1.42	200709	0.00	200	
Ni	72	60	1	He	3.441	3.441	2.17	18460	0.02	200	
copper	72	63	1	He	4.058	4.058	0.83	55843	0.01	200	
Zn	72	66	1	He	12.983	12.983	0.42	37412	0.03	200	
arsenic	72	75	1	He	2.307	2.307	2.28	5656	0.04	200	
selenium	72	78	3	H2	0.407	0.407	29.07	537	0.08	200	
Sr	72	88	1	He	3.418	3.418	0.61	78333	0.00	500	
Mo	115	95	1	He	0.075	0.075	44.14	2620	0.00	200	
Ag	115	107	1	He	0.014	0.014	24.95	722	0.00	200	
Cd	72	111	1	He	0.009	0.009	167.01	87	0.01	200	
Sn	115	120	1	He	1.032	1.032	4.35	19027	0.01	200	
antimony	159	121	1	He	-0.031	-0.031	-47.41	2402	0.00	200	
Ba	115	137	1	He	50.284	50.284	1.36	260280	0.02	1000	
Tl	159	205	2	no gas	0.094	0.094	9.21	3883	0.00	40	
[Pb]	209	206	2	no gas	7.884	7.884	3.67	110500	0.01	200	
[Pb]	209	207	2	no gas	7.219	7.219	5.57	88729	0.01	200	
Pb	209	208	2	no gas	7.352	7.352	3.81	423294	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1918170	1.20	1982866	96.74	70	120	
Sc	45	1	He	736591	0.71	767851	95.93	70	120	
Ge	72	1	He	308450	1.27	320058	96.37	70	125	
Ge	72	2	no gas	651835	0.28	673177	96.83	70	125	
Ge	72	3	H2	637234	11.05	821457	77.57	70	120	
Y	89	1	He	2877178	0.66	2786775	103.24	70	120	
In	115	1	He	2929462	0.38	3045232	96.20	70	120	
In	115	2	no gas	4478381	1.38	4564130	98.12	70	120	
In	115	3	H2	4364994	11.57	5826290	74.92	70	120	
Tb	159	1	He	4488916	0.57	4638687	96.77	70	120	
Tb	159	2	no gas	5659472	3.74	5623529	100.64	70	120	
Bi	209	2	no gas	3422270	2.36	3475006	98.48	60	120	

Sample Report

Sample Table

Sample Name	400-169643-D-2-B^10
Data File Name	041SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T14:46:54-05:00
Sample Type	Sample
Dilution	1
Comment	439737_4
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.184	2.184	6.78	186223	0.00	200	
Be	6	9	2	no gas	0.364	0.364	7.72	3018	0.01	200	
B	6	11	2	no gas	-2.661	-2.661	-4.41	17689	-0.02	400	
Na	72	23	1	He	10.725	10.725	5.54	94612	0.01	50000	
Mg	72	24	1	He	254.308	254.308	2.83	598693	0.04	50000	
Al	45	27	3	H2	3284.913	3284.913	2.23	48734438	0.01	50000	
Si	45	28	3	H2	996.800	996.800	9.61	7777453	0.01	2000	
K	72	39	1	He	330.282	330.282	2.34	1538845	0.02	50000	
Ca	72	44	1	He	298.794	298.794	3.06	49271	0.61	25000	
Ti	72	49	1	He	100.844	100.844	3.23	63867	0.16	200	
V	72	51	1	He	9.865	9.865	0.85	162160	0.01	200	
Cr	72	52	1	He	6.781	6.781	2.16	117905	0.01	200	
Mn	72	55	1	He	384.886	384.886	0.89	5754041	0.01	2500	
Fe	72	56	3	H2	4073.761	4073.761	3.31	171642431	0.00	50000	
Co	72	59	1	He	6.657	6.657	0.74	145895	0.00	200	
Ni	72	60	1	He	2.172	2.172	4.98	11280	0.02	200	
copper	72	63	1	He	2.855	2.855	1.15	38023	0.01	200	
Zn	72	66	1	He	10.425	10.425	3.31	29177	0.04	200	
arsenic	72	75	1	He	2.324	2.324	0.83	5484	0.04	200	
selenium	72	78	3	H2	0.097	0.097	15.39	366	0.03	200	
Sr	72	88	1	He	2.846	2.846	2.35	62928	0.00	500	
Mo	115	95	1	He	-0.083	-0.083	-13.51	1537	-0.01	200	
Ag	115	107	1	He	0.003	0.003	56.74	507	0.00	200	
Cd	72	111	1	He	0.024	0.024	69.27	137	0.02	200	
Sn	115	120	1	He	0.836	0.836	4.78	16084	0.01	200	
antimony	159	121	1	He	-0.087	-0.087	-19.10	1801	0.00	200	
Ba	115	137	1	He	46.422	46.422	1.86	236761	0.02	1000	
Tl	159	205	2	no gas	0.061	0.061	6.36	2522	0.00	40	
[Pb]	209	206	2	no gas	8.744	8.744	0.39	121853	0.01	200	
[Pb]	209	207	2	no gas	8.000	8.000	1.73	97754	0.01	200	
Pb	209	208	2	no gas	8.133	8.133	1.00	465468	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1875185	0.98	1982866	94.57	70	120	
Sc	45	1	He	702789	0.59	767851	91.53	70	120	
Ge	72	1	He	297054	0.86	320058	92.81	70	125	
Ge	72	2	no gas	635019	0.99	673177	94.33	70	125	
Ge	72	3	H2	849236	1.54	821457	103.38	70	120	
Y	89	1	He	2847950	1.33	2786775	102.20	70	120	
In	115	1	He	2887051	1.97	3045232	94.81	70	120	
In	115	2	no gas	4308615	0.72	4564130	94.40	70	120	
In	115	3	H2	6499753	2.36	5826290	111.56	70	120	
Tb	159	1	He	4552359	1.05	4638687	98.14	70	120	
Tb	159	2	no gas	5485772	1.74	5623529	97.55	70	120	
Bi	209	2	no gas	3418481	0.55	3475006	98.37	60	120	

Sample Report

Sample Table

Sample Name	400-169643-D-2-B SD^50
Data File Name	042SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T14:50:59-05:00
Sample Type	Sample
Dilution	1
Comment	439737_5
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.386	0.386	6.58	134155	0.00	200	
Be	6	9	2	no gas	0.079	0.079	10.26	699	0.01	200	
B	6	11	2	no gas	-3.487	-3.487	-7.40	13579	-0.03	400	
Na	72	23	1	He	5.398	5.398	40.70	71134	0.01	50000	
Mg	72	24	1	He	55.744	55.744	2.27	129989	0.04	50000	
Al	45	27	3	H2	768.280	768.280	6.12	10017137	0.01	50000	
Si	45	28	3	H2	240.850	240.850	21.02	1706079	0.01	2000	
K	72	39	1	He	72.887	72.887	31.29	613992	0.01	50000	
Ca	72	44	1	He	63.232	63.232	3.23	11484	0.55	25000	
Ti	72	49	1	He	23.088	23.088	6.60	14303	0.16	200	
V	72	51	1	He	1.998	1.998	5.59	35469	0.01	200	
Cr	72	52	1	He	1.357	1.357	2.26	24810	0.01	200	
Mn	72	55	1	He	79.982	79.982	0.31	1163605	0.01	2500	
Fe	72	56	3	H2	908.183	908.183	1.05	34311389	0.00	50000	
Co	72	59	1	He	1.387	1.387	2.34	29742	0.00	200	
Ni	72	60	1	He	0.519	0.519	2.67	2744	0.02	200	
copper	72	63	1	He	0.560	0.560	1.63	7742	0.01	200	
Zn	72	66	1	He	2.222	2.222	5.97	7012	0.03	200	
arsenic	72	75	1	He	0.355	0.355	1.48	1304	0.03	200	
selenium	72	78	3	H2	-0.093	-0.093	-2.30	130	-0.07	200	
Sr	72	88	1	He	0.698	0.698	18.64	15391	0.00	500	
Mo	115	95	1	He	-0.227	-0.227	-6.19	580	-0.04	200	
Ag	115	107	1	He	-0.006	-0.006	-38.31	339	0.00	200	
Cd	72	111	1	He	0.019	0.019	8.86	113	0.02	200	
Sn	115	120	1	He	0.101	0.101	20.65	6001	0.00	200	
antimony	159	121	1	He	-0.181	-0.181	-2.85	741	-0.02	200	
Ba	115	137	1	He	9.606	9.606	5.05	48011	0.02	1000	
Tl	159	205	2	no gas	0.015	0.015	12.57	767	0.00	40	
[Pb]	209	206	2	no gas	1.765	1.765	3.90	28459	0.01	200	
[Pb]	209	207	2	no gas	1.622	1.622	4.32	23207	0.01	200	
Pb	209	208	2	no gas	1.641	1.641	1.62	109817	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1808020	0.39	1982866	91.18	70	120	
Sc	45	1	He	672163	0.19	767851	87.54	70	120	
Ge	72	1	He	288434	0.51	320058	90.12	70	125	
Ge	72	2	no gas	612453	1.82	673177	90.98	70	125	
Ge	72	3	H2	755990	0.88	821457	92.03	70	120	
Y	89	1	He	2573793	0.55	2786775	92.36	70	120	
In	115	1	He	2823676	0.62	3045232	92.72	70	120	
In	115	2	no gas	4304434	1.21	4564130	94.31	70	120	
In	115	3	H2	5737297	1.82	5826290	98.47	70	120	
Tb	159	1	He	4492888	0.61	4638687	96.86	70	120	
Tb	159	2	no gas	5399200	1.55	5623529	96.01	70	120	
Bi	209	2	no gas	3339423	2.20	3475006	96.10	60	120	

Sample Report

Sample Table

Sample Name	400-169643-D-2-B PDS^10
Data File Name	043SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T14:54:55-05:00
Sample Type	Sample
Dilution	1
Comment	439737_6
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.216	2.216	6.90	185466	0.00	200	
Be	6	9	2	no gas	0.374	0.374	4.96	3068	0.01	200	
B	6	11	2	no gas	-2.872	-2.872	-6.64	16629	-0.02	400	
Na	72	23	1	He	10.833	10.833	13.76	95029	0.01	50000	
Mg	72	24	1	He	265.119	265.119	0.10	624086	0.04	50000	
Al	45	27	3	H2	4065.666	4065.666	3.77	53764398	0.01	50000	
Si	45	28	3	H2	1353.295	1353.295	7.22	9370214	0.01	2000	
K	72	39	1	He	327.336	327.336	3.16	1528344	0.02	50000	
Ca	72	44	1	He	314.998	314.998	0.99	51851	0.61	25000	
Ti	72	49	1	He	110.633	110.633	6.92	70043	0.16	200	
V	72	51	1	He	10.225	10.225	0.28	167899	0.01	200	
Cr	72	52	1	He	7.169	7.169	1.93	124522	0.01	200	
Mn	72	55	1	He	397.366	397.366	1.21	5940830	0.01	2500	
Fe	72	56	3	H2	4732.273	4732.273	0.94	183202224	0.00	50000	
Co	72	59	1	He	6.825	6.825	1.11	149560	0.00	200	
Ni	72	60	1	He	2.417	2.417	5.92	12535	0.02	200	
copper	72	63	1	He	2.934	2.934	0.86	39056	0.01	200	
Zn	72	66	1	He	10.729	10.729	0.96	29995	0.04	200	
arsenic	72	75	1	He	2.339	2.339	1.65	5516	0.04	200	
selenium	72	78	3	H2	0.106	0.106	16.26	345	0.03	200	
Sr	72	88	1	He	2.935	2.935	1.78	64851	0.00	500	
Mo	115	95	1	He	-0.097	-0.097	-40.94	1417	-0.01	200	
Ag	115	107	1	He	-0.005	-0.005	-38.26	360	0.00	200	
Cd	72	111	1	He	0.029	0.029	55.64	153	0.02	200	
Sn	115	120	1	He	0.918	0.918	7.41	16789	0.01	200	
antimony	159	121	1	He	-0.124	-0.124	-14.33	1393	-0.01	200	
Ba	115	137	1	He	49.434	49.434	1.49	245922	0.02	1000	
Tl	159	205	2	no gas	0.066	0.066	3.61	2767	0.00	40	
[Pb]	209	206	2	no gas	9.169	9.169	0.79	128473	0.01	200	
[Pb]	209	207	2	no gas	8.509	8.509	0.86	104452	0.01	200	
Pb	209	208	2	no gas	8.531	8.531	1.20	490799	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1859199	1.07	1982866	93.76	70	120	
Sc	45	1	He	694001	0.65	767851	90.38	70	120	
Ge	72	1	He	297049	0.34	320058	92.81	70	125	
Ge	72	2	no gas	637080	1.07	673177	94.64	70	125	
Ge	72	3	H2	780315	0.94	821457	94.99	70	120	
Y	89	1	He	2841816	0.59	2786775	101.98	70	120	
In	115	1	He	2815556	1.38	3045232	92.46	70	120	
In	115	2	no gas	4349349	0.21	4564130	95.29	70	120	
In	115	3	H2	5811607	1.47	5826290	99.75	70	120	
Tb	159	1	He	4566718	1.60	4638687	98.45	70	120	
Tb	159	2	no gas	5578250	0.28	5623529	99.19	70	120	
Bi	209	2	no gas	3444516	0.70	3475006	99.12	60	120	

Sample Report

Sample Table

Sample Name	400-169643-D-2-C MS^10
Data File Name	044SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T14:58:51-05:00
Sample Type	Sample
Dilution	1
Comment	439737_7
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	8.479	8.479	2.65	361544	0.00	200	
Be	6	9	2	no gas	5.092	5.092	0.38	42298	0.01	200	
B	6	11	2	no gas	5.879	5.879	5.65	56598	0.01	400	
Na	72	23	1	He	493.881	493.881	1.11	2100629	0.02	50000	
Mg	72	24	1	He	840.448	840.448	2.19	2037225	0.04	50000	
Al	45	27	3	H2	5919.779	5919.779	1.64	81240469	0.01	50000	
Si	45	28	3	H2	1367.891	1367.891	2.05	9836828	0.01	2000	
K	72	39	1	He	852.812	852.812	1.68	3493025	0.02	50000	
Ca	72	44	1	He	769.208	769.208	2.06	128224	0.60	25000	
Ti	72	49	1	He	153.433	153.433	4.47	100344	0.15	200	
V	72	51	1	He	18.455	18.455	0.78	309425	0.01	200	
Cr	72	52	1	He	14.076	14.076	0.89	250289	0.01	200	
Mn	72	55	1	He	299.696	299.696	1.81	4631869	0.01	2500	
Fe	72	56	3	H2	7000.622	7000.622	0.44	274176429	0.00	50000	
Co	72	59	1	He	10.657	10.657	1.02	241234	0.00	200	
Ni	72	60	1	He	8.146	8.146	2.96	43257	0.02	200	
copper	72	63	1	He	8.431	8.431	1.40	114795	0.01	200	
Zn	72	66	1	He	16.917	16.917	1.11	48132	0.04	200	
arsenic	72	75	1	He	6.554	6.554	0.50	14865	0.04	200	
selenium	72	78	3	H2	4.282	4.282	1.10	4853	0.09	200	
Sr	72	88	1	He	8.254	8.254	0.82	187468	0.00	500	
Mo	115	95	1	He	4.709	4.709	3.72	33117	0.01	200	
Ag	115	107	1	He	4.675	4.675	2.14	86100	0.01	200	
Cd	72	111	1	He	4.710	4.710	0.94	17099	0.03	200	
Sn	115	120	1	He	5.472	5.472	3.96	78814	0.01	200	
antimony	159	121	1	He	2.885	2.885	1.30	35268	0.01	200	
Ba	115	137	1	He	51.185	51.185	1.54	260800	0.02	1000	
Tl	159	205	2	no gas	1.058	1.058	2.89	42414	0.00	40	
[Pb]	209	206	2	no gas	12.050	12.050	1.54	168018	0.01	200	
[Pb]	209	207	2	no gas	11.310	11.310	0.05	137998	0.01	200	
Pb	209	208	2	no gas	11.276	11.276	0.75	645047	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1930987	1.64	1982866	97.38	70	120	
Sc	45	1	He	715315	0.92	767851	93.16	70	120	
Ge	72	1	He	307060	0.98	320058	95.94	70	125	
Ge	72	2	no gas	650080	0.49	673177	96.57	70	125	
Ge	72	3	H2	789796	0.66	821457	96.15	70	120	
Y	89	1	He	2827737	0.76	2786775	101.47	70	120	
In	115	1	He	2884009	1.10	3045232	94.71	70	120	
In	115	2	no gas	4467154	0.36	4564130	97.88	70	120	
In	115	3	H2	5856149	1.44	5826290	100.51	70	120	
Tb	159	1	He	4586156	0.45	4638687	98.87	70	120	
Tb	159	2	no gas	5730532	3.56	5623529	101.90	70	120	
Bi	209	2	no gas	3464819	0.28	3475006	99.71	60	120	

Sample Report

Sample Table

Sample Name	400-169643-D-2-D MSD^10
Data File Name	046SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T15:17:23-05:00
Sample Type	Sample
Dilution	1
Comment	439737_8
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	8.264	8.264	23.21	315849	0.00	200	
Be	6	9	2	no gas	5.566	5.566	25.04	40451	0.01	200	
B	6	11	2	no gas	6.921	6.921	42.47	53863	0.01	400	
Na	72	23	1	He	498.957	498.957	1.39	2081558	0.02	50000	
Mg	72	24	1	He	761.702	761.702	1.49	1811855	0.04	50000	
Al	45	27	3	H2	4552.002	4552.002	1.84	56681507	0.01	50000	
Si	45	28	3	H2	1476.070	1476.070	6.97	9606618	0.02	2000	
K	72	39	1	He	809.587	809.587	4.31	3272005	0.02	50000	
Ca	72	44	1	He	735.817	735.817	2.12	120415	0.61	25000	
Ti	72	49	1	He	119.470	119.470	7.82	76686	0.16	200	
V	72	51	1	He	14.345	14.345	1.42	236971	0.01	200	
Cr	72	52	1	He	11.546	11.546	0.68	201855	0.01	200	
Mn	72	55	1	He	301.458	301.458	0.85	4571429	0.01	2500	
Fe	72	56	3	H2	5014.896	5014.896	1.10	186825037	0.00	50000	
Co	72	59	1	He	9.323	9.323	0.87	207071	0.00	200	
Ni	72	60	1	He	7.081	7.081	0.62	36917	0.02	200	
copper	72	63	1	He	7.462	7.462	0.67	99757	0.01	200	
Zn	72	66	1	He	14.809	14.809	0.32	41497	0.04	200	
arsenic	72	75	1	He	6.470	6.470	1.09	14402	0.04	200	
selenium	72	78	3	H2	4.267	4.267	1.53	4599	0.09	200	
Sr	72	88	1	He	8.094	8.094	1.85	180360	0.00	500	
Mo	115	95	1	He	4.571	4.571	1.35	32203	0.01	200	
Ag	115	107	1	He	4.709	4.709	1.12	86719	0.01	200	
Cd	72	111	1	He	4.954	4.954	4.18	17636	0.03	200	
Sn	115	120	1	He	5.214	5.214	3.61	75322	0.01	200	
antimony	159	121	1	He	2.867	2.867	0.98	35393	0.01	200	
Ba	115	137	1	He	43.029	43.029	0.67	219269	0.02	1000	
Tl	159	205	2	no gas	1.133	1.133	31.64	39054	0.00	40	
[Pb]	209	206	2	no gas	13.654	13.654	29.97	163071	0.01	200	
[Pb]	209	207	2	no gas	12.884	12.884	30.02	134577	0.01	200	
Pb	209	208	2	no gas	12.779	12.779	29.38	626517	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1748457	20.22	1982866	88.18	70	120	
Sc	45	1	He	707791	0.84	767851	92.18	70	120	
Ge	72	1	He	301246	0.85	320058	94.12	70	125	
Ge	72	2	no gas	593101	21.52	673177	88.10	70	125	
Ge	72	3	H2	750972	0.79	821457	91.42	70	120	
Y	89	1	He	2811686	1.11	2786775	100.89	70	120	
In	115	1	He	2883706	0.96	3045232	94.70	70	120	
In	115	2	no gas	4078158	26.76	4564130	89.35	70	120	
In	115	3	H2	5559316	1.23	5826290	95.42	70	120	
Tb	159	1	He	4629444	1.20	4638687	99.80	70	120	
Tb	159	2	no gas	5219521	27.13	5623529	92.82	70	120	
Bi	209	2	no gas	3127936	24.60	3475006	90.01	60	120	

Sample Report

Sample Table

Sample Name	400-169643-B-1-B^100
Data File Name	047SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T15:21:17-05:00
Sample Type	Sample
Dilution	1
Comment	439737_9
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.173	0.173	37.43	127577	0.00	200	
Be	6	9	2	no gas	0.034	0.034	22.47	344	0.01	200	
B	6	11	2	no gas	-4.152	-4.152	-2.87	10684	-0.04	400	
Na	72	23	1	He	-0.492	-0.492	-40.17	48214	0.00	50000	
Mg	72	24	1	He	38.207	38.207	2.08	90193	0.04	50000	
Al	45	27	3	H2	657.951	657.951	0.52	8154687	0.01	50000	
Si	45	28	3	H2	135.761	135.761	13.48	946819	0.01	2000	
K	72	39	1	He	36.739	36.739	7.39	490557	0.01	50000	
Ca	72	44	1	He	29.203	29.203	6.66	6238	0.47	25000	
Ti	72	49	1	He	14.955	14.955	3.27	9324	0.16	200	
V	72	51	1	He	1.580	1.580	3.35	29007	0.01	200	
Cr	72	52	1	He	0.971	0.971	2.47	18443	0.01	200	
Mn	72	55	1	He	29.282	29.282	0.80	428329	0.01	2500	
Fe	72	56	3	H2	789.245	789.245	0.70	28673206	0.00	50000	
Co	72	59	1	He	0.873	0.873	0.31	18837	0.00	200	
Ni	72	60	1	He	0.371	0.371	14.21	2014	0.02	200	
copper	72	63	1	He	0.394	0.394	5.37	5635	0.01	200	
Zn	72	66	1	He	1.305	1.305	6.92	4631	0.03	200	
arsenic	72	75	1	He	0.094	0.094	13.79	773	0.01	200	
selenium	72	78	3	H2	-0.109	-0.109	-12.51	109	-0.10	200	
Sr	72	88	1	He	0.328	0.328	3.75	7539	0.00	500	
Mo	115	95	1	He	-0.234	-0.234	-2.12	537	-0.04	200	
Ag	115	107	1	He	-0.012	-0.012	-8.68	228	-0.01	200	
Cd	72	111	1	He	-0.011	-0.011	-31.32	13	-0.08	200	
Sn	115	120	1	He	0.011	0.011	115.52	4871	0.00	200	
antimony	159	121	1	He	-0.205	-0.205	-3.97	490	-0.04	200	
Ba	115	137	1	He	5.176	5.176	5.60	26244	0.02	1000	
Tl	159	205	2	no gas	0.007	0.007	18.89	444	0.00	40	
[Pb]	209	206	2	no gas	0.789	0.789	8.91	15451	0.01	200	
[Pb]	209	207	2	no gas	0.742	0.742	2.81	12955	0.01	200	
Pb	209	208	2	no gas	0.731	0.731	1.89	60099	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1791470	1.31	1982866	90.35	70	120	
Sc	45	1	He	671515	1.22	767851	87.45	70	120	
Ge	72	1	He	288653	0.66	320058	90.19	70	125	
Ge	72	2	no gas	590638	0.71	673177	87.74	70	125	
Ge	72	3	H2	726033	0.08	821457	88.38	70	120	
Y	89	1	He	2528631	1.16	2786775	90.74	70	120	
In	115	1	He	2858501	0.68	3045232	93.87	70	120	
In	115	2	no gas	4140597	1.66	4564130	90.72	70	120	
In	115	3	H2	5642309	1.59	5826290	96.84	70	120	
Tb	159	1	He	4534996	1.11	4638687	97.76	70	120	
Tb	159	2	no gas	5282949	0.14	5623529	93.94	70	120	
Bi	209	2	no gas	3264663	1.57	3475006	93.95	60	120	

Sample Report

Sample Table

Sample Name	LCS 400-439737/2-A^10
Data File Name	048SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T15:25:16-05:00
Sample Type	Sample
Dilution	1
Comment	439737_2
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	10.395	10.395	3.60	394408	0.00	200	
Be	6	9	2	no gas	9.563	9.563	0.63	75752	0.01	200	
B	6	11	2	no gas	16.091	16.091	5.53	97766	0.02	400	
Na	72	23	1	He	963.186	963.186	1.17	3900787	0.02	50000	
Mg	72	24	1	He	986.042	986.042	1.02	2303854	0.04	50000	
Al	45	27	3	H2	107.680	107.680	1.24	1414710	0.01	50000	
Si	45	28	3	H2	10.869	10.869	2.78	149982	0.01	2000	
K	72	39	1	He	958.833	958.833	1.49	3739731	0.03	50000	
Ca	72	44	1	He	946.593	946.593	0.93	151726	0.62	25000	
Ti	72	49	1	He	9.807	9.807	5.78	6317	0.16	200	
V	72	51	1	He	9.264	9.264	1.45	152018	0.01	200	
Cr	72	52	1	He	9.349	9.349	1.09	161071	0.01	200	
Mn	72	55	1	He	100.976	100.976	2.45	1506675	0.01	2500	
Fe	72	56	3	H2	972.496	972.496	0.57	37464342	0.00	50000	
Co	72	59	1	He	9.789	9.789	0.26	213658	0.00	200	
Ni	72	60	1	He	9.807	9.807	0.59	50177	0.02	200	
copper	72	63	1	He	9.849	9.849	0.54	129178	0.01	200	
Zn	72	66	1	He	9.745	9.745	0.95	27267	0.04	200	
arsenic	72	75	1	He	9.231	9.231	1.02	19940	0.05	200	
selenium	72	78	3	H2	9.033	9.033	1.90	9741	0.09	200	
Sr	72	88	1	He	10.093	10.093	1.43	220860	0.00	500	
Mo	115	95	1	He	9.534	9.534	2.39	65875	0.01	200	
Ag	115	107	1	He	9.274	9.274	0.55	172936	0.01	200	
Cd	72	111	1	He	10.263	10.263	0.42	35856	0.03	200	
Sn	115	120	1	He	9.412	9.412	0.09	134132	0.01	200	
antimony	159	121	1	He	8.760	8.760	1.32	101592	0.01	200	
Ba	115	137	1	He	9.291	9.291	2.61	48145	0.02	1000	
Tl	159	205	2	no gas	1.980	1.980	0.67	75361	0.00	40	
[Pb]	209	206	2	no gas	9.952	9.952	0.42	133031	0.01	200	
[Pb]	209	207	2	no gas	9.987	9.987	1.10	116526	0.01	200	
Pb	209	208	2	no gas	9.596	9.596	0.74	525749	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1843185	1.40	1982866	92.96	70	120	
Sc	45	1	He	704727	0.86	767851	91.78	70	120	
Ge	72	1	He	296027	1.01	320058	92.49	70	125	
Ge	72	2	no gas	623617	0.70	673177	92.64	70	125	
Ge	72	3	H2	771344	0.54	821457	93.90	70	120	
Y	89	1	He	2564960	1.90	2786775	92.04	70	120	
In	115	1	He	2927251	0.24	3045232	96.13	70	120	
In	115	2	no gas	4369361	1.60	4564130	95.73	70	120	
In	115	3	H2	5751068	2.57	5826290	98.71	70	120	
Tb	159	1	He	4595591	1.39	4638687	99.07	70	120	
Tb	159	2	no gas	5449002	0.67	5623529	96.90	70	120	
Bi	209	2	no gas	3297717	1.45	3475006	94.90	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	050_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T15:33:10-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	48.681	48.681	1.12	1446064	0.00	50	
Be	6	9	2	no gas	48.215	48.215	1.50	400634	0.01	50	
B	6	11	2	no gas	95.557	95.557	2.42	444967	0.02	100	
Na	72	23	1	He	4843.443	4843.443	1.84	20021138	0.02	5000	
Mg	72	24	1	He	4811.909	4811.909	1.09	11586137	0.04	5000	
Al	45	27	3	H2	501.593	501.593	1.09	6703512	0.01	500	
K	72	39	1	He	4902.307	4902.307	0.36	18123494	0.03	5000	
Ca	72	44	1	He	4736.097	4736.097	0.59	776499	0.61	5000	
Ti	72	49	1	He	49.735	49.735	1.75	32421	0.15	50	
V	72	51	1	He	47.452	47.452	0.65	783491	0.01	50	
Cr	72	52	1	He	47.808	47.808	0.12	839286	0.01	50	
Mn	72	55	1	He	489.288	489.288	0.95	7520326	0.01	500	
Fe	72	56	3	H2	4838.507	4838.507	0.81	187137451	0.00	5000	
Co	72	59	1	He	47.805	47.805	1.17	1075243	0.00	50	
Ni	72	60	1	He	49.439	49.439	2.04	260283	0.02	50	
copper	72	63	1	He	48.318	48.318	0.81	651414	0.01	50	
dwCu63	72	63	2	no gas	48.314	48.314	0.66	933944	0.01	50	
Zn	72	66	1	He	48.044	48.044	0.84	134747	0.04	50	
arsenic	72	75	1	He	47.412	47.412	0.49	102864	0.05	50	
dwAs75	72	75	2	no gas	47.879	47.879	0.31	203443	0.02	50	
selenium	72	78	3	H2	49.027	49.027	0.66	52327	0.09	50	
Sr	72	88	1	He	49.674	49.674	0.46	1119226	0.00	50	
Mo	115	95	1	He	48.712	48.712	2.23	331585	0.01	50	
Ag	115	107	1	He	45.684	45.684	0.70	863469	0.01	50	
Cd	72	111	1	He	49.858	49.858	0.90	179471	0.03	50	
Sn	115	120	1	He	48.391	48.391	1.31	678916	0.01	50	
antimony	159	121	1	He	50.474	50.474	1.44	568716	0.01	50	
dwSb121	159	121	2	no gas	53.703	53.703	0.18	757943	0.01	50	
Ba	115	137	1	He	46.901	46.901	0.87	246456	0.02	50	
Tl	159	205	2	no gas	10.108	10.108	0.83	378861	0.00	10	
[Pb]	209	206	2	no gas	50.810	50.810	1.80	645234	0.01	50	
[Pb]	209	207	2	no gas	49.861	49.861	0.55	553070	0.01	50	
Pb	209	208	2	no gas	48.411	48.411	0.68	2516507	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1935527	1.70	1982866	97.61	70	120	
Sc	45	1	He	741024	0.19	767851	96.51	70	120	
Ge	72	1	He	305437	0.13	320058	95.43	70	125	
Ge	72	2	no gas	628414	0.12	673177	93.35	70	125	
Ge	72	3	H2	780098	0.89	821457	94.97	70	120	
Y	89	1	He	2624065	0.81	2786775	94.16	70	120	
In	115	1	He	2974276	1.35	3045232	97.67	70	120	
In	115	2	no gas	4328078	1.10	4564130	94.83	70	120	
In	115	3	H2	5928540	1.13	5826290	101.75	70	120	
Tb	159	1	He	4584164	1.08	4638687	98.82	70	120	
Tb	159	2	no gas	5378728	0.20	5623529	95.65	70	120	
Bi	209	2	no gas	3240743	1.09	3475006	93.26	60	120	

Sample Report

Sample Table

Sample Name	CCB
Data File Name	052_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T15:41:00-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.115	0.115	112.12	125507	0.00	0.5	
Be	6	9	2	no gas	-0.002	-0.002	-183.39	61	0.00	0.5	
B	6	11	2	no gas	-0.413	-0.413	-37.72	16948	0.00	5	
Na	72	23	1	He	-1.403	-1.403	-21.15	45012	0.00	100	
Mg	72	24	1	He	-0.864	-0.864	-5.06	1117	-0.08	50	
Al	45	27	3	H2	-0.008	-0.008	-229.50	8689	0.00	50	
K	72	39	1	He	-3.414	-3.414	-53.98	370055	0.00	50	
Ca	72	44	1	He	-0.051	-0.051	-553.73	1860	0.00	50	
Ti	72	49	1	He	-0.047	-0.047	-26.53	121	-0.04	0.5	
V	72	51	1	He	0.019	0.019	50.06	6179	0.00	0.5	
Cr	72	52	1	He	0.007	0.007	231.02	2550	0.00	0.5	
Mn	72	55	1	He	-0.089	-0.089	-17.39	2214	0.00	2	
Fe	72	56	3	H2	-5.137	-5.137	-1.11	124046	0.00	25	
Co	72	59	1	He	-0.007	-0.007	-6.33	150	0.00	0.5	
Ni	72	60	1	He	0.008	0.008	127.47	177	0.00	1.5	
copper	72	63	1	He	-0.007	-0.007	-40.18	441	0.00	0.5	
dwCu63	72	63	2	no gas	-0.002	-0.002	-145.80	673	0.00	0.5	
Zn	72	66	1	He	0.019	0.019	285.73	1277	0.00	4	
arsenic	72	75	1	He	-0.045	-0.045	-52.40	444	-0.01	0.25	
dwAs75	72	75	2	no gas	-0.212	-0.212	-52.67	377	-0.06	5	
selenium	72	78	3	H2	-0.080	-0.080	-3.09	147	-0.05	0.25	
dwSe82	72	82	2	no gas	-0.302	-0.302	-26.20	208	-0.15	5	
Sr	72	88	1	He	-0.003	-0.003	-41.08	363	0.00	0.5	
Mo	115	95	1	He	-0.215	-0.215	-12.88	743	-0.03	1	
Ag	115	107	1	He	-0.009	-0.009	-25.85	252	0.00	0.05	
Cd	72	111	1	He	-0.008	-0.008	-37.75	7	-0.13	0.25	
Sn	115	120	1	He	-0.092	-0.092	-28.73	3547	0.00	0.5	
antimony	159	121	1	He	-0.125	-0.125	-12.96	1402	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.232	-0.232	-8.30	2959	-0.01	5	
Ba	115	137	1	He	-0.013	-0.013	-57.46	91	-0.01	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-12.55	85	0.00	0.1	
[Pb]	209	206	2	no gas	0.004	0.004	690.66	5655	0.00	0.25	
[Pb]	209	207	2	no gas	-0.039	-0.039	-43.09	4451	0.00	0.25	
Pb	209	208	2	no gas	-0.003	-0.003	-243.67	21644	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1824515	4.38	1982866	92.01	70	120	
Sc	45	1	He	723012	0.80	767851	94.16	70	120	
Ge	72	1	He	302533	1.08	320058	94.52	70	125	
Ge	72	2	no gas	609761	3.62	673177	90.58	70	125	
Ge	72	3	H2	776773	0.63	821457	94.56	70	120	
Y	89	1	He	2653843	0.24	2786775	95.23	70	120	
In	115	1	He	2911808	0.60	3045232	95.62	70	120	
In	115	2	no gas	4137272	6.35	4564130	90.65	70	120	
In	115	3	H2	5881767	1.97	5826290	100.95	70	120	
Tb	159	1	He	4610942	2.06	4638687	99.40	70	120	
Tb	159	2	no gas	5148679	7.73	5623529	91.56	70	120	
Bi	209	2	no gas	3182243	6.36	3475006	91.58	60	120	

Sample Report

Sample Table

Sample Name	400-169195-A-4-A^5
Data File Name	053SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T15:44:58-05:00
Sample Type	Sample
Dilution	1
Comment	439455_6
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.094	4.094	1.23	247349	0.00	200	
Be	6	9	2	no gas	-0.002	-0.002	-36.20	73	0.00	200	
B	6	11	2	no gas	15.443	15.443	2.39	91891	0.02	400	
Na	72	23	1	He	12032.034	12032.034	0.03	48868829	0.02	50000	
Mg	72	24	1	He	2659.147	2659.147	0.74	6301816	0.04	50000	
Al	45	27	3	H2	7.728	7.728	7.39	115399	0.01	50000	
Si	45	28	3	H2	2623.388	2623.388	0.54	18826438	0.01	2000	>LDR
K	72	39	1	He	1692.657	1692.657	0.55	6411825	0.03	50000	
Ca	72	44	1	He	30807.669	30807.669	1.04	4956822	0.62	25000	>LDR
Ti	72	49	1	He	0.474	0.474	13.85	453	0.10	200	
V	72	51	1	He	1.197	1.197	3.04	25170	0.00	200	
Cr	72	52	1	He	0.024	0.024	62.63	2830	0.00	200	
Mn	72	55	1	He	49.749	49.749	0.26	755604	0.01	2500	
Fe	72	56	3	H2	636.879	636.879	0.41	25341371	0.00	50000	
Co	72	59	1	He	0.077	0.077	1.36	2008	0.00	200	
Ni	72	60	1	He	0.726	0.726	6.64	3894	0.02	200	
copper	72	63	1	He	0.055	0.055	2.95	1268	0.00	200	
Zn	72	66	1	He	0.525	0.525	13.45	2637	0.02	200	
arsenic	72	75	1	He	3.982	3.982	1.31	9009	0.04	200	
selenium	72	78	3	H2	0.024	0.024	78.51	263	0.01	200	
Sr	72	88	1	He	163.421	163.421	0.99	3621722	0.00	500	
Mo	115	95	1	He	1.694	1.694	3.29	13352	0.01	200	
Ag	115	107	1	He	-0.011	-0.011	-11.98	221	0.00	200	
Cd	72	111	1	He	-0.002	-0.002	-400.75	30	-0.01	200	
Sn	115	120	1	He	0.069	0.069	299.61	5728	0.00	200	
antimony	159	121	1	He	-0.100	-0.100	-14.63	1655	-0.01	200	
Ba	115	137	1	He	68.657	68.657	1.73	350854	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-5.63	93	0.00	40	
[Pb]	209	206	2	no gas	0.049	0.049	24.90	6465	0.00	200	
[Pb]	209	207	2	no gas	0.008	0.008	229.41	5144	0.00	200	
Pb	209	208	2	no gas	0.018	0.018	57.29	23561	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1989427	1.00	1982866	100.33	70	120	
Sc	45	1	He	714443	0.60	767851	93.04	70	120	
Ge	72	1	He	300527	0.05	320058	93.90	70	125	
Ge	72	2	no gas	639610	1.17	673177	95.01	70	125	
Ge	72	3	H2	792933	0.37	821457	96.53	70	120	
Y	89	1	He	2576083	0.85	2786775	92.44	70	120	
In	115	1	He	2892516	1.30	3045232	94.99	70	120	
In	115	2	no gas	4434907	0.94	4564130	97.17	70	120	
In	115	3	H2	6063123	0.24	5826290	104.06	70	120	
Tb	159	1	He	4538718	1.00	4638687	97.84	70	120	
Tb	159	2	no gas	5616870	0.68	5623529	99.88	70	120	
Bi	209	2	no gas	3302823	0.54	3475006	95.05	60	120	

Sample Report

Sample Table

Sample Name	400-169195-A-10-A^5
Data File Name	054SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T15:48:55-05:00
Sample Type	Sample
Dilution	1
Comment	439455_16
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.028	4.028	3.54	245210	0.00	200	
Be	6	9	2	no gas	0.012	0.012	12.65	189	0.01	200	
B	6	11	2	no gas	17.821	17.821	3.49	102758	0.02	400	
Na	72	23	1	He	9936.824	9936.824	1.31	40822652	0.02	50000	
Mg	72	24	1	He	2720.501	2720.501	0.84	6520076	0.04	50000	
Al	45	27	3	H2	173.051	173.051	3.08	2416431	0.01	50000	
Si	45	28	3	H2	3558.970	3558.970	1.68	25810352	0.01	2000	>LDR
K	72	39	1	He	2000.418	2000.418	1.63	7592854	0.03	50000	
Ca	72	44	1	He	30752.793	30752.793	0.77	5003687	0.61	25000	>LDR
Ti	72	49	1	He	4.596	4.596	10.45	3123	0.15	200	
V	72	51	1	He	2.261	2.261	2.01	42840	0.01	200	
Cr	72	52	1	He	0.194	0.194	19.30	5825	0.00	200	
Mn	72	55	1	He	27.195	27.195	1.27	419306	0.01	2500	
Fe	72	56	3	H2	797.799	797.799	1.41	31886862	0.00	50000	
Co	72	59	1	He	0.127	0.127	9.12	3151	0.00	200	
Ni	72	60	1	He	0.666	0.666	8.50	3620	0.02	200	
copper	72	63	1	He	0.212	0.212	2.53	3387	0.01	200	
Zn	72	66	1	He	1.114	1.114	4.67	4281	0.03	200	
arsenic	72	75	1	He	3.449	3.449	0.74	7963	0.04	200	
selenium	72	78	3	H2	0.084	0.084	16.08	330	0.03	200	
Sr	72	88	1	He	157.652	157.652	0.78	3533196	0.00	500	
Mo	115	95	1	He	1.074	1.074	3.87	9323	0.01	200	
Ag	115	107	1	He	-0.011	-0.011	-25.02	217	-0.01	200	
Cd	72	111	1	He	0.029	0.029	42.24	140	0.02	200	
Sn	115	120	1	He	-0.078	-0.078	-7.42	3741	0.00	200	
antimony	159	121	1	He	-0.099	-0.099	-7.08	1651	-0.01	200	
Ba	115	137	1	He	61.290	61.290	0.82	315514	0.02	1000	
Tl	159	205	2	no gas	0.002	0.002	65.95	263	0.00	40	
[Pb]	209	206	2	no gas	0.272	0.272	10.11	9250	0.00	200	
[Pb]	209	207	2	no gas	0.222	0.222	13.54	7485	0.00	200	
Pb	209	208	2	no gas	0.243	0.243	6.48	35101	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1987319	1.57	1982866	100.22	70	120	
Sc	45	1	He	727214	1.09	767851	94.71	70	120	
Ge	72	1	He	303918	0.63	320058	94.96	70	125	
Ge	72	2	no gas	644062	0.46	673177	95.67	70	125	
Ge	72	3	H2	798546	1.31	821457	97.21	70	120	
Y	89	1	He	2611990	0.90	2786775	93.73	70	120	
In	115	1	He	2913419	1.33	3045232	95.67	70	120	
In	115	2	no gas	4437219	1.43	4564130	97.22	70	120	
In	115	3	H2	6013514	1.06	5826290	103.21	70	120	
Tb	159	1	He	4499360	3.28	4638687	97.00	70	120	
Tb	159	2	no gas	5614848	1.26	5623529	99.85	70	120	
Bi	209	2	no gas	3276415	1.52	3475006	94.29	60	120	

Sample Report

Sample Table

Sample Name	400-169195-F-12-A^5
Data File Name	056SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T15:56:47-05:00
Sample Type	Sample
Dilution	1
Comment	439455_18
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	28.741	28.741	1.48	922086	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-29.88	41	-0.01	200	
B	6	11	2	no gas	13.956	13.956	3.11	84062	0.02	400	
Na	72	23	1	He	14009.060	14009.060	0.59	58079786	0.02	50000	
Mg	72	24	1	He	6635.190	6635.190	1.01	16048481	0.04	50000	
Al	45	27	3	H2	7.871	7.871	4.80	120455	0.01	50000	
Si	45	28	3	H2	7830.501	7830.501	1.57	57546571	0.01	2000	>LDR
K	72	39	1	He	3181.502	3181.502	0.55	11962499	0.03	50000	
Ca	72	44	1	He	22142.783	22142.783	0.26	3637691	0.61	25000	
Ti	72	49	1	He	0.364	0.364	20.29	391	0.09	200	
V	72	51	1	He	-0.047	-0.047	-32.61	5179	0.00	200	
Cr	72	52	1	He	-0.003	-0.003	-77.31	2417	0.00	200	
Mn	72	55	1	He	57.180	57.180	0.58	886070	0.01	2500	
Fe	72	56	3	H2	5357.290	5357.290	0.78	212374650	0.00	50000	
Co	72	59	1	He	0.038	0.038	9.33	1167	0.00	200	
Ni	72	60	1	He	0.159	0.159	14.06	977	0.02	200	
copper	72	63	1	He	0.006	0.006	162.37	629	0.00	200	
Zn	72	66	1	He	0.318	0.318	31.34	2120	0.01	200	
arsenic	72	75	1	He	53.652	53.652	0.33	117084	0.05	200	
selenium	72	78	3	H2	-0.158	-0.158	-2.70	67	-0.24	200	
Sr	72	88	1	He	29.223	29.223	1.05	661542	0.00	500	
Mo	115	95	1	He	-0.218	-0.218	-9.50	730	-0.03	200	
Ag	115	107	1	He	-0.012	-0.012	-15.00	192	-0.01	200	
Cd	72	111	1	He	-0.007	-0.007	-48.00	13	-0.05	200	
Sn	115	120	1	He	-0.209	-0.209	-0.92	1974	-0.01	200	
antimony	159	121	1	He	-0.204	-0.204	-3.32	502	-0.04	200	
Ba	115	137	1	He	0.454	0.454	8.53	2516	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-2.86	32	-0.01	40	
[Pb]	209	206	2	no gas	0.025	0.025	149.22	6195	0.00	200	
[Pb]	209	207	2	no gas	-0.021	-0.021	-66.16	4844	0.00	200	
Pb	209	208	2	no gas	0.011	0.011	98.29	23358	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1967660	1.45	1982866	99.23	70	120	
Sc	45	1	He	737951	0.05	767851	96.11	70	120	
Ge	72	1	He	306810	0.15	320058	95.86	70	125	
Ge	72	2	no gas	642861	0.79	673177	95.50	70	125	
Ge	72	3	H2	799081	0.75	821457	97.28	70	120	
Y	89	1	He	2632583	0.56	2786775	94.47	70	120	
In	115	1	He	2940181	0.45	3045232	96.55	70	120	
In	115	2	no gas	4436907	1.15	4564130	97.21	70	120	
In	115	3	H2	6112259	1.09	5826290	104.91	70	120	
Tb	159	1	He	4617467	1.48	4638687	99.54	70	120	
Tb	159	2	no gas	5518331	0.89	5623529	98.13	70	120	
Bi	209	2	no gas	3325048	1.63	3475006	95.68	60	120	

Sample Report

Sample Table

Sample Name	400-169195-A-13-A^5
Data File Name	057SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:00:44-05:00
Sample Type	Sample
Dilution	1
Comment	439455_19
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	6.204	6.204	1.57	299328	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-19.82	34	-0.02	200	
B	6	11	2	no gas	16.124	16.124	1.15	92974	0.02	400	
Na	72	23	1	He	26421.708	26421.708	0.71	109129032	0.02	50000	
Mg	72	24	1	He	3906.966	3906.966	0.76	9419037	0.04	50000	
Al	45	27	3	H2	3.047	3.047	4.74	51409	0.01	50000	
Si	45	28	3	H2	4519.849	4519.849	1.09	32657668	0.01	2000	>LDR
K	72	39	1	He	1808.797	1808.797	1.51	6944750	0.03	50000	
Ca	72	44	1	He	29495.575	29495.575	1.89	4828262	0.61	25000	>LDR
Ti	72	49	1	He	0.283	0.283	36.14	337	0.08	200	
V	72	51	1	He	-0.050	-0.050	-12.40	5112	0.00	200	
Cr	72	52	1	He	0.006	0.006	323.45	2570	0.00	200	
Mn	72	55	1	He	72.962	72.962	0.38	1125801	0.01	2500	
Fe	72	56	3	H2	366.219	366.219	0.52	14972330	0.00	50000	
Co	72	59	1	He	0.299	0.299	4.08	7041	0.00	200	
Ni	72	60	1	He	0.733	0.733	2.93	3997	0.02	200	
copper	72	63	1	He	0.389	0.389	5.28	5785	0.01	200	
Zn	72	66	1	He	0.812	0.812	10.81	3474	0.02	200	
arsenic	72	75	1	He	4.029	4.029	0.96	9267	0.04	200	
selenium	72	78	3	H2	-0.162	-0.162	-2.11	62	-0.26	200	
Sr	72	88	1	He	197.683	197.683	0.06	4457380	0.00	500	
Mo	115	95	1	He	1.114	1.114	4.13	9716	0.01	200	
Ag	115	107	1	He	-0.012	-0.012	-16.23	197	-0.01	200	
Cd	72	111	1	He	0.006	0.006	114.98	60	0.01	200	
Sn	115	120	1	He	-0.180	-0.180	-15.92	2374	-0.01	200	
antimony	159	121	1	He	-0.187	-0.187	-4.80	696	-0.03	200	
Ba	115	137	1	He	10.374	10.374	2.99	54245	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-17.38	52	-0.01	40	
[Pb]	209	206	2	no gas	0.047	0.047	50.26	6295	0.00	200	
[Pb]	209	207	2	no gas	0.008	0.008	378.48	5028	0.00	200	
Pb	209	208	2	no gas	0.025	0.025	92.27	23401	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1946199	0.21	1982866	98.15	70	120	
Sc	45	1	He	739827	0.44	767851	96.35	70	120	
Ge	72	1	He	305770	1.03	320058	95.54	70	125	
Ge	72	2	no gas	645728	0.45	673177	95.92	70	125	
Ge	72	3	H2	807003	0.55	821457	98.24	70	120	
Y	89	1	He	2617382	0.58	2786775	93.92	70	120	
In	115	1	He	2951857	0.41	3045232	96.93	70	120	
In	115	2	no gas	4387469	1.57	4564130	96.13	70	120	
In	115	3	H2	6207342	0.41	5826290	106.54	70	120	
Tb	159	1	He	4596766	1.06	4638687	99.10	70	120	
Tb	159	2	no gas	5437347	1.64	5623529	96.69	70	120	
Bi	209	2	no gas	3232095	1.62	3475006	93.01	60	120	

Sample Report

Sample Table

Sample Name	400-169195-A-11-A^5
Data File Name	058SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:04:41-05:00
Sample Type	Sample
Dilution	1
Comment	439455_17
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.020	-0.020	-544.88	131128	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-7.81	50	-0.01	200	
B	6	11	2	no gas	-1.677	-1.677	-7.98	12472	-0.01	400	
Na	72	23	1	He	73.154	73.154	0.24	350824	0.02	50000	
Mg	72	24	1	He	6.617	6.617	2.41	19027	0.03	50000	
Al	45	27	3	H2	4.152	4.152	7.03	65274	0.01	50000	
Si	45	28	3	H2	6.013	6.013	5.32	123056	0.00	2000	
K	72	39	1	He	25.242	25.242	5.81	474631	0.01	50000	
Ca	72	44	1	He	47.576	47.576	6.33	9606	0.50	25000	
Ti	72	49	1	He	0.074	0.074	119.43	200	0.04	200	
V	72	51	1	He	0.319	0.319	6.62	11102	0.00	200	
Cr	72	52	1	He	0.221	0.221	8.52	6281	0.00	200	
Mn	72	55	1	He	0.228	0.228	7.90	7072	0.00	2500	
Fe	72	56	3	H2	12.559	12.559	2.83	815172	0.00	50000	
Co	72	59	1	He	-0.002	-0.002	-182.47	264	0.00	200	
Ni	72	60	1	He	0.804	0.804	2.36	4341	0.02	200	
copper	72	63	1	He	1.332	1.332	2.06	18381	0.01	200	
Zn	72	66	1	He	1.664	1.664	1.46	5781	0.03	200	
arsenic	72	75	1	He	0.045	0.045	28.22	640	0.01	200	
selenium	72	78	3	H2	-0.189	-0.189	-1.98	32	-0.60	200	
Sr	72	88	1	He	0.170	0.170	7.90	4241	0.00	500	
Mo	115	95	1	He	-0.279	-0.279	-5.96	323	-0.09	200	
Ag	115	107	1	He	-0.011	-0.011	-19.23	207	-0.01	200	
Cd	72	111	1	He	0.022	0.022	31.59	117	0.02	200	
Sn	115	120	1	He	-0.099	-0.099	-28.12	3487	0.00	200	
antimony	159	121	1	He	-0.204	-0.204	-2.87	508	-0.04	200	
Ba	115	137	1	He	0.484	0.484	2.89	2671	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-7.70	61	-0.01	40	
[Pb]	209	206	2	no gas	0.130	0.130	11.23	7769	0.00	200	
[Pb]	209	207	2	no gas	0.113	0.113	13.27	6548	0.00	200	
Pb	209	208	2	no gas	0.117	0.117	8.03	29806	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1961313	0.91	1982866	98.91	70	120	
Sc	45	1	He	729811	0.14	767851	95.05	70	120	
Ge	72	1	He	303642	0.24	320058	94.87	70	125	
Ge	72	2	no gas	642126	1.10	673177	95.39	70	125	
Ge	72	3	H2	786644	0.77	821457	95.76	70	120	
Y	89	1	He	2655636	0.98	2786775	95.29	70	120	
In	115	1	He	2940423	1.03	3045232	96.56	70	120	
In	115	2	no gas	4459442	1.09	4564130	97.71	70	120	
In	115	3	H2	5969627	0.61	5826290	102.46	70	120	
Tb	159	1	He	4590881	0.87	4638687	98.97	70	120	
Tb	159	2	no gas	5585033	0.03	5623529	99.32	70	120	
Bi	209	2	no gas	3421385	1.09	3475006	98.46	60	120	

Sample Report

Sample Table

Sample Name	400-169195-A-14-A^5
Data File Name	059SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:08:40-05:00
Sample Type	Sample
Dilution	1
Comment	439455_20
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	6.680	6.680	10.58	274178	0.00	200	
Be	6	9	2	no gas	-0.001	-0.001	-438.96	69	0.00	200	
B	6	11	2	no gas	18.547	18.547	13.26	90980	0.02	400	
Na	72	23	1	He	26511.435	26511.435	0.48	110655255	0.02	50000	
Mg	72	24	1	He	3912.717	3912.717	2.12	9532521	0.04	50000	
Al	45	27	3	H2	1.841	1.841	6.86	37380	0.00	50000	
Si	45	28	3	H2	4235.065	4235.065	4.51	32980265	0.01	2000	>LDR
K	72	39	1	He	1796.121	1796.121	1.23	6971536	0.03	50000	
Ca	72	44	1	He	29152.608	29152.608	1.70	4822872	0.60	25000	>LDR
Ti	72	49	1	He	0.152	0.152	23.84	254	0.06	200	
V	72	51	1	He	0.346	0.346	5.31	11742	0.00	200	
Cr	72	52	1	He	0.014	0.014	32.39	2730	0.00	200	
Mn	72	55	1	He	72.118	72.118	0.15	1124640	0.01	2500	
Fe	72	56	3	H2	337.880	337.880	3.58	14534206	0.00	50000	
Co	72	59	1	He	0.295	0.295	1.93	7034	0.00	200	
Ni	72	60	1	He	0.735	0.735	5.50	4054	0.02	200	
copper	72	63	1	He	0.151	0.151	7.21	2604	0.01	200	
Zn	72	66	1	He	1.048	1.048	11.17	4167	0.03	200	
arsenic	72	75	1	He	4.090	4.090	2.58	9498	0.04	200	
selenium	72	78	3	H2	-0.176	-0.176	-8.37	50	-0.36	200	
Sr	72	88	1	He	196.575	196.575	2.15	4478889	0.00	500	
Mo	115	95	1	He	1.127	1.127	5.87	9700	0.01	200	
Ag	115	107	1	He	-0.012	-0.012	-10.83	191	-0.01	200	
Cd	72	111	1	He	0.002	0.002	686.62	43	0.00	200	
Sn	115	120	1	He	-0.170	-0.170	-19.28	2490	-0.01	200	
antimony	159	121	1	He	-0.195	-0.195	-1.91	604	-0.03	200	
Ba	115	137	1	He	10.793	10.793	1.02	55812	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-32.50	68	0.00	40	
[Pb]	209	206	2	no gas	0.074	0.074	32.16	5481	0.00	200	
[Pb]	209	207	2	no gas	0.006	0.006	180.43	4134	0.00	200	
Pb	209	208	2	no gas	0.023	0.023	156.59	19366	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1715848	10.26	1982866	86.53	70	120	
Sc	45	1	He	748097	1.41	767851	97.43	70	120	
Ge	72	1	He	309012	0.84	320058	96.55	70	125	
Ge	72	2	no gas	554116	9.57	673177	82.31	70	125	
Ge	72	3	H2	848474	4.94	821457	103.29	70	120	
Y	89	1	He	2650506	0.65	2786775	95.11	70	120	
In	115	1	He	2919539	0.67	3045232	95.87	70	120	
In	115	2	no gas	3635001	4.88	4564130	79.64	70	120	
In	115	3	H2	6554258	5.47	5826290	112.49	70	120	
Tb	159	1	He	4578669	1.00	4638687	98.71	70	120	
Tb	159	2	no gas	4510506	6.18	5623529	80.21	70	120	
Bi	209	2	no gas	2671507	7.33	3475006	76.88	60	120	

Sample Report

Sample Table

Sample Name	400-169195-F-15-A^5
Data File Name	060SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:12:38-05:00
Sample Type	Sample
Dilution	1
Comment	439455_21
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	13.565	13.565	2.20	510849	0.00	200	
Be	6	9	2	no gas	0.011	0.011	26.56	181	0.01	200	
B	6	11	2	no gas	10.006	10.006	4.37	66750	0.01	400	
Na	72	23	1	He	14346.218	14346.218	0.23	60816342	0.02	50000	
Mg	72	24	1	He	4056.535	4056.535	0.95	10033796	0.04	50000	
Al	45	27	3	H2	239.597	239.597	3.57	3456323	0.01	50000	
Si	45	28	3	H2	5531.709	5531.709	1.43	41441605	0.01	2000	>LDR
K	72	39	1	He	2403.542	2403.542	1.08	9337995	0.03	50000	
Ca	72	44	1	He	23550.688	23550.688	0.54	3956042	0.60	25000	>LDR
Ti	72	49	1	He	6.812	6.812	4.75	4703	0.14	200	
V	72	51	1	He	1.765	1.765	2.63	35864	0.00	200	
Cr	72	52	1	He	0.864	0.864	2.99	18063	0.00	200	
Mn	72	55	1	He	38.411	38.411	0.87	609859	0.01	2500	
Fe	72	56	3	H2	3714.219	3714.219	0.79	151326331	0.00	50000	
Co	72	59	1	He	0.125	0.125	7.15	3208	0.00	200	
Ni	72	60	1	He	1.220	1.220	1.65	6735	0.02	200	
copper	72	63	1	He	2.960	2.960	0.31	41501	0.01	200	
Zn	72	66	1	He	34.103	34.103	2.11	97696	0.03	200	
arsenic	72	75	1	He	52.190	52.190	0.60	116475	0.04	200	
selenium	72	78	3	H2	-0.153	-0.153	-6.38	74	-0.21	200	
Sr	72	88	1	He	67.424	67.424	0.96	1560132	0.00	500	
Mo	115	95	1	He	0.058	0.058	47.15	2620	0.00	200	
Ag	115	107	1	He	-0.008	-0.008	-13.99	279	0.00	200	
Cd	72	111	1	He	0.026	0.026	26.41	133	0.02	200	
Sn	115	120	1	He	-0.130	-0.130	-38.61	3094	0.00	200	
antimony	159	121	1	He	-0.086	-0.086	-11.42	1848	0.00	200	
Ba	115	137	1	He	10.389	10.389	1.31	54872	0.02	1000	
Tl	159	205	2	no gas	0.001	0.001	137.35	204	0.00	40	
[Pb]	209	206	2	no gas	0.572	0.572	8.76	13082	0.00	200	
[Pb]	209	207	2	no gas	0.491	0.491	2.85	10480	0.00	200	
Pb	209	208	2	no gas	0.537	0.537	2.87	50440	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1990939	2.07	1982866	100.41	70	120	
Sc	45	1	He	755641	1.06	767851	98.41	70	120	
Ge	72	1	He	313723	0.09	320058	98.02	70	125	
Ge	72	2	no gas	664055	1.43	673177	98.64	70	125	
Ge	72	3	H2	820732	0.19	821457	99.91	70	120	
Y	89	1	He	2687277	1.79	2786775	96.43	70	120	
In	115	1	He	2982134	1.77	3045232	97.93	70	120	
In	115	2	no gas	4480109	0.35	4564130	98.16	70	120	
In	115	3	H2	6191304	0.70	5826290	106.26	70	120	
Tb	159	1	He	4638219	0.60	4638687	99.99	70	120	
Tb	159	2	no gas	5610236	0.64	5623529	99.76	70	120	
Bi	209	2	no gas	3278407	1.19	3475006	94.34	60	120	

Sample Report

Sample Table

Sample Name	400-169195-F-16-A^5
Data File Name	061SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:16:35-05:00
Sample Type	Sample
Dilution	1
Comment	439455_22
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	26.745	26.745	3.88	855413	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-35.35	57	-0.01	200	
B	6	11	2	no gas	14.555	14.555	5.89	85618	0.02	400	
Na	72	23	1	He	13398.907	13398.907	0.78	56768539	0.02	50000	
Mg	72	24	1	He	7982.939	7982.939	0.54	19730492	0.04	50000	
Al	45	27	3	H2	5.437	5.437	1.86	87463	0.01	50000	
Si	45	28	3	H2	8634.251	8634.251	0.48	64434712	0.01	2000	>LDR
K	72	39	1	He	2817.668	2817.668	1.21	10871797	0.03	50000	
Ca	72	44	1	He	23146.684	23146.684	0.69	3885779	0.60	25000	>LDR
Ti	72	49	1	He	0.308	0.308	15.47	362	0.08	200	
V	72	51	1	He	-0.009	-0.009	-107.13	5931	0.00	200	
Cr	72	52	1	He	0.008	0.008	70.24	2670	0.00	200	
Mn	72	55	1	He	121.916	121.916	1.03	1926420	0.01	2500	
Fe	72	56	3	H2	5488.278	5488.278	0.55	221755837	0.00	50000	
Co	72	59	1	He	0.057	0.057	9.45	1635	0.00	200	
Ni	72	60	1	He	0.451	0.451	4.55	2577	0.02	200	
copper	72	63	1	He	0.011	0.011	15.36	710	0.00	200	
Zn	72	66	1	He	0.419	0.419	11.07	2450	0.02	200	
arsenic	72	75	1	He	67.713	67.713	0.44	150858	0.04	200	
selenium	72	78	3	H2	-0.176	-0.176	-4.50	47	-0.37	200	
Sr	72	88	1	He	23.769	23.769	0.75	549949	0.00	500	
Mo	115	95	1	He	-0.246	-0.246	-5.23	550	-0.04	200	
Ag	115	107	1	He	-0.012	-0.012	-5.42	203	-0.01	200	
Cd	72	111	1	He	-0.008	-0.008	-35.42	10	-0.08	200	
Sn	115	120	1	He	-0.192	-0.192	-8.40	2237	-0.01	200	
antimony	159	121	1	He	-0.218	-0.218	-1.36	356	-0.06	200	
Ba	115	137	1	He	0.397	0.397	4.30	2260	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-4.94	44	-0.01	40	
[Pb]	209	206	2	no gas	0.005	0.005	800.59	6018	0.00	200	
[Pb]	209	207	2	no gas	-0.031	-0.031	-79.47	4801	0.00	200	
Pb	209	208	2	no gas	-0.004	-0.004	-573.55	22851	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1941283	1.48	1982866	97.90	70	120	
Sc	45	1	He	754320	0.39	767851	98.24	70	120	
Ge	72	1	He	313529	0.16	320058	97.96	70	125	
Ge	72	2	no gas	660384	0.29	673177	98.10	70	125	
Ge	72	3	H2	814534	0.50	821457	99.16	70	120	
Y	89	1	He	2677158	3.10	2786775	96.07	70	120	
In	115	1	He	2992339	0.45	3045232	98.26	70	120	
In	115	2	no gas	4521866	1.11	4564130	99.07	70	120	
In	115	3	H2	6272903	0.64	5826290	107.67	70	120	
Tb	159	1	He	4679782	0.83	4638687	100.89	70	120	
Tb	159	2	no gas	5664146	0.05	5623529	100.72	70	120	
Bi	209	2	no gas	3367764	0.90	3475006	96.91	60	120	

Sample Report

Sample Table

Sample Name	400-169513-C-1-A
Data File Name	062SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:20:31-05:00
Sample Type	Sample
Dilution	1
Comment	439455_23
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.311	1.311	11.19	172011	0.00	200	
Be	6	9	2	no gas	0.002	0.002	77.63	110	0.00	200	
B	6	11	2	no gas	4.313	4.313	3.17	40852	0.01	400	
Na	72	23	1	He	2937.964	2937.964	0.75	12680901	0.02	50000	
Mg	72	24	1	He	2786.115	2786.115	0.96	6994221	0.04	50000	
Al	45	27	3	H2	165.596	165.596	4.01	2382515	0.01	50000	
Si	45	28	3	H2	1536.246	1536.246	3.94	11524129	0.01	2000	
K	72	39	1	He	6558.977	6558.977	1.55	25161635	0.03	50000	
Ca	72	44	1	He	8664.554	8664.554	0.59	1478194	0.59	25000	
Ti	72	49	1	He	9.693	9.693	1.04	6724	0.14	200	
V	72	51	1	He	0.521	0.521	3.07	15090	0.00	200	
Cr	72	52	1	He	0.520	0.520	4.11	12044	0.00	200	
Mn	72	55	1	He	595.173	595.173	0.83	9534760	0.01	2500	
Fe	72	56	3	H2	2231.647	2231.647	2.05	91718319	0.00	50000	
Co	72	59	1	He	1.160	1.160	2.70	27514	0.00	200	
Ni	72	60	1	He	1.204	1.204	2.86	6748	0.02	200	
copper	72	63	1	He	0.544	0.544	3.48	8207	0.01	200	
Zn	72	66	1	He	2.816	2.816	2.15	9366	0.03	200	
arsenic	72	75	1	He	4.269	4.269	0.50	10190	0.04	200	
selenium	72	78	3	H2	0.072	0.072	6.86	328	0.02	200	
Sr	72	88	1	He	29.749	29.749	0.61	698776	0.00	500	
Mo	115	95	1	He	-0.053	-0.053	-78.96	1894	0.00	200	
Ag	115	107	1	He	0.028	0.028	12.47	973	0.00	200	
Cd	72	111	1	He	0.071	0.071	19.31	303	0.02	200	
Sn	115	120	1	He	-0.084	-0.084	-45.43	3804	0.00	200	
antimony	159	121	1	He	0.091	0.091	21.47	3884	0.00	200	
Ba	115	137	1	He	19.959	19.959	1.71	106819	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-43.60	155	0.00	40	
[Pb]	209	206	2	no gas	1.469	1.469	4.06	25180	0.01	200	
[Pb]	209	207	2	no gas	1.399	1.399	6.62	21141	0.01	200	
Pb	209	208	2	no gas	1.394	1.394	5.93	97790	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2013359	2.24	1982866	101.54	70	120	
Sc	45	1	He	772612	0.41	767851	100.62	70	120	
Ge	72	1	He	318363	0.77	320058	99.47	70	125	
Ge	72	2	no gas	671482	1.11	673177	99.75	70	125	
Ge	72	3	H2	826839	1.49	821457	100.66	70	120	
Y	89	1	He	2744448	1.09	2786775	98.48	70	120	
In	115	1	He	3025583	0.20	3045232	99.35	70	120	
In	115	2	no gas	4540507	2.15	4564130	99.48	70	120	
In	115	3	H2	6136124	3.46	5826290	105.32	70	120	
Tb	159	1	He	4661946	1.28	4638687	100.50	70	120	
Tb	159	2	no gas	5696330	1.60	5623529	101.29	70	120	
Bi	209	2	no gas	3371025	2.07	3475006	97.01	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	064_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:28:30-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.610	50.610	2.83	1554038	0.00	50	
Be	6	9	2	no gas	49.777	49.777	0.58	428848	0.01	50	
B	6	11	2	no gas	99.964	99.964	1.46	482688	0.02	100	
Na	72	23	1	He	4926.495	4926.495	1.07	21611608	0.02	5000	
Mg	72	24	1	He	4884.837	4884.837	1.69	12477311	0.04	5000	
Al	45	27	3	H2	503.299	503.299	2.15	7264981	0.01	500	
K	72	39	1	He	4994.949	4994.949	0.83	19614416	0.03	5000	
Ca	72	44	1	He	4815.322	4815.322	0.94	838001	0.57	5000	
Ti	72	49	1	He	50.489	50.489	1.61	35296	0.14	50	
V	72	51	1	He	47.449	47.449	0.76	833104	0.01	50	
Cr	72	52	1	He	47.723	47.723	1.29	888782	0.01	50	
Mn	72	55	1	He	494.173	494.173	0.25	8058475	0.01	500	
Fe	72	56	3	H2	4860.609	4860.609	0.77	199436437	0.00	5000	
Co	72	59	1	He	47.651	47.651	0.18	1136856	0.00	50	
Ni	72	60	1	He	49.574	49.574	1.23	276913	0.02	50	
copper	72	63	1	He	47.935	47.935	0.19	685536	0.01	50	
dwCu63	72	63	2	no gas	48.627	48.627	1.09	997562	0.00	50	
Zn	72	66	1	He	48.474	48.474	1.28	144340	0.03	50	
arsenic	72	75	1	He	46.933	46.933	0.19	108169	0.04	50	
dwAs75	72	75	2	no gas	48.016	48.016	0.36	216251	0.02	50	
selenium	72	78	3	H2	49.120	49.120	0.38	55442	0.09	50	
Sr	72	88	1	He	49.070	49.070	0.30	1172977	0.00	50	
Mo	115	95	1	He	49.094	49.094	0.66	340911	0.01	50	
Ag	115	107	1	He	46.201	46.201	0.72	892053	0.01	50	
Cd	72	111	1	He	48.183	48.183	0.68	183993	0.03	50	
Sn	115	120	1	He	48.819	48.819	1.80	698786	0.01	50	
antimony	159	121	1	He	51.542	51.542	1.11	589732	0.01	50	
dwSb121	159	121	2	no gas	53.995	53.995	0.61	793600	0.01	50	
Ba	115	137	1	He	47.110	47.110	0.95	252920	0.02	50	
Tl	159	205	2	no gas	9.849	9.849	0.44	385004	0.00	10	
[Pb]	209	206	2	no gas	50.803	50.803	1.16	664038	0.01	50	
[Pb]	209	207	2	no gas	49.226	49.226	1.03	561524	0.01	50	
Pb	209	208	2	no gas	48.687	48.687	2.17	2605537	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2006656	1.01	1982866	101.20	70	120	
Sc	45	1	He	795313	0.84	767851	103.58	70	120	
Ge	72	1	He	324007	0.43	320058	101.23	70	125	
Ge	72	2	no gas	667055	1.01	673177	99.09	70	125	
Ge	72	3	H2	826257	0.13	821457	100.58	70	120	
Y	89	1	He	2757302	0.10	2786775	98.94	70	120	
In	115	1	He	3038276	0.53	3045232	99.77	70	120	
In	115	2	no gas	4535883	0.91	4564130	99.38	70	120	
In	115	3	H2	6107338	0.30	5826290	104.82	70	120	
Tb	159	1	He	4659923	0.22	4638687	100.46	70	120	
Tb	159	2	no gas	5610028	1.01	5623529	99.76	70	120	
Bi	209	2	no gas	3334727	1.80	3475006	95.96	60	120	

Sample Table

Sample Name	CCB
Data File Name	066_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:36:21-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.002	-0.002	-3389.93	136847	0.00	0.5	
Be	6	9	2	no gas	-0.005	-0.005	-53.41	64	-0.01	0.5	
B	6	11	2	no gas	-0.716	-0.716	-18.03	18517	0.00	5	
Na	72	23	1	He	-1.979	-1.979	-23.70	51890	0.00	100	
Mg	72	24	1	He	-1.095	-1.095	-2.68	1520	-0.07	50	
Al	45	27	3	H2	-0.018	-0.018	-166.31	8889	0.00	50	
K	72	39	1	He	-1.181	-1.181	-151.22	409960	0.00	50	
Ca	72	44	1	He	-1.464	-1.464	-39.33	2090	-0.07	50	
Ti	72	49	1	He	-0.030	-0.030	-187.26	202	-0.01	0.5	
V	72	51	1	He	0.012	0.012	73.22	5501	0.00	0.5	
Cr	72	52	1	He	0.012	0.012	78.86	2607	0.00	0.5	
Mn	72	55	1	He	-0.135	-0.135	-24.77	2517	-0.01	2	
Fe	72	56	3	H2	-5.599	-5.599	-0.48	151303	0.00	25	
Co	72	59	1	He	-0.013	-0.013	-10.51	134	-0.01	0.5	
Ni	72	60	1	He	-0.005	-0.005	-123.72	170	0.00	1.5	
copper	72	63	1	He	-0.015	-0.015	-28.77	516	0.00	0.5	
dwCu63	72	63	2	no gas	-0.016	-0.016	-30.70	673	0.00	0.5	
Zn	72	66	1	He	-0.096	-0.096	-61.17	1183	-0.01	4	
arsenic	72	75	1	He	-0.063	-0.063	-22.94	460	-0.01	0.25	
dwAs75	72	75	2	no gas	-0.374	-0.374	-7.38	-1551	0.02	5	
selenium	72	78	3	H2	-0.109	-0.109	-11.81	122	-0.09	0.25	
dwSe82	72	82	2	no gas	-0.299	-0.299	-12.10	228	-0.13	5	
Sr	72	88	1	He	-0.006	-0.006	-38.98	380	0.00	0.5	
Mo	115	95	1	He	-0.213	-0.213	-13.46	670	-0.03	1	
Ag	115	107	1	He	-0.012	-0.012	-7.67	258	0.00	0.05	
Cd	72	111	1	He	-0.011	-0.011	-28.89	7	-0.16	0.25	
Sn	115	120	1	He	-0.094	-0.094	-17.66	3657	0.00	0.5	
antimony	159	121	1	He	-0.145	-0.145	-11.53	1185	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.262	-0.262	-1.70	2816	-0.01	5	
Ba	115	137	1	He	-0.008	-0.008	-37.18	104	-0.01	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-12.02	80	0.00	0.1	
[Pb]	209	206	2	no gas	-0.011	-0.011	-567.45	5831	0.00	0.25	
[Pb]	209	207	2	no gas	-0.031	-0.031	-55.52	4557	0.00	0.25	
Pb	209	208	2	no gas	-0.021	-0.021	-163.04	22267	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1995778	0.16	1982866	100.65	70	120	
Sc	45	1	He	767530	0.56	767851	99.96	70	120	
Ge	72	1	He	315668	0.87	320058	98.63	70	125	
Ge	72	2	no gas	659907	0.37	673177	98.03	70	125	
Ge	72	3	H2	813154	0.57	821457	98.99	70	120	
Y	89	1	He	2753365	1.17	2786775	98.80	70	120	
In	115	1	He	3023261	0.70	3045232	99.28	70	120	
In	115	2	no gas	4515529	1.00	4564130	98.94	70	120	
In	115	3	H2	6095047	1.48	5826290	104.61	70	120	
Tb	159	1	He	4656638	0.32	4638687	100.39	70	120	
Tb	159	2	no gas	5637477	2.12	5623529	100.25	70	120	
Bi	209	2	no gas	3331580	0.54	3475006	95.87	60	120	

Sample Report

Sample Table

Sample Name	400-169513-C-2-A
Data File Name	067SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:40:21-05:00
Sample Type	Sample
Dilution	1
Comment	439455_24
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.513	1.513	12.00	180687	0.00	200	
Be	6	9	2	no gas	0.001	0.001	449.94	117	0.00	200	
B	6	11	2	no gas	3.770	3.770	1.59	39716	0.01	400	
Na	72	23	1	He	3112.737	3112.737	1.04	13237222	0.02	50000	
Mg	72	24	1	He	2589.135	2589.135	0.34	6403295	0.04	50000	
Al	45	27	3	H2	150.045	150.045	36.94	2282770	0.01	50000	
Si	45	28	3	H2	1318.201	1318.201	34.54	10520416	0.01	2000	
K	72	39	1	He	7158.993	7158.993	0.15	27031050	0.03	50000	
Ca	72	44	1	He	8764.396	8764.396	0.57	1473119	0.59	25000	
Ti	72	49	1	He	9.915	9.915	2.08	6835	0.15	200	
V	72	51	1	He	0.606	0.606	1.44	15488	0.00	200	
Cr	72	52	1	He	0.469	0.469	3.78	10804	0.00	200	
Mn	72	55	1	He	592.270	592.270	0.40	9346588	0.01	2500	
Fe	72	56	3	H2	2171.117	2171.117	26.90	88666375	0.00	50000	
Co	72	59	1	He	1.165	1.165	1.44	27338	0.00	200	
Ni	72	60	1	He	1.496	1.496	1.87	8276	0.02	200	
copper	72	63	1	He	0.503	0.503	3.02	7675	0.01	200	
Zn	72	66	1	He	2.080	2.080	9.89	7325	0.03	200	
arsenic	72	75	1	He	3.802	3.802	1.73	9036	0.04	200	
selenium	72	78	3	H2	0.098	0.098	109.54	352	0.03	200	
Sr	72	88	1	He	30.592	30.592	0.35	707823	0.00	500	
Mo	115	95	1	He	-0.024	-0.024	-129.07	1964	0.00	200	
Ag	115	107	1	He	0.025	0.025	11.89	959	0.00	200	
Cd	72	111	1	He	0.052	0.052	42.58	240	0.02	200	
Sn	115	120	1	He	0.114	0.114	201.14	6562	0.00	200	
antimony	159	121	1	He	0.124	0.124	7.70	4185	0.00	200	
Ba	115	137	1	He	20.280	20.280	1.84	107758	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-119.66	143	0.00	40	
[Pb]	209	206	2	no gas	1.307	1.307	2.44	22900	0.01	200	
[Pb]	209	207	2	no gas	1.288	1.288	3.94	19482	0.01	200	
Pb	209	208	2	no gas	1.229	1.229	1.48	88589	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2014484	2.13	1982866	101.59	70	120	
Sc	45	1	He	763349	0.25	767851	99.41	70	120	
Ge	72	1	He	313572	0.52	320058	97.97	70	125	
Ge	72	2	no gas	661218	0.54	673177	98.22	70	125	
Ge	72	3	H2	854512	22.02	821457	104.02	70	120	
Y	89	1	He	2694532	0.66	2786775	96.69	70	120	
In	115	1	He	3004689	1.15	3045232	98.67	70	120	
In	115	2	no gas	4479474	1.16	4564130	98.15	70	120	
In	115	3	H2	6783863	26.52	5826290	116.44	70	120	
Tb	159	1	He	4579376	1.77	4638687	98.72	70	120	
Tb	159	2	no gas	5496985	0.58	5623529	97.75	70	120	
Bi	209	2	no gas	3333313	0.23	3475006	95.92	60	120	

Sample Report

Sample Table

Sample Name	400-169513-C-3-A
Data File Name	068SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:44:25-05:00
Sample Type	Sample
Dilution	1
Comment	439455_25
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	20.368	20.368	1.64	713032	0.00	200	
Be	6	9	2	no gas	-0.003	-0.003	-158.45	83	0.00	200	
B	6	11	2	no gas	6.651	6.651	3.11	53341	0.01	400	
Na	72	23	1	He	5089.321	5089.321	22.38	18144354	0.03	50000	
Mg	72	24	1	He	6484.942	6484.942	24.18	13429673	0.05	50000	
Al	45	27	3	H2	31.146	31.146	1.63	449079	0.01	50000	
Si	45	28	3	H2	3503.708	3503.708	2.58	25800803	0.01	2000	>LDR
K	72	39	1	He	21834.674	21834.674	23.27	68449722	0.03	50000	
Ca	72	44	1	He	28810.196	28810.196	23.54	4055740	0.71	25000	>LDR
Ti	72	49	1	He	1.888	1.888	28.62	1240	0.15	200	
V	72	51	1	He	0.196	0.196	56.17	7205	0.00	200	
Cr	72	52	1	He	0.539	0.539	27.71	10136	0.01	200	
Mn	72	55	1	He	311.959	311.959	23.71	4128528	0.01	2500	
Fe	72	56	3	H2	484.037	484.037	0.06	19728772	0.00	50000	
Co	72	59	1	He	0.301	0.301	26.82	6173	0.00	200	
Ni	72	60	1	He	1.609	1.609	22.58	7468	0.02	200	
copper	72	63	1	He	0.729	0.729	24.85	9056	0.01	200	
Zn	72	66	1	He	7.980	7.980	23.91	20161	0.04	200	
arsenic	72	75	1	He	0.412	0.412	46.52	1259	0.03	200	
selenium	72	78	3	H2	-0.026	-0.026	-56.66	212	-0.01	200	
Sr	72	88	1	He	142.016	142.016	23.42	2753879	0.01	500	
Mo	115	95	1	He	-0.056	-0.056	-164.94	1427	0.00	200	
Ag	115	107	1	He	0.050	0.050	43.06	1182	0.00	200	
Cd	72	111	1	He	0.051	0.051	32.05	200	0.03	200	
Sn	115	120	1	He	0.184	0.184	59.25	6318	0.00	200	
antimony	159	121	1	He	-0.103	-0.103	-51.87	1349	-0.01	200	
Ba	115	137	1	He	38.459	38.459	29.37	168405	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-45.17	135	0.00	40	
[Pb]	209	206	2	no gas	0.391	0.391	14.81	10767	0.00	200	
[Pb]	209	207	2	no gas	0.384	0.384	5.52	9033	0.00	200	
Pb	209	208	2	no gas	0.368	0.368	4.93	41877	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2019085	0.40	1982866	101.83	70	120	
Sc	45	1	He	666896	26.23	767851	86.85	70	120	
Ge	72	1	He	271211	19.53	320058	84.74	70	125	
Ge	72	2	no gas	654926	0.24	673177	97.29	70	125	
Ge	72	3	H2	807298	0.71	821457	98.28	70	120	
Y	89	1	He	2365451	26.78	2786775	84.88	70	120	
In	115	1	He	2598976	23.93	3045232	85.35	70	120	
In	115	2	no gas	4437758	1.33	4564130	97.23	70	120	
In	115	3	H2	6125501	1.27	5826290	105.14	70	120	
Tb	159	1	He	4016926	25.68	4638687	86.60	70	120	
Tb	159	2	no gas	5496819	0.85	5623529	97.75	70	120	
Bi	209	2	no gas	3251643	1.81	3475006	93.57	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439456/1-A^5
Data File Name	069SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:48:25-05:00
Sample Type	Sample
Dilution	1
Comment	439456_1
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.043	0.043	92.70	139084	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-19.65	40	-0.02	200	
B	6	11	2	no gas	-1.808	-1.808	-3.24	13546	-0.01	400	
Na	72	23	1	He	0.094	0.094	556.77	60344	0.00	50000	
Mg	72	24	1	He	0.224	0.224	225.21	4771	0.00	50000	
Al	45	27	3	H2	1.002	1.002	5.68	23138	0.00	50000	
Si	45	28	3	H2	1.685	1.685	18.54	99489	0.00	2000	
K	72	39	1	He	-0.838	-0.838	-203.24	408664	0.00	50000	
Ca	72	44	1	He	3.282	3.282	23.78	2874	0.11	25000	
Ti	72	49	1	He	-0.026	-0.026	-198.91	203	-0.01	200	
V	72	51	1	He	0.201	0.201	5.01	8650	0.00	200	
Cr	72	52	1	He	0.004	0.004	552.72	2454	0.00	200	
Mn	72	55	1	He	-0.097	-0.097	-39.74	3097	0.00	2500	
Fe	72	56	3	H2	-5.383	-5.383	-1.12	158106	0.00	50000	
Co	72	59	1	He	-0.013	-0.013	-6.10	137	-0.01	200	
Ni	72	60	1	He	-0.009	-0.009	-197.77	147	-0.01	200	
copper	72	63	1	He	-0.020	-0.020	-8.63	433	0.00	200	
Zn	72	66	1	He	-0.004	-0.004	-1794.85	1437	0.00	200	
arsenic	72	75	1	He	-0.036	-0.036	-74.75	517	-0.01	200	
selenium	72	78	3	H2	-0.163	-0.163	-4.48	61	-0.27	200	
Sr	72	88	1	He	0.024	0.024	26.84	1077	0.00	500	
Mo	115	95	1	He	-0.269	-0.269	-5.76	287	-0.09	200	
Ag	115	107	1	He	-0.013	-0.013	-18.82	229	-0.01	200	
Cd	72	111	1	He	-0.012	-0.012	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.160	-0.160	-8.11	2724	-0.01	200	
antimony	159	121	1	He	-0.206	-0.206	-4.03	481	-0.04	200	
Ba	115	137	1	He	-0.006	-0.006	-54.28	116	-0.01	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-11.13	37	-0.01	40	
[Pb]	209	206	2	no gas	-0.015	-0.015	-196.88	5965	0.00	200	
[Pb]	209	207	2	no gas	-0.018	-0.018	-132.11	4864	0.00	200	
Pb	209	208	2	no gas	-0.029	-0.029	-83.14	22547	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2010116	0.87	1982866	101.37	70	120	
Sc	45	1	He	755410	0.51	767851	98.38	70	120	
Ge	72	1	He	313652	0.45	320058	98.00	70	125	
Ge	72	2	no gas	656116	0.91	673177	97.47	70	125	
Ge	72	3	H2	803521	0.33	821457	97.82	70	120	
Y	89	1	He	2695292	1.29	2786775	96.72	70	120	
In	115	1	He	3020898	1.23	3045232	99.20	70	120	
In	115	2	no gas	4542160	0.71	4564130	99.52	70	120	
In	115	3	H2	6106179	0.63	5826290	104.80	70	120	
Tb	159	1	He	4649407	0.88	4638687	100.23	70	120	
Tb	159	2	no gas	5565030	1.02	5623529	98.96	70	120	
Bi	209	2	no gas	3440975	2.43	3475006	99.02	60	120	

Sample Report

Sample Table

Sample Name	LCS 400-439456/2-A
Data File Name	070SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:52:23-05:00
Sample Type	Sample
Dilution	1
Comment	439456_2
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	51.491	51.491	0.59	1590976	0.00	200	
Be	6	9	2	no gas	50.481	50.481	2.30	437594	0.01	200	
B	6	11	2	no gas	102.365	102.365	2.41	502861	0.02	400	
Na	72	23	1	He	5125.084	5125.084	0.72	22135084	0.02	50000	
Mg	72	24	1	He	5132.954	5132.954	1.42	12910586	0.04	50000	
Al	45	27	3	H2	522.582	522.582	1.61	7389930	0.01	50000	
Si	45	28	3	H2	56.163	56.163	1.50	500146	0.01	2000	
K	72	39	1	He	5176.166	5176.166	1.60	19999503	0.03	50000	
Ca	72	44	1	He	5023.845	5023.845	0.77	860093	0.58	25000	
Ti	72	49	1	He	52.306	52.306	2.82	35718	0.15	200	
V	72	51	1	He	49.502	49.502	0.13	854309	0.01	200	
Cr	72	52	1	He	49.397	49.397	0.53	905721	0.01	200	
Mn	72	55	1	He	509.220	509.220	0.36	8176382	0.01	2500	
Fe	72	56	3	H2	5082.146	5082.146	0.86	204693137	0.00	50000	
Co	72	59	1	He	50.267	50.267	0.69	1181119	0.00	200	
Ni	72	60	1	He	50.505	50.505	1.18	277742	0.02	200	
copper	72	63	1	He	50.115	50.115	0.47	705634	0.01	200	
Zn	72	66	1	He	50.271	50.271	0.54	146020	0.03	200	
arsenic	72	75	1	He	49.659	49.659	0.18	112765	0.04	200	
selenium	72	78	3	H2	49.727	49.727	0.95	55337	0.09	200	
Sr	72	88	1	He	51.730	51.730	0.79	1217364	0.00	500	
Mo	115	95	1	He	52.091	52.091	2.11	356828	0.01	200	
Ag	115	107	1	He	50.098	50.098	1.54	949241	0.01	200	
Cd	72	111	1	He	49.847	49.847	1.50	187453	0.03	200	
Sn	115	120	1	He	49.231	49.231	2.61	693534	0.01	200	
antimony	159	121	1	He	50.451	50.451	1.15	566518	0.01	200	
Ba	115	137	1	He	50.126	50.126	2.62	264006	0.02	1000	
Tl	159	205	2	no gas	10.119	10.119	0.35	395517	0.00	40	
[Pb]	209	206	2	no gas	52.666	52.666	1.62	679099	0.01	200	
[Pb]	209	207	2	no gas	51.713	51.713	0.93	582094	0.01	200	
Pb	209	208	2	no gas	51.013	51.013	1.81	2692784	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2019280	1.80	1982866	101.84	70	120	
Sc	45	1	He	782749	0.08	767851	101.94	70	120	
Ge	72	1	He	319024	0.34	320058	99.68	70	125	
Ge	72	2	no gas	657817	0.39	673177	97.72	70	125	
Ge	72	3	H2	811692	0.62	821457	98.81	70	120	
Y	89	1	He	2715055	0.17	2786775	97.43	70	120	
In	115	1	He	2981408	1.96	3045232	97.90	70	120	
In	115	2	no gas	4489488	1.86	4564130	98.36	70	120	
In	115	3	H2	6097596	1.30	5826290	104.66	70	120	
Tb	159	1	He	4553430	0.84	4638687	98.16	70	120	
Tb	159	2	no gas	5607918	0.12	5623529	99.72	70	120	
Bi	209	2	no gas	3289528	0.42	3475006	94.66	60	120	

Sample Report

Sample Table

Sample Name	400-169195-F-3-A^5
Data File Name	071SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T16:56:19-05:00
Sample Type	Sample
Dilution	1
Comment	439456_3
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	14.657	14.657	2.52	539243	0.00	200	
Be	6	9	2	no gas	0.002	0.002	184.01	121	0.00	200	
B	6	11	2	no gas	10.612	10.612	2.80	70289	0.02	400	
Na	72	23	1	He	8314.729	8314.729	0.08	34979281	0.02	50000	
Mg	72	24	1	He	6460.705	6460.705	2.50	15843740	0.04	50000	
Al	45	27	3	H2	1.286	1.286	4.80	27607	0.00	50000	
Si	45	28	3	H2	6142.110	6142.110	1.22	45582359	0.01	2000	>LDR
K	72	39	1	He	2073.100	2073.100	0.27	8055441	0.03	50000	
Ca	72	44	1	He	23620.471	23620.471	1.10	3934557	0.60	25000	>LDR
Ti	72	49	1	He	0.174	0.174	25.80	334	0.05	200	
V	72	51	1	He	0.009	0.009	107.36	5369	0.00	200	
Cr	72	52	1	He	0.026	0.026	20.08	2824	0.00	200	
Mn	72	55	1	He	49.751	49.751	0.85	783049	0.01	2500	
Fe	72	56	3	H2	1511.525	1511.525	1.37	60832486	0.00	50000	
Co	72	59	1	He	0.014	0.014	30.29	754	0.00	200	
Ni	72	60	1	He	0.108	0.108	8.77	777	0.01	200	
copper	72	63	1	He	0.021	0.021	7.80	996	0.00	200	
Zn	72	66	1	He	0.226	0.226	21.73	2070	0.01	200	
arsenic	72	75	1	He	64.353	64.353	0.99	142309	0.05	200	
selenium	72	78	3	H2	0.216	0.216	7.19	479	0.05	200	
Sr	72	88	1	He	24.101	24.101	0.54	553326	0.00	500	
Mo	115	95	1	He	0.323	0.323	24.63	4207	0.01	200	
Ag	115	107	1	He	0.003	0.003	202.03	524	0.00	200	
Cd	72	111	1	He	0.011	0.011	156.55	87	0.01	200	
Sn	115	120	1	He	0.104	0.104	40.48	6225	0.00	200	
antimony	159	121	1	He	-0.082	-0.082	-32.80	1880	0.00	200	
Ba	115	137	1	He	0.381	0.381	10.99	2100	0.02	1000	
Tl	159	205	2	no gas	0.001	0.001	133.70	215	0.00	40	
[Pb]	209	206	2	no gas	0.015	0.015	83.75	6108	0.00	200	
[Pb]	209	207	2	no gas	-0.014	-0.014	-233.89	4708	0.00	200	
Pb	209	208	2	no gas	-0.006	-0.006	-328.77	22814	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1972734	0.64	1982866	99.49	70	120	
Sc	45	1	He	744097	0.57	767851	96.91	70	120	
Ge	72	1	He	311073	0.54	320058	97.19	70	125	
Ge	72	2	no gas	653030	0.75	673177	97.01	70	125	
Ge	72	3	H2	807583	0.52	821457	98.31	70	120	
Y	89	1	He	2640552	0.62	2786775	94.75	70	120	
In	115	1	He	2907723	0.57	3045232	95.48	70	120	
In	115	2	no gas	4509081	0.79	4564130	98.79	70	120	
In	115	3	H2	6165086	1.51	5826290	105.81	70	120	
Tb	159	1	He	4585199	0.49	4638687	98.85	70	120	
Tb	159	2	no gas	5587768	1.12	5623529	99.36	70	120	
Bi	209	2	no gas	3298543	1.85	3475006	94.92	60	120	

Sample Report

Sample Table

Sample Name	400-169195-I-5-A^5
Data File Name	072SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:00:20-05:00
Sample Type	Sample
Dilution	1
Comment	439456_4
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	40.722	40.722	1.77	1224651	0.00	200	
Be	6	9	2	no gas	0.000	0.000	156.48	106	0.00	200	
B	6	11	2	no gas	19.067	19.067	4.11	106250	0.02	400	
Na	72	23	1	He	15373.074	15373.074	14.47	61150329	0.03	50000	
Mg	72	24	1	He	10015.744	10015.744	14.58	23239676	0.04	50000	
Al	45	27	3	H2	120.131	120.131	0.41	1715820	0.01	50000	
Si	45	28	3	H2	8756.169	8756.169	1.18	64717867	0.01	2000	>LDR
K	72	39	1	He	2907.376	2907.376	14.23	10540761	0.03	50000	
Ca	72	44	1	He	20602.655	20602.655	14.36	3248029	0.63	25000	
Ti	72	49	1	He	0.360	0.360	27.39	434	0.08	200	
V	72	51	1	He	1.125	1.125	22.06	22697	0.00	200	
Cr	72	52	1	He	0.186	0.186	16.60	5394	0.00	200	
Mn	72	55	1	He	186.812	186.812	14.13	2771275	0.01	2500	
Fe	72	56	3	H2	11592.040	11592.040	0.71	459614740	0.00	50000	
Co	72	59	1	He	1.644	1.644	16.38	35986	0.00	200	
Ni	72	60	1	He	6.951	6.951	15.94	35394	0.02	200	
copper	72	63	1	He	-0.005	-0.005	-84.40	610	0.00	200	
Zn	72	66	1	He	8.283	8.283	14.49	23352	0.04	200	
arsenic	72	75	1	He	108.318	108.318	13.82	226409	0.05	200	
selenium	72	78	3	H2	-0.083	-0.083	-11.58	149	-0.06	200	
Sr	72	88	1	He	33.791	33.791	14.13	734080	0.00	500	
Mo	115	95	1	He	0.241	0.241	64.37	3500	0.01	200	
Ag	115	107	1	He	-0.010	-0.010	-22.42	277	0.00	200	
Cd	72	111	1	He	0.029	0.029	67.99	143	0.02	200	
Sn	115	120	1	He	-0.109	-0.109	-31.01	3224	0.00	200	
antimony	159	121	1	He	-0.097	-0.097	-46.37	1607	-0.01	200	
Ba	115	137	1	He	4.977	4.977	23.65	24716	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-18.55	135	0.00	40	
[Pb]	209	206	2	no gas	0.004	0.004	489.85	6041	0.00	200	
[Pb]	209	207	2	no gas	-0.004	-0.004	-677.87	4884	0.00	200	
Pb	209	208	2	no gas	0.003	0.003	411.61	23638	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1921060	0.47	1982866	96.88	70	120	
Sc	45	1	He	731732	21.12	767851	95.30	70	120	
Ge	72	1	He	297845	12.18	320058	93.06	70	125	
Ge	72	2	no gas	659075	0.86	673177	97.91	70	125	
Ge	72	3	H2	799836	0.45	821457	97.37	70	120	
Y	89	1	He	2583002	19.71	2786775	92.69	70	120	
In	115	1	He	2885910	19.90	3045232	94.77	70	120	
In	115	2	no gas	4464666	1.92	4564130	97.82	70	120	
In	115	3	H2	6143911	1.49	5826290	105.45	70	120	
Tb	159	1	He	4501434	20.23	4638687	97.04	70	120	
Tb	159	2	no gas	5644958	0.58	5623529	100.38	70	120	
Bi	209	2	no gas	3343494	1.25	3475006	96.22	60	120	

Sample Report

Sample Table

Sample Name	400-169195-J-6-B^5
Data File Name	073SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:04:15-05:00
Sample Type	Sample
Dilution	1
Comment	439456_5
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	15.278	15.278	2.76	543929	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-65.05	69	-0.01	200	
B	6	11	2	no gas	7.533	7.533	5.68	54906	0.01	400	
Na	72	23	1	He	12903.285	12903.285	0.90	53894743	0.02	50000	
Mg	72	24	1	He	3082.282	3082.282	1.68	7511359	0.04	50000	
Al	45	27	3	H2	5.927	5.927	3.42	90941	0.01	50000	
Si	45	28	3	H2	3754.631	3754.631	2.33	27061188	0.01	2000	>LDR
K	72	39	1	He	1903.421	1903.421	0.21	7381412	0.03	50000	
Ca	72	44	1	He	9398.405	9398.405	1.49	1556633	0.60	25000	
Ti	72	49	1	He	0.162	0.162	43.49	324	0.05	200	
V	72	51	1	He	0.291	0.291	9.33	10024	0.00	200	
Cr	72	52	1	He	0.010	0.010	36.02	2514	0.00	200	
Mn	72	55	1	He	57.748	57.748	0.84	902250	0.01	2500	
Fe	72	56	3	H2	2853.281	2853.281	0.35	113501358	0.00	50000	
Co	72	59	1	He	0.732	0.732	1.54	17073	0.00	200	
Ni	72	60	1	He	2.182	2.182	4.77	11807	0.02	200	
copper	72	63	1	He	-0.011	-0.011	-42.28	557	0.00	200	
Zn	72	66	1	He	6.586	6.586	1.28	19771	0.03	200	
arsenic	72	75	1	He	47.177	47.177	0.60	103806	0.05	200	
selenium	72	78	3	H2	-0.135	-0.135	-6.93	92	-0.15	200	
Sr	72	88	1	He	21.725	21.725	1.89	495517	0.00	500	
Mo	115	95	1	He	-0.065	-0.065	-37.44	1663	0.00	200	
Ag	115	107	1	He	-0.014	-0.014	-12.16	210	-0.01	200	
Cd	72	111	1	He	-0.012	-0.012	-13.82	3	-0.35	200	
Sn	115	120	1	He	-0.152	-0.152	-12.83	2784	-0.01	200	
antimony	159	121	1	He	-0.208	-0.208	-1.52	464	-0.04	200	
Ba	115	137	1	He	0.152	0.152	13.36	942	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-8.72	61	-0.01	40	
[Pb]	209	206	2	no gas	-0.035	-0.035	-78.50	5598	0.00	200	
[Pb]	209	207	2	no gas	-0.009	-0.009	-80.91	4888	0.00	200	
Pb	209	208	2	no gas	-0.026	-0.026	-36.74	22371	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1928527	0.21	1982866	97.26	70	120	
Sc	45	1	He	743750	0.48	767851	96.86	70	120	
Ge	72	1	He	309054	1.08	320058	96.56	70	125	
Ge	72	2	no gas	660263	0.70	673177	98.08	70	125	
Ge	72	3	H2	800516	0.91	821457	97.45	70	120	
Y	89	1	He	2643396	1.40	2786775	94.86	70	120	
In	115	1	He	2967698	0.78	3045232	97.45	70	120	
In	115	2	no gas	4505571	1.11	4564130	98.72	70	120	
In	115	3	H2	6124242	1.02	5826290	105.11	70	120	
Tb	159	1	He	4641318	1.18	4638687	100.06	70	120	
Tb	159	2	no gas	5642306	0.94	5623529	100.33	70	120	
Bi	209	2	no gas	3381605	0.68	3475006	97.31	60	120	

Sample Report

Sample Table

Sample Name	400-169195-J-6-B SD^25
Data File Name	074SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:08:10-05:00
Sample Type	Sample
Dilution	1
Comment	439456_6
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	3.135	3.135	7.29	220734	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-52.18	69	-0.01	200	
B	6	11	2	no gas	-0.097	-0.097	-256.70	21046	0.00	400	
Na	72	23	1	He	2496.044	2496.044	0.65	10696085	0.02	50000	
Mg	72	24	1	He	615.035	615.035	0.47	1534229	0.04	50000	
Al	45	27	3	H2	2.133	2.133	39.77	38094	0.01	50000	
Si	45	28	3	H2	743.153	743.153	1.68	5398535	0.01	2000	
K	72	39	1	He	378.136	378.136	0.91	1829527	0.02	50000	
Ca	72	44	1	He	1790.308	1790.308	1.18	304742	0.59	25000	
Ti	72	49	1	He	0.003	0.003	2061.89	224	0.00	200	
V	72	51	1	He	0.177	0.177	8.25	8307	0.00	200	
Cr	72	52	1	He	-0.012	-0.012	-89.32	2184	0.00	200	
Mn	72	55	1	He	11.067	11.067	2.10	180351	0.01	2500	
Fe	72	56	3	H2	566.611	566.611	0.20	22928969	0.00	50000	
Co	72	59	1	He	0.139	0.139	1.87	3673	0.00	200	
Ni	72	60	1	He	0.523	0.523	11.92	3040	0.02	200	
copper	72	63	1	He	-0.020	-0.020	-15.47	442	0.00	200	
Zn	72	66	1	He	1.274	1.274	5.99	5081	0.03	200	
arsenic	72	75	1	He	9.284	9.284	1.20	21346	0.04	200	
selenium	72	78	3	H2	-0.169	-0.169	-6.43	55	-0.31	200	
Sr	72	88	1	He	4.227	4.227	1.65	98883	0.00	500	
Mo	115	95	1	He	-0.228	-0.228	-2.15	567	-0.04	200	
Ag	115	107	1	He	-0.014	-0.014	-16.02	207	-0.01	200	
Cd	72	111	1	He	-0.012	-0.012	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.174	-0.174	-23.89	2517	-0.01	200	
antimony	159	121	1	He	-0.218	-0.218	-3.22	350	-0.06	200	
Ba	115	137	1	He	0.012	0.012	56.46	211	0.01	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-12.62	53	-0.01	40	
[Pb]	209	206	2	no gas	-0.045	-0.045	-51.70	5675	0.00	200	
[Pb]	209	207	2	no gas	-0.032	-0.032	-116.81	4788	0.00	200	
Pb	209	208	2	no gas	-0.039	-0.039	-10.87	22468	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1963946	0.85	1982866	99.05	70	120	
Sc	45	1	He	751900	0.65	767851	97.92	70	120	
Ge	72	1	He	315623	0.79	320058	98.61	70	125	
Ge	72	2	no gas	656925	0.74	673177	97.59	70	125	
Ge	72	3	H2	803740	1.25	821457	97.84	70	120	
Y	89	1	He	2708884	1.48	2786775	97.20	70	120	
In	115	1	He	3014642	0.65	3045232	99.00	70	120	
In	115	2	no gas	4563672	1.13	4564130	99.99	70	120	
In	115	3	H2	6143916	2.36	5826290	105.45	70	120	
Tb	159	1	He	4660792	1.49	4638687	100.48	70	120	
Tb	159	2	no gas	5651227	0.84	5623529	100.49	70	120	
Bi	209	2	no gas	3507471	0.97	3475006	100.93	60	120	

Sample Report

Sample Table

Sample Name	400-169195-J-6-B PDS^5
Data File Name	075SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:12:08-05:00
Sample Type	Sample
Dilution	1
Comment	439456_7
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	66.850	66.850	3.21	1940945	0.00	200	
Be	6	9	2	no gas	51.972	51.972	2.12	432105	0.01	200	
B	6	11	2	no gas	112.190	112.190	2.23	526570	0.02	400	
Na	72	23	1	He	17885.307	17885.307	1.49	75203459	0.02	50000	
Mg	72	24	1	He	8159.746	8159.746	1.40	20018096	0.04	50000	
Al	45	27	3	H2	516.435	516.435	0.72	7270285	0.01	50000	
Si	45	28	3	H2	3676.214	3676.214	0.95	26944302	0.01	2000	>LDR
K	72	39	1	He	7045.551	7045.551	0.75	26407521	0.03	50000	
Ca	72	44	1	He	14092.065	14092.065	0.26	2349264	0.60	25000	
Ti	72	49	1	He	52.422	52.422	1.30	34920	0.15	200	
V	72	51	1	He	50.300	50.300	0.26	846683	0.01	200	
Cr	72	52	1	He	49.657	49.657	0.31	888150	0.01	200	
Mn	72	55	1	He	569.466	569.466	0.72	8918748	0.01	2500	
Fe	72	56	3	H2	7839.848	7839.848	0.74	314401642	0.00	50000	
Co	72	59	1	He	51.691	51.691	0.07	1184771	0.00	200	
Ni	72	60	1	He	53.575	53.575	0.51	287377	0.02	200	
copper	72	63	1	He	50.815	50.815	1.37	697931	0.01	200	
Zn	72	66	1	He	57.917	57.917	2.06	163883	0.04	200	
arsenic	72	75	1	He	95.871	95.871	0.64	211807	0.05	200	
selenium	72	78	3	H2	50.213	50.213	0.31	55670	0.09	200	
Sr	72	88	1	He	75.170	75.170	0.60	1725360	0.00	500	
Mo	115	95	1	He	52.139	52.139	0.63	351153	0.01	200	
Ag	115	107	1	He	46.012	46.012	0.38	857137	0.01	200	
Cd	72	111	1	He	51.044	51.044	0.83	187249	0.03	200	
Sn	115	120	1	He	42.139	42.139	0.73	584373	0.01	200	
antimony	159	121	1	He	45.421	45.421	0.60	513976	0.01	200	
Ba	115	137	1	He	50.807	50.807	1.13	263127	0.02	1000	
Tl	159	205	2	no gas	10.412	10.412	0.42	406637	0.00	40	
[Pb]	209	206	2	no gas	54.571	54.571	2.10	694898	0.01	200	
[Pb]	209	207	2	no gas	53.484	53.484	1.75	594521	0.01	200	
Pb	209	208	2	no gas	54.113	54.113	1.40	2820168	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1936576	1.31	1982866	97.67	70	120	
Sc	45	1	He	750484	0.42	767851	97.74	70	120	
Ge	72	1	He	311195	0.10	320058	97.23	70	125	
Ge	72	2	no gas	655984	0.80	673177	97.45	70	125	
Ge	72	3	H2	808702	0.94	821457	98.45	70	120	
Y	89	1	He	2656311	0.84	2786775	95.32	70	120	
In	115	1	He	2930520	0.83	3045232	96.23	70	120	
In	115	2	no gas	4482360	1.85	4564130	98.21	70	120	
In	115	3	H2	6193153	0.88	5826290	106.30	70	120	
Tb	159	1	He	4585849	0.38	4638687	98.86	70	120	
Tb	159	2	no gas	5603374	0.62	5623529	99.64	70	120	
Bi	209	2	no gas	3249872	1.25	3475006	93.52	60	120	

Sample Report

Sample Table

Sample Name	400-169195-J-6-C MS^5
Data File Name	076SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:16:02-05:00
Sample Type	Sample
Dilution	1
Comment	439456_8
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	26.833	26.833	2.70	824687	0.00	200	
Be	6	9	2	no gas	10.682	10.682	1.97	85381	0.01	200	
B	6	11	2	no gas	30.906	30.906	2.78	154071	0.02	400	
Na	72	23	1	He	13758.998	13758.998	0.94	57671174	0.02	50000	
Mg	72	24	1	He	4063.895	4063.895	0.57	9938587	0.04	50000	
Al	45	27	3	H2	114.983	114.983	2.19	1585084	0.01	50000	
Si	45	28	3	H2	3710.026	3710.026	1.50	26508170	0.01	2000	>LDR
K	72	39	1	He	2914.741	2914.741	1.70	11126608	0.03	50000	
Ca	72	44	1	He	10098.819	10098.819	0.80	1678646	0.60	25000	
Ti	72	49	1	He	10.481	10.481	3.19	7133	0.15	200	
V	72	51	1	He	10.290	10.290	1.12	176765	0.01	200	
Cr	72	52	1	He	9.918	9.918	0.79	178680	0.01	200	
Mn	72	55	1	He	161.999	161.999	1.57	2531960	0.01	2500	
Fe	72	56	3	H2	3873.983	3873.983	0.02	153516341	0.00	50000	
Co	72	59	1	He	11.092	11.092	0.73	253705	0.00	200	
Ni	72	60	1	He	12.453	12.453	2.18	66718	0.02	200	
copper	72	63	1	He	10.314	10.314	1.35	141738	0.01	200	
Zn	72	66	1	He	16.905	16.905	1.98	48684	0.03	200	
arsenic	72	75	1	He	56.963	56.963	0.61	125666	0.05	200	
selenium	72	78	3	H2	9.926	9.926	0.54	11053	0.09	200	
Sr	72	88	1	He	32.038	32.038	0.47	733200	0.00	500	
Mo	115	95	1	He	10.575	10.575	1.98	73899	0.01	200	
Ag	115	107	1	He	10.004	10.004	0.88	189369	0.01	200	
Cd	72	111	1	He	10.516	10.516	0.26	38485	0.03	200	
Sn	115	120	1	He	9.274	9.274	2.20	134246	0.01	200	
antimony	159	121	1	He	9.660	9.660	2.67	113381	0.01	200	
Ba	115	137	1	He	10.101	10.101	1.26	53164	0.02	1000	
Tl	159	205	2	no gas	2.080	2.080	0.62	81839	0.00	40	
[Pb]	209	206	2	no gas	10.817	10.817	1.11	145863	0.01	200	
[Pb]	209	207	2	no gas	10.542	10.542	2.89	123937	0.01	200	
Pb	209	208	2	no gas	10.256	10.256	1.30	566362	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1860080	1.54	1982866	93.81	70	120	
Sc	45	1	He	741536	1.04	767851	96.57	70	120	
Ge	72	1	He	310157	0.65	320058	96.91	70	125	
Ge	72	2	no gas	654977	0.97	673177	97.30	70	125	
Ge	72	3	H2	798134	0.05	821457	97.16	70	120	
Y	89	1	He	2636131	1.15	2786775	94.59	70	120	
In	115	1	He	2972060	1.18	3045232	97.60	70	120	
In	115	2	no gas	4472941	2.59	4564130	98.00	70	120	
In	115	3	H2	6066221	1.94	5826290	104.12	70	120	
Tb	159	1	He	4664010	2.08	4638687	100.55	70	120	
Tb	159	2	no gas	5633552	0.30	5623529	100.18	70	120	
Bi	209	2	no gas	3328422	1.75	3475006	95.78	60	120	

Sample Table

Sample Name	CCV-4308522
Data File Name	078_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:23:58-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.157	50.157	3.72	1521332	0.00	50	
Be	6	9	2	no gas	49.666	49.666	2.94	421257	0.01	50	
B	6	11	2	no gas	98.860	98.860	3.72	474825	0.02	100	
Na	72	23	1	He	4883.452	4883.452	0.92	21216368	0.02	5000	
Mg	72	24	1	He	4870.719	4870.719	0.94	12311871	0.04	5000	
Al	45	27	3	H2	511.019	511.019	2.17	7173716	0.01	500	
K	72	39	1	He	4941.481	4941.481	0.96	19189426	0.03	5000	
Ca	72	44	1	He	4795.780	4795.780	0.21	826295	0.58	5000	
Ti	72	49	1	He	49.984	49.984	1.88	34266	0.15	50	
V	72	51	1	He	47.195	47.195	0.05	822281	0.01	50	
Cr	72	52	1	He	47.581	47.581	0.80	876795	0.01	50	
Mn	72	55	1	He	489.159	489.159	0.51	7892437	0.01	500	
Fe	72	56	3	H2	4862.359	4862.359	1.29	197813384	0.00	5000	
Co	72	59	1	He	47.637	47.637	0.44	1124618	0.00	50	
Ni	72	60	1	He	49.194	49.194	0.22	271928	0.02	50	
copper	72	63	1	He	48.207	48.207	0.48	682142	0.01	50	
dwCu63	72	63	2	no gas	48.298	48.298	0.45	994579	0.00	50	
Zn	72	66	1	He	48.683	48.683	0.80	143789	0.03	50	
arsenic	72	75	1	He	47.158	47.158	1.12	107736	0.04	50	
dwAs75	72	75	2	no gas	47.719	47.719	0.15	216778	0.02	50	
selenium	72	78	3	H2	49.153	49.153	0.56	55136	0.09	50	
Sr	72	88	1	He	49.283	49.283	0.31	1165638	0.00	50	
Mo	115	95	1	He	49.083	49.083	0.60	341625	0.01	50	
Ag	115	107	1	He	46.322	46.322	0.75	893579	0.01	50	
Cd	72	111	1	He	48.535	48.535	1.41	183394	0.03	50	
Sn	115	120	1	He	48.780	48.780	0.71	700617	0.01	50	
antimony	159	121	1	He	51.239	51.239	2.03	591093	0.01	50	
dwSb121	159	121	2	no gas	54.101	54.101	1.87	802547	0.01	50	
Ba	115	137	1	He	46.755	46.755	1.51	250735	0.02	50	
Tl	159	205	2	no gas	9.888	9.888	1.43	388812	0.00	10	
[Pb]	209	206	2	no gas	49.802	49.802	1.59	664458	0.01	50	
[Pb]	209	207	2	no gas	48.693	48.693	0.55	567003	0.01	50	
Pb	209	208	2	no gas	47.648	47.648	1.41	2601711	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1976528	3.14	1982866	99.68	70	120	
Sc	45	1	He	787067	0.50	767851	102.50	70	120	
Ge	72	1	He	320574	0.46	320058	100.16	70	125	
Ge	72	2	no gas	669422	0.89	673177	99.44	70	125	
Ge	72	3	H2	818774	0.17	821457	99.67	70	120	
Y	89	1	He	2708297	1.64	2786775	97.18	70	120	
In	115	1	He	3035229	1.22	3045232	99.67	70	120	
In	115	2	no gas	4550189	0.98	4564130	99.69	70	120	
In	115	3	H2	6188821	0.24	5826290	106.22	70	120	
Tb	159	1	He	4689602	1.45	4638687	101.10	70	120	
Tb	159	2	no gas	5642655	1.57	5623529	100.34	70	120	
Bi	209	2	no gas	3401195	1.61	3475006	97.88	60	120	

Sample Table

Sample Name	CCB
Data File Name	080_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:31:45-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.117	-0.117	-54.73	135215	0.00	0.5	
Be	6	9	2	no gas	-0.007	-0.007	-25.96	71	-0.01	0.5	
B	6	11	2	no gas	-1.414	-1.414	-20.73	18176	-0.01	5	
Na	72	23	1	He	-1.743	-1.743	-19.15	53741	0.00	100	
Mg	72	24	1	He	-1.944	-1.944	-2.14	2824	-0.07	50	
Al	45	27	3	H2	-0.058	-0.058	-21.40	15550	0.00	50	
K	72	39	1	He	-0.442	-0.442	-224.03	404730	0.00	50	
Ca	72	44	1	He	-1.389	-1.389	-78.95	2200	-0.06	50	
Ti	72	49	1	He	-0.067	-0.067	-15.17	168	-0.04	0.5	
V	72	51	1	He	0.006	0.006	212.17	5659	0.00	0.5	
Cr	72	52	1	He	-0.014	-0.014	-29.73	2400	0.00	0.5	
Mn	72	55	1	He	-0.213	-0.213	-9.92	2344	-0.01	2	
Fe	72	56	3	H2	-5.862	-5.862	-0.27	163863	0.00	25	
Co	72	59	1	He	-0.022	-0.022	-7.65	123	-0.02	0.5	
Ni	72	60	1	He	-0.021	-0.021	-39.06	100	-0.02	1.5	
copper	72	63	1	He	-0.017	-0.017	-32.65	588	0.00	0.5	
dwCu63	72	63	2	no gas	-0.010	-0.010	-20.61	783	0.00	0.5	
Zn	72	66	1	He	-0.074	-0.074	-104.80	1057	-0.01	4	
arsenic	72	75	1	He	-0.064	-0.064	-25.36	476	-0.01	0.25	
dwAs75	72	75	2	no gas	0.045	0.045	264.73	-252	-0.02	5	
selenium	72	78	3	H2	-0.093	-0.093	-17.01	140	-0.07	0.25	
dwSe82	72	82	2	no gas	-0.386	-0.386	-20.57	245	-0.16	5	
Sr	72	88	1	He	-0.018	-0.018	-15.30	267	-0.01	0.5	
Mo	115	95	1	He	-0.213	-0.213	-8.79	703	-0.03	1	
Ag	115	107	1	He	-0.017	-0.017	-10.54	248	-0.01	0.05	
Cd	72	111	1	He	-0.022	-0.022	0.00	0	#DIV/0!	0.25	
Sn	115	120	1	He	-0.093	-0.093	-34.88	3644	0.00	0.5	
antimony	159	121	1	He	-0.121	-0.121	-12.64	1460	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.229	-0.229	-3.80	3251	-0.01	5	
Ba	115	137	1	He	-0.009	-0.009	-55.57	129	-0.01	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-29.02	92	0.00	0.1	
[Pb]	209	206	2	no gas	0.006	0.006	574.71	6265	0.00	0.25	
[Pb]	209	207	2	no gas	-0.065	-0.065	-31.23	4584	0.00	0.25	
Pb	209	208	2	no gas	-0.029	-0.029	-5.48	23041	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1963064	0.67	1982866	99.00	70	120	
Sc	45	1	He	764287	1.01	767851	99.54	70	120	
Ge	72	1	He	317080	1.10	320058	99.07	70	125	
Ge	72	2	no gas	657974	0.95	673177	97.74	70	125	
Ge	72	3	H2	818973	0.53	821457	99.70	70	120	
Y	89	1	He	2721475	0.78	2786775	97.66	70	120	
In	115	1	He	3000025	0.25	3045232	98.52	70	120	
In	115	2	no gas	4583750	0.99	4564130	100.43	70	120	
In	115	3	H2	6166235	1.27	5826290	105.83	70	120	
Tb	159	1	He	4647172	0.90	4638687	100.18	70	120	
Tb	159	2	no gas	5560881	1.08	5623529	98.89	70	120	
Bi	209	2	no gas	3425914	1.55	3475006	98.59	60	120	

Sample Report

Sample Table

Sample Name	400-169195-J-6-D MSD^5
Data File Name	081SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:35:44-05:00
Sample Type	Sample
Dilution	1
Comment	439456_9
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	26.399	26.399	1.18	833011	0.00	200	
Be	6	9	2	no gas	10.382	10.382	0.73	84642	0.01	200	
B	6	11	2	no gas	28.072	28.072	0.72	147634	0.02	400	
Na	72	23	1	He	13870.436	13870.436	0.99	58040461	0.02	50000	
Mg	72	24	1	He	4126.420	4126.420	0.13	10077831	0.04	50000	
Al	45	27	3	H2	89.093	89.093	27.26	1535134	0.01	50000	
Si	45	28	3	H2	2966.278	2966.278	24.91	26396600	0.01	2000	>LDR
K	72	39	1	He	2951.594	2951.594	1.11	11233532	0.03	50000	
Ca	72	44	1	He	10288.072	10288.072	1.18	1707118	0.60	25000	
Ti	72	49	1	He	10.681	10.681	1.73	7243	0.15	200	
V	72	51	1	He	10.376	10.376	1.67	178129	0.01	200	
Cr	72	52	1	He	10.000	10.000	2.40	180079	0.01	200	
Mn	72	55	1	He	163.803	163.803	1.61	2556675	0.01	2500	
Fe	72	56	3	H2	3218.473	3218.473	18.48	149916891	0.00	50000	
Co	72	59	1	He	11.019	11.019	1.71	251804	0.00	200	
Ni	72	60	1	He	12.594	12.594	1.55	67371	0.02	200	
copper	72	63	1	He	10.316	10.316	1.50	141628	0.01	200	
Zn	72	66	1	He	17.063	17.063	1.43	48851	0.03	200	
arsenic	72	75	1	He	57.164	57.164	1.01	125909	0.05	200	
selenium	72	78	3	H2	8.027	8.027	21.30	10526	0.08	200	
Sr	72	88	1	He	32.143	32.143	1.60	734464	0.00	500	
Mo	115	95	1	He	10.246	10.246	0.86	71693	0.01	200	
Ag	115	107	1	He	9.875	9.875	0.35	186990	0.01	200	
Cd	72	111	1	He	10.628	10.628	1.01	38863	0.03	200	
Sn	115	120	1	He	9.157	9.157	2.63	132567	0.01	200	
antimony	159	121	1	He	9.634	9.634	2.14	111306	0.01	200	
Ba	115	137	1	He	10.106	10.106	2.30	53207	0.02	1000	
Tl	159	205	2	no gas	2.082	2.082	0.90	81504	0.00	40	
[Pb]	209	206	2	no gas	10.726	10.726	2.51	145230	0.01	200	
[Pb]	209	207	2	no gas	10.439	10.439	2.59	123503	0.01	200	
Pb	209	208	2	no gas	10.209	10.209	2.36	566382	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1896263	1.77	1982866	95.63	70	120	
Sc	45	1	He	743083	1.37	767851	96.77	70	120	
Ge	72	1	He	309631	0.53	320058	96.74	70	125	
Ge	72	2	no gas	653565	0.16	673177	97.09	70	125	
Ge	72	3	H2	957173	16.76	821457	116.52	70	120	
Y	89	1	He	2643213	1.37	2786775	94.85	70	120	
In	115	1	He	2971617	1.68	3045232	97.58	70	120	
In	115	2	no gas	4477746	1.11	4564130	98.11	70	120	
In	115	3	H2	7905351	20.36	5826290	135.68	70	120	ISTD Failed
Tb	159	1	He	4590179	1.65	4638687	98.95	70	120	
Tb	159	2	no gas	5604159	0.54	5623529	99.66	70	120	
Bi	209	2	no gas	3340681	2.27	3475006	96.13	60	120	

Sample Report

Sample Table

Sample Name	400-169195-I-7-A^5
Data File Name	082SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:39:39-05:00
Sample Type	Sample
Dilution	1
Comment	439456_10
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	3.558	3.558	4.18	226540	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-34.02	74	-0.01	200	
B	6	11	2	no gas	4.492	4.492	7.51	43330	0.01	400	
Na	72	23	1	He	4539.316	4539.316	0.76	18969999	0.02	50000	
Mg	72	24	1	He	1481.661	1481.661	1.36	3611115	0.04	50000	
Al	45	27	3	H2	3.050	3.050	1.39	57659	0.01	50000	
Si	45	28	3	H2	4374.623	4374.623	0.71	31225901	0.01	2000	>LDR
K	72	39	1	He	1722.048	1722.048	0.55	6696791	0.03	50000	
Ca	72	44	1	He	21481.133	21481.133	1.31	3549685	0.61	25000	
Ti	72	49	1	He	0.062	0.062	36.02	248	0.02	200	
V	72	51	1	He	-0.019	-0.019	-86.50	5092	0.00	200	
Cr	72	52	1	He	-0.005	-0.005	-394.62	2500	0.00	200	
Mn	72	55	1	He	154.313	154.313	0.60	2400784	0.01	2500	
Fe	72	56	3	H2	13017.668	13017.668	1.39	513089912	0.00	50000	
Co	72	59	1	He	0.526	0.526	1.34	12558	0.00	200	
Ni	72	60	1	He	1.234	1.234	0.86	6768	0.02	200	
copper	72	63	1	He	-0.012	-0.012	-31.62	636	0.00	200	
Zn	72	66	1	He	2.888	2.888	4.75	9263	0.03	200	
arsenic	72	75	1	He	37.357	37.357	0.80	82211	0.05	200	
selenium	72	78	3	H2	-0.054	-0.054	-16.04	179	-0.03	200	
Sr	72	88	1	He	43.403	43.403	1.16	988168	0.00	500	
Mo	115	95	1	He	-0.169	-0.169	-2.20	997	-0.02	200	
Ag	115	107	1	He	-0.015	-0.015	-12.75	278	-0.01	200	
Cd	72	111	1	He	-0.009	-0.009	-61.63	47	-0.02	200	
Sn	115	120	1	He	0.760	0.760	4.39	15561	0.00	200	
antimony	159	121	1	He	-0.060	-0.060	-26.60	2145	0.00	200	
Ba	115	137	1	He	0.334	0.334	3.15	1936	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-21.62	116	0.00	40	
[Pb]	209	206	2	no gas	0.024	0.024	63.47	6271	0.00	200	
[Pb]	209	207	2	no gas	-0.020	-0.020	-183.82	4918	0.00	200	
Pb	209	208	2	no gas	-0.005	-0.005	-562.42	23468	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1884379	0.99	1982866	95.03	70	120	
Sc	45	1	He	739972	0.71	767851	96.37	70	120	
Ge	72	1	He	308580	0.84	320058	96.41	70	125	
Ge	72	2	no gas	652590	1.06	673177	96.94	70	125	
Ge	72	3	H2	795198	0.73	821457	96.80	70	120	
Y	89	1	He	2655307	1.91	2786775	95.28	70	120	
In	115	1	He	2983912	0.54	3045232	97.99	70	120	
In	115	2	no gas	4511686	0.83	4564130	98.85	70	120	
In	115	3	H2	6201982	2.00	5826290	106.45	70	120	
Tb	159	1	He	4620523	0.14	4638687	99.61	70	120	
Tb	159	2	no gas	5610590	1.86	5623529	99.77	70	120	
Bi	209	2	no gas	3304448	1.99	3475006	95.09	60	120	

Sample Report

Sample Table

Sample Name	400-169195-I-8-A^5
Data File Name	083SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:43:37-05:00
Sample Type	Sample
Dilution	1
Comment	439456_11
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	3.630	3.630	3.09	227733	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-21.71	66	-0.01	200	
B	6	11	2	no gas	3.953	3.953	13.28	40825	0.01	400	
Na	72	23	1	He	4574.903	4574.903	0.17	18936535	0.02	50000	
Mg	72	24	1	He	1507.196	1507.196	2.08	3637969	0.04	50000	
Al	45	27	3	H2	2.948	2.948	5.78	56716	0.01	50000	
Si	45	28	3	H2	4378.447	4378.447	2.25	31519438	0.01	2000	>LDR
K	72	39	1	He	1754.673	1754.673	1.14	6750946	0.03	50000	
Ca	72	44	1	He	22004.742	22004.742	1.18	3601511	0.61	25000	
Ti	72	49	1	He	0.081	0.081	119.07	258	0.03	200	
V	72	51	1	He	-0.065	-0.065	-15.21	4294	0.00	200	
Cr	72	52	1	He	-0.009	-0.009	-150.12	2404	0.00	200	
Mn	72	55	1	He	153.775	153.775	1.90	2369374	0.01	2500	
Fe	72	56	3	H2	12999.902	12999.902	0.67	514378646	0.00	50000	
Co	72	59	1	He	0.518	0.518	1.13	12266	0.00	200	
Ni	72	60	1	He	1.309	1.309	3.62	7098	0.02	200	
copper	72	63	1	He	-0.002	-0.002	-346.61	772	0.00	200	
Zn	72	66	1	He	2.865	2.865	3.78	9113	0.03	200	
arsenic	72	75	1	He	37.644	37.644	1.38	82043	0.05	200	
selenium	72	78	3	H2	-0.132	-0.132	-5.72	94	-0.14	200	
Sr	72	88	1	He	43.953	43.953	0.86	991112	0.00	500	
Mo	115	95	1	He	-0.238	-0.238	-10.70	513	-0.05	200	
Ag	115	107	1	He	-0.019	-0.019	-3.55	194	-0.01	200	
Cd	72	111	1	He	-0.021	-0.021	-7.61	3	-0.63	200	
Sn	115	120	1	He	0.661	0.661	17.49	13901	0.00	200	
antimony	159	121	1	He	-0.075	-0.075	-25.09	1970	0.00	200	
Ba	115	137	1	He	0.350	0.350	3.74	1978	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-20.03	69	-0.01	40	
[Pb]	209	206	2	no gas	-0.023	-0.023	-98.33	5788	0.00	200	
[Pb]	209	207	2	no gas	-0.036	-0.036	-27.16	4851	0.00	200	
Pb	209	208	2	no gas	-0.017	-0.017	-155.28	23338	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1878607	1.46	1982866	94.74	70	120	
Sc	45	1	He	738471	1.69	767851	96.17	70	120	
Ge	72	1	He	305631	0.91	320058	95.49	70	125	
Ge	72	2	no gas	650735	0.70	673177	96.67	70	125	
Ge	72	3	H2	798250	0.31	821457	97.17	70	120	
Y	89	1	He	2651365	0.86	2786775	95.14	70	120	
In	115	1	He	2922975	0.65	3045232	95.99	70	120	
In	115	2	no gas	4501778	1.50	4564130	98.63	70	120	
In	115	3	H2	6130845	0.49	5826290	105.23	70	120	
Tb	159	1	He	4630760	1.47	4638687	99.83	70	120	
Tb	159	2	no gas	5649190	2.20	5623529	100.46	70	120	
Bi	209	2	no gas	3373983	1.73	3475006	97.09	60	120	

Sample Report

Sample Table

Sample Name	400-169195-E-12-A^5
Data File Name	084SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:47:34-05:00
Sample Type	Sample
Dilution	1
Comment	439456_12
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	29.539	29.539	1.87	903176	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-35.89	72	-0.01	200	
B	6	11	2	no gas	13.800	13.800	1.72	83466	0.02	400	
Na	72	23	1	He	14192.918	14192.918	0.91	59088167	0.02	50000	
Mg	72	24	1	He	6740.779	6740.779	0.52	16374292	0.04	50000	
Al	45	27	3	H2	1.450	1.450	2.88	36475	0.00	50000	
Si	45	28	3	H2	7890.237	7890.237	1.11	57426744	0.01	2000	>LDR
K	72	39	1	He	3179.239	3179.239	0.38	12008533	0.03	50000	
Ca	72	44	1	He	22173.191	22173.191	1.41	3657838	0.61	25000	
Ti	72	49	1	He	0.104	0.104	88.56	274	0.04	200	
V	72	51	1	He	-0.020	-0.020	-80.59	5077	0.00	200	
Cr	72	52	1	He	0.004	0.004	125.23	2650	0.00	200	
Mn	72	55	1	He	58.660	58.660	1.09	914540	0.01	2500	
Fe	72	56	3	H2	5517.779	5517.779	1.94	219074577	0.00	50000	
Co	72	59	1	He	0.027	0.027	15.33	1235	0.00	200	
Ni	72	60	1	He	0.299	0.299	12.30	1790	0.02	200	
copper	72	63	1	He	-0.028	-0.028	-3.56	426	-0.01	200	
Zn	72	66	1	He	0.156	0.156	16.69	1663	0.01	200	
arsenic	72	75	1	He	49.609	49.609	0.29	108794	0.05	200	
selenium	72	78	3	H2	-0.158	-0.158	-3.73	67	-0.24	200	
Sr	72	88	1	He	29.564	29.564	0.82	672202	0.00	500	
Mo	115	95	1	He	-0.222	-0.222	-5.68	633	-0.03	200	
Ag	115	107	1	He	-0.016	-0.016	-16.13	254	-0.01	200	
Cd	72	111	1	He	-0.017	-0.017	-24.24	17	-0.10	200	
Sn	115	120	1	He	-0.187	-0.187	-18.17	2280	-0.01	200	
antimony	159	121	1	He	-0.199	-0.199	-5.33	562	-0.04	200	
Ba	115	137	1	He	0.353	0.353	12.76	2018	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-16.48	68	-0.01	40	
[Pb]	209	206	2	no gas	-0.011	-0.011	-180.98	5878	0.00	200	
[Pb]	209	207	2	no gas	-0.042	-0.042	-70.87	4724	0.00	200	
Pb	209	208	2	no gas	-0.023	-0.023	-98.85	22728	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1869184	0.09	1982866	94.27	70	120	
Sc	45	1	He	733288	0.19	767851	95.50	70	120	
Ge	72	1	He	308061	0.73	320058	96.25	70	125	
Ge	72	2	no gas	653408	0.66	673177	97.06	70	125	
Ge	72	3	H2	800276	1.20	821457	97.42	70	120	
Y	89	1	He	2639679	1.32	2786775	94.72	70	120	
In	115	1	He	2954854	0.85	3045232	97.03	70	120	
In	115	2	no gas	4463492	0.72	4564130	97.80	70	120	
In	115	3	H2	6233282	0.27	5826290	106.99	70	120	
Tb	159	1	He	4602323	1.97	4638687	99.22	70	120	
Tb	159	2	no gas	5565960	1.06	5623529	98.98	70	120	
Bi	209	2	no gas	3334624	0.43	3475006	95.96	60	120	

Sample Report

Sample Table

Sample Name	400-169195-E-15-A^5
Data File Name	085SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:51:30-05:00
Sample Type	Sample
Dilution	1
Comment	439456_13
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	16.723	16.723	1.46	567689	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-10.53	52	-0.02	200	
B	6	11	2	no gas	9.550	9.550	1.42	64884	0.01	400	
Na	72	23	1	He	24486.927	24486.927	1.16	101630508	0.02	50000	
Mg	72	24	1	He	3519.009	3519.009	0.66	8529110	0.04	50000	
Al	45	27	3	H2	1.625	1.625	2.60	38566	0.00	50000	
Si	45	28	3	H2	5172.265	5172.265	0.94	37340150	0.01	2000	>LDR
K	72	39	1	He	2512.900	2512.900	0.75	9549147	0.03	50000	
Ca	72	44	1	He	19498.543	19498.543	1.14	3208429	0.61	25000	
Ti	72	49	1	He	0.135	0.135	20.93	294	0.05	200	
V	72	51	1	He	0.049	0.049	47.17	6194	0.00	200	
Cr	72	52	1	He	-0.007	-0.007	-56.80	2457	0.00	200	
Mn	72	55	1	He	33.724	33.724	0.91	526738	0.01	2500	
Fe	72	56	3	H2	3172.480	3172.480	0.23	127024271	0.00	50000	
Co	72	59	1	He	0.004	0.004	4.09	714	0.00	200	
Ni	72	60	1	He	0.124	0.124	24.06	863	0.01	200	
copper	72	63	1	He	-0.016	-0.016	-8.51	586	0.00	200	
Zn	72	66	1	He	0.281	0.281	51.20	2004	0.01	200	
arsenic	72	75	1	He	36.561	36.561	1.09	80124	0.05	200	
selenium	72	78	3	H2	-0.164	-0.164	-2.32	60	-0.27	200	
Sr	72	88	1	He	57.069	57.069	2.17	1293431	0.00	500	
Mo	115	95	1	He	-0.219	-0.219	-4.16	647	-0.03	200	
Ag	115	107	1	He	-0.016	-0.016	-6.42	251	-0.01	200	
Cd	72	111	1	He	-0.022	-0.022	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.188	-0.188	-4.14	2247	-0.01	200	
antimony	159	121	1	He	-0.210	-0.210	-3.57	434	-0.05	200	
Ba	115	137	1	He	3.479	3.479	2.47	18174	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-14.81	65	-0.01	40	
[Pb]	209	206	2	no gas	-0.011	-0.011	-209.71	5855	0.00	200	
[Pb]	209	207	2	no gas	-0.043	-0.043	-27.03	4684	0.00	200	
Pb	209	208	2	no gas	-0.032	-0.032	-57.88	22164	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1866483	1.17	1982866	94.13	70	120	
Sc	45	1	He	738937	0.79	767851	96.23	70	120	
Ge	72	1	He	307248	0.63	320058	96.00	70	125	
Ge	72	2	no gas	652365	1.02	673177	96.91	70	125	
Ge	72	3	H2	805871	0.75	821457	98.10	70	120	
Y	89	1	He	2652210	1.01	2786775	95.17	70	120	
In	115	1	He	2929467	0.93	3045232	96.20	70	120	
In	115	2	no gas	4529235	1.19	4564130	99.24	70	120	
In	115	3	H2	6192165	0.83	5826290	106.28	70	120	
Tb	159	1	He	4590054	0.08	4638687	98.95	70	120	
Tb	159	2	no gas	5608214	0.76	5623529	99.73	70	120	
Bi	209	2	no gas	3317696	0.69	3475006	95.47	60	120	

Sample Report

Sample Table

Sample Name	400-169195-E-16-A^5
Data File Name	086SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:55:26-05:00
Sample Type	Sample
Dilution	1
Comment	439456_14
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	26.689	26.689	1.49	821160	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-21.91	56	-0.02	200	
B	6	11	2	no gas	13.366	13.366	3.35	80816	0.02	400	
Na	72	23	1	He	12787.059	12787.059	2.06	53146843	0.02	50000	
Mg	72	24	1	He	7725.224	7725.224	1.68	18731858	0.04	50000	
Al	45	27	3	H2	2.242	2.242	4.55	46380	0.00	50000	
Si	45	28	3	H2	8444.432	8444.432	1.69	59959214	0.01	2000	>LDR
K	72	39	1	He	2731.699	2731.699	0.94	10355307	0.03	50000	
Ca	72	44	1	He	22716.888	22716.888	0.96	3740979	0.61	25000	>LDR
Ti	72	49	1	He	0.170	0.170	7.73	318	0.05	200	
V	72	51	1	He	0.025	0.025	72.27	5809	0.00	200	
Cr	72	52	1	He	-0.005	-0.005	-192.88	2504	0.00	200	
Mn	72	55	1	He	119.084	119.084	1.44	1847568	0.01	2500	
Fe	72	56	3	H2	5268.480	5268.480	0.45	206880044	0.00	50000	
Co	72	59	1	He	0.035	0.035	12.99	1413	0.00	200	
Ni	72	60	1	He	0.356	0.356	2.68	2090	0.02	200	
copper	72	63	1	He	-0.015	-0.015	-39.32	591	0.00	200	
Zn	72	66	1	He	0.267	0.267	27.03	1967	0.01	200	
arsenic	72	75	1	He	65.777	65.777	0.83	143804	0.05	200	
selenium	72	78	3	H2	-0.166	-0.166	-4.39	57	-0.29	200	
Sr	72	88	1	He	23.494	23.494	1.11	533368	0.00	500	
Mo	115	95	1	He	-0.245	-0.245	-4.71	473	-0.05	200	
Ag	115	107	1	He	-0.019	-0.019	-15.46	210	-0.01	200	
Cd	72	111	1	He	-0.016	-0.016	-33.96	20	-0.08	200	
Sn	115	120	1	He	-0.192	-0.192	-3.54	2210	-0.01	200	
antimony	159	121	1	He	-0.213	-0.213	-1.37	401	-0.05	200	
Ba	115	137	1	He	0.350	0.350	12.19	1991	0.02	1000	
Tl	159	205	2	no gas	-0.005	-0.005	-6.53	27	-0.02	40	
[Pb]	209	206	2	no gas	-0.031	-0.031	-22.44	5701	0.00	200	
[Pb]	209	207	2	no gas	-0.039	-0.039	-86.61	4821	0.00	200	
Pb	209	208	2	no gas	-0.035	-0.035	-18.88	22387	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1852153	1.51	1982866	93.41	70	120	
Sc	45	1	He	727924	0.65	767851	94.80	70	120	
Ge	72	1	He	307524	0.53	320058	96.08	70	125	
Ge	72	2	no gas	651112	0.42	673177	96.72	70	125	
Ge	72	3	H2	791302	0.43	821457	96.33	70	120	
Y	89	1	He	2626482	0.67	2786775	94.25	70	120	
In	115	1	He	2940246	0.55	3045232	96.55	70	120	
In	115	2	no gas	4450210	1.01	4564130	97.50	70	120	
In	115	3	H2	6115089	2.06	5826290	104.96	70	120	
Tb	159	1	He	4611208	1.57	4638687	99.41	70	120	
Tb	159	2	no gas	5615695	1.48	5623529	99.86	70	120	
Bi	209	2	no gas	3377476	0.51	3475006	97.19	60	120	

Sample Report

Sample Table

Sample Name	400-169513-C-4-A
Data File Name	087SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T17:59:25-05:00
Sample Type	Sample
Dilution	1
Comment	439456_15
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	21.430	21.430	3.98	702702	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-12.36	58	-0.01	200	
B	6	11	2	no gas	7.617	7.617	8.88	57475	0.01	400	
Na	72	23	1	He	4212.628	4212.628	1.24	17944624	0.02	50000	
Mg	72	24	1	He	5172.743	5172.743	1.35	12826650	0.04	50000	
Al	45	27	3	H2	29.589	29.589	1.79	424923	0.01	50000	
Si	45	28	3	H2	2891.304	2891.304	1.88	20838348	0.01	2000	>LDR
K	72	39	1	He	18561.282	18561.282	2.06	69610144	0.03	50000	
Ca	72	44	1	He	22140.342	22140.342	1.98	3727891	0.59	25000	
Ti	72	49	1	He	1.337	1.337	9.76	1106	0.12	200	
V	72	51	1	He	0.096	0.096	13.20	7135	0.00	200	
Cr	72	52	1	He	0.442	0.442	6.71	10617	0.00	200	
Mn	72	55	1	He	233.815	233.815	1.26	3703674	0.01	2500	
Fe	72	56	3	H2	448.458	448.458	0.85	18303371	0.00	50000	
Co	72	59	1	He	0.179	0.179	2.94	4766	0.00	200	
Ni	72	60	1	He	1.523	1.523	9.64	8456	0.02	200	
copper	72	63	1	He	0.508	0.508	0.39	7864	0.01	200	
Zn	72	66	1	He	5.002	5.002	4.96	15427	0.03	200	
arsenic	72	75	1	He	0.373	0.373	9.02	1444	0.03	200	
selenium	72	78	3	H2	-0.047	-0.047	-36.38	189	-0.03	200	
Sr	72	88	1	He	107.224	107.224	2.63	2486383	0.00	500	
Mo	115	95	1	He	-0.118	-0.118	-6.04	1327	-0.01	200	
Ag	115	107	1	He	0.016	0.016	12.33	850	0.00	200	
Cd	72	111	1	He	0.042	0.042	74.60	237	0.02	200	
Sn	115	120	1	He	0.078	0.078	9.80	5938	0.00	200	
antimony	159	121	1	He	-0.155	-0.155	-9.69	1068	-0.01	200	
Ba	115	137	1	He	30.874	30.874	2.06	160574	0.02	1000	
Tl	159	205	2	no gas	0.000	0.000	-268.26	208	0.00	40	
[Pb]	209	206	2	no gas	0.361	0.361	4.99	10784	0.00	200	
[Pb]	209	207	2	no gas	0.312	0.312	5.43	8789	0.00	200	
Pb	209	208	2	no gas	0.339	0.339	7.00	42231	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1901012	3.46	1982866	95.87	70	120	
Sc	45	1	He	751867	0.16	767851	97.92	70	120	
Ge	72	1	He	314435	0.64	320058	98.24	70	125	
Ge	72	2	no gas	656753	1.09	673177	97.56	70	125	
Ge	72	3	H2	806240	0.77	821457	98.15	70	120	
Y	89	1	He	2678918	0.66	2786775	96.13	70	120	
In	115	1	He	2942296	2.00	3045232	96.62	70	120	
In	115	2	no gas	4522213	0.02	4564130	99.08	70	120	
In	115	3	H2	6258527	0.57	5826290	107.42	70	120	
Tb	159	1	He	4653088	0.76	4638687	100.31	70	120	
Tb	159	2	no gas	5607778	0.43	5623529	99.72	70	120	
Bi	209	2	no gas	3358404	1.29	3475006	96.64	60	120	

Sample Report

Sample Table

Sample Name	400-169513-C-5-A
Data File Name	088SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:03:20-05:00
Sample Type	Sample
Dilution	1
Comment	439456_16
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	19.535	19.535	2.14	675249	0.00	200	
Be	6	9	2	no gas	-0.010	-0.010	-20.48	49	-0.02	200	
B	6	11	2	no gas	4.797	4.797	2.52	46612	0.01	400	
Na	72	23	1	He	4815.001	4815.001	2.07	20524913	0.02	50000	
Mg	72	24	1	He	6760.069	6760.069	1.08	16780157	0.04	50000	
Al	45	27	3	H2	15.185	15.185	5.29	239210	0.01	50000	
Si	45	28	3	H2	3218.556	3218.556	2.62	24559817	0.01	2000	>LDR
K	72	39	1	He	24544.884	24544.884	1.41	92025152	0.03	50000	
Ca	72	44	1	He	46366.078	46366.078	0.76	7813430	0.59	25000	>LDR
Ti	72	49	1	He	0.547	0.547	4.51	578	0.09	200	
V	72	51	1	He	0.174	0.174	17.68	8469	0.00	200	
Cr	72	52	1	He	0.247	0.247	9.08	7095	0.00	200	
Mn	72	55	1	He	231.238	231.238	0.58	3667104	0.01	2500	
Fe	72	56	3	H2	139.070	139.070	1.96	6211919	0.00	50000	
Co	72	59	1	He	0.198	0.198	4.89	5216	0.00	200	
Ni	72	60	1	He	1.748	1.748	3.46	9690	0.02	200	
copper	72	63	1	He	0.730	0.730	0.73	10951	0.01	200	
Zn	72	66	1	He	5.581	5.581	5.66	17095	0.03	200	
arsenic	72	75	1	He	0.457	0.457	2.30	1634	0.03	200	
selenium	72	78	3	H2	-0.113	-0.113	-7.73	122	-0.09	200	
Sr	72	88	1	He	139.683	139.683	1.86	3242583	0.00	500	
Mo	115	95	1	He	-0.114	-0.114	-23.13	1363	-0.01	200	
Ag	115	107	1	He	0.001	0.001	164.13	571	0.00	200	
Cd	72	111	1	He	0.048	0.048	48.46	260	0.02	200	
Sn	115	120	1	He	-0.020	-0.020	-76.71	4617	0.00	200	
antimony	159	121	1	He	-0.145	-0.145	-5.45	1186	-0.01	200	
Ba	115	137	1	He	43.265	43.265	0.90	226749	0.02	1000	
Tl	159	205	2	no gas	0.003	0.003	40.86	355	0.00	40	
[Pb]	209	206	2	no gas	0.182	0.182	6.25	8376	0.00	200	
[Pb]	209	207	2	no gas	0.201	0.201	17.02	7459	0.00	200	
Pb	209	208	2	no gas	0.168	0.168	4.62	32844	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1966304	0.80	1982866	99.16	70	120	
Sc	45	1	He	764935	0.97	767851	99.62	70	120	
Ge	72	1	He	314782	0.48	320058	98.35	70	125	
Ge	72	2	no gas	672262	0.43	673177	99.86	70	125	
Ge	72	3	H2	841847	0.35	821457	102.48	70	120	
Y	89	1	He	2723174	1.33	2786775	97.72	70	120	
In	115	1	He	2965335	1.54	3045232	97.38	70	120	
In	115	2	no gas	4568432	0.22	4564130	100.09	70	120	
In	115	3	H2	6375390	1.06	5826290	109.42	70	120	
Tb	159	1	He	4656654	1.20	4638687	100.39	70	120	
Tb	159	2	no gas	5706363	0.42	5623529	101.47	70	120	
Bi	209	2	no gas	3330948	1.68	3475006	95.85	60	120	

Sample Report

Sample Table

Sample Name	400-169513-C-6-A
Data File Name	089SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:07:16-05:00
Sample Type	Sample
Dilution	1
Comment	439456_17
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	20.435	20.435	0.61	715235	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-24.18	78	-0.01	200	
B	6	11	2	no gas	5.887	5.887	8.12	52727	0.01	400	
Na	72	23	1	He	5496.519	5496.519	1.62	23757080	0.02	50000	
Mg	72	24	1	He	7224.331	7224.331	1.04	18190058	0.04	50000	
Al	45	27	3	H2	16.049	16.049	2.59	247637	0.01	50000	
Si	45	28	3	H2	3776.691	3776.691	1.72	28324780	0.01	2000	>LDR
K	72	39	1	He	27192.615	27192.615	0.82	103375575	0.03	50000	
Ca	72	44	1	He	46690.140	46690.140	1.06	7981500	0.58	25000	>LDR
Ti	72	49	1	He	0.523	0.523	10.91	570	0.09	200	
V	72	51	1	He	0.604	0.604	7.45	15967	0.00	200	
Cr	72	52	1	He	0.251	0.251	3.85	7282	0.00	200	
Mn	72	55	1	He	252.576	252.576	0.88	4063169	0.01	2500	
Fe	72	56	3	H2	161.439	161.439	1.38	7108145	0.00	50000	
Co	72	59	1	He	0.233	0.233	2.35	6107	0.00	200	
Ni	72	60	1	He	1.846	1.846	2.96	10370	0.02	200	
copper	72	63	1	He	0.908	0.908	3.06	13611	0.01	200	
Zn	72	66	1	He	6.116	6.116	6.71	18883	0.03	200	
arsenic	72	75	1	He	0.525	0.525	8.22	1812	0.03	200	
selenium	72	78	3	H2	-0.092	-0.092	-11.50	145	-0.06	200	
Sr	72	88	1	He	151.808	151.808	1.67	3574893	0.00	500	
Mo	115	95	1	He	-0.051	-0.051	-92.27	1824	0.00	200	
Ag	115	107	1	He	0.003	0.003	101.30	637	0.00	200	
Cd	72	111	1	He	0.059	0.059	17.68	303	0.02	200	
Sn	115	120	1	He	-0.026	-0.026	-93.47	4617	0.00	200	
antimony	159	121	1	He	-0.138	-0.138	-4.28	1278	-0.01	200	
Ba	115	137	1	He	42.625	42.625	1.14	227405	0.02	1000	
Tl	159	205	2	no gas	0.001	0.001	207.42	251	0.00	40	
[Pb]	209	206	2	no gas	0.350	0.350	14.16	10514	0.00	200	
[Pb]	209	207	2	no gas	0.308	0.308	1.12	8649	0.00	200	
Pb	209	208	2	no gas	0.307	0.307	0.97	40071	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2009114	0.83	1982866	101.32	70	120	
Sc	45	1	He	783565	0.39	767851	102.05	70	120	
Ge	72	1	He	319340	0.85	320058	99.78	70	125	
Ge	72	2	no gas	683689	0.08	673177	101.56	70	125	
Ge	72	3	H2	837636	1.22	821457	101.97	70	120	
Y	89	1	He	2754876	1.20	2786775	98.86	70	120	
In	115	1	He	3018551	1.29	3045232	99.12	70	120	
In	115	2	no gas	4543625	0.60	4564130	99.55	70	120	
In	115	3	H2	6402952	1.57	5826290	109.90	70	120	
Tb	159	1	He	4722016	0.93	4638687	101.80	70	120	
Tb	159	2	no gas	5659883	1.23	5623529	100.65	70	120	
Bi	209	2	no gas	3319412	0.85	3475006	95.52	60	120	

Sample Report

Sample Table

Sample Name	400-169515-A-1-A
Data File Name	090SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:11:15-05:00
Sample Type	Sample
Dilution	1
Comment	439456_18
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	7.514	7.514	2.69	358613	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-41.57	66	-0.01	200	
B	6	11	2	no gas	0.652	0.652	38.36	28730	0.00	400	
Na	72	23	1	He	3454.760	3454.760	0.67	15178071	0.02	50000	
Mg	72	24	1	He	1751.063	1751.063	0.06	4480476	0.04	50000	
Al	45	27	3	H2	79.844	79.844	2.16	1156980	0.01	50000	
Si	45	28	3	H2	440.011	440.011	0.98	3346348	0.01	2000	
K	72	39	1	He	6810.475	6810.475	1.00	26585901	0.03	50000	
Ca	72	44	1	He	10496.962	10496.962	1.31	1822963	0.58	25000	
Ti	72	49	1	He	2.664	2.664	6.79	2055	0.13	200	
V	72	51	1	He	0.720	0.720	3.40	18224	0.00	200	
Cr	72	52	1	He	0.211	0.211	2.83	6638	0.00	200	
Mn	72	55	1	He	227.014	227.014	1.93	3706601	0.01	2500	
Fe	72	56	3	H2	423.380	423.380	2.05	17859945	0.00	50000	
Co	72	59	1	He	0.255	0.255	4.79	6737	0.00	200	
Ni	72	60	1	He	1.683	1.683	5.31	9613	0.02	200	
copper	72	63	1	He	0.308	0.308	2.72	5237	0.01	200	
Zn	72	66	1	He	1.509	1.509	6.14	5701	0.03	200	
arsenic	72	75	1	He	1.967	1.967	0.63	5147	0.04	200	
selenium	72	78	3	H2	0.783	0.783	4.67	1138	0.07	200	
Sr	72	88	1	He	44.548	44.548	1.20	1065186	0.00	500	
Mo	115	95	1	He	1.571	1.571	8.31	13375	0.01	200	
Ag	115	107	1	He	-0.003	-0.003	-124.21	524	0.00	200	
Cd	72	111	1	He	0.013	0.013	82.69	133	0.01	200	
Sn	115	120	1	He	-0.158	-0.158	-11.17	2817	-0.01	200	
antimony	159	121	1	He	-0.068	-0.068	-9.61	2102	0.00	200	
Ba	115	137	1	He	13.376	13.376	1.99	73487	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-20.58	171	0.00	40	
[Pb]	209	206	2	no gas	0.701	0.701	2.34	15391	0.00	200	
[Pb]	209	207	2	no gas	0.680	0.680	6.52	13139	0.01	200	
Pb	209	208	2	no gas	0.660	0.660	3.45	60082	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2043960	2.40	1982866	103.08	70	120	
Sc	45	1	He	780995	0.83	767851	101.71	70	120	
Ge	72	1	He	324068	0.43	320058	101.25	70	125	
Ge	72	2	no gas	685782	0.68	673177	101.87	70	125	
Ge	72	3	H2	832184	0.30	821457	101.31	70	120	
Y	89	1	He	2745354	0.94	2786775	98.51	70	120	
In	115	1	He	3103157	0.68	3045232	101.90	70	120	
In	115	2	no gas	4687592	0.28	4564130	102.71	70	120	
In	115	3	H2	6182212	1.57	5826290	106.11	70	120	
Tb	159	1	He	4740096	0.16	4638687	102.19	70	120	
Tb	159	2	no gas	5844053	1.59	5623529	103.92	70	120	
Bi	209	2	no gas	3398632	1.23	3475006	97.80	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	092_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:19:12-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.454	50.454	2.08	1556707	0.00	50	
Be	6	9	2	no gas	48.787	48.787	1.42	421278	0.01	50	
B	6	11	2	no gas	95.767	95.767	1.62	462219	0.02	100	
Na	72	23	1	He	4953.538	4953.538	0.81	21151274	0.02	5000	
Mg	72	24	1	He	4951.236	4951.236	0.50	12310531	0.04	5000	
Al	45	27	3	H2	512.075	512.075	2.04	7267570	0.01	500	
K	72	39	1	He	5014.217	5014.217	0.71	19175946	0.03	5000	
Ca	72	44	1	He	4851.419	4851.419	0.79	822189	0.59	5000	
Ti	72	49	1	He	50.749	50.749	2.67	34178	0.15	50	
V	72	51	1	He	47.146	47.146	0.74	813856	0.01	50	
Cr	72	52	1	He	47.603	47.603	1.16	862927	0.01	50	
Mn	72	55	1	He	494.259	494.259	1.43	7844283	0.01	500	
Fe	72	56	3	H2	4868.707	4868.707	0.72	197695910	0.00	5000	
Co	72	59	1	He	47.595	47.595	1.09	1105067	0.00	50	
Ni	72	60	1	He	48.668	48.668	1.60	264494	0.02	50	
copper	72	63	1	He	47.590	47.590	0.96	662365	0.01	50	
dwCu63	72	63	2	no gas	47.787	47.787	0.59	973538	0.00	50	
Zn	72	66	1	He	47.771	47.771	0.74	138330	0.03	50	
arsenic	72	75	1	He	47.005	47.005	0.92	105644	0.04	50	
dwAs75	72	75	2	no gas	47.547	47.547	1.33	214780	0.02	50	
selenium	72	78	3	H2	49.536	49.536	0.57	55423	0.09	50	
Sr	72	88	1	He	49.660	49.660	1.15	1155546	0.00	50	
Mo	115	95	1	He	49.399	49.399	0.51	339026	0.01	50	
Ag	115	107	1	He	46.602	46.602	0.96	889040	0.01	50	
Cd	72	111	1	He	49.043	49.043	0.63	182264	0.03	50	
Sn	115	120	1	He	49.446	49.446	0.40	699383	0.01	50	
antimony	159	121	1	He	50.799	50.799	0.85	587749	0.01	50	
dwSb121	159	121	2	no gas	53.954	53.954	0.61	812371	0.01	50	
Ba	115	137	1	He	47.872	47.872	0.59	253954	0.02	50	
Tl	159	205	2	no gas	10.063	10.063	0.78	402839	0.00	10	
[Pb]	209	206	2	no gas	50.968	50.968	0.57	687256	0.01	50	
[Pb]	209	207	2	no gas	49.264	49.264	0.45	579720	0.01	50	
Pb	209	208	2	no gas	48.238	48.238	0.29	2661963	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2011391	1.47	1982866	101.44	70	120	
Sc	45	1	He	774860	1.93	767851	100.91	70	120	
Ge	72	1	He	315336	0.75	320058	98.52	70	125	
Ge	72	2	no gas	662323	1.09	673177	98.39	70	125	
Ge	72	3	H2	819054	1.27	821457	99.71	70	120	
Y	89	1	He	2697085	1.38	2786775	96.78	70	120	
In	115	1	He	3002136	1.23	3045232	98.58	70	120	
In	115	2	no gas	4526651	1.66	4564130	99.18	70	120	
In	115	3	H2	6188775	1.55	5826290	106.22	70	120	
Tb	159	1	He	4712081	0.43	4638687	101.58	70	120	
Tb	159	2	no gas	5745810	0.29	5623529	102.17	70	120	
Bi	209	2	no gas	3438082	0.70	3475006	98.94	60	120	

Sample Table

Sample Name	CCB
Data File Name	094_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:27:02-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.004	0.004	1304.07	136801	0.00	0.5	
Be	6	9	2	no gas	-0.007	-0.007	-24.90	47	-0.01	0.5	
B	6	11	2	no gas	-0.903	-0.903	-38.73	15781	-0.01	5	
Na	72	23	1	He	-1.688	-1.688	-32.80	53203	0.00	100	
Mg	72	24	1	He	-1.095	-1.095	-2.93	2587	-0.04	50	
Al	45	27	3	H2	0.021	0.021	121.68	16114	0.00	50	
K	72	39	1	He	-0.749	-0.749	-20.91	414483	0.00	50	
Ca	72	44	1	He	-1.956	-1.956	-67.87	2180	-0.09	50	
Ti	72	49	1	He	-0.051	-0.051	-47.18	176	-0.03	0.5	
V	72	51	1	He	0.042	0.042	72.99	5679	0.00	0.5	
Cr	72	52	1	He	-0.016	-0.016	-68.39	2167	0.00	0.5	
Mn	72	55	1	He	-0.109	-0.109	-19.58	2107	-0.01	2	
Fe	72	56	3	H2	-5.864	-5.864	-0.83	134479	0.00	25	
Co	72	59	1	He	-0.011	-0.011	-7.66	143	-0.01	0.5	
Ni	72	60	1	He	-0.001	-0.001	-1714.00	183	0.00	1.5	
copper	72	63	1	He	-0.015	-0.015	-16.32	559	0.00	0.5	
dwCu63	72	63	2	no gas	-0.011	-0.011	-47.85	820	0.00	0.5	
Zn	72	66	1	He	0.011	0.011	321.46	1187	0.00	4	
arsenic	72	75	1	He	-0.071	-0.071	-25.25	470	-0.02	0.25	
dwAs75	72	75	2	no gas	-0.202	-0.202	-58.56	73	-0.28	5	
selenium	72	78	3	H2	-0.097	-0.097	-2.80	135	-0.07	0.25	
dwSe82	72	82	2	no gas	-0.223	-0.223	-5.00	216	-0.10	5	
Sr	72	88	1	He	-0.017	-0.017	-19.28	270	-0.01	0.5	
Mo	115	95	1	He	-0.219	-0.219	-5.89	770	-0.03	1	
Ag	115	107	1	He	-0.012	-0.012	-14.76	272	0.00	0.05	
Cd	72	111	1	He	-0.024	-0.024	-0.05	20	-0.12	0.25	
Sn	115	120	1	He	-0.122	-0.122	-12.97	3280	0.00	0.5	
antimony	159	121	1	He	-0.138	-0.138	-4.53	1288	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.265	-0.265	-1.58	2848	-0.01	5	
Ba	115	137	1	He	0.005	0.005	125.94	133	0.00	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-31.28	92	0.00	0.1	
[Pb]	209	206	2	no gas	-0.042	-0.042	-11.99	5831	0.00	0.25	
[Pb]	209	207	2	no gas	-0.029	-0.029	-165.50	4961	0.00	0.25	
Pb	209	208	2	no gas	-0.019	-0.019	-67.80	22644	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1981895	1.33	1982866	99.95	70	120	
Sc	45	1	He	764213	0.19	767851	99.53	70	120	
Ge	72	1	He	316065	0.24	320058	98.75	70	125	
Ge	72	2	no gas	657515	1.08	673177	97.67	70	125	
Ge	72	3	H2	811590	0.49	821457	98.80	70	120	
Y	89	1	He	2750774	0.63	2786775	98.71	70	120	
In	115	1	He	3044119	0.97	3045232	99.96	70	120	
In	115	2	no gas	4597657	1.55	4564130	100.73	70	120	
In	115	3	H2	6173262	1.53	5826290	105.96	70	120	
Tb	159	1	He	4751642	0.36	4638687	102.44	70	120	
Tb	159	2	no gas	5807310	0.21	5623529	103.27	70	120	
Bi	209	2	no gas	3486164	0.73	3475006	100.32	60	120	

Sample Report

Sample Table

Sample Name	400-169515-A-2-A
Data File Name	095SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:31:00-05:00
Sample Type	Sample
Dilution	1
Comment	439456_19
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	7.919	7.919	5.90	360944	0.00	200	
Be	6	9	2	no gas	-0.002	-0.002	-100.33	92	0.00	200	
B	6	11	2	no gas	1.523	1.523	10.09	27361	0.01	400	
Na	72	23	1	He	3319.395	3319.395	0.59	14407705	0.02	50000	
Mg	72	24	1	He	1651.900	1651.900	3.18	4172778	0.04	50000	
Al	45	27	3	H2	82.618	82.618	2.71	1188150	0.01	50000	
Si	45	28	3	H2	439.376	439.376	1.40	3322207	0.01	2000	
K	72	39	1	He	6658.800	6658.800	0.27	25700633	0.03	50000	
Ca	72	44	1	He	10383.853	10383.853	0.51	1781681	0.58	25000	
Ti	72	49	1	He	2.783	2.783	3.51	2107	0.13	200	
V	72	51	1	He	0.224	0.224	5.83	8886	0.00	200	
Cr	72	52	1	He	0.162	0.162	15.56	5464	0.00	200	
Mn	72	55	1	He	237.862	237.862	1.43	3834490	0.01	2500	
Fe	72	56	3	H2	476.444	476.444	0.49	19634296	0.00	50000	
Co	72	59	1	He	0.269	0.269	2.33	6753	0.00	200	
Ni	72	60	1	He	1.582	1.582	2.19	8916	0.02	200	
copper	72	63	1	He	0.362	0.362	1.77	5887	0.01	200	
Zn	72	66	1	He	1.207	1.207	3.71	4654	0.03	200	
arsenic	72	75	1	He	1.884	1.884	1.02	4908	0.04	200	
selenium	72	78	3	H2	0.814	0.814	2.25	1150	0.07	200	
Sr	72	88	1	He	44.590	44.590	0.74	1053191	0.00	500	
Mo	115	95	1	He	1.576	1.576	5.91	13115	0.01	200	
Ag	115	107	1	He	0.001	0.001	115.65	514	0.00	200	
Cd	72	111	1	He	0.002	0.002	490.52	117	0.00	200	
Sn	115	120	1	He	-0.138	-0.138	-14.28	3017	0.00	200	
antimony	159	121	1	He	-0.042	-0.042	-29.89	2376	0.00	200	
Ba	115	137	1	He	13.666	13.666	1.68	72815	0.02	1000	
Tl	159	205	2	no gas	0.002	0.002	95.18	241	0.00	40	
[Pb]	209	206	2	no gas	0.662	0.662	7.01	15308	0.00	200	
[Pb]	209	207	2	no gas	0.632	0.632	7.67	12729	0.00	200	
Pb	209	208	2	no gas	0.646	0.646	5.09	59334	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2010595	2.43	1982866	101.40	70	120	
Sc	45	1	He	771465	1.01	767851	100.47	70	120	
Ge	72	1	He	320140	0.95	320058	100.03	70	125	
Ge	72	2	no gas	662504	0.66	673177	98.41	70	125	
Ge	72	3	H2	816239	0.25	821457	99.36	70	120	
Y	89	1	He	2716177	1.70	2786775	97.47	70	120	
In	115	1	He	3012552	0.42	3045232	98.93	70	120	
In	115	2	no gas	4601737	1.58	4564130	100.82	70	120	
In	115	3	H2	6201483	1.05	5826290	106.44	70	120	
Tb	159	1	He	4683484	0.97	4638687	100.97	70	120	
Tb	159	2	no gas	5723150	0.97	5623529	101.77	70	120	
Bi	209	2	no gas	3473322	1.04	3475006	99.95	60	120	

Sample Report

Sample Table

Sample Name	400-169515-A-3-A
Data File Name	096SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:34:56-05:00
Sample Type	Sample
Dilution	1
Comment	439456_20
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	20.947	20.947	1.20	710736	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-39.44	59	-0.01	200	
B	6	11	2	no gas	2.174	2.174	7.90	29718	0.01	400	
Na	72	23	1	He	3765.953	3765.953	1.31	15860830	0.02	50000	
Mg	72	24	1	He	1521.774	1521.774	0.57	3732967	0.04	50000	
Al	45	27	3	H2	21.521	21.521	0.41	317533	0.01	50000	
Si	45	28	3	H2	1285.211	1285.211	0.53	9448494	0.01	2000	
K	72	39	1	He	10529.034	10529.034	0.65	39214679	0.03	50000	
Ca	72	44	1	He	19746.967	19746.967	1.02	3287122	0.60	25000	
Ti	72	49	1	He	0.641	0.641	31.69	630	0.10	200	
V	72	51	1	He	0.320	0.320	2.66	10236	0.00	200	
Cr	72	52	1	He	0.151	0.151	9.47	5111	0.00	200	
Mn	72	55	1	He	12.449	12.449	1.95	198388	0.01	2500	
Fe	72	56	3	H2	19.740	19.740	1.38	1159878	0.00	50000	
Co	72	59	1	He	0.062	0.062	7.97	1810	0.00	200	
Ni	72	60	1	He	2.146	2.146	1.17	11674	0.02	200	
copper	72	63	1	He	0.210	0.210	7.75	3630	0.01	200	
Zn	72	66	1	He	2.006	2.006	5.51	6755	0.03	200	
arsenic	72	75	1	He	0.378	0.378	6.78	1451	0.03	200	
selenium	72	78	3	H2	0.859	0.859	1.96	1190	0.07	200	
Sr	72	88	1	He	112.836	112.836	1.46	2586425	0.00	500	
Mo	115	95	1	He	1.904	1.904	4.51	15043	0.01	200	
Ag	115	107	1	He	0.004	0.004	97.03	557	0.00	200	
Cd	72	111	1	He	-0.014	-0.014	-21.91	53	-0.03	200	
Sn	115	120	1	He	-0.143	-0.143	-8.26	2887	0.00	200	
antimony	159	121	1	He	-0.122	-0.122	-9.18	1449	-0.01	200	
Ba	115	137	1	He	12.596	12.596	3.84	65659	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-38.72	83	0.00	40	
[Pb]	209	206	2	no gas	0.100	0.100	26.06	7619	0.00	200	
[Pb]	209	207	2	no gas	0.112	0.112	13.52	6515	0.00	200	
Pb	209	208	2	no gas	0.115	0.115	10.72	29602	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1965652	1.25	1982866	99.13	70	120	
Sc	45	1	He	752740	1.07	767851	98.03	70	120	
Ge	72	1	He	310798	0.48	320058	97.11	70	125	
Ge	72	2	no gas	649532	0.46	673177	96.49	70	125	
Ge	72	3	H2	808937	0.57	821457	98.48	70	120	
Y	89	1	He	2722245	2.05	2786775	97.68	70	120	
In	115	1	He	2947908	1.50	3045232	96.80	70	120	
In	115	2	no gas	4578476	1.43	4564130	100.31	70	120	
In	115	3	H2	6175684	2.20	5826290	106.00	70	120	
Tb	159	1	He	4654127	2.94	4638687	100.33	70	120	
Tb	159	2	no gas	5710954	1.04	5623529	101.55	70	120	
Bi	209	2	no gas	3427501	0.83	3475006	98.63	60	120	

Sample Report

Sample Table

Sample Name	400-169515-A-4-A
Data File Name	097SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:38:54-05:00
Sample Type	Sample
Dilution	1
Comment	439456_21
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	21.428	21.428	3.10	726085	0.00	200	
Be	6	9	2	no gas	-0.003	-0.003	-81.20	77	0.00	200	
B	6	11	2	no gas	2.471	2.471	16.22	31160	0.01	400	
Na	72	23	1	He	3977.023	3977.023	0.59	16847373	0.02	50000	
Mg	72	24	1	He	1641.532	1641.532	1.06	4050253	0.04	50000	
Al	45	27	3	H2	20.639	20.639	6.81	316118	0.01	50000	
Si	45	28	3	H2	1112.321	1112.321	7.36	8479061	0.01	2000	
K	72	39	1	He	11095.695	11095.695	0.84	41548714	0.03	50000	
Ca	72	44	1	He	18929.253	18929.253	1.02	3169709	0.60	25000	
Ti	72	49	1	He	0.579	0.579	12.50	592	0.10	200	
V	72	51	1	He	0.311	0.311	5.27	10145	0.00	200	
Cr	72	52	1	He	0.190	0.190	4.77	5841	0.00	200	
Mn	72	55	1	He	16.941	16.941	0.34	270218	0.01	2500	
Fe	72	56	3	H2	27.680	27.680	4.49	1513283	0.00	50000	
Co	72	59	1	He	0.058	0.058	4.71	1731	0.00	200	
Ni	72	60	1	He	2.027	2.027	5.38	11104	0.02	200	
copper	72	63	1	He	0.239	0.239	8.03	4054	0.01	200	
Zn	72	66	1	He	1.461	1.461	7.76	5261	0.03	200	
arsenic	72	75	1	He	0.380	0.380	7.21	1462	0.03	200	
selenium	72	78	3	H2	0.810	0.810	9.50	1161	0.07	200	
Sr	72	88	1	He	109.058	109.058	0.93	2514898	0.00	500	
Mo	115	95	1	He	1.912	1.912	4.06	15067	0.01	200	
Ag	115	107	1	He	-0.002	-0.002	-238.66	447	0.00	200	
Cd	72	111	1	He	-0.006	-0.006	-104.54	83	-0.01	200	
Sn	115	120	1	He	-0.091	-0.091	-17.51	3604	0.00	200	
antimony	159	121	1	He	-0.151	-0.151	-6.18	1114	-0.01	200	
Ba	115	137	1	He	13.639	13.639	2.92	70980	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-23.66	64	0.00	40	
[Pb]	209	206	2	no gas	0.143	0.143	11.40	8056	0.00	200	
[Pb]	209	207	2	no gas	0.101	0.101	31.11	6278	0.00	200	
Pb	209	208	2	no gas	0.124	0.124	12.64	29575	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1971495	1.00	1982866	99.43	70	120	
Sc	45	1	He	754540	0.61	767851	98.27	70	120	
Ge	72	1	He	312651	0.64	320058	97.69	70	125	
Ge	72	2	no gas	654081	0.52	673177	97.16	70	125	
Ge	72	3	H2	828965	4.08	821457	100.91	70	120	
Y	89	1	He	2682799	1.07	2786775	96.27	70	120	
In	115	1	He	2943253	2.13	3045232	96.65	70	120	
In	115	2	no gas	4500166	0.50	4564130	98.60	70	120	
In	115	3	H2	6466645	6.21	5826290	110.99	70	120	
Tb	159	1	He	4652874	1.35	4638687	100.31	70	120	
Tb	159	2	no gas	5721575	1.95	5623529	101.74	70	120	
Bi	209	2	no gas	3367905	0.83	3475006	96.92	60	120	

Sample Report

Sample Table

Sample Name	400-169515-A-5-A
Data File Name	098SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:42:51-05:00
Sample Type	Sample
Dilution	1
Comment	439456_22
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	19.800	19.800	0.69	696264	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-29.63	76	0.00	200	
B	6	11	2	no gas	1.113	1.113	18.08	25478	0.00	400	
Na	72	23	1	He	3862.190	3862.190	2.31	16407469	0.02	50000	
Mg	72	24	1	He	1305.744	1305.744	0.56	3232357	0.04	50000	
Al	45	27	3	H2	21.911	21.911	1.61	324023	0.01	50000	
Si	45	28	3	H2	1064.532	1064.532	1.81	7864382	0.01	2000	
K	72	39	1	He	11405.792	11405.792	0.68	42820628	0.03	50000	
Ca	72	44	1	He	21316.536	21316.536	0.12	3579567	0.60	25000	
Ti	72	49	1	He	0.298	0.298	10.36	407	0.07	200	
V	72	51	1	He	0.371	0.371	3.75	11188	0.00	200	
Cr	72	52	1	He	0.119	0.119	8.34	4584	0.00	200	
Mn	72	55	1	He	10.456	10.456	0.71	168709	0.01	2500	
Fe	72	56	3	H2	4.379	4.379	3.09	545203	0.00	50000	
Co	72	59	1	He	0.069	0.069	4.21	1993	0.00	200	
Ni	72	60	1	He	2.405	2.405	1.62	13178	0.02	200	
copper	72	63	1	He	0.392	0.392	4.02	6172	0.01	200	
Zn	72	66	1	He	1.709	1.709	2.30	5975	0.03	200	
arsenic	72	75	1	He	0.335	0.335	1.71	1367	0.02	200	
selenium	72	78	3	H2	0.866	0.866	3.22	1199	0.07	200	
Sr	72	88	1	He	104.132	104.132	2.32	2408013	0.00	500	
Mo	115	95	1	He	2.113	2.113	7.00	16832	0.01	200	
Ag	115	107	1	He	-0.001	-0.001	-118.86	464	0.00	200	
Cd	72	111	1	He	-0.021	-0.021	-22.43	30	-0.07	200	
Sn	115	120	1	He	-0.130	-0.130	-22.27	3134	0.00	200	
antimony	159	121	1	He	-0.167	-0.167	-6.56	931	-0.02	200	
Ba	115	137	1	He	11.829	11.829	1.65	63148	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-32.49	65	0.00	40	
[Pb]	209	206	2	no gas	0.048	0.048	45.34	6955	0.00	200	
[Pb]	209	207	2	no gas	0.020	0.020	287.85	5464	0.00	200	
Pb	209	208	2	no gas	0.054	0.054	31.13	26320	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2014853	1.15	1982866	101.61	70	120	
Sc	45	1	He	751801	0.54	767851	97.91	70	120	
Ge	72	1	He	313555	0.91	320058	97.97	70	125	
Ge	72	2	no gas	659645	0.58	673177	97.99	70	125	
Ge	72	3	H2	810052	0.21	821457	98.61	70	120	
Y	89	1	He	2684714	1.85	2786775	96.34	70	120	
In	115	1	He	3018294	2.28	3045232	99.12	70	120	
In	115	2	no gas	4536301	0.89	4564130	99.39	70	120	
In	115	3	H2	6207896	1.68	5826290	106.55	70	120	
Tb	159	1	He	4669260	0.87	4638687	100.66	70	120	
Tb	159	2	no gas	5713668	1.60	5623529	101.60	70	120	
Bi	209	2	no gas	3435280	0.52	3475006	98.86	60	120	

Sample Report

Sample Table

Sample Name	400-169515-A-6-A
Data File Name	099SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:46:47-05:00
Sample Type	Sample
Dilution	1
Comment	439456_23
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	19.567	19.567	0.97	687460	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-45.40	61	-0.01	200	
B	6	11	2	no gas	0.609	0.609	27.99	23048	0.00	400	
Na	72	23	1	He	3967.851	3967.851	1.15	16759647	0.02	50000	
Mg	72	24	1	He	1717.607	1717.607	1.50	4225486	0.04	50000	
Al	45	27	3	H2	19.100	19.100	0.99	284104	0.01	50000	
Si	45	28	3	H2	1192.623	1192.623	1.29	8790035	0.01	2000	
K	72	39	1	He	12487.017	12487.017	0.69	46573716	0.03	50000	
Ca	72	44	1	He	21568.741	21568.741	1.89	3600660	0.60	25000	
Ti	72	49	1	He	0.229	0.229	31.32	359	0.06	200	
V	72	51	1	He	0.385	0.385	4.04	11365	0.00	200	
Cr	72	52	1	He	0.163	0.163	4.04	5338	0.00	200	
Mn	72	55	1	He	19.244	19.244	1.87	305523	0.01	2500	
Fe	72	56	3	H2	6.221	6.221	5.06	622958	0.00	50000	
Co	72	59	1	He	0.081	0.081	5.12	2266	0.00	200	
Ni	72	60	1	He	2.216	2.216	4.29	12088	0.02	200	
copper	72	63	1	He	0.360	0.360	1.98	5706	0.01	200	
Zn	72	66	1	He	1.427	1.427	10.98	5148	0.03	200	
arsenic	72	75	1	He	0.303	0.303	4.11	1289	0.02	200	
selenium	72	78	3	H2	0.790	0.790	7.18	1122	0.07	200	
Sr	72	88	1	He	105.672	105.672	1.33	2429643	0.00	500	
Mo	115	95	1	He	1.889	1.889	3.52	15154	0.01	200	
Ag	115	107	1	He	-0.008	-0.008	-19.06	334	0.00	200	
Cd	72	111	1	He	-0.012	-0.012	-73.16	63	-0.02	200	
Sn	115	120	1	He	-0.157	-0.157	-11.10	2727	-0.01	200	
antimony	159	121	1	He	-0.183	-0.183	-2.66	760	-0.02	200	
Ba	115	137	1	He	12.343	12.343	1.96	65253	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-28.88	85	0.00	40	
[Pb]	209	206	2	no gas	0.024	0.024	59.87	6565	0.00	200	
[Pb]	209	207	2	no gas	0.050	0.050	12.80	5748	0.00	200	
Pb	209	208	2	no gas	0.066	0.066	21.33	26727	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2008290	1.16	1982866	101.28	70	120	
Sc	45	1	He	750399	0.49	767851	97.73	70	120	
Ge	72	1	He	311780	1.65	320058	97.41	70	125	
Ge	72	2	no gas	661347	0.66	673177	98.24	70	125	
Ge	72	3	H2	815181	0.89	821457	99.24	70	120	
Y	89	1	He	2681354	2.51	2786775	96.22	70	120	
In	115	1	He	2988823	0.50	3045232	98.15	70	120	
In	115	2	no gas	4496882	1.78	4564130	98.53	70	120	
In	115	3	H2	6205009	1.20	5826290	106.50	70	120	
Tb	159	1	He	4683333	2.61	4638687	100.96	70	120	
Tb	159	2	no gas	5765274	1.02	5623529	102.52	70	120	
Bi	209	2	no gas	3400780	1.70	3475006	97.86	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439515/1-A^5
Data File Name	100SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:50:43-05:00
Sample Type	Sample
Dilution	1
Comment	439515_1
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.013	-0.013	-381.18	142331	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-16.63	37	-0.02	200	
B	6	11	2	no gas	-2.245	-2.245	-5.60	10010	-0.02	400	
Na	72	23	1	He	-0.524	-0.524	-118.40	57341	0.00	50000	
Mg	72	24	1	He	-0.780	-0.780	-17.55	3324	-0.02	50000	
Al	45	27	3	H2	0.838	0.838	9.69	27190	0.00	50000	
Si	45	28	3	H2	2.137	2.137	6.37	96278	0.00	2000	
K	72	39	1	He	1.575	1.575	139.64	417161	0.00	50000	
Ca	72	44	1	He	6.792	6.792	43.01	3607	0.19	25000	
Ti	72	49	1	He	-0.084	-0.084	-15.31	151	-0.06	200	
V	72	51	1	He	0.362	0.362	7.39	10962	0.00	200	
Cr	72	52	1	He	0.014	0.014	43.56	2680	0.00	200	
Mn	72	55	1	He	-0.096	-0.096	-19.31	2274	0.00	2500	
Fe	72	56	3	H2	-7.818	-7.818	-0.56	55438	-0.01	50000	
Co	72	59	1	He	-0.012	-0.012	-12.57	139	-0.01	200	
Ni	72	60	1	He	0.000	0.000	5696.82	187	0.00	200	
copper	72	63	1	He	-0.020	-0.020	-21.24	477	0.00	200	
Zn	72	66	1	He	0.014	0.014	238.17	1177	0.00	200	
arsenic	72	75	1	He	-0.017	-0.017	-77.91	582	0.00	200	
selenium	72	78	3	H2	-0.190	-0.190	-5.92	32	-0.59	200	
Sr	72	88	1	He	0.034	0.034	33.72	1423	0.00	500	
Mo	115	95	1	He	-0.284	-0.284	-7.08	320	-0.09	200	
Ag	115	107	1	He	-0.015	-0.015	-4.99	201	-0.01	200	
Cd	72	111	1	He	-0.025	-0.025	-23.01	17	-0.15	200	
Sn	115	120	1	He	-0.185	-0.185	-16.63	2374	-0.01	200	
antimony	159	121	1	He	-0.224	-0.224	-1.22	280	-0.08	200	
Ba	115	137	1	He	-0.002	-0.002	-29.16	96	0.00	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-9.11	40	-0.01	40	
[Pb]	209	206	2	no gas	-0.034	-0.034	-27.42	6011	0.00	200	
[Pb]	209	207	2	no gas	-0.020	-0.020	-71.31	5128	0.00	200	
Pb	209	208	2	no gas	-0.010	-0.010	-92.53	23411	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2069069	0.85	1982866	104.35	70	120	
Sc	45	1	He	761732	0.41	767851	99.20	70	120	
Ge	72	1	He	311567	0.42	320058	97.35	70	125	
Ge	72	2	no gas	665505	0.37	673177	98.86	70	125	
Ge	72	3	H2	804522	0.34	821457	97.94	70	120	
Y	89	1	He	2674981	1.44	2786775	95.99	70	120	
In	115	1	He	3033027	1.46	3045232	99.60	70	120	
In	115	2	no gas	4626166	0.92	4564130	101.36	70	120	
In	115	3	H2	6125869	1.20	5826290	105.14	70	120	
Tb	159	1	He	4705188	0.68	4638687	101.43	70	120	
Tb	159	2	no gas	5778588	1.62	5623529	102.76	70	120	
Bi	209	2	no gas	3525927	1.12	3475006	101.47	60	120	

Sample Report

Sample Table

Sample Name	LCS 400-439515/2-A
Data File Name	101SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:54:39-05:00
Sample Type	Sample
Dilution	1
Comment	439515_2
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	52.669	52.669	1.90	1602300	0.00	200	
Be	6	9	2	no gas	49.884	49.884	0.57	426491	0.01	200	
B	6	11	2	no gas	99.509	99.509	1.42	481009	0.02	400	
Na	72	23	1	He	5174.815	5174.815	0.46	21810778	0.02	50000	
Mg	72	24	1	He	5147.010	5147.010	1.12	12634929	0.04	50000	
Al	45	27	3	H2	528.295	528.295	0.39	7326770	0.01	50000	
Si	45	28	3	H2	59.324	59.324	0.47	506991	0.01	2000	
K	72	39	1	He	5077.246	5077.246	0.96	19154551	0.03	50000	
Ca	72	44	1	He	4972.673	4972.673	0.13	831010	0.60	25000	
Ti	72	49	1	He	51.682	51.682	2.70	34430	0.15	200	
V	72	51	1	He	48.592	48.592	0.43	818160	0.01	200	
Cr	72	52	1	He	48.207	48.207	1.17	862707	0.01	200	
Mn	72	55	1	He	501.650	501.650	0.42	7859888	0.01	2500	
Fe	72	56	3	H2	5071.234	5071.234	0.29	202305410	0.00	50000	
Co	72	59	1	He	49.474	49.474	0.44	1134420	0.00	200	
Ni	72	60	1	He	50.377	50.377	0.96	270334	0.02	200	
copper	72	63	1	He	49.687	49.687	0.36	682791	0.01	200	
Zn	72	66	1	He	50.246	50.246	1.45	142131	0.04	200	
arsenic	72	75	1	He	49.095	49.095	0.05	108829	0.05	200	
selenium	72	78	3	H2	50.565	50.565	0.55	55730	0.09	200	
Sr	72	88	1	He	51.570	51.570	0.59	1184485	0.00	500	
Mo	115	95	1	He	51.674	51.674	2.14	345551	0.01	200	
Ag	115	107	1	He	48.541	48.541	0.96	897511	0.01	200	
Cd	72	111	1	He	50.457	50.457	0.62	185241	0.03	200	
Sn	115	120	1	He	49.479	49.479	2.18	680192	0.01	200	
antimony	159	121	1	He	48.792	48.792	2.70	555638	0.01	200	
Ba	115	137	1	He	49.764	49.764	1.34	255761	0.02	1000	
Tl	159	205	2	no gas	10.337	10.337	0.52	409611	0.00	40	
[Pb]	209	206	2	no gas	52.616	52.616	0.97	708201	0.01	200	
[Pb]	209	207	2	no gas	51.525	51.525	1.81	605383	0.01	200	
Pb	209	208	2	no gas	51.703	51.703	1.80	2846661	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1991103	0.63	1982866	100.42	70	120	
Sc	45	1	He	757510	0.57	767851	98.65	70	120	
Ge	72	1	He	311332	0.43	320058	97.27	70	125	
Ge	72	2	no gas	651296	0.83	673177	96.75	70	125	
Ge	72	3	H2	803967	0.73	821457	97.87	70	120	
Y	89	1	He	2629584	1.24	2786775	94.36	70	120	
In	115	1	He	2908977	1.27	3045232	95.53	70	120	
In	115	2	no gas	4476140	1.93	4564130	98.07	70	120	
In	115	3	H2	6113624	1.06	5826290	104.93	70	120	
Tb	159	1	He	4618870	2.55	4638687	99.57	70	120	
Tb	159	2	no gas	5685481	1.12	5623529	101.10	70	120	
Bi	209	2	no gas	3433029	1.05	3475006	98.79	60	120	

Sample Report

Sample Table

Sample Name	400-169273-E-17-A^5
Data File Name	102SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T18:58:36-05:00
Sample Type	Sample
Dilution	1
Comment	439515_3
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	3.960	3.960	2.58	246082	0.00	200	
Be	6	9	2	no gas	0.001	0.001	263.30	114	0.00	200	
B	6	11	2	no gas	15.746	15.746	1.43	92446	0.02	400	
Na	72	23	1	He	8615.975	8615.975	0.77	35465323	0.02	50000	
Mg	72	24	1	He	3006.893	3006.893	1.29	7218382	0.04	50000	
Al	45	27	3	H2	12.038	12.038	1.20	182102	0.01	50000	
Si	45	28	3	H2	2899.546	2899.546	0.64	20938112	0.01	2000	>LDR
K	72	39	1	He	1760.759	1760.759	1.14	6757032	0.03	50000	
Ca	72	44	1	He	34196.354	34196.354	1.39	5572529	0.61	25000	>LDR
Ti	72	49	1	He	0.534	0.534	4.73	548	0.10	200	
V	72	51	1	He	0.106	0.106	6.74	6516	0.00	200	
Cr	72	52	1	He	0.026	0.026	64.21	2824	0.00	200	
Mn	72	55	1	He	42.462	42.462	0.99	653813	0.01	2500	
Fe	72	56	3	H2	502.475	502.475	0.99	20256021	0.00	50000	
Co	72	59	1	He	0.028	0.028	36.91	1029	0.00	200	
Ni	72	60	1	He	0.631	0.631	2.22	3490	0.02	200	
copper	72	63	1	He	0.106	0.106	8.52	2159	0.00	200	
Zn	72	66	1	He	0.678	0.678	17.45	2970	0.02	200	
arsenic	72	75	1	He	3.179	3.179	0.65	7455	0.04	200	
selenium	72	78	3	H2	0.147	0.147	12.14	399	0.04	200	
Sr	72	88	1	He	132.170	132.170	1.56	2967316	0.00	500	
Mo	115	95	1	He	0.067	0.067	78.89	2704	0.00	200	
Ag	115	107	1	He	0.001	0.001	868.42	496	0.00	200	
Cd	72	111	1	He	-0.004	-0.004	-314.97	90	0.00	200	
Sn	115	120	1	He	0.637	0.637	3.42	13819	0.00	200	
antimony	159	121	1	He	-0.101	-0.101	-13.51	1672	-0.01	200	
Ba	115	137	1	He	31.920	31.920	0.47	168058	0.02	1000	
Tl	159	205	2	no gas	0.002	0.002	56.92	271	0.00	40	
[Pb]	209	206	2	no gas	0.096	0.096	12.56	7472	0.00	200	
[Pb]	209	207	2	no gas	0.070	0.070	50.54	5941	0.00	200	
Pb	209	208	2	no gas	0.090	0.090	5.39	27821	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1980083	1.60	1982866	99.86	70	120	
Sc	45	1	He	730274	0.59	767851	95.11	70	120	
Ge	72	1	He	304387	1.00	320058	95.10	70	125	
Ge	72	2	no gas	652634	0.80	673177	96.95	70	125	
Ge	72	3	H2	799250	0.18	821457	97.30	70	120	
Y	89	1	He	2624229	0.56	2786775	94.17	70	120	
In	115	1	He	2979217	0.82	3045232	97.83	70	120	
In	115	2	no gas	4535516	0.45	4564130	99.37	70	120	
In	115	3	H2	6241130	0.50	5826290	107.12	70	120	
Tb	159	1	He	4608837	1.53	4638687	99.36	70	120	
Tb	159	2	no gas	5690690	0.88	5623529	101.19	70	120	
Bi	209	2	no gas	3381946	2.22	3475006	97.32	60	120	

Sample Report

Sample Table

Sample Name	400-169273-F-17-A^5
Data File Name	103SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:02:30-05:00
Sample Type	Sample
Dilution	1
Comment	439515_4
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.055	4.055	9.50	249539	0.00	200	
Be	6	9	2	no gas	-0.003	-0.003	-83.19	81	0.00	200	
B	6	11	2	no gas	15.148	15.148	5.79	89995	0.02	400	
Na	72	23	1	He	8549.858	8549.858	0.92	35567651	0.02	50000	
Mg	72	24	1	He	2944.722	2944.722	1.75	7144948	0.04	50000	
Al	45	27	3	H2	0.831	0.831	5.44	26989	0.00	50000	
Si	45	28	3	H2	2871.359	2871.359	0.90	20756676	0.01	2000	>LDR
K	72	39	1	He	1732.499	1732.499	1.23	6726088	0.03	50000	
Ca	72	44	1	He	32843.053	32843.053	0.53	5409655	0.61	25000	>LDR
Ti	72	49	1	He	0.091	0.091	71.46	263	0.03	200	
V	72	51	1	He	0.150	0.150	4.29	7317	0.00	200	
Cr	72	52	1	He	0.007	0.007	174.22	2524	0.00	200	
Mn	72	55	1	He	40.947	40.947	0.58	637352	0.01	2500	
Fe	72	56	3	H2	465.989	465.989	1.96	18819874	0.00	50000	
Co	72	59	1	He	0.010	0.010	12.59	618	0.00	200	
Ni	72	60	1	He	0.138	0.138	2.05	913	0.02	200	
copper	72	63	1	He	-0.011	-0.011	-40.19	590	0.00	200	
Zn	72	66	1	He	0.289	0.289	25.96	1924	0.02	200	
arsenic	72	75	1	He	3.665	3.665	0.30	8595	0.04	200	
selenium	72	78	3	H2	-0.105	-0.105	-6.60	124	-0.09	200	
Sr	72	88	1	He	129.046	129.046	1.68	2927617	0.00	500	
Mo	115	95	1	He	-0.130	-0.130	-29.06	1340	-0.01	200	
Ag	115	107	1	He	-0.011	-0.011	-16.90	267	0.00	200	
Cd	72	111	1	He	-0.026	-0.026	-10.45	10	-0.26	200	
Sn	115	120	1	He	-0.158	-0.158	-4.14	2677	-0.01	200	
antimony	159	121	1	He	-0.192	-0.192	-7.06	646	-0.03	200	
Ba	115	137	1	He	31.254	31.254	1.10	162390	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-11.48	95	0.00	40	
[Pb]	209	206	2	no gas	-0.007	-0.007	-653.10	6061	0.00	200	
[Pb]	209	207	2	no gas	-0.024	-0.024	-106.21	4824	0.00	200	
Pb	209	208	2	no gas	0.003	0.003	461.53	22958	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1988460	3.73	1982866	100.28	70	120	
Sc	45	1	He	738174	0.26	767851	96.14	70	120	
Ge	72	1	He	307639	1.00	320058	96.12	70	125	
Ge	72	2	no gas	647440	0.05	673177	96.18	70	125	
Ge	72	3	H2	799660	0.68	821457	97.35	70	120	
Y	89	1	He	2648291	0.69	2786775	95.03	70	120	
In	115	1	He	2940211	1.55	3045232	96.55	70	120	
In	115	2	no gas	4510925	0.84	4564130	98.83	70	120	
In	115	3	H2	6228084	0.84	5826290	106.90	70	120	
Tb	159	1	He	4647884	0.67	4638687	100.20	70	120	
Tb	159	2	no gas	5651040	1.08	5623529	100.49	70	120	
Bi	209	2	no gas	3350344	0.93	3475006	96.41	60	120	

Sample Report

Sample Table

Sample Name	400-169273-F-18-A^5
Data File Name	104SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:06:24-05:00
Sample Type	Sample
Dilution	1
Comment	439515_5
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	45.405	45.405	1.84	1348856	0.00	200	
Be	6	9	2	no gas	0.000	0.000	1029.57	104	0.00	200	
B	6	11	2	no gas	23.698	23.698	2.53	125012	0.02	400	
Na	72	23	1	He	17651.440	17651.440	0.65	71775302	0.02	50000	
Mg	72	24	1	He	8493.283	8493.283	1.15	20150441	0.04	50000	
Al	45	27	3	H2	17.700	17.700	2.02	258917	0.01	50000	
Si	45	28	3	H2	11950.220	11950.220	0.73	85519179	0.01	2000	>LDR
K	72	39	1	He	2753.985	2753.985	1.26	10225551	0.03	50000	
Ca	72	44	1	He	30130.541	30130.541	1.42	4854931	0.62	25000	>LDR
Ti	72	49	1	He	0.565	0.565	10.43	561	0.10	200	
V	72	51	1	He	0.259	0.259	5.87	8931	0.00	200	
Cr	72	52	1	He	0.056	0.056	26.74	3300	0.00	200	
Mn	72	55	1	He	162.900	162.900	0.87	2469573	0.01	2500	
Fe	72	56	3	H2	7230.077	7230.077	0.64	278129576	0.00	50000	
Co	72	59	1	He	1.147	1.147	0.45	25802	0.00	200	
Ni	72	60	1	He	3.349	3.349	4.14	17539	0.02	200	
copper	72	63	1	He	0.355	0.355	2.43	5438	0.01	200	
Zn	72	66	1	He	4.374	4.374	1.26	12962	0.03	200	
arsenic	72	75	1	He	85.491	85.491	0.76	182739	0.05	200	
selenium	72	78	3	H2	-0.129	-0.129	-10.24	95	-0.13	200	
Sr	72	88	1	He	70.352	70.352	0.53	1561803	0.00	500	
Mo	115	95	1	He	0.525	0.525	3.66	5598	0.01	200	
Ag	115	107	1	He	-0.012	-0.012	-7.50	240	-0.01	200	
Cd	72	111	1	He	-0.012	-0.012	-45.69	60	-0.02	200	
Sn	115	120	1	He	-0.134	-0.134	-24.10	2927	0.00	200	
antimony	159	121	1	He	-0.199	-0.199	-1.52	558	-0.04	200	
Ba	115	137	1	He	9.949	9.949	0.39	50488	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-35.84	100	0.00	40	
[Pb]	209	206	2	no gas	0.093	0.093	34.18	7435	0.00	200	
[Pb]	209	207	2	no gas	0.103	0.103	14.72	6325	0.00	200	
Pb	209	208	2	no gas	0.100	0.100	4.94	28381	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1917906	1.76	1982866	96.72	70	120	
Sc	45	1	He	721338	0.69	767851	93.94	70	120	
Ge	72	1	He	300951	0.79	320058	94.03	70	125	
Ge	72	2	no gas	633423	0.77	673177	94.09	70	125	
Ge	72	3	H2	775694	0.77	821457	94.43	70	120	
Y	89	1	He	2593316	0.31	2786775	93.06	70	120	
In	115	1	He	2867689	0.95	3045232	94.17	70	120	
In	115	2	no gas	4478306	1.19	4564130	98.12	70	120	
In	115	3	H2	6238304	1.56	5826290	107.07	70	120	
Tb	159	1	He	4620315	0.62	4638687	99.60	70	120	
Tb	159	2	no gas	5689110	1.41	5623529	101.17	70	120	
Bi	209	2	no gas	3383754	0.58	3475006	97.37	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	106_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:14:20-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.009	50.009	1.83	1501034	0.00	50	
Be	6	9	2	no gas	48.868	48.868	2.09	410592	0.01	50	
B	6	11	2	no gas	96.710	96.710	0.90	456941	0.02	100	
Na	72	23	1	He	4960.054	4960.054	1.50	20802706	0.02	5000	
Mg	72	24	1	He	4958.506	4958.506	2.53	12104046	0.04	5000	
Al	45	27	3	H2	511.455	511.455	0.77	7000069	0.01	500	
K	72	39	1	He	4976.455	4976.455	1.37	18650701	0.03	5000	
Ca	72	44	1	He	4725.380	4725.380	1.29	786528	0.60	5000	
Ti	72	49	1	He	49.846	49.846	1.60	32986	0.15	50	
V	72	51	1	He	46.835	46.835	0.47	788535	0.01	50	
Cr	72	52	1	He	47.160	47.160	1.07	839036	0.01	50	
Mn	72	55	1	He	489.893	489.893	1.40	7631053	0.01	500	
Fe	72	56	3	H2	4845.362	4845.362	0.45	191595190	0.00	5000	
Co	72	59	1	He	47.332	47.332	1.52	1078778	0.00	50	
Ni	72	60	1	He	48.876	48.876	0.95	260853	0.02	50	
copper	72	63	1	He	47.683	47.683	0.19	651450	0.01	50	
dwCu63	72	63	2	no gas	48.262	48.262	0.79	964696	0.01	50	
Zn	72	66	1	He	48.929	48.929	1.45	138927	0.04	50	
arsenic	72	75	1	He	46.695	46.695	0.90	103014	0.05	50	
dwAs75	72	75	2	no gas	48.048	48.048	0.09	211601	0.02	50	
selenium	72	78	3	H2	50.066	50.066	0.99	54373	0.09	50	
Sr	72	88	1	He	49.158	49.158	1.07	1122797	0.00	50	
Mo	115	95	1	He	48.897	48.897	0.57	330577	0.01	50	
Ag	115	107	1	He	46.862	46.862	0.77	880464	0.01	50	
Cd	72	111	1	He	49.264	49.264	0.63	179720	0.03	50	
Sn	115	120	1	He	49.340	49.340	1.41	687346	0.01	50	
antimony	159	121	1	He	50.327	50.327	0.91	577710	0.01	50	
dwSb121	159	121	2	no gas	53.402	53.402	0.55	800230	0.01	50	
Ba	115	137	1	He	47.570	47.570	0.80	248492	0.02	50	
Tl	159	205	2	no gas	10.040	10.040	0.42	400034	0.00	10	
[Pb]	209	206	2	no gas	51.207	51.207	1.28	685229	0.01	50	
[Pb]	209	207	2	no gas	50.153	50.153	0.70	585704	0.01	50	
Pb	209	208	2	no gas	50.346	50.346	3.57	2755652	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1957310	1.51	1982866	98.71	70	120	
Sc	45	1	He	750043	0.37	767851	97.68	70	120	
Ge	72	1	He	309531	0.47	320058	96.71	70	125	
Ge	72	2	no gas	649800	0.97	673177	96.53	70	125	
Ge	72	3	H2	794765	0.60	821457	96.75	70	120	
Y	89	1	He	2638661	0.89	2786775	94.69	70	120	
In	115	1	He	2956591	1.48	3045232	97.09	70	120	
In	115	2	no gas	4525326	0.97	4564130	99.15	70	120	
In	115	3	H2	6187425	1.36	5826290	106.20	70	120	
Tb	159	1	He	4675265	0.72	4638687	100.79	70	120	
Tb	159	2	no gas	5717858	0.05	5623529	101.68	70	120	
Bi	209	2	no gas	3413568	1.63	3475006	98.23	60	120	

Sample Table

Sample Name	CCB
Data File Name	108_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:22:09-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.008	0.008	1107.32	117743	0.00	0.5	
Be	6	9	2	no gas	-0.010	-0.010	-10.95	59	-0.02	0.5	
B	6	11	2	no gas	-1.973	-1.973	-19.52	16301	-0.01	5	
Na	72	23	1	He	-2.877	-2.877	-17.57	52324	-0.01	100	
Mg	72	24	1	He	-2.351	-2.351	-7.06	2877	-0.08	50	
Al	45	27	3	H2	0.111	0.111	56.33	15767	0.00	50	
K	72	39	1	He	-2.980	-2.980	-79.96	387636	0.00	50	
Ca	72	44	1	He	-0.768	-0.768	-107.04	2260	-0.03	50	
Ti	72	49	1	He	-0.006	-0.006	-445.52	184	0.00	0.5	
V	72	51	1	He	0.004	0.004	708.66	4959	0.00	0.5	
Cr	72	52	1	He	-0.031	-0.031	-56.66	2057	0.00	0.5	
Mn	72	55	1	He	-0.263	-0.263	-8.61	1957	-0.01	2	
Fe	72	56	3	H2	-5.457	-5.457	-1.81	145935	0.00	25	
Co	72	59	1	He	-0.022	-0.022	-7.48	118	-0.02	0.5	
Ni	72	60	1	He	0.009	0.009	178.48	220	0.00	1.5	
copper	72	63	1	He	-0.026	-0.026	-22.24	529	0.00	0.5	
dwCu63	72	63	2	no gas	-0.026	-0.026	-38.04	713	0.00	0.5	
Zn	72	66	1	He	-0.054	-0.054	-64.17	1173	0.00	4	
arsenic	72	75	1	He	-0.092	-0.092	-22.17	413	-0.02	0.25	
dwAs75	72	75	2	no gas	0.149	0.149	111.04	-146	-0.10	5	
selenium	72	78	3	H2	-0.101	-0.101	-15.01	126	-0.08	0.25	
dwSe82	72	82	2	no gas	-0.688	-0.688	-15.91	212	-0.33	5	
Sr	72	88	1	He	-0.025	-0.025	-7.76	267	-0.01	0.5	
Mo	115	95	1	He	-0.191	-0.191	-12.40	767	-0.02	1	
Ag	115	107	1	He	-0.018	-0.018	-9.78	290	-0.01	0.05	
Cd	72	111	1	He	-0.023	-0.023	-7.04	7	-0.34	0.25	
Sn	115	120	1	He	-0.107	-0.107	-9.02	3340	0.00	0.5	
antimony	159	121	1	He	-0.144	-0.144	-16.08	1193	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.248	-0.248	-8.36	2631	-0.01	5	
Ba	115	137	1	He	-0.027	-0.027	-10.13	56	-0.05	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-25.30	77	0.00	0.1	
[Pb]	209	206	2	no gas	-0.013	-0.013	-228.89	5364	0.00	0.25	
[Pb]	209	207	2	no gas	0.000	0.000	19295.69	4581	0.00	0.25	
Pb	209	208	2	no gas	-0.038	-0.038	-35.40	20263	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1759184	9.16	1982866	88.72	70	120	
Sc	45	1	He	740458	0.45	767851	96.43	70	120	
Ge	72	1	He	306347	0.71	320058	95.72	70	125	
Ge	72	2	no gas	568402	8.85	673177	84.44	70	125	
Ge	72	3	H2	782740	0.61	821457	95.29	70	120	
Y	89	1	He	2643495	1.48	2786775	94.86	70	120	
In	115	1	He	2910805	0.39	3045232	95.59	70	120	
In	115	2	no gas	3929069	9.35	4564130	86.09	70	120	
In	115	3	H2	6102663	1.12	5826290	104.74	70	120	
Tb	159	1	He	4657511	1.01	4638687	100.41	70	120	
Tb	159	2	no gas	4945358	9.01	5623529	87.94	70	120	
Bi	209	2	no gas	3088810	8.65	3475006	88.89	60	120	

Sample Report

Sample Table

Sample Name	400-169273-E-18-A^5
Data File Name	109SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:26:08-05:00
Sample Type	Sample
Dilution	1
Comment	439515_6
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	45.737	45.737	2.20	1327592	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-17.34	80	-0.01	200	
B	6	11	2	no gas	22.374	22.374	2.20	124071	0.02	400	
Na	72	23	1	He	17418.030	17418.030	0.12	70008836	0.02	50000	
Mg	72	24	1	He	8394.350	8394.350	1.08	19687528	0.04	50000	
Al	45	27	3	H2	2.534	2.534	2.29	47469	0.01	50000	
Si	45	28	3	H2	12089.599	12089.599	2.29	83144252	0.01	2000	>LDR
K	72	39	1	He	2773.712	2773.712	1.38	10169984	0.03	50000	
Ca	72	44	1	He	30024.613	30024.613	0.54	4781735	0.63	25000	>LDR
Ti	72	49	1	He	0.192	0.192	38.84	304	0.06	200	
V	72	51	1	He	0.131	0.131	13.20	6858	0.00	200	
Cr	72	52	1	He	-0.012	-0.012	-45.52	2317	0.00	200	
Mn	72	55	1	He	161.902	161.902	1.19	2428159	0.01	2500	
Fe	72	56	3	H2	7165.197	7165.197	0.27	270352289	0.00	50000	
Co	72	59	1	He	1.140	1.140	0.79	25571	0.00	200	
Ni	72	60	1	He	3.381	3.381	6.50	17495	0.02	200	
copper	72	63	1	He	-0.014	-0.014	-13.24	669	0.00	200	
Zn	72	66	1	He	3.312	3.312	7.05	10163	0.03	200	
arsenic	72	75	1	He	85.200	85.200	0.66	180006	0.05	200	
selenium	72	78	3	H2	-0.135	-0.135	-9.32	87	-0.16	200	
Sr	72	88	1	He	68.943	68.943	1.05	1512886	0.00	500	
Mo	115	95	1	He	0.483	0.483	10.77	5201	0.01	200	
Ag	115	107	1	He	-0.023	-0.023	-7.86	207	-0.01	200	
Cd	72	111	1	He	-0.022	-0.022	-13.02	10	-0.22	200	
Sn	115	120	1	He	-0.154	-0.154	-7.43	2674	-0.01	200	
antimony	159	121	1	He	-0.174	-0.174	-7.32	838	-0.02	200	
Ba	115	137	1	He	8.887	8.887	0.94	45465	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-3.61	55	-0.01	40	
[Pb]	209	206	2	no gas	-0.010	-0.010	-61.88	5988	0.00	200	
[Pb]	209	207	2	no gas	-0.026	-0.026	-62.21	4801	0.00	200	
Pb	209	208	2	no gas	-0.038	-0.038	-17.16	22521	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1881086	0.81	1982866	94.87	70	120	
Sc	45	1	He	707111	0.60	767851	92.09	70	120	
Ge	72	1	He	297443	0.44	320058	92.93	70	125	
Ge	72	2	no gas	630365	0.42	673177	93.64	70	125	
Ge	72	3	H2	760804	0.36	821457	92.62	70	120	
Y	89	1	He	2540218	1.50	2786775	91.15	70	120	
In	115	1	He	2884411	0.38	3045232	94.72	70	120	
In	115	2	no gas	4462817	0.63	4564130	97.78	70	120	
In	115	3	H2	6076048	1.25	5826290	104.29	70	120	
Tb	159	1	He	4571964	1.20	4638687	98.56	70	120	
Tb	159	2	no gas	5673613	1.28	5623529	100.89	70	120	
Bi	209	2	no gas	3426405	2.06	3475006	98.60	60	120	

Sample Report

Sample Table

Sample Name	400-169273-E-19-A^5
Data File Name	110SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:30:03-05:00
Sample Type	Sample
Dilution	1
Comment	439515_7
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	7.170	7.170	5.71	313499	0.00	200	
Be	6	9	2	no gas	0.002	0.002	141.16	160	0.00	200	
B	6	11	2	no gas	18.835	18.835	5.68	108334	0.02	400	
Na	72	23	1	He	83827.301	83827.301	1.29	328816582	0.03	50000	>LDR
Mg	72	24	1	He	1175.400	1175.400	0.73	2699364	0.04	50000	
Al	45	27	3	H2	231.338	231.338	0.67	3025642	0.01	50000	
Si	45	28	3	H2	6638.004	6638.004	2.49	44970824	0.01	2000	>LDR
K	72	39	1	He	1270.082	1270.082	1.38	4752756	0.03	50000	
Ca	72	44	1	He	13380.086	13380.086	2.14	2082219	0.64	25000	
Ti	72	49	1	He	5.086	5.086	6.75	3322	0.15	200	
V	72	51	1	He	4.587	4.587	2.54	76276	0.01	200	
Cr	72	52	1	He	0.362	0.362	3.85	8486	0.00	200	
Mn	72	55	1	He	40.850	40.850	0.61	602609	0.01	2500	
Fe	72	56	3	H2	385.179	385.179	0.36	14852196	0.00	50000	
Co	72	59	1	He	0.162	0.162	4.43	4057	0.00	200	
Ni	72	60	1	He	1.556	1.556	7.04	7949	0.02	200	
copper	72	63	1	He	0.372	0.372	2.26	5603	0.01	200	
Zn	72	66	1	He	3.228	3.228	3.18	9710	0.03	200	
arsenic	72	75	1	He	28.702	28.702	0.87	59611	0.05	200	
selenium	72	78	3	H2	0.191	0.191	23.22	425	0.04	200	
Sr	72	88	1	He	40.359	40.359	0.87	865262	0.00	500	
Mo	115	95	1	He	2.216	2.216	2.19	16154	0.01	200	
Ag	115	107	1	He	-0.020	-0.020	-8.54	247	-0.01	200	
Cd	72	111	1	He	0.008	0.008	70.03	110	0.01	200	
Sn	115	120	1	He	-0.188	-0.188	-4.62	2157	-0.01	200	
antimony	159	121	1	He	-0.063	-0.063	-24.38	2082	0.00	200	
Ba	115	137	1	He	5.795	5.795	0.65	28886	0.02	1000	
Tl	159	205	2	no gas	0.006	0.006	26.04	411	0.00	40	
[Pb]	209	206	2	no gas	0.341	0.341	9.16	10227	0.00	200	
[Pb]	209	207	2	no gas	0.284	0.284	1.38	8062	0.00	200	
Pb	209	208	2	no gas	0.294	0.294	7.41	38970	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1878229	3.14	1982866	94.72	70	120	
Sc	45	1	He	709894	0.27	767851	92.45	70	120	
Ge	72	1	He	290510	1.03	320058	90.77	70	125	
Ge	72	2	no gas	624583	1.64	673177	92.78	70	125	
Ge	72	3	H2	760280	0.82	821457	92.55	70	120	
Y	89	1	He	2550548	1.38	2786775	91.52	70	120	
In	115	1	He	2804037	1.43	3045232	92.08	70	120	
In	115	2	no gas	4287349	1.26	4564130	93.94	70	120	
In	115	3	H2	6083679	0.76	5826290	104.42	70	120	
Tb	159	1	He	4577183	0.22	4638687	98.67	70	120	
Tb	159	2	no gas	5577137	1.16	5623529	99.18	70	120	
Bi	209	2	no gas	3290861	2.19	3475006	94.70	60	120	

Sample Report

Sample Table

Sample Name	400-169273-F-20-A^5
Data File Name	111SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:34:03-05:00
Sample Type	Sample
Dilution	1
Comment	439515_8
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	118.625	118.625	1.50	3166760	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-7.74	93	-0.01	200	
B	6	11	2	no gas	31.775	31.775	1.33	161331	0.02	400	
Na	72	23	1	He	51214.963	51214.963	1.38	203277550	0.03	50000	>LDR
Mg	72	24	1	He	11135.568	11135.568	1.16	25802956	0.04	50000	
Al	45	27	3	H2	15.644	15.644	2.65	212093	0.01	50000	
Si	45	28	3	H2	10148.425	10148.425	2.40	67031294	0.02	2000	>LDR
K	72	39	1	He	7451.240	7451.240	0.92	26349999	0.03	50000	
Ca	72	44	1	He	47354.866	47354.866	0.81	7450635	0.64	25000	>LDR
Ti	72	49	1	He	0.377	0.377	11.61	417	0.09	200	
V	72	51	1	He	0.201	0.201	5.04	7872	0.00	200	
Cr	72	52	1	He	0.012	0.012	147.68	2700	0.00	200	
Mn	72	55	1	He	738.051	738.051	1.11	10916709	0.01	2500	
Fe	72	56	3	H2	17754.000	17754.000	1.86	650816964	0.00	50000	
Co	72	59	1	He	11.608	11.608	0.17	251786	0.00	200	
Ni	72	60	1	He	16.239	16.239	1.14	82376	0.02	200	
copper	72	63	1	He	0.183	0.183	3.65	3211	0.01	200	
Zn	72	66	1	He	10.381	10.381	3.26	28766	0.04	200	
arsenic	72	75	1	He	411.108	411.108	0.73	855964	0.05	200	>LDR
selenium	72	78	3	H2	-0.154	-0.154	-2.44	65	-0.24	200	
Sr	72	88	1	He	35.120	35.120	0.64	761872	0.00	500	
Mo	115	95	1	He	-0.100	-0.100	-28.79	1323	-0.01	200	
Ag	115	107	1	He	-0.023	-0.023	-9.57	194	-0.01	200	
Cd	72	111	1	He	-0.012	-0.012	-36.26	43	-0.03	200	
Sn	115	120	1	He	-0.179	-0.179	-13.87	2277	-0.01	200	
antimony	159	121	1	He	-0.202	-0.202	-3.16	524	-0.04	200	
Ba	115	137	1	He	1.167	1.167	9.03	5981	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-180.12	167	0.00	40	
[Pb]	209	206	2	no gas	0.039	0.039	96.42	6405	0.00	200	
[Pb]	209	207	2	no gas	0.004	0.004	770.29	4961	0.00	200	
Pb	209	208	2	no gas	0.002	0.002	504.68	23825	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1836821	0.55	1982866	92.63	70	120	
Sc	45	1	He	699017	0.33	767851	91.04	70	120	
Ge	72	1	He	293897	0.08	320058	91.83	70	125	
Ge	72	2	no gas	625985	0.63	673177	92.99	70	125	
Ge	72	3	H2	739822	1.28	821457	90.06	70	120	
Y	89	1	He	2501171	0.47	2786775	89.75	70	120	
In	115	1	He	2810565	0.96	3045232	92.29	70	120	
In	115	2	no gas	4358259	0.31	4564130	95.49	70	120	
In	115	3	H2	6068498	1.03	5826290	104.16	70	120	
Tb	159	1	He	4565943	1.25	4638687	98.43	70	120	
Tb	159	2	no gas	5608412	1.59	5623529	99.73	70	120	
Bi	209	2	no gas	3306359	0.74	3475006	95.15	60	120	

Sample Report

Sample Table

Sample Name	400-169273-E-20-A^5
Data File Name	112SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:38:00-05:00
Sample Type	Sample
Dilution	1
Comment	439515_9
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	117.618	117.618	1.71	3130875	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-35.34	93	-0.01	200	
B	6	11	2	no gas	32.021	32.021	3.70	161837	0.02	400	
Na	72	23	1	He	51080.955	51080.955	0.39	202226964	0.03	50000	>LDR
Mg	72	24	1	He	11430.647	11430.647	0.73	26418610	0.04	50000	
Al	45	27	3	H2	11.644	11.644	0.31	159706	0.01	50000	
Si	45	28	3	H2	9876.166	9876.166	1.46	64598849	0.02	2000	>LDR
K	72	39	1	He	7452.035	7452.035	1.79	26284350	0.03	50000	
Ca	72	44	1	He	48089.440	48089.440	0.53	7546819	0.64	25000	>LDR
Ti	72	49	1	He	0.174	0.174	44.44	289	0.06	200	
V	72	51	1	He	0.084	0.084	10.53	6013	0.00	200	
Cr	72	52	1	He	-0.012	-0.012	-156.64	2294	0.00	200	
Mn	72	55	1	He	753.664	753.664	1.04	11118828	0.01	2500	
Fe	72	56	3	H2	18162.091	18162.091	0.47	658026364	0.00	50000	
Co	72	59	1	He	11.772	11.772	0.69	254673	0.00	200	
Ni	72	60	1	He	16.505	16.505	1.15	83514	0.02	200	
copper	72	63	1	He	0.011	0.011	60.21	981	0.00	200	
Zn	72	66	1	He	9.486	9.486	1.54	26329	0.04	200	
arsenic	72	75	1	He	414.004	414.004	0.93	859780	0.05	200	>LDR
selenium	72	78	3	H2	-0.167	-0.167	-8.59	52	-0.32	200	
Sr	72	88	1	He	35.833	35.833	1.44	775310	0.00	500	
Mo	115	95	1	He	-0.081	-0.081	-45.74	1447	-0.01	200	
Ag	115	107	1	He	-0.022	-0.022	-8.63	211	-0.01	200	
Cd	72	111	1	He	-0.014	-0.014	-31.11	37	-0.04	200	
Sn	115	120	1	He	-0.195	-0.195	-2.86	2067	-0.01	200	
antimony	159	121	1	He	-0.203	-0.203	-0.67	517	-0.04	200	
Ba	115	137	1	He	1.033	1.033	1.92	5325	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-84.50	144	0.00	40	
[Pb]	209	206	2	no gas	-0.022	-0.022	-39.40	5548	0.00	200	
[Pb]	209	207	2	no gas	0.007	0.007	322.15	4928	0.00	200	
Pb	209	208	2	no gas	-0.037	-0.037	-65.65	21473	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1831070	1.42	1982866	92.34	70	120	
Sc	45	1	He	696157	0.21	767851	90.66	70	120	
Ge	72	1	He	293152	0.56	320058	91.59	70	125	
Ge	72	2	no gas	623815	0.21	673177	92.67	70	125	
Ge	72	3	H2	731135	1.45	821457	89.00	70	120	
Y	89	1	He	2502002	0.78	2786775	89.78	70	120	
In	115	1	He	2816438	1.32	3045232	92.49	70	120	
In	115	2	no gas	4369185	0.97	4564130	95.73	70	120	
In	115	3	H2	6123128	1.28	5826290	105.09	70	120	
Tb	159	1	He	4616349	0.58	4638687	99.52	70	120	
Tb	159	2	no gas	5625843	0.65	5623529	100.04	70	120	
Bi	209	2	no gas	3264005	1.30	3475006	93.93	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-21-A^5
Data File Name	113SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:41:58-05:00
Sample Type	Sample
Dilution	1
Comment	439515_10
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	3.240	3.240	6.24	205106	0.00	200	
Be	6	9	2	no gas	-0.012	-0.012	-14.41	48	-0.03	200	
B	6	11	2	no gas	9.391	9.391	4.09	65419	0.01	400	
Na	72	23	1	He	12683.634	12683.634	22.04	38185826	0.03	50000	
Mg	72	24	1	He	1695.200	1695.200	22.33	2979526	0.06	50000	
Al	45	27	3	H2	4.692	4.692	4.73	74755	0.01	50000	
Si	45	28	3	H2	3074.360	3074.360	1.87	20850462	0.01	2000	>LDR
K	72	39	1	He	1180.338	1180.338	24.39	3404669	0.03	50000	
Ca	72	44	1	He	28366.859	28366.859	21.70	3388398	0.84	25000	>LDR
Ti	72	49	1	He	0.486	0.486	52.56	360	0.13	200	
V	72	51	1	He	4.941	4.941	21.71	63006	0.01	200	
Cr	72	52	1	He	0.148	0.148	49.96	3754	0.00	200	
Mn	72	55	1	He	15.130	15.130	23.36	173477	0.01	2500	
Fe	72	56	3	H2	50.683	50.683	1.20	2302490	0.00	50000	
Co	72	59	1	He	0.028	0.028	74.02	881	0.00	200	
Ni	72	60	1	He	0.673	0.673	16.42	2754	0.02	200	
copper	72	63	1	He	0.186	0.186	38.75	2428	0.01	200	
Zn	72	66	1	He	0.856	0.856	40.44	2657	0.03	200	
arsenic	72	75	1	He	6.332	6.332	23.99	10403	0.06	200	
selenium	72	78	3	H2	0.376	0.376	1.87	630	0.06	200	
Sr	72	88	1	He	107.313	107.313	21.33	1767048	0.01	500	
Mo	115	95	1	He	0.941	0.941	33.92	6221	0.02	200	
Ag	115	107	1	He	-0.019	-0.019	-24.45	214	-0.01	200	
Cd	72	111	1	He	0.014	0.014	45.99	107	0.01	200	
Sn	115	120	1	He	-0.020	-0.020	-859.10	3190	0.00	200	
antimony	159	121	1	He	-0.075	-0.075	-49.44	1518	0.00	200	
Ba	115	137	1	He	40.679	40.679	25.73	156778	0.03	1000	
Tl	159	205	2	no gas	0.000	0.000	115.85	215	0.00	40	
[Pb]	209	206	2	no gas	0.141	0.141	27.81	8016	0.00	200	
[Pb]	209	207	2	no gas	0.132	0.132	17.68	6645	0.00	200	
Pb	209	208	2	no gas	0.111	0.111	3.79	30669	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1830126	2.25	1982866	92.30	70	120	
Sc	45	1	He	548122	35.76	767851	71.38	70	120	
Ge	72	1	He	234605	34.90	320058	73.30	70	125	
Ge	72	2	no gas	634488	0.59	673177	94.25	70	125	
Ge	72	3	H2	776016	0.51	821457	94.47	70	120	
Y	89	1	He	2028998	36.65	2786775	72.81	70	120	
In	115	1	He	2317024	37.43	3045232	76.09	70	120	
In	115	2	no gas	4504090	2.02	4564130	98.68	70	120	
In	115	3	H2	6235080	0.26	5826290	107.02	70	120	
Tb	159	1	He	3716953	34.26	4638687	80.13	70	120	
Tb	159	2	no gas	5681686	0.80	5623529	101.03	70	120	
Bi	209	2	no gas	3435437	0.52	3475006	98.86	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-21-A SD^25
Data File Name	114SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:45:55-05:00
Sample Type	Sample
Dilution	1
Comment	439515_11
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.755	0.755	5.81	144653	0.00	200	
Be	6	9	2	no gas	-0.014	-0.014	-13.02	37	-0.04	200	
B	6	11	2	no gas	-0.473	-0.473	-63.73	23930	0.00	400	
Na	72	23	1	He	2067.652	2067.652	2.78	8696700	0.02	50000	
Mg	72	24	1	He	278.229	278.229	2.61	686736	0.04	50000	
Al	45	27	3	H2	1.016	1.016	6.96	27991	0.00	50000	
Si	45	28	3	H2	617.149	617.149	1.34	4408622	0.01	2000	
K	72	39	1	He	176.505	176.505	3.22	1049476	0.02	50000	
Ca	72	44	1	He	4693.903	4693.903	1.59	779248	0.60	25000	
Ti	72	49	1	He	-0.083	-0.083	-70.69	136	-0.06	200	
V	72	51	1	He	1.085	1.085	3.50	22996	0.00	200	
Cr	72	52	1	He	-0.013	-0.013	-39.87	2387	0.00	200	
Mn	72	55	1	He	2.285	2.285	4.35	41610	0.01	2500	
Fe	72	56	3	H2	6.328	6.328	2.99	612720	0.00	50000	
Co	72	59	1	He	-0.015	-0.015	-4.66	282	-0.01	200	
Ni	72	60	1	He	0.104	0.104	12.15	730	0.01	200	
copper	72	63	1	He	0.004	0.004	40.41	947	0.00	200	
Zn	72	66	1	He	0.146	0.146	8.02	1743	0.01	200	
arsenic	72	75	1	He	0.984	0.984	2.53	2774	0.04	200	
selenium	72	78	3	H2	-0.065	-0.065	-6.32	167	-0.04	200	
Sr	72	88	1	He	16.933	16.933	2.17	386942	0.00	500	
Mo	115	95	1	He	-0.069	-0.069	-25.90	1613	0.00	200	
Ag	115	107	1	He	-0.022	-0.022	-6.67	230	-0.01	200	
Cd	72	111	1	He	-0.012	-0.012	-27.89	47	-0.03	200	
Sn	115	120	1	He	-0.132	-0.132	-54.84	3064	0.00	200	
antimony	159	121	1	He	-0.200	-0.200	-3.52	567	-0.04	200	
Ba	115	137	1	He	6.371	6.371	1.76	33706	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-20.08	95	0.00	40	
[Pb]	209	206	2	no gas	0.022	0.022	129.47	6688	0.00	200	
[Pb]	209	207	2	no gas	0.011	0.011	235.15	5448	0.00	200	
Pb	209	208	2	no gas	-0.003	-0.003	-227.85	25463	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1869091	1.34	1982866	94.26	70	120	
Sc	45	1	He	722066	0.47	767851	94.04	70	120	
Ge	72	1	He	309276	1.05	320058	96.63	70	125	
Ge	72	2	no gas	655417	1.00	673177	97.36	70	125	
Ge	72	3	H2	795603	0.49	821457	96.85	70	120	
Y	89	1	He	2633123	0.84	2786775	94.49	70	120	
In	115	1	He	2977575	0.44	3045232	97.78	70	120	
In	115	2	no gas	4637272	0.95	4564130	101.60	70	120	
In	115	3	H2	6255888	1.05	5826290	107.37	70	120	
Tb	159	1	He	4715658	1.08	4638687	101.66	70	120	
Tb	159	2	no gas	5829331	0.89	5623529	103.66	70	120	
Bi	209	2	no gas	3573103	1.06	3475006	102.82	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-21-A PDS^5
Data File Name	115SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:49:52-05:00
Sample Type	Sample
Dilution	1
Comment	439515_12
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	55.800	55.800	2.46	1568773	0.00	200	
Be	6	9	2	no gas	51.632	51.632	1.33	411015	0.01	200	
B	6	11	2	no gas	112.849	112.849	4.57	512349	0.02	400	
Na	72	23	1	He	15218.116	15218.116	1.89	62403417	0.02	50000	
Mg	72	24	1	He	6306.267	6306.267	0.90	15089726	0.04	50000	
Al	45	27	3	H2	515.704	515.704	0.48	6894557	0.01	50000	
Si	45	28	3	H2	3125.645	3125.645	0.35	21742796	0.01	2000	>LDR
K	72	39	1	He	5923.916	5923.916	0.72	21708206	0.03	50000	
Ca	72	44	1	He	27634.624	27634.624	2.18	4489604	0.62	25000	>LDR
Ti	72	49	1	He	51.035	51.035	1.41	33124	0.15	200	
V	72	51	1	He	52.425	52.425	1.63	859945	0.01	200	
Cr	72	52	1	He	47.986	47.986	2.09	837157	0.01	200	
Mn	72	55	1	He	505.643	505.643	1.88	7723049	0.01	2500	
Fe	72	56	3	H2	5059.112	5059.112	1.16	197493977	0.00	50000	
Co	72	59	1	He	48.798	48.798	1.74	1090711	0.00	200	
Ni	72	60	1	He	49.647	49.647	1.28	259651	0.02	200	
copper	72	63	1	He	48.598	48.598	1.22	651001	0.01	200	
Zn	72	66	1	He	49.476	49.476	2.90	136607	0.04	200	
arsenic	72	75	1	He	53.704	53.704	1.30	115967	0.05	200	
selenium	72	78	3	H2	51.991	51.991	0.77	56066	0.09	200	
Sr	72	88	1	He	137.192	137.192	1.29	3070093	0.00	500	
Mo	115	95	1	He	52.283	52.283	1.61	346671	0.02	200	
Ag	115	107	1	He	45.763	45.763	1.70	839543	0.01	200	
Cd	72	111	1	He	50.551	50.551	1.66	180845	0.03	200	
Sn	115	120	1	He	47.159	47.159	1.70	643392	0.01	200	
antimony	159	121	1	He	47.245	47.245	0.94	543814	0.01	200	
Ba	115	137	1	He	83.546	83.546	2.91	425951	0.02	1000	
Tl	159	205	2	no gas	10.382	10.382	1.07	421306	0.00	40	
[Pb]	209	206	2	no gas	53.835	53.835	1.33	716974	0.01	200	
[Pb]	209	207	2	no gas	52.631	52.631	1.49	611939	0.01	200	
Pb	209	208	2	no gas	52.502	52.502	2.82	2862400	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1853965	1.89	1982866	93.50	70	120	
Sc	45	1	He	720321	0.98	767851	93.81	70	120	
Ge	72	1	He	303418	0.33	320058	94.80	70	125	
Ge	72	2	no gas	648361	0.33	673177	96.31	70	125	
Ge	72	3	H2	786682	0.48	821457	95.77	70	120	
Y	89	1	He	2598633	1.93	2786775	93.25	70	120	
In	115	1	He	2885560	0.38	3045232	94.76	70	120	
In	115	2	no gas	4518365	1.20	4564130	99.00	70	120	
In	115	3	H2	6236118	0.77	5826290	107.03	70	120	
Tb	159	1	He	4665689	1.11	4638687	100.58	70	120	
Tb	159	2	no gas	5822412	1.98	5623529	103.54	70	120	
Bi	209	2	no gas	3398394	0.92	3475006	97.80	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-21-B MS^5
Data File Name	116SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:53:47-05:00
Sample Type	Sample
Dilution	1
Comment	439515_13
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	14.170	14.170	3.14	485756	0.00	200	
Be	6	9	2	no gas	10.336	10.336	1.62	81543	0.01	200	
B	6	11	2	no gas	32.057	32.057	1.37	162341	0.02	400	
Na	72	23	1	He	11837.317	11837.317	2.44	48219664	0.02	50000	
Mg	72	24	1	He	2431.982	2431.982	0.41	5785318	0.04	50000	
Al	45	27	3	H2	109.985	109.985	2.95	1496184	0.01	50000	
Si	45	28	3	H2	3163.954	3163.954	2.13	22228700	0.01	2000	>LDR
K	72	39	1	He	1977.536	1977.536	0.41	7458998	0.03	50000	
Ca	72	44	1	He	25095.315	25095.315	0.70	4050127	0.62	25000	>LDR
Ti	72	49	1	He	10.627	10.627	1.21	6998	0.15	200	
V	72	51	1	He	13.882	13.882	0.51	229722	0.01	200	
Cr	72	52	1	He	9.827	9.827	1.50	172339	0.01	200	
Mn	72	55	1	He	118.208	118.208	1.55	1798011	0.01	2500	
Fe	72	56	3	H2	1033.059	1033.059	0.61	40719177	0.00	50000	
Co	72	59	1	He	10.053	10.053	1.00	223689	0.00	200	
Ni	72	60	1	He	10.573	10.573	2.07	55058	0.02	200	
copper	72	63	1	He	10.072	10.072	0.81	134705	0.01	200	
Zn	72	66	1	He	11.148	11.148	1.93	31581	0.04	200	
arsenic	72	75	1	He	14.824	14.824	0.41	32232	0.05	200	
selenium	72	78	3	H2	10.929	10.929	0.75	12003	0.09	200	
Sr	72	88	1	He	100.179	100.179	1.15	2226840	0.00	500	
Mo	115	95	1	He	11.216	11.216	1.16	77581	0.01	200	
Ag	115	107	1	He	9.448	9.448	1.66	177557	0.01	200	
Cd	72	111	1	He	10.392	10.392	0.58	36996	0.03	200	
Sn	115	120	1	He	8.984	8.984	0.37	129132	0.01	200	
antimony	159	121	1	He	9.379	9.379	2.69	110837	0.01	200	
Ba	115	137	1	He	43.023	43.023	0.95	224156	0.02	1000	
Tl	159	205	2	no gas	2.059	2.059	1.41	83746	0.00	40	
[Pb]	209	206	2	no gas	10.747	10.747	3.16	150167	0.01	200	
[Pb]	209	207	2	no gas	10.470	10.470	5.69	127600	0.01	200	
Pb	209	208	2	no gas	10.228	10.228	3.94	585729	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1834857	2.06	1982866	92.54	70	120	
Sc	45	1	He	718118	0.47	767851	93.52	70	120	
Ge	72	1	He	301374	1.11	320058	94.16	70	125	
Ge	72	2	no gas	643450	1.05	673177	95.58	70	125	
Ge	72	3	H2	788762	0.29	821457	96.02	70	120	
Y	89	1	He	2572141	0.84	2786775	92.30	70	120	
In	115	1	He	2947318	0.20	3045232	96.78	70	120	
In	115	2	no gas	4533743	0.67	4564130	99.33	70	120	
In	115	3	H2	6197127	0.98	5826290	106.36	70	120	
Tb	159	1	He	4691308	0.56	4638687	101.13	70	120	
Tb	159	2	no gas	5823373	0.34	5623529	103.55	70	120	
Bi	209	2	no gas	3449871	2.12	3475006	99.28	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-21-C MSD^5
Data File Name	117SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T19:57:47-05:00
Sample Type	Sample
Dilution	1
Comment	439515_14
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	14.333	14.333	3.34	492434	0.00	200	
Be	6	9	2	no gas	10.269	10.269	1.88	81430	0.01	200	
B	6	11	2	no gas	30.426	30.426	1.21	156186	0.02	400	
Na	72	23	1	He	11569.052	11569.052	1.19	47548729	0.02	50000	
Mg	72	24	1	He	2391.159	2391.159	1.74	5738117	0.04	50000	
Al	45	27	3	H2	110.878	110.878	1.76	1494267	0.01	50000	
Si	45	28	3	H2	3142.295	3142.295	1.40	21871625	0.01	2000	>LDR
K	72	39	1	He	1966.815	1966.815	1.16	7485875	0.03	50000	
Ca	72	44	1	He	24890.552	24890.552	1.80	4051903	0.61	25000	>LDR
Ti	72	49	1	He	10.569	10.569	1.50	7021	0.15	200	
V	72	51	1	He	13.898	13.898	2.19	231989	0.01	200	
Cr	72	52	1	He	9.667	9.667	3.52	171020	0.01	200	
Mn	72	55	1	He	115.868	115.868	1.70	1777780	0.01	2500	
Fe	72	56	3	H2	1032.259	1032.259	1.75	40820873	0.00	50000	
Co	72	59	1	He	9.874	9.874	2.00	221623	0.00	200	
Ni	72	60	1	He	10.237	10.237	2.91	53774	0.02	200	
copper	72	63	1	He	10.101	10.101	2.29	136256	0.01	200	
Zn	72	66	1	He	10.912	10.912	2.95	31217	0.03	200	
arsenic	72	75	1	He	14.434	14.434	2.10	31672	0.05	200	
selenium	72	78	3	H2	10.765	10.765	0.71	11865	0.09	200	
Sr	72	88	1	He	98.870	98.870	1.85	2217055	0.00	500	
Mo	115	95	1	He	11.126	11.126	2.48	75985	0.01	200	
Ag	115	107	1	He	9.602	9.602	0.27	178126	0.01	200	
Cd	72	111	1	He	10.352	10.352	2.46	37176	0.03	200	
Sn	115	120	1	He	9.219	9.219	2.13	130670	0.01	200	
antimony	159	121	1	He	9.381	9.381	2.18	110787	0.01	200	
Ba	115	137	1	He	43.560	43.560	1.85	224022	0.02	1000	
Tl	159	205	2	no gas	2.093	2.093	1.13	84128	0.00	40	
[Pb]	209	206	2	no gas	10.921	10.921	0.60	150517	0.01	200	
[Pb]	209	207	2	no gas	10.540	10.540	1.56	126781	0.01	200	
Pb	209	208	2	no gas	10.384	10.384	1.02	586591	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1844335	2.31	1982866	93.01	70	120	
Sc	45	1	He	716991	0.56	767851	93.38	70	120	
Ge	72	1	He	304037	1.02	320058	94.99	70	125	
Ge	72	2	no gas	643253	0.63	673177	95.55	70	125	
Ge	72	3	H2	791365	0.37	821457	96.34	70	120	
Y	89	1	He	2611896	1.48	2786775	93.72	70	120	
In	115	1	He	2909692	1.14	3045232	95.55	70	120	
In	115	2	no gas	4515005	1.30	4564130	98.92	70	120	
In	115	3	H2	6228452	0.75	5826290	106.90	70	120	
Tb	159	1	He	4688350	0.59	4638687	101.07	70	120	
Tb	159	2	no gas	5754841	1.32	5623529	102.34	70	120	
Bi	209	2	no gas	3403716	1.64	3475006	97.95	60	120	

Sample Report

Sample Table

Sample Name	400-169273-F-22-A^5
Data File Name	118SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:01:43-05:00
Sample Type	Sample
Dilution	1
Comment	439515_15
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.269	1.269	3.01	162302	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-28.97	90	-0.01	200	
B	6	11	2	no gas	2.298	2.298	18.73	36937	0.01	400	
Na	72	23	1	He	9818.243	9818.243	1.87	41034406	0.02	50000	
Mg	72	24	1	He	33.764	33.764	2.31	90888	0.04	50000	
Al	45	27	3	H2	57.978	57.978	1.40	822531	0.01	50000	
Si	45	28	3	H2	658.483	658.483	0.83	4845524	0.01	2000	
K	72	39	1	He	11197.710	11197.710	0.17	41442861	0.03	50000	
Ca	72	44	1	He	46895.596	46895.596	1.98	7759519	0.60	25000	>LDR
Ti	72	49	1	He	0.485	0.485	17.28	509	0.10	200	
V	72	51	1	He	0.248	0.248	8.60	9074	0.00	200	
Cr	72	52	1	He	0.022	0.022	15.39	3017	0.00	200	
Mn	72	55	1	He	0.588	0.588	16.54	15200	0.00	2500	
Fe	72	56	3	H2	25.638	25.638	2.65	1406058	0.00	50000	
Co	72	59	1	He	0.178	0.178	4.23	4675	0.00	200	
Ni	72	60	1	He	1.901	1.901	2.22	10297	0.02	200	
copper	72	63	1	He	0.522	0.522	1.24	7997	0.01	200	
Zn	72	66	1	He	5.803	5.803	3.69	17499	0.03	200	
arsenic	72	75	1	He	0.481	0.481	6.73	1671	0.03	200	
selenium	72	78	3	H2	0.157	0.157	14.64	418	0.04	200	
Sr	72	88	1	He	90.246	90.246	0.80	2057547	0.00	500	
Mo	115	95	1	He	0.473	0.473	3.98	5261	0.01	200	
Ag	115	107	1	He	-0.009	-0.009	-45.83	457	0.00	200	
Cd	72	111	1	He	0.026	0.026	71.78	183	0.01	200	
Sn	115	120	1	He	-0.047	-0.047	-54.25	4221	0.00	200	
antimony	159	121	1	He	-0.085	-0.085	-12.75	1889	0.00	200	
Ba	115	137	1	He	111.010	111.010	2.13	579279	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-93.45	165	0.00	40	
[Pb]	209	206	2	no gas	0.039	0.039	43.13	6612	0.00	200	
[Pb]	209	207	2	no gas	0.037	0.037	125.52	5501	0.00	200	
Pb	209	208	2	no gas	0.012	0.012	51.97	25126	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1919065	1.59	1982866	96.78	70	120	
Sc	45	1	He	743280	0.47	767851	96.80	70	120	
Ge	72	1	He	309082	0.50	320058	96.57	70	125	
Ge	72	2	no gas	668662	0.63	673177	99.33	70	125	
Ge	72	3	H2	814407	0.67	821457	99.14	70	120	
Y	89	1	He	2655124	0.78	2786775	95.28	70	120	
In	115	1	He	2953892	1.21	3045232	97.00	70	120	
In	115	2	no gas	4626831	1.16	4564130	101.37	70	120	
In	115	3	H2	6427976	1.17	5826290	110.33	70	120	
Tb	159	1	He	4712206	0.64	4638687	101.58	70	120	
Tb	159	2	no gas	5814141	0.42	5623529	103.39	70	120	
Bi	209	2	no gas	3415020	2.03	3475006	98.27	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	120_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:09:41-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	49.941	49.941	1.07	1486204	0.00	50	
Be	6	9	2	no gas	48.267	48.267	1.15	402156	0.01	50	
B	6	11	2	no gas	95.772	95.772	1.62	450092	0.02	100	
Na	72	23	1	He	4841.784	4841.784	2.13	20476508	0.02	5000	
Mg	72	24	1	He	4836.419	4836.419	0.70	11896659	0.04	5000	
Al	45	27	3	H2	498.931	498.931	1.58	6886487	0.01	500	
K	72	39	1	He	4909.636	4909.636	0.26	18584572	0.03	5000	
Ca	72	44	1	He	4676.631	4676.631	1.52	786175	0.59	5000	
Ti	72	49	1	He	49.303	49.303	1.02	32836	0.15	50	
V	72	51	1	He	46.363	46.363	0.32	786065	0.01	50	
Cr	72	52	1	He	46.631	46.631	0.93	836586	0.01	50	
Mn	72	55	1	He	485.809	485.809	0.31	7629078	0.01	500	
Fe	72	56	3	H2	4829.932	4829.932	0.36	192974624	0.00	5000	
Co	72	59	1	He	46.965	46.965	1.16	1079052	0.00	50	
Ni	72	60	1	He	48.307	48.307	0.94	259810	0.02	50	
copper	72	63	1	He	47.189	47.189	0.28	649890	0.01	50	
dwCu63	72	63	2	no gas	47.657	47.657	1.17	969811	0.00	50	
Zn	72	66	1	He	48.292	48.292	1.12	138262	0.03	50	
arsenic	72	75	1	He	46.510	46.510	1.32	103266	0.05	50	
dwAs75	72	75	2	no gas	47.311	47.311	1.44	211084	0.02	50	
selenium	72	78	3	H2	49.899	49.899	1.34	54973	0.09	50	
Sr	72	88	1	He	49.163	49.163	1.80	1132166	0.00	50	
Mo	115	95	1	He	49.172	49.172	1.58	333624	0.01	50	
Ag	115	107	1	He	46.837	46.837	0.62	882749	0.01	50	
Cd	72	111	1	He	49.259	49.259	1.65	181142	0.03	50	
Sn	115	120	1	He	49.719	49.719	0.57	695633	0.01	50	
antimony	159	121	1	He	50.510	50.510	2.48	583877	0.01	50	
dwSb121	159	121	2	no gas	53.213	53.213	0.85	815842	0.01	50	
Ba	115	137	1	He	47.117	47.117	0.41	247067	0.02	50	
Tl	159	205	2	no gas	9.907	9.907	1.41	403372	0.00	10	
[Pb]	209	206	2	no gas	49.620	49.620	0.33	689086	0.01	50	
[Pb]	209	207	2	no gas	48.607	48.607	1.51	589281	0.01	50	
Pb	209	208	2	no gas	49.211	49.211	0.33	2797312	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1940704	1.44	1982866	97.87	70	120	
Sc	45	1	He	756397	0.79	767851	98.51	70	120	
Ge	72	1	He	312016	0.19	320058	97.49	70	125	
Ge	72	2	no gas	661507	1.17	673177	98.27	70	125	
Ge	72	3	H2	806049	0.49	821457	98.12	70	120	
Y	89	1	He	2643274	1.84	2786775	94.85	70	120	
In	115	1	He	2965592	1.28	3045232	97.38	70	120	
In	115	2	no gas	4665585	1.09	4564130	102.22	70	120	
In	115	3	H2	6246610	1.40	5826290	107.21	70	120	
Tb	159	1	He	4705770	1.83	4638687	101.45	70	120	
Tb	159	2	no gas	5843201	1.10	5623529	103.91	70	120	
Bi	209	2	no gas	3542208	0.43	3475006	101.93	60	120	

Sample Table

Sample Name	CCB
Data File Name	122_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:17:27-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.130	0.130	74.69	127518	0.00	0.5	
Be	6	9	2	no gas	-0.005	-0.005	-76.87	87	-0.01	0.5	
B	6	11	2	no gas	-0.874	-0.874	-11.18	18056	0.00	5	
Na	72	23	1	He	-2.714	-2.714	-31.76	56532	0.00	100	
Mg	72	24	1	He	-1.462	-1.462	-2.70	2770	-0.05	50	
Al	45	27	3	H2	-0.038	-0.038	-183.89	15630	0.00	50	
K	72	39	1	He	-1.698	-1.698	-136.27	394746	0.00	50	
Ca	72	44	1	He	-1.182	-1.182	-52.44	2250	-0.05	50	
Ti	72	49	1	He	-0.062	-0.062	-129.13	157	-0.04	0.5	
V	72	51	1	He	0.035	0.035	32.06	5409	0.00	0.5	
Cr	72	52	1	He	-0.015	-0.015	-109.92	2147	0.00	0.5	
Mn	72	55	1	He	-0.184	-0.184	-35.29	2684	-0.01	2	
Fe	72	56	3	H2	-5.352	-5.352	-3.69	133707	0.00	25	
Co	72	59	1	He	-0.013	-0.013	-16.40	144	-0.01	0.5	
Ni	72	60	1	He	-0.006	-0.006	-272.61	187	0.00	1.5	
copper	72	63	1	He	-0.023	-0.023	-23.85	518	0.00	0.5	
dwCu63	72	63	2	no gas	0.004	0.004	131.98	927	0.00	0.5	
Zn	72	66	1	He	-0.039	-0.039	-133.78	1143	0.00	4	
arsenic	72	75	1	He	-0.055	-0.055	-28.62	498	-0.01	0.25	
dwAs75	72	75	2	no gas	0.023	0.023	1195.74	-156	-0.01	5	
selenium	72	78	3	H2	-0.088	-0.088	-12.32	151	-0.06	0.25	
dwSe82	72	82	2	no gas	-0.208	-0.208	-19.20	235	-0.09	5	
Sr	72	88	1	He	-0.016	-0.016	-5.30	377	0.00	0.5	
Mo	115	95	1	He	-0.206	-0.206	-6.90	553	-0.04	1	
Ag	115	107	1	He	-0.016	-0.016	-20.37	270	-0.01	0.05	
Cd	72	111	1	He	-0.015	-0.015	-28.62	13	-0.11	0.25	
Sn	115	120	1	He	-0.102	-0.102	-42.55	3507	0.00	0.5	
antimony	159	121	1	He	-0.132	-0.132	-10.13	1357	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.251	-0.251	-6.53	2905	-0.01	5	
Ba	115	137	1	He	-0.008	-0.008	-98.59	84	-0.01	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-32.78	61	0.00	0.1	
[Pb]	209	206	2	no gas	0.008	0.008	264.12	5968	0.00	0.25	
[Pb]	209	207	2	no gas	-0.013	-0.013	-147.66	4948	0.00	0.25	
Pb	209	208	2	no gas	-0.011	-0.011	-184.69	22914	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1848686	3.25	1982866	93.23	70	120	
Sc	45	1	He	737029	1.04	767851	95.99	70	120	
Ge	72	1	He	309566	1.73	320058	96.72	70	125	
Ge	72	2	no gas	630681	5.93	673177	93.69	70	125	
Ge	72	3	H2	847615	5.98	821457	103.18	70	120	
Y	89	1	He	2651792	1.58	2786775	95.16	70	120	
In	115	1	He	2984038	2.06	3045232	97.99	70	120	
In	115	2	no gas	4386336	7.35	4564130	96.10	70	120	
In	115	3	H2	6825061	5.81	5826290	117.14	70	120	
Tb	159	1	He	4741448	0.44	4638687	102.22	70	120	
Tb	159	2	no gas	5518804	7.96	5623529	98.14	70	120	
Bi	209	2	no gas	3400823	5.95	3475006	97.87	60	120	

Sample Report

Sample Table

Sample Name	400-169273-E-22-A^5
Data File Name	123SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:21:27-05:00
Sample Type	Sample
Dilution	1
Comment	439515_16
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.647	1.647	11.47	175688	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-71.95	77	-0.01	200	
B	6	11	2	no gas	2.667	2.667	7.93	35100	0.01	400	
Na	72	23	1	He	12003.988	12003.988	1.51	50855148	0.02	50000	
Mg	72	24	1	He	18.044	18.044	3.99	50974	0.04	50000	
Al	45	27	3	H2	47.032	47.032	1.08	681452	0.01	50000	
Si	45	28	3	H2	493.847	493.847	2.34	3717370	0.01	2000	
K	72	39	1	He	12212.234	12212.234	1.26	45783944	0.03	50000	
Ca	72	44	1	He	69539.619	69539.619	1.08	11664556	0.60	25000	>LDR
Ti	72	49	1	He	0.015	0.015	467.37	210	0.01	200	
V	72	51	1	He	0.203	0.203	11.52	8302	0.00	200	
Cr	72	52	1	He	0.017	0.017	80.20	2754	0.00	200	
Mn	72	55	1	He	-0.161	-0.161	-38.48	3080	-0.01	2500	
Fe	72	56	3	H2	-4.356	-4.356	-1.26	169862	0.00	50000	
Co	72	59	1	He	0.232	0.232	3.47	5802	0.00	200	
Ni	72	60	1	He	2.088	2.088	2.32	11491	0.02	200	
copper	72	63	1	He	0.497	0.497	6.23	7702	0.01	200	
Zn	72	66	1	He	0.880	0.880	6.56	3751	0.02	200	
arsenic	72	75	1	He	0.478	0.478	3.44	1684	0.03	200	
selenium	72	78	3	H2	0.144	0.144	11.86	406	0.04	200	
Sr	72	88	1	He	120.786	120.786	1.03	2791940	0.00	500	
Mo	115	95	1	He	0.402	0.402	4.15	4652	0.01	200	
Ag	115	107	1	He	-0.011	-0.011	-11.38	362	0.00	200	
Cd	72	111	1	He	-0.012	-0.012	-71.37	23	-0.05	200	
Sn	115	120	1	He	-0.087	-0.087	-37.50	3667	0.00	200	
antimony	159	121	1	He	-0.129	-0.129	-9.63	1368	-0.01	200	
Ba	115	137	1	He	164.191	164.191	0.83	857068	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-26.66	83	0.00	40	
[Pb]	209	206	2	no gas	0.005	0.005	291.71	5791	0.00	200	
[Pb]	209	207	2	no gas	0.006	0.006	368.48	5044	0.00	200	
Pb	209	208	2	no gas	0.005	0.005	56.89	23208	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1949379	1.07	1982866	98.31	70	120	
Sc	45	1	He	763352	0.20	767851	99.41	70	120	
Ge	72	1	He	313386	1.11	320058	97.92	70	125	
Ge	72	2	no gas	662659	1.33	673177	98.44	70	125	
Ge	72	3	H2	818797	0.65	821457	99.68	70	120	
Y	89	1	He	2714722	0.51	2786775	97.41	70	120	
In	115	1	He	2955105	0.37	3045232	97.04	70	120	
In	115	2	no gas	4562358	0.51	4564130	99.96	70	120	
In	115	3	H2	6522963	1.48	5826290	111.96	70	120	
Tb	159	1	He	4670555	0.87	4638687	100.69	70	120	
Tb	159	2	no gas	5768102	0.58	5623529	102.57	70	120	
Bi	209	2	no gas	3318640	1.77	3475006	95.50	60	120	

Sample Report

Sample Table

Sample Name	400-169273-C-23-A^5
Data File Name	124SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:25:23-05:00
Sample Type	Sample
Dilution	1
Comment	439515_17
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.403	1.403	11.13	172191	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-10.97	79	-0.01	200	
B	6	11	2	no gas	2.054	2.054	7.57	32923	0.01	400	
Na	72	23	1	He	10384.054	10384.054	1.09	44704368	0.02	50000	
Mg	72	24	1	He	31.783	31.783	3.48	86281	0.04	50000	
Al	45	27	3	H2	57.621	57.621	1.11	834556	0.01	50000	
Si	45	28	3	H2	613.231	613.231	1.04	4613118	0.01	2000	
K	72	39	1	He	11443.649	11443.649	1.21	43617243	0.03	50000	
Ca	72	44	1	He	53036.033	53036.033	0.34	9039244	0.59	25000	>LDR
Ti	72	49	1	He	0.356	0.356	37.91	444	0.08	200	
V	72	51	1	He	0.235	0.235	11.75	8981	0.00	200	
Cr	72	52	1	He	0.045	0.045	2.96	3307	0.00	200	
Mn	72	55	1	He	0.413	0.413	11.53	12325	0.00	2500	
Fe	72	56	3	H2	18.869	18.869	5.27	1133297	0.00	50000	
Co	72	59	1	He	0.200	0.200	1.79	5146	0.00	200	
Ni	72	60	1	He	1.925	1.925	3.84	10780	0.02	200	
copper	72	63	1	He	0.547	0.547	1.59	8530	0.01	200	
Zn	72	66	1	He	5.275	5.275	5.91	16424	0.03	200	
arsenic	72	75	1	He	0.469	0.469	0.36	1692	0.03	200	
selenium	72	78	3	H2	0.095	0.095	35.77	357	0.03	200	
Sr	72	88	1	He	100.224	100.224	1.85	2353664	0.00	500	
Mo	115	95	1	He	0.415	0.415	9.89	4831	0.01	200	
Ag	115	107	1	He	-0.015	-0.015	-5.02	291	-0.01	200	
Cd	72	111	1	He	0.021	0.021	82.77	147	0.01	200	
Sn	115	120	1	He	-0.165	-0.165	-1.63	2647	-0.01	200	
antimony	159	121	1	He	-0.139	-0.139	-7.23	1272	-0.01	200	
Ba	115	137	1	He	125.740	125.740	0.64	669273	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-35.99	99	0.00	40	
[Pb]	209	206	2	no gas	0.060	0.060	45.56	6665	0.00	200	
[Pb]	209	207	2	no gas	0.009	0.009	589.94	5214	0.00	200	
Pb	209	208	2	no gas	0.036	0.036	55.38	25500	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1985787	1.81	1982866	100.15	70	120	
Sc	45	1	He	778008	0.21	767851	101.32	70	120	
Ge	72	1	He	318381	0.42	320058	99.48	70	125	
Ge	72	2	no gas	671373	0.81	673177	99.73	70	125	
Ge	72	3	H2	834522	1.61	821457	101.59	70	120	
Y	89	1	He	2729580	1.34	2786775	97.95	70	120	
In	115	1	He	3013116	0.35	3045232	98.95	70	120	
In	115	2	no gas	4556338	1.35	4564130	99.83	70	120	
In	115	3	H2	6493109	1.51	5826290	111.45	70	120	
Tb	159	1	He	4730895	1.49	4638687	101.99	70	120	
Tb	159	2	no gas	5788662	0.25	5623529	102.94	70	120	
Bi	209	2	no gas	3407927	0.33	3475006	98.07	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-23-A^5
Data File Name	125SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:29:18-05:00
Sample Type	Sample
Dilution	1
Comment	439515_18
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.753	1.753	7.35	180394	0.00	200	
Be	6	9	2	no gas	-0.011	-0.011	-14.77	48	-0.02	200	
B	6	11	2	no gas	2.330	2.330	15.81	33918	0.01	400	
Na	72	23	1	He	11887.076	11887.076	1.06	51428201	0.02	50000	
Mg	72	24	1	He	16.562	16.562	1.57	48327	0.03	50000	
Al	45	27	3	H2	48.217	48.217	0.26	700158	0.01	50000	
Si	45	28	3	H2	448.961	448.961	0.41	3396134	0.01	2000	
K	72	39	1	He	12340.390	12340.390	2.19	47248234	0.03	50000	
Ca	72	44	1	He	66290.003	66290.003	2.10	11355239	0.58	25000	>LDR
Ti	72	49	1	He	0.013	0.013	389.84	213	0.01	200	
V	72	51	1	He	0.171	0.171	6.92	7915	0.00	200	
Cr	72	52	1	He	0.001	0.001	685.14	2524	0.00	200	
Mn	72	55	1	He	-0.161	-0.161	-23.42	3150	-0.01	2500	
Fe	72	56	3	H2	-5.951	-5.951	-1.17	107530	-0.01	50000	
Co	72	59	1	He	0.247	0.247	6.13	6280	0.00	200	
Ni	72	60	1	He	1.920	1.920	5.98	10807	0.02	200	
copper	72	63	1	He	0.466	0.466	3.25	7440	0.01	200	
Zn	72	66	1	He	0.227	0.227	38.25	1947	0.01	200	
arsenic	72	75	1	He	0.225	0.225	12.82	1147	0.02	200	
selenium	72	78	3	H2	0.091	0.091	28.82	354	0.03	200	
Sr	72	88	1	He	119.687	119.687	2.75	2824746	0.00	500	
Mo	115	95	1	He	0.400	0.400	21.17	4774	0.01	200	
Ag	115	107	1	He	-0.018	-0.018	-3.17	231	-0.01	200	
Cd	72	111	1	He	-0.010	-0.010	-78.43	33	-0.03	200	
Sn	115	120	1	He	-0.080	-0.080	-141.06	3875	0.00	200	
antimony	159	121	1	He	-0.160	-0.160	-8.46	1036	-0.02	200	
Ba	115	137	1	He	164.680	164.680	1.23	884575	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-25.96	59	0.00	40	
[Pb]	209	206	2	no gas	-0.008	-0.008	-209.91	5661	0.00	200	
[Pb]	209	207	2	no gas	-0.003	-0.003	-395.67	4974	0.00	200	
Pb	209	208	2	no gas	-0.019	-0.019	-85.09	22080	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1969267	1.41	1982866	99.31	70	120	
Sc	45	1	He	781317	0.46	767851	101.75	70	120	
Ge	72	1	He	320035	0.86	320058	99.99	70	125	
Ge	72	2	no gas	667119	0.82	673177	99.10	70	125	
Ge	72	3	H2	837132	0.74	821457	101.91	70	120	
Y	89	1	He	2763610	1.94	2786775	99.17	70	120	
In	115	1	He	3041177	1.41	3045232	99.87	70	120	
In	115	2	no gas	4584923	0.64	4564130	100.46	70	120	
In	115	3	H2	6522153	0.60	5826290	111.94	70	120	
Tb	159	1	He	4760724	1.20	4638687	102.63	70	120	
Tb	159	2	no gas	5720592	1.26	5623529	101.73	70	120	
Bi	209	2	no gas	3340579	1.80	3475006	96.13	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-24-A^5
Data File Name	126SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:33:17-05:00
Sample Type	Sample
Dilution	1
Comment	439515_19
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	7.122	7.122	5.25	322809	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-25.80	62	-0.01	200	
B	6	11	2	no gas	13.762	13.762	1.85	84907	0.02	400	
Na	72	23	1	He	18751.939	18751.939	2.43	78635015	0.02	50000	
Mg	72	24	1	He	2794.118	2794.118	1.66	6841723	0.04	50000	
Al	45	27	3	H2	6.964	6.964	2.50	109391	0.01	50000	
Si	45	28	3	H2	4050.637	4050.637	1.45	28753065	0.01	2000	>LDR
K	72	39	1	He	1504.654	1504.654	2.34	5939320	0.03	50000	
Ca	72	44	1	He	29999.220	29999.220	3.55	4983900	0.60	25000	>LDR
Ti	72	49	1	He	0.289	0.289	26.26	389	0.07	200	
V	72	51	1	He	0.112	0.112	22.33	6693	0.00	200	
Cr	72	52	1	He	0.016	0.016	105.19	2704	0.00	200	
Mn	72	55	1	He	85.408	85.408	1.00	1339086	0.01	2500	
Fe	72	56	3	H2	1741.382	1741.382	0.77	69469046	0.00	50000	
Co	72	59	1	He	0.031	0.031	21.46	1152	0.00	200	
Ni	72	60	1	He	0.120	0.120	12.42	860	0.01	200	
copper	72	63	1	He	0.020	0.020	22.78	1106	0.00	200	
Zn	72	66	1	He	3.022	3.022	5.85	9703	0.03	200	
arsenic	72	75	1	He	3.626	3.626	3.13	8584	0.04	200	
selenium	72	78	3	H2	-0.159	-0.159	-3.16	66	-0.24	200	
Sr	72	88	1	He	181.449	181.449	3.16	4152123	0.00	500	
Mo	115	95	1	He	1.741	1.741	6.67	13399	0.01	200	
Ag	115	107	1	He	-0.016	-0.016	-18.57	259	-0.01	200	
Cd	72	111	1	He	-0.004	-0.004	-50.04	53	-0.01	200	
Sn	115	120	1	He	-0.189	-0.189	-3.65	2204	-0.01	200	
antimony	159	121	1	He	-0.205	-0.205	-3.33	502	-0.04	200	
Ba	115	137	1	He	148.619	148.619	4.28	759324	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-48.93	83	0.00	40	
[Pb]	209	206	2	no gas	0.050	0.050	36.06	6615	0.00	200	
[Pb]	209	207	2	no gas	0.028	0.028	36.45	5494	0.00	200	
Pb	209	208	2	no gas	0.033	0.033	27.09	25656	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1937841	2.02	1982866	97.73	70	120	
Sc	45	1	He	730141	3.36	767851	95.09	70	120	
Ge	72	1	He	310453	2.60	320058	97.00	70	125	
Ge	72	2	no gas	655257	0.20	673177	97.34	70	125	
Ge	72	3	H2	801462	0.68	821457	97.57	70	120	
Y	89	1	He	2642509	4.09	2786775	94.82	70	120	
In	115	1	He	2895981	4.44	3045232	95.10	70	120	
In	115	2	no gas	4576401	0.94	4564130	100.27	70	120	
In	115	3	H2	6356330	0.57	5826290	109.10	70	120	
Tb	159	1	He	4618319	4.08	4638687	99.56	70	120	
Tb	159	2	no gas	5885959	0.99	5623529	104.67	70	120	
Bi	209	2	no gas	3446730	1.48	3475006	99.19	60	120	

Sample Report

Sample Table

Sample Name	400-169273-E-25-A^5
Data File Name	127SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:37:12-05:00
Sample Type	Sample
Dilution	1
Comment	439515_20
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	8.152	8.152	1.22	342536	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-72.89	86	-0.01	200	
B	6	11	2	no gas	26.683	26.683	1.70	139804	0.02	400	
Na	72	23	1	He	33191.854	33191.854	0.47	135589858	0.02	50000	
Mg	72	24	1	He	4103.759	4103.759	0.63	9788295	0.04	50000	
Al	45	27	3	H2	1.647	1.647	1.59	37026	0.00	50000	
Si	45	28	3	H2	6696.833	6696.833	2.66	47566089	0.01	2000	>LDR
K	72	39	1	He	3351.287	3351.287	1.45	12410096	0.03	50000	
Ca	72	44	1	He	13808.260	13808.260	1.78	2237279	0.62	25000	
Ti	72	49	1	He	0.029	0.029	192.93	212	0.01	200	
V	72	51	1	He	0.311	0.311	4.04	9769	0.00	200	
Cr	72	52	1	He	0.004	0.004	334.06	2440	0.00	200	
Mn	72	55	1	He	39.088	39.088	0.82	600053	0.01	2500	
Fe	72	56	3	H2	1106.590	1106.590	0.76	43828744	0.00	50000	
Co	72	59	1	He	0.194	0.194	7.87	4754	0.00	200	
Ni	72	60	1	He	2.997	2.997	0.97	15824	0.02	200	
copper	72	63	1	He	-0.013	-0.013	-21.54	638	0.00	200	
Zn	72	66	1	He	0.267	0.267	14.94	1950	0.01	200	
arsenic	72	75	1	He	81.958	81.958	1.16	176077	0.05	200	
selenium	72	78	3	H2	-0.149	-0.149	-9.68	75	-0.20	200	
Sr	72	88	1	He	46.797	46.797	0.69	1044272	0.00	500	
Mo	115	95	1	He	1.425	1.425	4.47	11347	0.01	200	
Ag	115	107	1	He	-0.017	-0.017	-3.01	243	-0.01	200	
Cd	72	111	1	He	-0.017	-0.017	-19.59	7	-0.25	200	
Sn	115	120	1	He	-0.176	-0.176	-11.14	2397	-0.01	200	
antimony	159	121	1	He	-0.156	-0.156	-2.55	1052	-0.01	200	
Ba	115	137	1	He	2.157	2.157	4.25	11175	0.02	1000	
Tl	159	205	2	no gas	0.011	0.011	16.74	587	0.00	40	
[Pb]	209	206	2	no gas	-0.001	-0.001	-4025.83	5968	0.00	200	
[Pb]	209	207	2	no gas	0.005	0.005	344.09	5258	0.00	200	
Pb	209	208	2	no gas	-0.014	-0.014	-105.24	23198	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1892216	0.42	1982866	95.43	70	120	
Sc	45	1	He	727916	0.56	767851	94.80	70	120	
Ge	72	1	He	302431	0.82	320058	94.49	70	125	
Ge	72	2	no gas	637437	1.20	673177	94.69	70	125	
Ge	72	3	H2	793531	0.90	821457	96.60	70	120	
Y	89	1	He	2600163	2.05	2786775	93.30	70	120	
In	115	1	He	2901784	0.67	3045232	95.29	70	120	
In	115	2	no gas	4508568	1.85	4564130	98.78	70	120	
In	115	3	H2	6257303	2.45	5826290	107.40	70	120	
Tb	159	1	He	4620497	0.80	4638687	99.61	70	120	
Tb	159	2	no gas	5767208	1.72	5623529	102.55	70	120	
Bi	209	2	no gas	3468247	0.57	3475006	99.81	60	120	

Sample Report

Sample Table

Sample Name	400-169273-F-25-A^5
Data File Name	128SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:41:08-05:00
Sample Type	Sample
Dilution	1
Comment	439515_21
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	8.253	8.253	4.54	343227	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-9.03	56	-0.02	200	
B	6	11	2	no gas	26.216	26.216	2.51	136963	0.02	400	
Na	72	23	1	He	33301.029	33301.029	1.44	135183265	0.02	50000	
Mg	72	24	1	He	4162.646	4162.646	0.87	9866756	0.04	50000	
Al	45	27	3	H2	1.024	1.024	2.24	28558	0.00	50000	
Si	45	28	3	H2	6601.881	6601.881	0.65	46958154	0.01	2000	>LDR
K	72	39	1	He	3321.350	3321.350	1.06	12225594	0.03	50000	
Ca	72	44	1	He	13818.721	13818.721	1.13	2224913	0.62	25000	
Ti	72	49	1	He	-0.071	-0.071	-97.46	147	-0.05	200	
V	72	51	1	He	0.560	0.560	9.72	13737	0.00	200	
Cr	72	52	1	He	0.011	0.011	111.26	2534	0.00	200	
Mn	72	55	1	He	38.954	38.954	2.04	594229	0.01	2500	
Fe	72	56	3	H2	1112.355	1112.355	0.88	43268939	0.00	50000	
Co	72	59	1	He	0.196	0.196	0.89	4771	0.00	200	
Ni	72	60	1	He	3.032	3.032	2.30	15907	0.02	200	
copper	72	63	1	He	-0.011	-0.011	-62.30	658	0.00	200	
Zn	72	66	1	He	0.381	0.381	29.26	2247	0.02	200	
arsenic	72	75	1	He	82.960	82.960	0.44	177114	0.05	200	
selenium	72	78	3	H2	-0.164	-0.164	-5.98	59	-0.28	200	
Sr	72	88	1	He	47.124	47.124	1.14	1044992	0.00	500	
Mo	115	95	1	He	1.377	1.377	5.61	10960	0.01	200	
Ag	115	107	1	He	-0.019	-0.019	-1.38	209	-0.01	200	
Cd	72	111	1	He	-0.015	-0.015	-29.68	13	-0.11	200	
Sn	115	120	1	He	-0.208	-0.208	-5.88	1947	-0.01	200	
antimony	159	121	1	He	-0.162	-0.162	-8.35	987	-0.02	200	
Ba	115	137	1	He	2.140	2.140	1.89	11013	0.02	1000	
Tl	159	205	2	no gas	0.011	0.011	24.40	576	0.00	40	
[Pb]	209	206	2	no gas	0.019	0.019	19.98	6201	0.00	200	
[Pb]	209	207	2	no gas	0.013	0.013	215.18	5331	0.00	200	
Pb	209	208	2	no gas	-0.005	-0.005	-226.88	23598	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1881488	0.50	1982866	94.89	70	120	
Sc	45	1	He	724442	0.71	767851	94.35	70	120	
Ge	72	1	He	300551	1.04	320058	93.91	70	125	
Ge	72	2	no gas	641502	0.47	673177	95.29	70	125	
Ge	72	3	H2	779358	0.32	821457	94.88	70	120	
Y	89	1	He	2581161	1.21	2786775	92.62	70	120	
In	115	1	He	2881994	0.17	3045232	94.64	70	120	
In	115	2	no gas	4511716	0.83	4564130	98.85	70	120	
In	115	3	H2	6251944	0.79	5826290	107.31	70	120	
Tb	159	1	He	4623253	1.22	4638687	99.67	70	120	
Tb	159	2	no gas	5814708	0.81	5623529	103.40	70	120	
Bi	209	2	no gas	3450838	0.95	3475006	99.30	60	120	

Sample Report

Sample Table

Sample Name	400-169273-E-26-A^5
Data File Name	129SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:45:04-05:00
Sample Type	Sample
Dilution	1
Comment	439515_22
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	6.812	6.812	2.67	301950	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-20.77	61	-0.01	200	
B	6	11	2	no gas	21.644	21.644	3.51	115636	0.02	400	
Na	72	23	1	He	18395.750	18395.750	1.63	74125932	0.02	50000	
Mg	72	24	1	He	6591.764	6591.764	1.61	15499011	0.04	50000	
Al	45	27	3	H2	2.025	2.025	1.25	40841	0.00	50000	
Si	45	28	3	H2	8679.471	8679.471	1.97	59657141	0.01	2000	>LDR
K	72	39	1	He	2957.047	2957.047	0.96	10843124	0.03	50000	
Ca	72	44	1	He	24977.079	24977.079	1.85	3988393	0.63	25000	>LDR
Ti	72	49	1	He	0.102	0.102	110.14	256	0.04	200	
V	72	51	1	He	0.905	0.905	9.08	19146	0.00	200	
Cr	72	52	1	He	0.039	0.039	56.49	2994	0.00	200	
Mn	72	55	1	He	254.449	254.449	1.84	3822035	0.01	2500	
Fe	72	56	3	H2	1081.481	1081.481	0.78	41633840	0.00	50000	
Co	72	59	1	He	5.812	5.812	2.38	128023	0.00	200	
Ni	72	60	1	He	6.628	6.628	2.53	34249	0.02	200	
copper	72	63	1	He	0.019	0.019	29.50	1058	0.00	200	
Zn	72	66	1	He	2.496	2.496	8.05	7919	0.03	200	
arsenic	72	75	1	He	145.924	145.924	0.97	308672	0.05	200	
selenium	72	78	3	H2	-0.078	-0.078	-15.89	148	-0.05	200	
Sr	72	88	1	He	105.975	105.975	0.97	2331064	0.00	500	
Mo	115	95	1	He	0.301	0.301	11.07	3911	0.01	200	
Ag	115	107	1	He	-0.019	-0.019	-11.94	210	-0.01	200	
Cd	72	111	1	He	0.007	0.007	122.42	90	0.01	200	
Sn	115	120	1	He	-0.182	-0.182	-19.77	2318	-0.01	200	
antimony	159	121	1	He	-0.199	-0.199	-1.82	566	-0.04	200	
Ba	115	137	1	He	10.356	10.356	1.11	53329	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-42.21	117	0.00	40	
[Pb]	209	206	2	no gas	0.035	0.035	99.23	6335	0.00	200	
[Pb]	209	207	2	no gas	0.009	0.009	281.84	5218	0.00	200	
Pb	209	208	2	no gas	0.006	0.006	332.24	23898	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1860490	0.66	1982866	93.83	70	120	
Sc	45	1	He	707976	0.93	767851	92.20	70	120	
Ge	72	1	He	298228	0.88	320058	93.18	70	125	
Ge	72	2	no gas	636098	0.88	673177	94.49	70	125	
Ge	72	3	H2	771138	0.38	821457	93.87	70	120	
Y	89	1	He	2603584	1.31	2786775	93.43	70	120	
In	115	1	He	2909209	1.26	3045232	95.53	70	120	
In	115	2	no gas	4479917	0.56	4564130	98.15	70	120	
In	115	3	H2	6299755	1.24	5826290	108.13	70	120	
Tb	159	1	He	4667571	0.42	4638687	100.62	70	120	
Tb	159	2	no gas	5816189	0.49	5623529	103.43	70	120	
Bi	209	2	no gas	3410610	1.56	3475006	98.15	60	120	

Sample Report

Sample Table

Sample Name	400-169273-F-26-A^5
Data File Name	130SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:48:59-05:00
Sample Type	Sample
Dilution	1
Comment	439515_23
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	6.716	6.716	5.25	298797	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-35.43	73	-0.01	200	
B	6	11	2	no gas	21.782	21.782	2.84	116004	0.02	400	
Na	72	23	1	He	18153.011	18153.011	1.05	73058606	0.02	50000	
Mg	72	24	1	He	6553.517	6553.517	1.18	15390388	0.04	50000	
Al	45	27	3	H2	1.001	1.001	7.09	27647	0.00	50000	
Si	45	28	3	H2	8601.718	8601.718	2.46	59889564	0.01	2000	>LDR
K	72	39	1	He	2917.060	2917.060	1.30	10688175	0.03	50000	
Ca	72	44	1	He	24879.546	24879.546	1.03	3968028	0.63	25000	>LDR
Ti	72	49	1	He	0.006	0.006	1450.15	194	0.00	200	
V	72	51	1	He	0.909	0.909	1.89	19190	0.00	200	
Cr	72	52	1	He	0.015	0.015	32.34	2584	0.00	200	
Mn	72	55	1	He	253.522	253.522	1.91	3803289	0.01	2500	
Fe	72	56	3	H2	1046.848	1046.848	1.07	40395804	0.00	50000	
Co	72	59	1	He	5.843	5.843	1.89	128530	0.00	200	
Ni	72	60	1	He	6.542	6.542	2.70	33768	0.02	200	
copper	72	63	1	He	0.021	0.021	53.89	1077	0.00	200	
Zn	72	66	1	He	1.558	1.558	14.30	5391	0.03	200	
arsenic	72	75	1	He	142.702	142.702	1.06	301491	0.05	200	
selenium	72	78	3	H2	-0.106	-0.106	-2.16	119	-0.09	200	
Sr	72	88	1	He	103.626	103.626	1.27	2276378	0.00	500	
Mo	115	95	1	He	0.285	0.285	15.79	3764	0.01	200	
Ag	115	107	1	He	-0.020	-0.020	-4.27	180	-0.01	200	
Cd	72	111	1	He	-0.017	-0.017	-19.88	7	-0.25	200	
Sn	115	120	1	He	-0.218	-0.218	-16.27	1810	-0.01	200	
antimony	159	121	1	He	-0.200	-0.200	-3.05	543	-0.04	200	
Ba	115	137	1	He	10.060	10.060	1.25	51241	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-162.09	119	0.00	40	
[Pb]	209	206	2	no gas	0.049	0.049	79.70	6595	0.00	200	
[Pb]	209	207	2	no gas	-0.002	-0.002	-1536.62	5144	0.00	200	
Pb	209	208	2	no gas	-0.002	-0.002	-1949.34	23725	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1857270	2.34	1982866	93.67	70	120	
Sc	45	1	He	700569	0.91	767851	91.24	70	120	
Ge	72	1	He	297854	1.11	320058	93.06	70	125	
Ge	72	2	no gas	634562	0.15	673177	94.26	70	125	
Ge	72	3	H2	772773	0.86	821457	94.07	70	120	
Y	89	1	He	2542696	0.65	2786775	91.24	70	120	
In	115	1	He	2877279	1.03	3045232	94.48	70	120	
In	115	2	no gas	4530237	0.49	4564130	99.26	70	120	
In	115	3	H2	6185144	2.07	5826290	106.16	70	120	
Tb	159	1	He	4597099	1.08	4638687	99.10	70	120	
Tb	159	2	no gas	5788907	1.72	5623529	102.94	70	120	
Bi	209	2	no gas	3447879	1.70	3475006	99.22	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-27-A^5
Data File Name	131SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:52:53-05:00
Sample Type	Sample
Dilution	1
Comment	439515_24
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	14.563	14.563	0.19	504240	0.00	200	
Be	6	9	2	no gas	-0.011	-0.011	-19.88	44	-0.02	200	
B	6	11	2	no gas	12.992	12.992	3.57	78340	0.02	400	
Na	72	23	1	He	23087.140	23087.140	2.10	92589542	0.02	50000	
Mg	72	24	1	He	2670.193	2670.193	3.27	6253141	0.04	50000	
Al	45	27	3	H2	2.867	2.867	38.81	52459	0.01	50000	
Si	45	28	3	H2	5337.697	5337.697	1.46	37063467	0.01	2000	>LDR
K	72	39	1	He	1440.317	1440.317	2.21	5454503	0.03	50000	
Ca	72	44	1	He	27178.418	27178.418	1.38	4320134	0.63	25000	>LDR
Ti	72	49	1	He	0.062	0.062	92.45	229	0.03	200	
V	72	51	1	He	0.642	0.642	4.44	14859	0.00	200	
Cr	72	52	1	He	0.016	0.016	185.90	2590	0.00	200	
Mn	72	55	1	He	64.505	64.505	1.18	968532	0.01	2500	
Fe	72	56	3	H2	1764.986	1764.986	1.05	68498442	0.00	50000	
Co	72	59	1	He	0.226	0.226	2.86	5364	0.00	200	
Ni	72	60	1	He	0.200	0.200	26.96	1230	0.02	200	
copper	72	63	1	He	0.029	0.029	24.00	1182	0.00	200	
Zn	72	66	1	He	0.440	0.440	9.79	2377	0.02	200	
arsenic	72	75	1	He	8.217	8.217	1.71	17860	0.05	200	
selenium	72	78	3	H2	-0.169	-0.169	-5.73	53	-0.32	200	
Sr	72	88	1	He	187.827	187.827	1.62	4111902	0.00	500	
Mo	115	95	1	He	1.750	1.750	6.06	13582	0.01	200	
Ag	115	107	1	He	-0.018	-0.018	-5.86	233	-0.01	200	
Cd	72	111	1	He	-0.010	-0.010	-58.15	30	-0.03	200	
Sn	115	120	1	He	-0.165	-0.165	-35.23	2552	-0.01	200	
antimony	159	121	1	He	-0.218	-0.218	-2.67	353	-0.06	200	
Ba	115	137	1	He	138.475	138.475	1.75	713908	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-12.56	43	-0.01	40	
[Pb]	209	206	2	no gas	0.073	0.073	10.94	6918	0.00	200	
[Pb]	209	207	2	no gas	0.000	0.000	4040.37	5174	0.00	200	
Pb	209	208	2	no gas	0.021	0.021	20.18	24992	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1863519	0.92	1982866	93.98	70	120	
Sc	45	1	He	707812	0.58	767851	92.18	70	120	
Ge	72	1	He	296871	0.72	320058	92.76	70	125	
Ge	72	2	no gas	647012	0.21	673177	96.11	70	125	
Ge	72	3	H2	779788	0.26	821457	94.93	70	120	
Y	89	1	He	2575036	1.22	2786775	92.40	70	120	
In	115	1	He	2918708	0.70	3045232	95.85	70	120	
In	115	2	no gas	4545348	1.04	4564130	99.59	70	120	
In	115	3	H2	6285581	0.49	5826290	107.88	70	120	
Tb	159	1	He	4672915	0.22	4638687	100.74	70	120	
Tb	159	2	no gas	5711921	1.02	5623529	101.57	70	120	
Bi	209	2	no gas	3444808	0.69	3475006	99.13	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-28-A^5
Data File Name	132SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T20:56:51-05:00
Sample Type	Sample
Dilution	1
Comment	439515_25
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.712	4.712	25.29	216309	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-40.07	51	-0.02	200	
B	6	11	2	no gas	17.678	17.678	39.58	83366	0.02	400	
Na	72	23	1	He	11197.810	11197.810	12.53	43855739	0.03	50000	
Mg	72	24	1	He	2460.132	2460.132	13.81	5616786	0.04	50000	
Al	45	27	3	H2	1.415	1.415	4.50	30799	0.00	50000	
Si	45	28	3	H2	3582.628	3582.628	5.29	23153819	0.02	2000	>LDR
K	72	39	1	He	1876.792	1876.792	15.25	6811581	0.03	50000	
Ca	72	44	1	He	30392.376	30392.376	13.76	4709185	0.65	25000	>LDR
Ti	72	49	1	He	-0.026	-0.026	-287.42	170	-0.02	200	
V	72	51	1	He	3.254	3.254	16.02	55086	0.01	200	
Cr	72	52	1	He	0.080	0.080	31.85	3601	0.00	200	
Mn	72	55	1	He	-0.102	-0.102	-31.98	3767	0.00	2500	
Fe	72	56	3	H2	0.635	0.635	49.82	343621	0.00	50000	
Co	72	59	1	He	0.005	0.005	65.29	513	0.00	200	
Ni	72	60	1	He	0.267	0.267	15.82	1537	0.02	200	
copper	72	63	1	He	0.055	0.055	42.01	1475	0.00	200	
Zn	72	66	1	He	0.268	0.268	33.71	1880	0.01	200	
arsenic	72	75	1	He	7.274	7.274	14.32	15477	0.05	200	
selenium	72	78	3	H2	0.312	0.312	5.46	547	0.06	200	
Sr	72	88	1	He	140.022	140.022	12.87	2990838	0.00	500	
Mo	115	95	1	He	1.048	1.048	9.85	8572	0.01	200	
Ag	115	107	1	He	-0.021	-0.021	-3.96	168	-0.01	200	
Cd	72	111	1	He	-0.004	-0.004	-363.49	47	-0.01	200	
Sn	115	120	1	He	-0.201	-0.201	-9.33	2000	-0.01	200	
antimony	159	121	1	He	-0.123	-0.123	-31.96	1368	-0.01	200	
Ba	115	137	1	He	50.978	50.978	15.52	251126	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-33.11	77	0.00	40	
[Pb]	209	206	2	no gas	0.005	0.005	259.35	5488	0.00	200	
[Pb]	209	207	2	no gas	-0.019	-0.019	-36.40	4518	0.00	200	
Pb	209	208	2	no gas	-0.007	-0.007	-314.30	21424	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1661816	25.80	1982866	83.81	70	120	
Sc	45	1	He	696440	15.12	767851	90.70	70	120	
Ge	72	1	He	292574	11.92	320058	91.41	70	125	
Ge	72	2	no gas	584518	26.98	673177	86.83	70	125	
Ge	72	3	H2	756288	2.78	821457	92.07	70	120	
Y	89	1	He	2502331	14.26	2786775	89.79	70	120	
In	115	1	He	2829468	14.26	3045232	92.91	70	120	
In	115	2	no gas	4222403	34.42	4564130	92.51	70	120	
In	115	3	H2	5913752	2.53	5826290	101.50	70	120	
Tb	159	1	He	4579922	14.67	4638687	98.73	70	120	
Tb	159	2	no gas	5441111	33.78	5623529	96.76	70	120	
Bi	209	2	no gas	3151160	29.66	3475006	90.68	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	134_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:04:45-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	49.462	49.462	4.45	1449186	0.00	50	
Be	6	9	2	no gas	47.463	47.463	1.48	389281	0.01	50	
B	6	11	2	no gas	95.392	95.392	1.84	439004	0.02	100	
Na	72	23	1	He	4844.823	4844.823	1.41	19797193	0.02	5000	
Mg	72	24	1	He	4858.320	4858.320	1.02	11551416	0.04	5000	
Al	45	27	3	H2	488.650	488.650	2.32	6621307	0.01	500	
K	72	39	1	He	4854.535	4854.535	0.98	17746847	0.03	5000	
Ca	72	44	1	He	4713.358	4713.358	1.02	764238	0.62	5000	
Ti	72	49	1	He	49.080	49.080	1.28	31578	0.16	50	
V	72	51	1	He	46.709	46.709	0.76	768027	0.01	50	
Cr	72	52	1	He	47.159	47.159	0.71	817597	0.01	50	
Mn	72	55	1	He	490.808	490.808	1.09	7448321	0.01	500	
Fe	72	56	3	H2	4812.109	4812.109	0.54	187940444	0.00	5000	
Co	72	59	1	He	47.292	47.292	0.07	1050196	0.00	50	
Ni	72	60	1	He	48.985	48.985	0.64	254598	0.02	50	
copper	72	63	1	He	47.867	47.867	1.09	637099	0.01	50	
dwCu63	72	63	2	no gas	47.722	47.722	0.73	936856	0.01	50	
Zn	72	66	1	He	48.685	48.685	0.86	134506	0.04	50	
arsenic	72	75	1	He	46.655	46.655	0.28	100234	0.05	50	
dwAs75	72	75	2	no gas	47.499	47.499	1.30	204993	0.02	50	
selenium	72	78	3	H2	50.003	50.003	0.67	53814	0.09	50	
Sr	72	88	1	He	49.625	49.625	0.24	1104437	0.00	50	
Mo	115	95	1	He	48.388	48.388	0.40	324902	0.01	50	
Ag	115	107	1	He	46.955	46.955	0.82	876228	0.01	50	
Cd	72	111	1	He	50.979	50.979	2.47	181177	0.03	50	
Sn	115	120	1	He	49.463	49.463	0.92	684092	0.01	50	
antimony	159	121	1	He	50.263	50.263	0.78	573435	0.01	50	
dwSb121	159	121	2	no gas	53.201	53.201	1.06	808873	0.01	50	
Ba	115	137	1	He	47.358	47.358	0.98	245726	0.02	50	
Tl	159	205	2	no gas	10.177	10.177	1.03	411502	0.00	10	
[Pb]	209	206	2	no gas	51.353	51.353	1.16	698242	0.01	50	
[Pb]	209	207	2	no gas	49.997	49.997	0.38	593481	0.01	50	
Pb	209	208	2	no gas	50.106	50.106	2.28	2788562	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1910644	2.06	1982866	96.36	70	120	
Sc	45	1	He	726734	0.58	767851	94.65	70	120	
Ge	72	1	He	301577	0.27	320058	94.23	70	125	
Ge	72	2	no gas	638255	0.55	673177	94.81	70	125	
Ge	72	3	H2	787931	0.80	821457	95.92	70	120	
Y	89	1	He	2575684	1.23	2786775	92.43	70	120	
In	115	1	He	2936519	0.55	3045232	96.43	70	120	
In	115	2	no gas	4459820	0.13	4564130	97.71	70	120	
In	115	3	H2	6272741	1.28	5826290	107.66	70	120	
Tb	159	1	He	4646792	0.67	4638687	100.17	70	120	
Tb	159	2	no gas	5803858	2.13	5623529	103.21	70	120	
Bi	209	2	no gas	3469721	0.31	3475006	99.85	60	120	

Sample Table

Sample Name	CCB
Data File Name	136_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:12:34-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.022	0.022	267.71	126838	0.00	0.5	
Be	6	9	2	no gas	-0.006	-0.006	-32.46	61	-0.01	0.5	
B	6	11	2	no gas	-0.708	-0.708	-29.99	15828	0.00	5	
Na	72	23	1	He	-1.848	-1.848	-16.76	53199	0.00	100	
Mg	72	24	1	He	-0.588	-0.588	-7.44	2827	-0.02	50	
Al	45	27	3	H2	0.078	0.078	36.04	15827	0.00	50	
K	72	39	1	He	-1.282	-1.282	-105.71	375423	0.00	50	
Ca	72	44	1	He	-0.313	-0.313	-415.28	2104	-0.01	50	
Ti	72	49	1	He	-0.004	-0.004	-1098.04	117	0.00	0.5	
V	72	51	1	He	0.064	0.064	30.77	6203	0.00	0.5	
Cr	72	52	1	He	-0.010	-0.010	-130.68	1930	0.00	0.5	
Mn	72	55	1	He	-0.092	-0.092	-10.52	1843	0.00	2	
Fe	72	56	3	H2	-5.340	-5.340	-0.74	120948	0.00	25	
Co	72	59	1	He	-0.010	-0.010	-6.52	128	-0.01	0.5	
Ni	72	60	1	He	-0.014	-0.014	-12.22	110	-0.01	1.5	
copper	72	63	1	He	-0.011	-0.011	-20.40	488	0.00	0.5	
dwCu63	72	63	2	no gas	-0.009	-0.009	-62.69	747	0.00	0.5	
Zn	72	66	1	He	-0.033	-0.033	-201.90	1090	0.00	4	
arsenic	72	75	1	He	-0.070	-0.070	-7.16	476	-0.01	0.25	
dwAs75	72	75	2	no gas	0.411	0.411	80.12	811	0.05	5	
selenium	72	78	3	H2	-0.104	-0.104	-13.24	121	-0.09	0.25	
dwSe82	72	82	2	no gas	-0.169	-0.169	-25.45	234	-0.07	5	
Sr	72	88	1	He	-0.009	-0.009	-30.72	323	0.00	0.5	
Mo	115	95	1	He	-0.168	-0.168	-17.83	543	-0.03	1	
Ag	115	107	1	He	-0.013	-0.013	-7.33	214	-0.01	0.05	
Cd	72	111	1	He	-0.008	-0.008	-21.57	3	-0.23	0.25	
Sn	115	120	1	He	-0.126	-0.126	-11.55	3150	0.00	0.5	
antimony	159	121	1	He	-0.148	-0.148	-5.91	1166	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.272	-0.272	-2.61	2717	-0.01	5	
Ba	115	137	1	He	-0.014	-0.014	-14.40	69	-0.02	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-10.49	103	0.00	0.1	
[Pb]	209	206	2	no gas	-0.026	-0.026	-26.80	5911	0.00	0.25	
[Pb]	209	207	2	no gas	-0.010	-0.010	-356.10	5294	0.00	0.25	
Pb	209	208	2	no gas	-0.002	-0.002	-483.54	24152	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1897484	2.89	1982866	95.69	70	120	
Sc	45	1	He	713865	1.47	767851	92.97	70	120	
Ge	72	1	He	300283	1.95	320058	93.82	70	125	
Ge	72	2	no gas	638678	0.84	673177	94.88	70	125	
Ge	72	3	H2	774534	0.69	821457	94.29	70	120	
Y	89	1	He	2643429	1.88	2786775	94.86	70	120	
In	115	1	He	2971672	1.84	3045232	97.58	70	120	
In	115	2	no gas	4584525	1.06	4564130	100.45	70	120	
In	115	3	H2	6149336	1.06	5826290	105.54	70	120	
Tb	159	1	He	4701767	2.15	4638687	101.36	70	120	
Tb	159	2	no gas	5732933	0.23	5623529	101.95	70	120	
Bi	209	2	no gas	3550570	2.22	3475006	102.17	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439514/1-A^5
Data File Name	137SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:16:31-05:00
Sample Type	Sample
Dilution	1
Comment	439514_1
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.218	0.218	14.06	130356	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-63.48	59	-0.01	200	
B	6	11	2	no gas	-1.405	-1.405	-5.54	12598	-0.01	400	
Na	72	23	1	He	0.535	0.535	84.96	62928	0.00	50000	
Mg	72	24	1	He	-0.958	-0.958	-6.48	1954	-0.05	50000	
Al	45	27	3	H2	1.065	1.065	2.04	28765	0.00	50000	
Si	45	28	3	H2	1.105	1.105	12.26	88039	0.00	2000	
K	72	39	1	He	0.225	0.225	256.53	381176	0.00	50000	
Ca	72	44	1	He	2.740	2.740	28.97	2594	0.11	25000	
Ti	72	49	1	He	0.032	0.032	126.27	140	0.02	200	
V	72	51	1	He	0.127	0.127	11.43	7228	0.00	200	
Cr	72	52	1	He	0.008	0.008	96.17	2237	0.00	200	
Mn	72	55	1	He	0.978	0.978	5.86	18012	0.01	2500	
Fe	72	56	3	H2	-5.837	-5.837	-1.10	102419	-0.01	50000	
Co	72	59	1	He	-0.010	-0.010	-2.41	129	-0.01	200	
Ni	72	60	1	He	-0.015	-0.015	-64.98	107	-0.01	200	
copper	72	63	1	He	0.023	0.023	8.79	943	0.00	200	
Zn	72	66	1	He	0.169	0.169	20.21	1637	0.01	200	
arsenic	72	75	1	He	-0.071	-0.071	-25.14	476	-0.01	200	
selenium	72	78	3	H2	-0.145	-0.145	-13.02	78	-0.19	200	
Sr	72	88	1	He	0.016	0.016	30.51	863	0.00	500	
Mo	115	95	1	He	-0.141	-0.141	-14.00	723	-0.02	200	
Ag	115	107	1	He	-0.012	-0.012	-16.09	234	-0.01	200	
Cd	72	111	1	He	-0.007	-0.007	-49.15	7	-0.10	200	
Sn	115	120	1	He	-0.137	-0.137	-15.72	2970	0.00	200	
antimony	159	121	1	He	-0.185	-0.185	-6.34	727	-0.03	200	
Ba	115	137	1	He	-0.005	-0.005	-196.11	118	0.00	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-10.62	56	-0.01	40	
[Pb]	209	206	2	no gas	-0.008	-0.008	-182.86	6251	0.00	200	
[Pb]	209	207	2	no gas	-0.037	-0.037	-22.19	5054	0.00	200	
Pb	209	208	2	no gas	-0.013	-0.013	-75.32	23925	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1872848	1.18	1982866	94.45	70	120	
Sc	45	1	He	717331	0.55	767851	93.42	70	120	
Ge	72	1	He	300540	0.11	320058	93.90	70	125	
Ge	72	2	no gas	629723	0.37	673177	93.54	70	125	
Ge	72	3	H2	778620	0.35	821457	94.79	70	120	
Y	89	1	He	2586356	0.81	2786775	92.81	70	120	
In	115	1	He	2956964	1.74	3045232	97.10	70	120	
In	115	2	no gas	4542517	0.92	4564130	99.53	70	120	
In	115	3	H2	6176309	0.61	5826290	106.01	70	120	
Tb	159	1	He	4620544	0.49	4638687	99.61	70	120	
Tb	159	2	no gas	5747089	1.30	5623529	102.20	70	120	
Bi	209	2	no gas	3606016	2.21	3475006	103.77	60	120	

Sample Report

Sample Table

Sample Name	LCS 400-439514/2-A
Data File Name	138SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:20:31-05:00
Sample Type	Sample
Dilution	1
Comment	439514_2
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	53.132	53.132	1.11	1528355	0.00	200	
Be	6	9	2	no gas	48.774	48.774	1.13	395765	0.01	200	
B	6	11	2	no gas	98.902	98.902	2.28	453655	0.02	400	
Na	72	23	1	He	5097.309	5097.309	0.56	20848461	0.02	50000	
Mg	72	24	1	He	5069.356	5069.356	0.76	12073183	0.04	50000	
Al	45	27	3	H2	508.629	508.629	0.69	6906018	0.01	50000	
Si	45	28	3	H2	55.778	55.778	1.00	474587	0.01	2000	
K	72	39	1	He	5007.349	5007.349	1.04	18318378	0.03	50000	
Ca	72	44	1	He	4861.656	4861.656	0.33	788087	0.62	25000	
Ti	72	49	1	He	49.897	49.897	1.92	32183	0.16	200	
V	72	51	1	He	48.020	48.020	0.54	784944	0.01	200	
Cr	72	52	1	He	47.761	47.761	0.37	829094	0.01	200	
Mn	72	55	1	He	495.015	495.015	0.73	7524730	0.01	2500	
Fe	72	56	3	H2	4945.734	4945.734	1.57	193063884	0.00	50000	
Co	72	59	1	He	49.409	49.409	0.86	1099154	0.00	200	
Ni	72	60	1	He	49.288	49.288	0.90	256632	0.02	200	
copper	72	63	1	He	49.310	49.310	0.82	657335	0.01	200	
Zn	72	66	1	He	50.430	50.430	1.67	138477	0.04	200	
arsenic	72	75	1	He	48.286	48.286	0.57	103888	0.05	200	
selenium	72	78	3	H2	50.396	50.396	1.23	54357	0.09	200	
Sr	72	88	1	He	51.350	51.350	0.42	1144218	0.00	500	
Mo	115	95	1	He	51.197	51.197	0.85	339091	0.02	200	
Ag	115	107	1	He	48.373	48.373	0.68	887136	0.01	200	
Cd	72	111	1	He	51.809	51.809	2.28	184452	0.03	200	
Sn	115	120	1	He	48.855	48.855	0.48	666319	0.01	200	
antimony	159	121	1	He	47.928	47.928	1.29	547481	0.01	200	
Ba	115	137	1	He	49.272	49.272	1.20	251210	0.02	1000	
Tl	159	205	2	no gas	10.176	10.176	1.11	413463	0.00	40	
[Pb]	209	206	2	no gas	51.789	51.789	1.70	712289	0.01	200	
[Pb]	209	207	2	no gas	51.038	51.038	2.23	612979	0.01	200	
Pb	209	208	2	no gas	51.316	51.316	1.67	2888174	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1889724	0.86	1982866	95.30	70	120	
Sc	45	1	He	729139	0.84	767851	94.96	70	120	
Ge	72	1	He	302067	0.56	320058	94.38	70	125	
Ge	72	2	no gas	637348	1.06	673177	94.68	70	125	
Ge	72	3	H2	786763	0.22	821457	95.78	70	120	
Y	89	1	He	2578195	0.29	2786775	92.52	70	120	
In	115	1	He	2885298	1.33	3045232	94.75	70	120	
In	115	2	no gas	4492661	0.66	4564130	98.43	70	120	
In	115	3	H2	6231126	0.74	5826290	106.95	70	120	
Tb	159	1	He	4631082	1.35	4638687	99.84	70	120	
Tb	159	2	no gas	5828733	0.32	5623529	103.65	70	120	
Bi	209	2	no gas	3509392	2.21	3475006	100.99	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-1-A^5
Data File Name	139SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:24:28-05:00
Sample Type	Sample
Dilution	1
Comment	439514_3
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	3.197	3.197	2.96	212184	0.00	200	
Be	6	9	2	no gas	0.000	0.000	-6570.31	108	0.00	200	
B	6	11	2	no gas	18.131	18.131	2.56	99535	0.02	400	
Na	72	23	1	He	14128.150	14128.150	0.87	56672762	0.02	50000	
Mg	72	24	1	He	1973.746	1973.746	0.50	4621532	0.04	50000	
Al	45	27	3	H2	3.142	3.142	1.07	56564	0.01	50000	
Si	45	28	3	H2	3663.841	3663.841	0.64	25467570	0.01	2000	>LDR
K	72	39	1	He	1363.371	1363.371	0.71	5174035	0.03	50000	
Ca	72	44	1	He	28592.226	28592.226	0.76	4543825	0.63	25000	>LDR
Ti	72	49	1	He	0.368	0.368	10.28	350	0.11	200	
V	72	51	1	He	8.120	8.120	1.38	134669	0.01	200	
Cr	72	52	1	He	0.085	0.085	12.11	3520	0.00	200	
Mn	72	55	1	He	0.091	0.091	50.55	4557	0.00	2500	
Fe	72	56	3	H2	1.423	1.423	10.37	381525	0.00	50000	
Co	72	59	1	He	0.012	0.012	28.26	597	0.00	200	
Ni	72	60	1	He	0.567	0.567	9.40	3080	0.02	200	
copper	72	63	1	He	0.131	0.131	7.00	2342	0.01	200	
Zn	72	66	1	He	0.314	0.314	5.44	2004	0.02	200	
arsenic	72	75	1	He	3.465	3.465	2.32	7899	0.04	200	
selenium	72	78	3	H2	0.660	0.660	5.70	932	0.07	200	
Sr	72	88	1	He	131.552	131.552	1.53	2879502	0.00	500	
Mo	115	95	1	He	0.680	0.680	6.13	6118	0.01	200	
Ag	115	107	1	He	0.002	0.002	103.16	484	0.00	200	
Cd	72	111	1	He	0.034	0.034	45.88	150	0.02	200	
Sn	115	120	1	He	0.016	0.016	284.48	4978	0.00	200	
antimony	159	121	1	He	0.070	0.070	45.12	3628	0.00	200	
Ba	115	137	1	He	60.685	60.685	0.47	309577	0.02	1000	
Tl	159	205	2	no gas	0.007	0.007	11.35	496	0.00	40	
[Pb]	209	206	2	no gas	0.044	0.044	31.87	6802	0.00	200	
[Pb]	209	207	2	no gas	0.006	0.006	449.39	5438	0.00	200	
Pb	209	208	2	no gas	0.026	0.026	26.80	25539	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1907984	1.45	1982866	96.22	70	120	
Sc	45	1	He	703359	0.34	767851	91.60	70	120	
Ge	72	1	He	296813	0.66	320058	92.74	70	125	
Ge	72	2	no gas	637872	0.86	673177	94.76	70	125	
Ge	72	3	H2	776812	0.44	821457	94.57	70	120	
Y	89	1	He	2539092	0.63	2786775	91.11	70	120	
In	115	1	He	2887136	1.06	3045232	94.81	70	120	
In	115	2	no gas	4509772	0.87	4564130	98.81	70	120	
In	115	3	H2	6274041	1.23	5826290	107.69	70	120	
Tb	159	1	He	4635979	0.89	4638687	99.94	70	120	
Tb	159	2	no gas	5788054	0.68	5623529	102.93	70	120	
Bi	209	2	no gas	3516599	1.05	3475006	101.20	60	120	

Sample Report

Sample Table

Sample Name	400-169273-K-2-A^5
Data File Name	140SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:28:24-05:00
Sample Type	Sample
Dilution	1
Comment	439514_4
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	48.682	48.682	1.60	1341492	0.00	200	
Be	6	9	2	no gas	0.046	0.046	22.42	458	0.01	200	
B	6	11	2	no gas	35.444	35.444	2.45	166121	0.02	400	
Na	72	23	1	He	15014.229	15014.229	0.85	59566527	0.03	50000	
Mg	72	24	1	He	9089.508	9089.508	0.79	21034660	0.04	50000	
Al	45	27	3	H2	289.754	289.754	1.60	3861512	0.01	50000	
Si	45	28	3	H2	9511.129	9511.129	0.92	65693891	0.01	2000	>LDR
K	72	39	1	He	3755.946	3755.946	0.89	13445614	0.03	50000	
Ca	72	44	1	He	29399.333	29399.333	0.65	4620807	0.64	25000	>LDR
Ti	72	49	1	He	1.013	1.013	7.59	749	0.14	200	
V	72	51	1	He	3.065	3.065	1.25	53414	0.01	200	
Cr	72	52	1	He	0.373	0.373	3.61	8322	0.00	200	
Mn	72	55	1	He	326.061	326.061	1.75	4817661	0.01	2500	
Fe	72	56	3	H2	22184.256	22184.256	0.53	838572361	0.00	50000	
Co	72	59	1	He	3.756	3.756	1.59	81520	0.00	200	
Ni	72	60	1	He	14.734	14.734	0.81	74684	0.02	200	
copper	72	63	1	He	0.101	0.101	7.70	1927	0.01	200	
Zn	72	66	1	He	60.729	60.729	1.32	161829	0.04	200	
arsenic	72	75	1	He	74.781	74.781	0.68	156023	0.05	200	
selenium	72	78	3	H2	-0.082	-0.082	-5.76	142	-0.06	200	
Sr	72	88	1	He	133.886	133.886	1.39	2898395	0.00	500	
Mo	115	95	1	He	-0.108	-0.108	-14.67	910	-0.01	200	
Ag	115	107	1	He	-0.007	-0.007	-25.70	326	0.00	200	
Cd	72	111	1	He	0.031	0.031	54.52	137	0.02	200	
Sn	115	120	1	He	-0.082	-0.082	-18.68	3611	0.00	200	
antimony	159	121	1	He	-0.135	-0.135	-13.13	1272	-0.01	200	
Ba	115	137	1	He	12.475	12.475	3.54	62929	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-37.33	136	0.00	40	
[Pb]	209	206	2	no gas	0.046	0.046	16.97	6662	0.00	200	
[Pb]	209	207	2	no gas	0.032	0.032	64.18	5605	0.00	200	
Pb	209	208	2	no gas	0.051	0.051	21.28	26253	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1796918	1.50	1982866	90.62	70	120	
Sc	45	1	He	692573	1.71	767851	90.20	70	120	
Ge	72	1	He	293560	0.63	320058	91.72	70	125	
Ge	72	2	no gas	630719	1.31	673177	93.69	70	125	
Ge	72	3	H2	762872	0.29	821457	92.87	70	120	
Y	89	1	He	2543822	1.06	2786775	91.28	70	120	
In	115	1	He	2850588	1.32	3045232	93.61	70	120	
In	115	2	no gas	4523991	3.00	4564130	99.12	70	120	
In	115	3	H2	6276791	2.02	5826290	107.73	70	120	
Tb	159	1	He	4572915	3.16	4638687	98.58	70	120	
Tb	159	2	no gas	5690300	0.55	5623529	101.19	70	120	
Bi	209	2	no gas	3429056	2.79	3475006	98.68	60	120	

Sample Report

Sample Table

Sample Name	400-169273-J-2-A^5
Data File Name	141SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:32:26-05:00
Sample Type	Sample
Dilution	1
Comment	439514_5
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	47.540	47.540	0.99	1295881	0.00	200	
Be	6	9	2	no gas	0.035	0.035	10.14	364	0.01	200	
B	6	11	2	no gas	35.211	35.211	2.46	162993	0.02	400	
Na	72	23	1	He	14746.269	14746.269	0.86	58767552	0.03	50000	
Mg	72	24	1	He	8783.514	8783.514	0.96	20418944	0.04	50000	
Al	45	27	3	H2	256.523	256.523	0.62	3333943	0.01	50000	
Si	45	28	3	H2	9410.804	9410.804	0.22	63358727	0.01	2000	>LDR
K	72	39	1	He	3756.554	3756.554	2.48	13508011	0.03	50000	
Ca	72	44	1	He	28934.827	28934.827	0.67	4568461	0.63	25000	>LDR
Ti	72	49	1	He	0.433	0.433	17.00	389	0.11	200	
V	72	51	1	He	2.811	2.811	1.54	49636	0.01	200	
Cr	72	52	1	He	0.322	0.322	7.16	7502	0.00	200	
Mn	72	55	1	He	323.469	323.469	1.80	4801016	0.01	2500	
Fe	72	56	3	H2	22042.486	22042.486	0.36	827660654	0.00	50000	
Co	72	59	1	He	3.825	3.825	1.04	83377	0.00	200	
Ni	72	60	1	He	14.835	14.835	0.41	75531	0.02	200	
copper	72	63	1	He	0.022	0.022	57.41	912	0.00	200	
Zn	72	66	1	He	59.778	59.778	0.86	160027	0.04	200	
arsenic	72	75	1	He	75.116	75.116	0.74	157426	0.05	200	
selenium	72	78	3	H2	-0.131	-0.131	-15.89	91	-0.14	200	
Sr	72	88	1	He	131.488	131.488	1.16	2859380	0.00	500	
Mo	115	95	1	He	-0.168	-0.168	-14.63	520	-0.03	200	
Ag	115	107	1	He	-0.012	-0.012	-8.63	229	-0.01	200	
Cd	72	111	1	He	0.036	0.036	95.45	153	0.02	200	
Sn	115	120	1	He	-0.182	-0.182	-13.66	2274	-0.01	200	
antimony	159	121	1	He	-0.154	-0.154	-5.34	1083	-0.01	200	
Ba	115	137	1	He	11.758	11.758	1.15	59196	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-13.04	104	0.00	40	
[Pb]	209	206	2	no gas	0.001	0.001	3059.38	6175	0.00	200	
[Pb]	209	207	2	no gas	-0.046	-0.046	-77.88	4771	0.00	200	
Pb	209	208	2	no gas	0.001	0.001	887.65	23925	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1773429	0.78	1982866	89.44	70	120	
Sc	45	1	He	698686	0.26	767851	90.99	70	120	
Ge	72	1	He	294880	0.33	320058	92.13	70	125	
Ge	72	2	no gas	641386	0.61	673177	95.28	70	125	
Ge	72	3	H2	757787	0.59	821457	92.25	70	120	
Y	89	1	He	2535037	1.75	2786775	90.97	70	120	
In	115	1	He	2843909	0.88	3045232	93.39	70	120	
In	115	2	no gas	4496439	1.80	4564130	98.52	70	120	
In	115	3	H2	6254896	0.74	5826290	107.36	70	120	
Tb	159	1	He	4662648	1.61	4638687	100.52	70	120	
Tb	159	2	no gas	5760496	1.25	5623529	102.44	70	120	
Bi	209	2	no gas	3486385	1.17	3475006	100.33	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-3-A^5
Data File Name	142SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:36:25-05:00
Sample Type	Sample
Dilution	1
Comment	439514_6
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.670	4.670	1.66	239073	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-42.12	61	-0.01	200	
B	6	11	2	no gas	18.974	18.974	1.71	98209	0.02	400	
Na	72	23	1	He	7283.684	7283.684	0.43	29208930	0.02	50000	
Mg	72	24	1	He	3176.626	3176.626	1.00	7425467	0.04	50000	
Al	45	27	3	H2	1.034	1.034	3.13	28198	0.00	50000	
Si	45	28	3	H2	2900.274	2900.274	1.82	19993300	0.01	2000	>LDR
K	72	39	1	He	1616.430	1616.430	0.95	6056585	0.03	50000	
Ca	72	44	1	He	31141.933	31141.933	0.46	4942391	0.63	25000	>LDR
Ti	72	49	1	He	0.191	0.191	40.55	238	0.08	200	
V	72	51	1	He	2.028	2.028	0.79	37412	0.01	200	
Cr	72	52	1	He	0.026	0.026	52.68	2510	0.00	200	
Mn	72	55	1	He	58.046	58.046	1.31	868636	0.01	2500	
Fe	72	56	3	H2	1027.733	1027.733	0.91	40132564	0.00	50000	
Co	72	59	1	He	0.016	0.016	8.59	680	0.00	200	
Ni	72	60	1	He	0.378	0.378	10.83	2110	0.02	200	
copper	72	63	1	He	0.050	0.050	6.72	1277	0.00	200	
Zn	72	66	1	He	0.347	0.347	5.05	2090	0.02	200	
arsenic	72	75	1	He	2.022	2.022	1.30	4861	0.04	200	
selenium	72	78	3	H2	-0.114	-0.114	-6.71	111	-0.10	200	
Sr	72	88	1	He	166.474	166.474	1.75	3639224	0.00	500	
Mo	115	95	1	He	1.424	1.424	7.20	10824	0.01	200	
Ag	115	107	1	He	-0.010	-0.010	-15.50	258	0.00	200	
Cd	72	111	1	He	0.013	0.013	107.13	77	0.02	200	
Sn	115	120	1	He	-0.190	-0.190	-4.78	2147	-0.01	200	
antimony	159	121	1	He	-0.171	-0.171	-2.33	879	-0.02	200	
Ba	115	137	1	He	107.603	107.603	1.40	538608	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-9.65	119	0.00	40	
[Pb]	209	206	2	no gas	0.057	0.057	52.76	6832	0.00	200	
[Pb]	209	207	2	no gas	-0.002	-0.002	-1138.10	5231	0.00	200	
Pb	209	208	2	no gas	0.033	0.033	19.25	25376	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1814103	1.38	1982866	91.49	70	120	
Sc	45	1	He	698492	0.50	767851	90.97	70	120	
Ge	72	1	He	296419	0.56	320058	92.61	70	125	
Ge	72	2	no gas	634411	0.88	673177	94.24	70	125	
Ge	72	3	H2	781970	0.97	821457	95.19	70	120	
Y	89	1	He	2574121	0.76	2786775	92.37	70	120	
In	115	1	He	2833458	0.83	3045232	93.05	70	120	
In	115	2	no gas	4514940	0.47	4564130	98.92	70	120	
In	115	3	H2	6308081	2.38	5826290	108.27	70	120	
Tb	159	1	He	4603820	1.41	4638687	99.25	70	120	
Tb	159	2	no gas	5787098	0.64	5623529	102.91	70	120	
Bi	209	2	no gas	3441008	1.03	3475006	99.02	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-4-A^5
Data File Name	143SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:40:21-05:00
Sample Type	Sample
Dilution	1
Comment	439514_7
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.509	4.509	1.76	235659	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-58.79	74	0.00	200	
B	6	11	2	no gas	11.785	11.785	0.60	68067	0.02	400	
Na	72	23	1	He	6777.148	6777.148	1.98	27386458	0.02	50000	
Mg	72	24	1	He	3618.601	3618.601	2.43	8521988	0.04	50000	
Al	45	27	3	H2	1.636	1.636	5.33	35610	0.00	50000	
Si	45	28	3	H2	3117.496	3117.496	1.36	21169390	0.01	2000	>LDR
K	72	39	1	He	1496.095	1496.095	1.20	5676806	0.03	50000	
Ca	72	44	1	He	33938.587	33938.587	1.09	5426820	0.63	25000	>LDR
Ti	72	49	1	He	0.175	0.175	24.30	230	0.08	200	
V	72	51	1	He	0.031	0.031	15.58	5629	0.00	200	
Cr	72	52	1	He	0.027	0.027	15.19	2544	0.00	200	
Mn	72	55	1	He	131.450	131.450	0.89	1978087	0.01	2500	
Fe	72	56	3	H2	2012.370	2012.370	1.01	78250481	0.00	50000	
Co	72	59	1	He	0.003	0.003	120.57	400	0.00	200	
Ni	72	60	1	He	0.092	0.092	23.35	657	0.01	200	
copper	72	63	1	He	0.001	0.001	475.99	649	0.00	200	
Zn	72	66	1	He	5.001	5.001	1.75	14633	0.03	200	
arsenic	72	75	1	He	0.030	0.030	25.10	685	0.00	200	
selenium	72	78	3	H2	-0.162	-0.162	-4.19	61	-0.27	200	
Sr	72	88	1	He	194.331	194.331	1.92	4279939	0.00	500	
Mo	115	95	1	He	0.719	0.719	2.92	6371	0.01	200	
Ag	115	107	1	He	-0.011	-0.011	-17.14	243	0.00	200	
Cd	72	111	1	He	-0.007	-0.007	-49.38	7	-0.10	200	
Sn	115	120	1	He	-0.199	-0.199	-7.14	2067	-0.01	200	
antimony	159	121	1	He	-0.217	-0.217	-0.13	362	-0.06	200	
Ba	115	137	1	He	197.029	197.029	2.01	1004065	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-5.83	48	-0.01	40	
[Pb]	209	206	2	no gas	0.027	0.027	113.99	6482	0.00	200	
[Pb]	209	207	2	no gas	0.012	0.012	326.61	5424	0.00	200	
Pb	209	208	2	no gas	0.000	0.000	8935.90	23725	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1819219	1.21	1982866	91.75	70	120	
Sc	45	1	He	701395	0.83	767851	91.35	70	120	
Ge	72	1	He	298676	0.55	320058	93.32	70	125	
Ge	72	2	no gas	630898	0.91	673177	93.72	70	125	
Ge	72	3	H2	781766	0.50	821457	95.17	70	120	
Y	89	1	He	2593644	1.50	2786775	93.07	70	120	
In	115	1	He	2885842	2.43	3045232	94.77	70	120	
In	115	2	no gas	4496041	0.56	4564130	98.51	70	120	
In	115	3	H2	6291912	0.34	5826290	107.99	70	120	
Tb	159	1	He	4607958	1.70	4638687	99.34	70	120	
Tb	159	2	no gas	5746476	0.59	5623529	102.19	70	120	
Bi	209	2	no gas	3465775	1.24	3475006	99.73	60	120	

Sample Report

Sample Table

Sample Name	400-169273-J-5-A^5
Data File Name	144SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:44:17-05:00
Sample Type	Sample
Dilution	1
Comment	439514_8
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	19.186	19.186	1.86	609972	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-13.12	53	-0.01	200	
B	6	11	2	no gas	12.633	12.633	4.53	71800	0.02	400	
Na	72	23	1	He	10306.008	10306.008	0.94	41124718	0.03	50000	
Mg	72	24	1	He	3907.821	3907.821	1.48	9093907	0.04	50000	
Al	45	27	3	H2	8.752	8.752	1.50	128780	0.01	50000	
Si	45	28	3	H2	6619.786	6619.786	0.80	45045619	0.01	2000	>LDR
K	72	39	1	He	4145.743	4145.743	1.65	14881730	0.03	50000	
Ca	72	44	1	He	25338.680	25338.680	1.48	4004823	0.63	25000	>LDR
Ti	72	49	1	He	0.433	0.433	24.96	389	0.11	200	
V	72	51	1	He	0.145	0.145	13.40	7375	0.00	200	
Cr	72	52	1	He	0.051	0.051	20.99	2924	0.00	200	
Mn	72	55	1	He	19.180	19.180	0.56	287933	0.01	2500	
Fe	72	56	3	H2	1772.438	1772.438	0.27	67895637	0.00	50000	
Co	72	59	1	He	0.060	0.060	14.13	1630	0.00	200	
Ni	72	60	1	He	0.473	0.473	3.73	2584	0.02	200	
copper	72	63	1	He	0.036	0.036	16.36	1091	0.00	200	
Zn	72	66	1	He	2.358	2.358	3.74	7432	0.03	200	
arsenic	72	75	1	He	22.749	22.749	0.13	48150	0.05	200	
selenium	72	78	3	H2	-0.153	-0.153	-3.62	69	-0.22	200	
Sr	72	88	1	He	64.518	64.518	0.81	1404571	0.00	500	
Mo	115	95	1	He	-0.024	-0.024	-137.55	1483	0.00	200	
Ag	115	107	1	He	-0.012	-0.012	-14.00	223	-0.01	200	
Cd	72	111	1	He	-0.005	-0.005	-94.93	13	-0.03	200	
Sn	115	120	1	He	-0.217	-0.217	-3.93	1834	-0.01	200	
antimony	159	121	1	He	-0.205	-0.205	-2.57	497	-0.04	200	
Ba	115	137	1	He	8.637	8.637	2.05	44396	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-24.28	85	0.00	40	
[Pb]	209	206	2	no gas	0.028	0.028	140.88	6485	0.00	200	
[Pb]	209	207	2	no gas	0.015	0.015	239.16	5451	0.00	200	
Pb	209	208	2	no gas	0.038	0.038	25.64	25737	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1823079	0.72	1982866	91.94	70	120	
Sc	45	1	He	704331	1.07	767851	91.73	70	120	
Ge	72	1	He	295144	0.95	320058	92.22	70	125	
Ge	72	2	no gas	639465	0.59	673177	94.99	70	125	
Ge	72	3	H2	769694	0.48	821457	93.70	70	120	
Y	89	1	He	2579589	0.51	2786775	92.57	70	120	
In	115	1	He	2901507	0.54	3045232	95.28	70	120	
In	115	2	no gas	4524102	0.55	4564130	99.12	70	120	
In	115	3	H2	6244953	1.02	5826290	107.19	70	120	
Tb	159	1	He	4629709	0.40	4638687	99.81	70	120	
Tb	159	2	no gas	5779924	1.23	5623529	102.78	70	120	
Bi	209	2	no gas	3458638	0.16	3475006	99.53	60	120	

Sample Report

Sample Table

Sample Name	400-169273-K-5-A^5
Data File Name	145SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:48:15-05:00
Sample Type	Sample
Dilution	1
Comment	439514_9
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	19.838	19.838	3.38	612027	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-50.24	69	-0.01	200	
B	6	11	2	no gas	12.542	12.542	3.88	69766	0.02	400	
Na	72	23	1	He	10314.337	10314.337	1.36	40936086	0.03	50000	
Mg	72	24	1	He	3876.108	3876.108	1.10	8972029	0.04	50000	
Al	45	27	3	H2	1.015	1.015	8.29	27711	0.00	50000	
Si	45	28	3	H2	6605.789	6605.789	1.20	45075149	0.01	2000	>LDR
K	72	39	1	He	4164.385	4164.385	0.32	14867191	0.03	50000	
Ca	72	44	1	He	25347.195	25347.195	1.73	3983850	0.64	25000	>LDR
Ti	72	49	1	He	0.133	0.133	53.03	200	0.07	200	
V	72	51	1	He	0.384	0.384	13.07	11102	0.00	200	
Cr	72	52	1	He	0.020	0.020	75.91	2397	0.00	200	
Mn	72	55	1	He	18.160	18.160	1.35	271318	0.01	2500	
Fe	72	56	3	H2	1760.368	1760.368	1.26	67231101	0.00	50000	
Co	72	59	1	He	0.056	0.056	13.35	1550	0.00	200	
Ni	72	60	1	He	0.427	0.427	5.61	2340	0.02	200	
copper	72	63	1	He	-0.003	-0.003	-250.35	584	0.00	200	
Zn	72	66	1	He	1.481	1.481	4.00	5068	0.03	200	
arsenic	72	75	1	He	23.019	23.019	1.37	48445	0.05	200	
selenium	72	78	3	H2	-0.168	-0.168	-9.77	53	-0.32	200	
Sr	72	88	1	He	63.839	63.839	1.09	1382399	0.00	500	
Mo	115	95	1	He	-0.087	-0.087	-51.70	1053	-0.01	200	
Ag	115	107	1	He	-0.014	-0.014	-8.00	191	-0.01	200	
Cd	72	111	1	He	-0.009	-0.009	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.204	-0.204	-12.69	1974	-0.01	200	
antimony	159	121	1	He	-0.211	-0.211	-1.40	430	-0.05	200	
Ba	115	137	1	He	8.537	8.537	1.67	43193	0.02	1000	
Tl	159	205	2	no gas	-0.005	-0.005	-13.92	39	-0.01	40	
[Pb]	209	206	2	no gas	-0.024	-0.024	-101.01	5731	0.00	200	
[Pb]	209	207	2	no gas	-0.019	-0.019	-247.02	5018	0.00	200	
Pb	209	208	2	no gas	-0.002	-0.002	-263.80	23388	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1781238	1.75	1982866	89.83	70	120	
Sc	45	1	He	699945	0.60	767851	91.16	70	120	
Ge	72	1	He	293551	1.08	320058	91.72	70	125	
Ge	72	2	no gas	628337	1.39	673177	93.34	70	125	
Ge	72	3	H2	767386	0.32	821457	93.42	70	120	
Y	89	1	He	2541908	0.29	2786775	91.21	70	120	
In	115	1	He	2855615	0.07	3045232	93.77	70	120	
In	115	2	no gas	4525628	1.03	4564130	99.16	70	120	
In	115	3	H2	6171337	2.12	5826290	105.92	70	120	
Tb	159	1	He	4628955	0.45	4638687	99.79	70	120	
Tb	159	2	no gas	5718164	1.28	5623529	101.68	70	120	
Bi	209	2	no gas	3432840	2.39	3475006	98.79	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-6-A^5
Data File Name	146SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T21:52:11-05:00
Sample Type	Sample
Dilution	1
Comment	439514_10
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.923	4.923	3.17	243594	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-33.59	73	-0.01	200	
B	6	11	2	no gas	17.094	17.094	2.30	89581	0.02	400	
Na	72	23	1	He	6318.650	6318.650	0.54	25124157	0.03	50000	
Mg	72	24	1	He	3398.825	3398.825	1.66	7874805	0.04	50000	
Al	45	27	3	H2	50.053	50.053	1.75	662247	0.01	50000	
Si	45	28	3	H2	2763.217	2763.217	2.39	18655142	0.01	2000	>LDR
K	72	39	1	He	1793.403	1793.403	1.36	6620371	0.03	50000	
Ca	72	44	1	He	31002.452	31002.452	0.76	4876961	0.64	25000	>LDR
Ti	72	49	1	He	1.332	1.332	5.19	949	0.14	200	
V	72	51	1	He	0.516	0.516	1.54	13211	0.00	200	
Cr	72	52	1	He	0.093	0.093	19.63	3620	0.00	200	
Mn	72	55	1	He	134.133	134.133	2.17	1985621	0.01	2500	
Fe	72	56	3	H2	871.475	871.475	0.89	33468415	0.00	50000	
Co	72	59	1	He	0.028	0.028	2.58	940	0.00	200	
Ni	72	60	1	He	0.188	0.188	18.25	1133	0.02	200	
copper	72	63	1	He	0.070	0.070	15.14	1527	0.00	200	
Zn	72	66	1	He	0.326	0.326	34.99	2014	0.02	200	
arsenic	72	75	1	He	2.194	2.194	2.48	5175	0.04	200	
selenium	72	78	3	H2	-0.178	-0.178	-1.78	43	-0.42	200	
Sr	72	88	1	He	174.070	174.070	1.67	3771692	0.00	500	
Mo	115	95	1	He	1.677	1.677	4.40	12582	0.01	200	
Ag	115	107	1	He	-0.014	-0.014	-15.79	199	-0.01	200	
Cd	72	111	1	He	-0.005	-0.005	-144.52	13	-0.03	200	
Sn	115	120	1	He	-0.196	-0.196	-3.46	2097	-0.01	200	
antimony	159	121	1	He	-0.219	-0.219	-1.45	334	-0.07	200	
Ba	115	137	1	He	83.641	83.641	0.89	422618	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-10.93	100	0.00	40	
[Pb]	209	206	2	no gas	0.120	0.120	10.40	7712	0.00	200	
[Pb]	209	207	2	no gas	0.107	0.107	35.07	6528	0.00	200	
Pb	209	208	2	no gas	0.110	0.110	6.58	29729	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1800376	1.60	1982866	90.80	70	120	
Sc	45	1	He	692869	0.71	767851	90.23	70	120	
Ge	72	1	He	293814	0.44	320058	91.80	70	125	
Ge	72	2	no gas	630662	1.12	673177	93.68	70	125	
Ge	72	3	H2	767851	1.20	821457	93.47	70	120	
Y	89	1	He	2555682	0.57	2786775	91.71	70	120	
In	115	1	He	2859972	0.62	3045232	93.92	70	120	
In	115	2	no gas	4525386	0.80	4564130	99.15	70	120	
In	115	3	H2	6251556	0.87	5826290	107.30	70	120	
Tb	159	1	He	4661291	1.58	4638687	100.49	70	120	
Tb	159	2	no gas	5820509	0.28	5623529	103.50	70	120	
Bi	209	2	no gas	3456803	1.58	3475006	99.48	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	148_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:00:10-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	51.776	51.776	3.29	1434235	0.00	50	
Be	6	9	2	no gas	49.616	49.616	0.92	386921	0.01	50	
B	6	11	2	no gas	98.889	98.889	0.79	433263	0.02	100	
Na	72	23	1	He	4686.413	4686.413	0.41	19662991	0.02	5000	
Mg	72	24	1	He	4670.131	4670.131	0.15	11404637	0.04	5000	
Al	45	27	3	H2	493.508	493.508	0.07	6542340	0.01	500	
K	72	39	1	He	4695.721	4695.721	0.95	17630464	0.03	5000	
Ca	72	44	1	He	4534.981	4534.981	0.39	756097	0.60	5000	
Ti	72	49	1	He	47.803	47.803	2.83	31576	0.15	50	
V	72	51	1	He	45.232	45.232	0.61	762599	0.01	50	
Cr	72	52	1	He	45.777	45.777	1.02	814842	0.01	50	
Mn	72	55	1	He	467.234	467.234	1.45	7281793	0.01	500	
Fe	72	56	3	H2	4852.520	4852.520	1.12	188261637	0.00	5000	
Co	72	59	1	He	45.824	45.824	0.47	1044900	0.00	50	
Ni	72	60	1	He	47.917	47.917	1.18	255738	0.02	50	
copper	72	63	1	He	46.175	46.175	1.08	631070	0.01	50	
dwCu63	72	63	2	no gas	47.876	47.876	0.93	937037	0.01	50	
Zn	72	66	1	He	47.682	47.682	1.28	135321	0.04	50	
arsenic	72	75	1	He	45.400	45.400	0.63	100123	0.05	50	
dwAs75	72	75	2	no gas	47.668	47.668	1.30	205159	0.02	50	
selenium	72	78	3	H2	50.656	50.656	0.14	54119	0.09	50	
Sr	72	88	1	He	48.094	48.094	0.69	1099853	0.00	50	
Mo	115	95	1	He	47.433	47.433	2.07	324210	0.01	50	
Ag	115	107	1	He	45.767	45.767	2.40	869464	0.01	50	
Cd	72	111	1	He	48.753	48.753	0.90	177933	0.03	50	
Sn	115	120	1	He	47.839	47.839	0.43	674223	0.01	50	
antimony	159	121	1	He	48.490	48.490	1.20	569631	0.01	50	
dwSb121	159	121	2	no gas	54.082	54.082	0.74	814905	0.01	50	
Ba	115	137	1	He	46.205	46.205	0.51	244230	0.02	50	
Tl	159	205	2	no gas	10.188	10.188	0.19	408268	0.00	10	
[Pb]	209	206	2	no gas	50.697	50.697	1.77	692883	0.01	50	
[Pb]	209	207	2	no gas	49.681	49.681	0.72	592487	0.01	50	
Pb	209	208	2	no gas	49.039	49.039	2.36	2742790	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1816397	1.19	1982866	91.60	70	120	
Sc	45	1	He	753676	0.18	767851	98.15	70	120	
Ge	72	1	He	309685	1.03	320058	96.76	70	125	
Ge	72	2	no gas	636383	1.48	673177	94.53	70	125	
Ge	72	3	H2	782234	0.90	821457	95.23	70	120	
Y	89	1	He	2675206	0.94	2786775	96.00	70	120	
In	115	1	He	2989991	1.36	3045232	98.19	70	120	
In	115	2	no gas	4556490	0.90	4564130	99.83	70	120	
In	115	3	H2	6240455	0.95	5826290	107.11	70	120	
Tb	159	1	He	4784945	1.46	4638687	103.15	70	120	
Tb	159	2	no gas	5751420	0.69	5623529	102.27	70	120	
Bi	209	2	no gas	3487200	1.34	3475006	100.35	60	120	

Sample Table

Sample Name	CCB
Data File Name	150_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:07:58-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.054	-0.054	-103.47	127056	0.00	0.5	
Be	6	9	2	no gas	-0.009	-0.009	-10.59	51	-0.02	0.5	
B	6	11	2	no gas	-0.831	-0.831	-32.37	16455	-0.01	5	
Na	72	23	1	He	-2.244	-2.244	-28.50	51398	0.00	100	
Mg	72	24	1	He	-1.511	-1.511	-4.07	2840	-0.05	50	
Al	45	27	3	H2	-0.114	-0.114	-370.37	15991	0.00	50	
K	72	39	1	He	-1.193	-1.193	-241.82	374610	0.00	50	
Ca	72	44	1	He	-1.567	-1.567	-44.53	2204	-0.07	50	
Ti	72	49	1	He	-0.115	-0.115	-25.39	94	-0.12	0.5	
V	72	51	1	He	0.032	0.032	43.27	5683	0.00	0.5	
Cr	72	52	1	He	0.003	0.003	306.93	2174	0.00	0.5	
Mn	72	55	1	He	-0.161	-0.161	-14.13	2000	-0.01	2	
Fe	72	56	3	H2	-5.226	-5.226	-19.12	140319	0.00	25	
Co	72	59	1	He	-0.015	-0.015	-3.65	146	-0.01	0.5	
Ni	72	60	1	He	-0.020	-0.020	-23.07	93	-0.02	1.5	
copper	72	63	1	He	-0.023	-0.023	-21.13	497	0.00	0.5	
dwCu63	72	63	2	no gas	-0.012	-0.012	-83.37	810	0.00	0.5	
Zn	72	66	1	He	-0.100	-0.100	-12.63	983	-0.01	4	
arsenic	72	75	1	He	-0.075	-0.075	-22.19	428	-0.02	0.25	
dwAs75	72	75	2	no gas	-0.321	-0.321	-153.28	-587	0.05	5	
selenium	72	78	3	H2	-0.100	-0.100	-43.57	125	-0.08	0.25	
dwSe82	72	82	2	no gas	-0.182	-0.182	-1.32	221	-0.08	5	
Sr	72	88	1	He	-0.016	-0.016	-9.25	323	0.00	0.5	
Mo	115	95	1	He	-0.150	-0.150	-38.39	757	-0.02	1	
Ag	115	107	1	He	-0.012	-0.012	-1.83	261	0.00	0.05	
Cd	72	111	1	He	-0.011	-0.011	0.00	0	#DIV/0!	0.25	
Sn	115	120	1	He	-0.125	-0.125	-20.33	3050	0.00	0.5	
antimony	159	121	1	He	-0.141	-0.141	-10.35	1202	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.287	-0.287	-3.28	2526	-0.01	5	
Ba	115	137	1	He	-0.021	-0.021	-22.36	64	-0.03	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-22.85	64	0.00	0.1	
[Pb]	209	206	2	no gas	-0.024	-0.024	-177.64	6078	0.00	0.25	
[Pb]	209	207	2	no gas	-0.033	-0.033	-75.22	4984	0.00	0.25	
Pb	209	208	2	no gas	-0.025	-0.025	-74.94	23201	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1866061	0.73	1982866	94.11	70	120	
Sc	45	1	He	687948	4.17	767851	89.59	70	120	
Ge	72	1	He	296941	2.81	320058	92.78	70	125	
Ge	72	2	no gas	631333	0.36	673177	93.78	70	125	
Ge	72	3	H2	821046	24.41	821457	99.95	70	120	
Y	89	1	He	2508938	4.01	2786775	90.03	70	120	
In	115	1	He	2864143	3.90	3045232	94.05	70	120	
In	115	2	no gas	4570875	0.97	4564130	100.15	70	120	
In	115	3	H2	7034684	29.85	5826290	120.74	70	120	ISTD Failed
Tb	159	1	He	4537242	4.29	4638687	97.81	70	120	
Tb	159	2	no gas	5831286	0.99	5623529	103.69	70	120	
Bi	209	2	no gas	3589043	2.69	3475006	103.28	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-7-A^5
Data File Name	151SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:11:59-05:00
Sample Type	Sample
Dilution	1
Comment	439514_11
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.600	4.600	0.46	243782	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-54.19	90	0.00	200	
B	6	11	2	no gas	12.977	12.977	1.80	74967	0.02	400	
Na	72	23	1	He	10228.612	10228.612	1.27	41025185	0.02	50000	
Mg	72	24	1	He	3182.534	3182.534	1.51	7447157	0.04	50000	
Al	45	27	3	H2	0.776	0.776	7.66	26109	0.00	50000	
Si	45	28	3	H2	3181.646	3181.646	2.76	21536378	0.01	2000	>LDR
K	72	39	1	He	1617.094	1617.094	2.08	6066685	0.03	50000	
Ca	72	44	1	He	32852.921	32852.921	0.62	5218036	0.63	25000	>LDR
Ti	72	49	1	He	0.104	0.104	68.17	232	0.04	200	
V	72	51	1	He	0.111	0.111	32.32	6935	0.00	200	
Cr	72	52	1	He	0.005	0.005	129.77	2197	0.00	200	
Mn	72	55	1	He	61.233	61.233	0.42	918094	0.01	2500	
Fe	72	56	3	H2	716.010	716.010	0.82	27693875	0.00	50000	
Co	72	59	1	He	-0.004	-0.004	-38.19	376	0.00	200	
Ni	72	60	1	He	0.144	0.144	13.26	930	0.02	200	
copper	72	63	1	He	-0.025	-0.025	-5.21	467	-0.01	200	
Zn	72	66	1	He	-0.004	-0.004	-1146.71	1240	0.00	200	
arsenic	72	75	1	He	1.918	1.918	1.73	4613	0.04	200	
selenium	72	78	3	H2	-0.146	-0.146	-7.67	77	-0.19	200	
Sr	72	88	1	He	163.834	163.834	1.50	3584097	0.00	500	
Mo	115	95	1	He	1.851	1.851	0.85	13946	0.01	200	
Ag	115	107	1	He	-0.015	-0.015	-9.66	207	-0.01	200	
Cd	72	111	1	He	-0.007	-0.007	-65.34	17	-0.04	200	
Sn	115	120	1	He	-0.174	-0.174	-7.82	2410	-0.01	200	
antimony	159	121	1	He	-0.179	-0.179	-4.82	786	-0.02	200	
Ba	115	137	1	He	108.518	108.518	1.05	553120	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-7.46	49	-0.01	40	
[Pb]	209	206	2	no gas	-0.029	-0.029	-65.18	5835	0.00	200	
[Pb]	209	207	2	no gas	-0.016	-0.016	-38.01	5024	0.00	200	
Pb	209	208	2	no gas	-0.019	-0.019	-57.54	22884	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1831432	1.54	1982866	92.36	70	120	
Sc	45	1	He	700372	0.34	767851	91.21	70	120	
Ge	72	1	He	296639	0.16	320058	92.68	70	125	
Ge	72	2	no gas	632775	0.45	673177	94.00	70	125	
Ge	72	3	H2	771376	0.45	821457	93.90	70	120	
Y	89	1	He	2537355	0.99	2786775	91.05	70	120	
In	115	1	He	2885157	0.78	3045232	94.74	70	120	
In	115	2	no gas	4503757	0.56	4564130	98.68	70	120	
In	115	3	H2	6268833	1.11	5826290	107.60	70	120	
Tb	159	1	He	4601533	0.87	4638687	99.20	70	120	
Tb	159	2	no gas	5780563	1.11	5623529	102.79	70	120	
Bi	209	2	no gas	3482941	0.69	3475006	100.23	60	120	

Sample Report

Sample Table

Sample Name	400-169273-K-8-A^5
Data File Name	152SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:15:55-05:00
Sample Type	Sample
Dilution	1
Comment	439514_12
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	5.161	5.161	3.92	253713	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-47.44	67	-0.01	200	
B	6	11	2	no gas	21.375	21.375	4.08	108849	0.02	400	
Na	72	23	1	He	32442.615	32442.615	23.81	125994048	0.03	50000	
Mg	72	24	1	He	3381.910	3381.910	22.59	7683195	0.04	50000	
Al	45	27	3	H2	21.282	21.282	0.78	288884	0.01	50000	
Si	45	28	3	H2	6420.400	6420.400	1.31	42866714	0.01	2000	>LDR
K	72	39	1	He	5510.944	5510.944	22.00	19219546	0.03	50000	
Ca	72	44	1	He	18044.145	18044.145	22.31	2784396	0.65	25000	
Ti	72	49	1	He	0.646	0.646	35.95	556	0.12	200	
V	72	51	1	He	0.442	0.442	43.32	11822	0.00	200	
Cr	72	52	1	He	0.106	0.106	54.92	3797	0.00	200	
Mn	72	55	1	He	45.911	45.911	22.99	669121	0.01	2500	
Fe	72	56	3	H2	2146.465	2146.465	0.94	80750057	0.00	50000	
Co	72	59	1	He	0.069	0.069	19.00	1931	0.00	200	
Ni	72	60	1	He	0.551	0.551	27.81	2914	0.02	200	
copper	72	63	1	He	0.206	0.206	34.56	3376	0.01	200	
Zn	72	66	1	He	29.873	29.873	22.30	78833	0.04	200	
arsenic	72	75	1	He	53.751	53.751	21.24	110383	0.05	200	
selenium	72	78	3	H2	-0.094	-0.094	-10.05	129	-0.07	200	
Sr	72	88	1	He	44.680	44.680	21.75	950509	0.00	500	
Mo	115	95	1	He	-0.165	-0.165	-11.92	633	-0.03	200	
Ag	115	107	1	He	-0.012	-0.012	-32.15	261	0.00	200	
Cd	72	111	1	He	-0.006	-0.006	-74.66	20	-0.03	200	
Sn	115	120	1	He	-0.146	-0.146	-28.33	2700	-0.01	200	
antimony	159	121	1	He	0.095	0.095	104.64	3832	0.00	200	
Ba	115	137	1	He	13.149	13.149	26.67	63833	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-20.81	88	0.00	40	
[Pb]	209	206	2	no gas	0.070	0.070	54.65	7192	0.00	200	
[Pb]	209	207	2	no gas	0.051	0.051	49.49	5831	0.00	200	
Pb	209	208	2	no gas	0.056	0.056	30.43	27050	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1800258	1.16	1982866	90.79	70	120	
Sc	45	1	He	718007	27.53	767851	93.51	70	120	
Ge	72	1	He	297287	20.89	320058	92.89	70	125	
Ge	72	2	no gas	622532	0.89	673177	92.48	70	125	
Ge	72	3	H2	756408	0.19	821457	92.08	70	120	
Y	89	1	He	2610854	27.29	2786775	93.69	70	120	
In	115	1	He	2882681	27.82	3045232	94.66	70	120	
In	115	2	no gas	4443989	0.61	4564130	97.37	70	120	
In	115	3	H2	6214368	1.10	5826290	106.66	70	120	
Tb	159	1	He	4779611	27.98	4638687	103.04	70	120	
Tb	159	2	no gas	5732408	1.11	5623529	101.94	70	120	
Bi	209	2	no gas	3487200	1.75	3475006	100.35	60	120	

Sample Report

Sample Table

Sample Name	400-169273-J-8-A^5
Data File Name	153SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:19:55-05:00
Sample Type	Sample
Dilution	1
Comment	439514_13
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.924	4.924	0.76	255702	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-79.32	68	-0.01	200	
B	6	11	2	no gas	20.048	20.048	2.97	106613	0.02	400	
Na	72	23	1	He	27343.691	27343.691	1.42	107255442	0.03	50000	
Mg	72	24	1	He	3329.046	3329.046	0.34	7625709	0.04	50000	
Al	45	27	3	H2	1.256	1.256	16.65	35346	0.00	50000	
Si	45	28	3	H2	5766.285	5766.285	8.80	42582606	0.01	2000	>LDR
K	72	39	1	He	5404.486	5404.486	1.25	18979958	0.03	50000	
Ca	72	44	1	He	17969.473	17969.473	1.16	2794957	0.64	25000	
Ti	72	49	1	He	0.110	0.110	29.56	231	0.05	200	
V	72	51	1	He	0.532	0.532	3.09	13357	0.00	200	
Cr	72	52	1	He	0.031	0.031	47.22	2584	0.00	200	
Mn	72	55	1	He	44.476	44.476	1.02	653956	0.01	2500	
Fe	72	56	3	H2	1921.040	1921.040	5.97	78313676	0.00	50000	
Co	72	59	1	He	0.027	0.027	20.96	1037	0.00	200	
Ni	72	60	1	He	0.124	0.124	5.05	810	0.02	200	
copper	72	63	1	He	-0.017	-0.017	-48.31	559	0.00	200	
Zn	72	66	1	He	0.192	0.192	47.42	1727	0.01	200	
arsenic	72	75	1	He	25.842	25.842	0.11	53700	0.05	200	
selenium	72	78	3	H2	-0.145	-0.145	-14.54	82	-0.18	200	
Sr	72	88	1	He	44.029	44.029	0.67	943381	0.00	500	
Mo	115	95	1	He	-0.217	-0.217	-14.43	307	-0.07	200	
Ag	115	107	1	He	-0.016	-0.016	-15.30	187	-0.01	200	
Cd	72	111	1	He	-0.007	-0.007	-26.02	17	-0.04	200	
Sn	115	120	1	He	-0.192	-0.192	-11.85	2087	-0.01	200	
antimony	159	121	1	He	-0.163	-0.163	-2.86	964	-0.02	200	
Ba	115	137	1	He	11.968	11.968	0.69	59116	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-10.05	55	-0.01	40	
[Pb]	209	206	2	no gas	0.006	0.006	191.10	6462	0.00	200	
[Pb]	209	207	2	no gas	-0.020	-0.020	-231.45	5104	0.00	200	
Pb	209	208	2	no gas	-0.024	-0.024	-59.51	23171	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1857843	0.90	1982866	93.69	70	120	
Sc	45	1	He	691567	1.44	767851	90.07	70	120	
Ge	72	1	He	290393	0.63	320058	90.73	70	125	
Ge	72	2	no gas	641608	0.97	673177	95.31	70	125	
Ge	72	3	H2	820949	5.18	821457	99.94	70	120	
Y	89	1	He	2503382	0.28	2786775	89.83	70	120	
In	115	1	He	2788966	0.58	3045232	91.58	70	120	
In	115	2	no gas	4597904	0.95	4564130	100.74	70	120	
In	115	3	H2	6946322	8.65	5826290	119.22	70	120	
Tb	159	1	He	4576652	1.72	4638687	98.66	70	120	
Tb	159	2	no gas	5984181	0.81	5623529	106.41	70	120	
Bi	209	2	no gas	3568676	1.14	3475006	102.70	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-9-A^5
Data File Name	154SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:23:53-05:00
Sample Type	Sample
Dilution	1
Comment	439514_14
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.355	2.355	4.39	183560	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-22.52	50	-0.02	200	
B	6	11	2	no gas	13.761	13.761	1.81	77155	0.02	400	
Na	72	23	1	He	7147.095	7147.095	1.08	28351724	0.03	50000	
Mg	72	24	1	He	4637.130	4637.130	1.67	10722261	0.04	50000	
Al	45	27	3	H2	6.689	6.689	4.15	101043	0.01	50000	
Si	45	28	3	H2	4043.915	4043.915	1.48	26871856	0.02	2000	>LDR
K	72	39	1	He	1584.387	1584.387	0.75	5882769	0.03	50000	
Ca	72	44	1	He	28487.284	28487.284	1.27	4472501	0.64	25000	>LDR
Ti	72	49	1	He	0.190	0.190	57.51	283	0.07	200	
V	72	51	1	He	0.452	0.452	4.08	12226	0.00	200	
Cr	72	52	1	He	0.051	0.051	21.55	2952	0.00	200	
Mn	72	55	1	He	206.012	206.012	1.64	3042671	0.01	2500	
Fe	72	56	3	H2	1287.746	1287.746	0.19	49090413	0.00	50000	
Co	72	59	1	He	-0.001	-0.001	-167.38	431	0.00	200	
Ni	72	60	1	He	0.075	0.075	13.90	570	0.01	200	
copper	72	63	1	He	0.003	0.003	192.97	821	0.00	200	
Zn	72	66	1	He	0.099	0.099	40.13	1497	0.01	200	
arsenic	72	75	1	He	1.543	1.543	2.08	3781	0.04	200	
selenium	72	78	3	H2	-0.173	-0.173	-4.67	48	-0.36	200	
Sr	72	88	1	He	255.447	255.447	0.82	5523190	0.00	500	
Mo	115	95	1	He	0.110	0.110	9.48	2427	0.00	200	
Ag	115	107	1	He	-0.015	-0.015	-5.87	216	-0.01	200	
Cd	72	111	1	He	-0.006	-0.006	-50.84	20	-0.03	200	
Sn	115	120	1	He	-0.215	-0.215	-8.57	1817	-0.01	200	
antimony	159	121	1	He	-0.215	-0.215	-2.36	376	-0.06	200	
Ba	115	137	1	He	106.477	106.477	1.57	533738	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-18.90	60	-0.01	40	
[Pb]	209	206	2	no gas	0.031	0.031	93.63	6682	0.00	200	
[Pb]	209	207	2	no gas	0.010	0.010	442.91	5361	0.00	200	
Pb	209	208	2	no gas	0.026	0.026	46.33	25469	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1804080	0.72	1982866	90.98	70	120	
Sc	45	1	He	680910	0.98	767851	88.68	70	120	
Ge	72	1	He	293204	0.28	320058	91.61	70	125	
Ge	72	2	no gas	624451	1.03	673177	92.76	70	125	
Ge	72	3	H2	764398	0.58	821457	93.05	70	120	
Y	89	1	He	2513974	1.37	2786775	90.21	70	120	
In	115	1	He	2837477	0.73	3045232	93.18	70	120	
In	115	2	no gas	4481947	2.17	4564130	98.20	70	120	
In	115	3	H2	6231962	0.36	5826290	106.96	70	120	
Tb	159	1	He	4599755	0.30	4638687	99.16	70	120	
Tb	159	2	no gas	5725765	0.41	5623529	101.82	70	120	
Bi	209	2	no gas	3502850	0.86	3475006	100.80	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-10-A^5
Data File Name	155SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:27:49-05:00
Sample Type	Sample
Dilution	1
Comment	439514_15
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.558	2.558	6.58	186769	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-7.03	58	-0.01	200	
B	6	11	2	no gas	14.768	14.768	0.73	80568	0.02	400	
Na	72	23	1	He	7133.247	7133.247	0.92	28422316	0.03	50000	
Mg	72	24	1	He	4557.879	4557.879	1.70	10585585	0.04	50000	
Al	45	27	3	H2	7.825	7.825	9.03	114529	0.01	50000	
Si	45	28	3	H2	4071.893	4071.893	1.70	26809435	0.02	2000	>LDR
K	72	39	1	He	1597.957	1597.957	0.79	5956272	0.03	50000	
Ca	72	44	1	He	28348.262	28348.262	1.59	4470423	0.63	25000	>LDR
Ti	72	49	1	He	0.126	0.126	10.75	244	0.05	200	
V	72	51	1	He	0.391	0.391	1.41	11319	0.00	200	
Cr	72	52	1	He	0.024	0.024	65.98	2510	0.00	200	
Mn	72	55	1	He	208.884	208.884	1.76	3098613	0.01	2500	
Fe	72	56	3	H2	1286.602	1286.602	0.50	48886299	0.00	50000	
Co	72	59	1	He	-0.005	-0.005	-90.36	363	0.00	200	
Ni	72	60	1	He	0.054	0.054	30.16	467	0.01	200	
copper	72	63	1	He	-0.018	-0.018	-22.43	557	0.00	200	
Zn	72	66	1	He	0.128	0.128	62.89	1580	0.01	200	
arsenic	72	75	1	He	1.432	1.432	4.59	3568	0.04	200	
selenium	72	78	3	H2	-0.177	-0.177	-1.98	44	-0.40	200	
Sr	72	88	1	He	257.336	257.336	1.79	5588466	0.00	500	
Mo	115	95	1	He	0.123	0.123	13.03	2537	0.00	200	
Ag	115	107	1	He	-0.016	-0.016	-12.16	198	-0.01	200	
Cd	72	111	1	He	-0.009	-0.009	-58.12	10	-0.09	200	
Sn	115	120	1	He	-0.199	-0.199	-2.51	2057	-0.01	200	
antimony	159	121	1	He	-0.221	-0.221	-1.13	307	-0.07	200	
Ba	115	137	1	He	106.892	106.892	0.78	540197	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-14.37	53	-0.01	40	
[Pb]	209	206	2	no gas	0.005	0.005	629.83	6221	0.00	200	
[Pb]	209	207	2	no gas	0.004	0.004	620.78	5198	0.00	200	
Pb	209	208	2	no gas	0.007	0.007	437.60	23992	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1786179	1.11	1982866	90.08	70	120	
Sc	45	1	He	685291	1.00	767851	89.25	70	120	
Ge	72	1	He	294504	0.50	320058	92.02	70	125	
Ge	72	2	no gas	626968	1.64	673177	93.14	70	125	
Ge	72	3	H2	761891	0.43	821457	92.75	70	120	
Y	89	1	He	2492231	1.20	2786775	89.43	70	120	
In	115	1	He	2860562	0.87	3045232	93.94	70	120	
In	115	2	no gas	4465925	0.42	4564130	97.85	70	120	
In	115	3	H2	6158266	0.45	5826290	105.70	70	120	
Tb	159	1	He	4598325	0.28	4638687	99.13	70	120	
Tb	159	2	no gas	5850068	0.65	5623529	104.03	70	120	
Bi	209	2	no gas	3442055	0.99	3475006	99.05	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-11-A^5
Data File Name	156SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:31:46-05:00
Sample Type	Sample
Dilution	1
Comment	439514_16
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	6.873	6.873	3.07	298697	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-25.47	64	-0.01	200	
B	6	11	2	no gas	34.879	34.879	4.19	166451	0.02	400	
Na	72	23	1	He	55911.212	55911.212	1.81	221102283	0.03	50000	>LDR
Mg	72	24	1	He	3060.608	3060.608	0.80	7070978	0.04	50000	
Al	45	27	3	H2	6.227	6.227	1.28	94351	0.01	50000	
Si	45	28	3	H2	3978.922	3978.922	0.31	26216390	0.02	2000	>LDR
K	72	39	1	He	1740.879	1740.879	1.08	6419136	0.03	50000	
Ca	72	44	1	He	16099.062	16099.062	1.72	2525594	0.64	25000	
Ti	72	49	1	He	0.180	0.180	11.89	277	0.06	200	
V	72	51	1	He	3.766	3.766	1.37	64384	0.01	200	
Cr	72	52	1	He	0.039	0.039	50.12	2754	0.00	200	
Mn	72	55	1	He	22.913	22.913	1.76	341861	0.01	2500	
Fe	72	56	3	H2	44.432	44.432	3.97	1983556	0.00	50000	
Co	72	59	1	He	0.394	0.394	3.16	8950	0.00	200	
Ni	72	60	1	He	1.157	1.157	8.40	6025	0.02	200	
copper	72	63	1	He	0.077	0.077	12.45	1782	0.00	200	
Zn	72	66	1	He	0.276	0.276	18.31	1964	0.01	200	
arsenic	72	75	1	He	10.368	10.368	1.18	22072	0.05	200	
selenium	72	78	3	H2	1.058	1.058	2.95	1310	0.08	200	
Sr	72	88	1	He	74.638	74.638	1.76	1612215	0.00	500	
Mo	115	95	1	He	2.828	2.828	1.64	19655	0.01	200	
Ag	115	107	1	He	-0.015	-0.015	-9.04	212	-0.01	200	
Cd	72	111	1	He	-0.001	-0.001	-1050.98	37	0.00	200	
Sn	115	120	1	He	-0.207	-0.207	-10.16	1884	-0.01	200	
antimony	159	121	1	He	-0.090	-0.090	-10.96	1792	-0.01	200	
Ba	115	137	1	He	6.754	6.754	2.11	33343	0.02	1000	
Tl	159	205	2	no gas	0.006	0.006	1.27	419	0.00	40	
[Pb]	209	206	2	no gas	0.025	0.025	108.24	6395	0.00	200	
[Pb]	209	207	2	no gas	-0.016	-0.016	-101.81	4901	0.00	200	
Pb	209	208	2	no gas	0.012	0.012	80.29	23968	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1812114	1.84	1982866	91.39	70	120	
Sc	45	1	He	692458	0.82	767851	90.18	70	120	
Ge	72	1	He	292862	1.02	320058	91.50	70	125	
Ge	72	2	no gas	625573	0.42	673177	92.93	70	125	
Ge	72	3	H2	751884	0.67	821457	91.53	70	120	
Y	89	1	He	2507169	2.43	2786775	89.97	70	120	
In	115	1	He	2781411	0.53	3045232	91.34	70	120	
In	115	2	no gas	4378740	1.21	4564130	95.94	70	120	
In	115	3	H2	6246479	0.23	5826290	107.21	70	120	
Tb	159	1	He	4599729	1.10	4638687	99.16	70	120	
Tb	159	2	no gas	5689921	1.78	5623529	101.18	70	120	
Bi	209	2	no gas	3394842	0.26	3475006	97.69	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-12-A^5
Data File Name	157SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:35:41-05:00
Sample Type	Sample
Dilution	1
Comment	439514_17
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.845	4.845	3.36	241683	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-29.96	52	-0.02	200	
B	6	11	2	no gas	17.584	17.584	8.57	91295	0.02	400	
Na	72	23	1	He	10426.842	10426.842	1.18	41075978	0.03	50000	
Mg	72	24	1	He	3557.168	3557.168	1.48	8175317	0.04	50000	
Al	45	27	3	H2	0.889	0.889	9.79	26926	0.00	50000	
Si	45	28	3	H2	4231.138	4231.138	1.61	27937474	0.02	2000	>LDR
K	72	39	1	He	1669.402	1669.402	0.97	6139798	0.03	50000	
Ca	72	44	1	He	30726.041	30726.041	0.59	4793668	0.64	25000	>LDR
Ti	72	49	1	He	0.035	0.035	71.77	186	0.02	200	
V	72	51	1	He	0.688	0.688	5.83	15855	0.00	200	
Cr	72	52	1	He	0.024	0.024	32.12	2480	0.00	200	
Mn	72	55	1	He	95.231	95.231	0.52	1400071	0.01	2500	
Fe	72	56	3	H2	857.132	857.132	1.18	32438275	0.00	50000	
Co	72	59	1	He	0.018	0.018	5.88	849	0.00	200	
Ni	72	60	1	He	0.133	0.133	27.90	857	0.02	200	
copper	72	63	1	He	-0.016	-0.016	-41.19	574	0.00	200	
Zn	72	66	1	He	0.507	0.507	19.53	2560	0.02	200	
arsenic	72	75	1	He	15.731	15.731	1.28	33025	0.05	200	
selenium	72	78	3	H2	-0.149	-0.149	-3.15	72	-0.21	200	
Sr	72	88	1	He	191.021	191.021	1.31	4104573	0.00	500	
Mo	115	95	1	He	1.016	1.016	3.90	8299	0.01	200	
Ag	115	107	1	He	-0.015	-0.015	-5.70	208	-0.01	200	
Cd	72	111	1	He	-0.007	-0.007	-25.45	17	-0.04	200	
Sn	115	120	1	He	-0.213	-0.213	-3.10	1850	-0.01	200	
antimony	159	121	1	He	-0.214	-0.214	-1.64	390	-0.05	200	
Ba	115	137	1	He	138.842	138.842	0.94	695630	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-9.03	56	-0.01	40	
[Pb]	209	206	2	no gas	-0.004	-0.004	-463.45	6108	0.00	200	
[Pb]	209	207	2	no gas	-0.008	-0.008	-340.50	5074	0.00	200	
Pb	209	208	2	no gas	-0.001	-0.001	-1508.77	23648	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1771047	4.65	1982866	89.32	70	120	
Sc	45	1	He	683399	0.28	767851	89.00	70	120	
Ge	72	1	He	291372	0.12	320058	91.04	70	125	
Ge	72	2	no gas	625812	1.38	673177	92.96	70	125	
Ge	72	3	H2	756281	0.52	821457	92.07	70	120	
Y	89	1	He	2532033	0.65	2786775	90.86	70	120	
In	115	1	He	2836137	0.46	3045232	93.13	70	120	
In	115	2	no gas	4459080	1.30	4564130	97.70	70	120	
In	115	3	H2	6221687	0.87	5826290	106.79	70	120	
Tb	159	1	He	4548627	0.51	4638687	98.06	70	120	
Tb	159	2	no gas	5824621	0.64	5623529	103.58	70	120	
Bi	209	2	no gas	3449418	0.63	3475006	99.26	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-12-A SD^25
Data File Name	158SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:39:38-05:00
Sample Type	Sample
Dilution	1
Comment	439514_18
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.984	0.984	3.57	148153	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-27.91	52	-0.02	200	
B	6	11	2	no gas	1.680	1.680	19.38	26299	0.01	400	
Na	72	23	1	He	2102.772	2102.772	2.82	8467873	0.02	50000	
Mg	72	24	1	He	732.738	732.738	1.54	1716867	0.04	50000	
Al	45	27	3	H2	0.152	0.152	34.83	18039	0.00	50000	
Si	45	28	3	H2	860.680	860.680	0.38	5890549	0.01	2000	
K	72	39	1	He	337.385	337.385	2.89	1562946	0.02	50000	
Ca	72	44	1	He	6275.236	6275.236	1.55	997103	0.63	25000	
Ti	72	49	1	He	-0.086	-0.086	-21.24	112	-0.08	200	
V	72	51	1	He	0.396	0.396	2.63	11455	0.00	200	
Cr	72	52	1	He	0.003	0.003	300.44	2167	0.00	200	
Mn	72	55	1	He	18.170	18.170	0.23	275123	0.01	2500	
Fe	72	56	3	H2	171.260	171.260	0.55	6936574	0.00	50000	
Co	72	59	1	He	-0.009	-0.009	-30.62	263	0.00	200	
Ni	72	60	1	He	0.012	0.012	225.70	257	0.00	200	
copper	72	63	1	He	-0.033	-0.033	-1.94	364	-0.01	200	
Zn	72	66	1	He	-0.027	-0.027	-286.87	1177	0.00	200	
arsenic	72	75	1	He	3.089	3.089	2.98	7061	0.04	200	
selenium	72	78	3	H2	-0.187	-0.187	-8.13	34	-0.56	200	
Sr	72	88	1	He	37.641	37.641	0.63	822730	0.00	500	
Mo	115	95	1	He	0.019	0.019	168.14	1860	0.00	200	
Ag	115	107	1	He	-0.015	-0.015	-11.70	216	-0.01	200	
Cd	72	111	1	He	-0.010	-0.010	-34.77	7	-0.14	200	
Sn	115	120	1	He	-0.183	-0.183	-16.80	2274	-0.01	200	
antimony	159	121	1	He	-0.223	-0.223	-1.31	288	-0.08	200	
Ba	115	137	1	He	27.959	27.959	1.88	141607	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-7.58	40	-0.01	40	
[Pb]	209	206	2	no gas	0.013	0.013	119.15	6552	0.00	200	
[Pb]	209	207	2	no gas	-0.031	-0.031	-126.71	4961	0.00	200	
Pb	209	208	2	no gas	-0.008	-0.008	-248.40	23992	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1793603	1.32	1982866	90.46	70	120	
Sc	45	1	He	696575	1.33	767851	90.72	70	120	
Ge	72	1	He	296202	0.92	320058	92.55	70	125	
Ge	72	2	no gas	635324	0.88	673177	94.38	70	125	
Ge	72	3	H2	777606	0.41	821457	94.66	70	120	
Y	89	1	He	2559657	0.47	2786775	91.85	70	120	
In	115	1	He	2864440	0.75	3045232	94.06	70	120	
In	115	2	no gas	4536216	1.78	4564130	99.39	70	120	
In	115	3	H2	6228829	0.73	5826290	106.91	70	120	
Tb	159	1	He	4650805	1.06	4638687	100.26	70	120	
Tb	159	2	no gas	5781353	3.11	5623529	102.81	70	120	
Bi	209	2	no gas	3562365	1.04	3475006	102.51	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-12-A PDS^5
Data File Name	159SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:43:34-05:00
Sample Type	Sample
Dilution	1
Comment	439514_19
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	58.496	58.496	0.26	1580380	0.00	200	
Be	6	9	2	no gas	51.729	51.729	2.11	396122	0.01	200	
B	6	11	2	no gas	124.837	124.837	3.26	537003	0.02	400	
Na	72	23	1	He	15465.561	15465.561	0.79	60840327	0.03	50000	
Mg	72	24	1	He	8541.695	8541.695	1.25	19603918	0.04	50000	
Al	45	27	3	H2	504.050	504.050	1.98	6299926	0.01	50000	
Si	45	28	3	H2	4250.361	4250.361	1.72	27602275	0.02	2000	>LDR
K	72	39	1	He	6732.346	6732.346	1.76	23609801	0.03	50000	
Ca	72	44	1	He	35509.122	35509.122	1.24	5534230	0.64	25000	>LDR
Ti	72	49	1	He	52.073	52.073	1.23	32407	0.16	200	
V	72	51	1	He	50.094	50.094	0.77	788973	0.01	200	
Cr	72	52	1	He	48.846	48.846	0.66	817135	0.01	200	
Mn	72	55	1	He	597.652	597.652	1.09	8755473	0.01	2500	
Fe	72	56	3	H2	6000.181	6000.181	1.26	220829523	0.00	50000	
Co	72	59	1	He	49.778	49.778	0.63	1067320	0.00	200	
Ni	72	60	1	He	50.475	50.475	1.05	253279	0.02	200	
copper	72	63	1	He	49.656	49.656	0.48	638103	0.01	200	
Zn	72	66	1	He	50.582	50.582	0.90	133944	0.04	200	
arsenic	72	75	1	He	65.961	65.961	0.54	136511	0.05	200	
selenium	72	78	3	H2	52.884	52.884	0.72	53778	0.10	200	
Sr	72	88	1	He	243.064	243.064	0.93	5217966	0.00	500	
Mo	115	95	1	He	54.893	54.893	0.82	349472	0.02	200	
Ag	115	107	1	He	47.203	47.203	1.50	832111	0.01	200	
Cd	72	111	1	He	53.395	53.395	1.83	183209	0.03	200	
Sn	115	120	1	He	49.766	49.766	1.14	652280	0.01	200	
antimony	159	121	1	He	47.777	47.777	0.29	538091	0.01	200	
Ba	115	137	1	He	193.509	193.509	1.16	947967	0.02	1000	
Tl	159	205	2	no gas	10.687	10.687	0.42	425362	0.00	40	
[Pb]	209	206	2	no gas	54.305	54.305	1.16	724543	0.01	200	
[Pb]	209	207	2	no gas	53.933	53.933	1.02	628180	0.01	200	
Pb	209	208	2	no gas	53.635	53.635	0.96	2928288	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1783586	1.80	1982866	89.95	70	120	
Sc	45	1	He	694569	1.08	767851	90.46	70	120	
Ge	72	1	He	291107	0.63	320058	90.95	70	125	
Ge	72	2	no gas	624143	1.11	673177	92.72	70	125	
Ge	72	3	H2	741924	0.83	821457	90.32	70	120	
Y	89	1	He	2507732	0.30	2786775	89.99	70	120	
In	115	1	He	2773457	1.27	3045232	91.08	70	120	
In	115	2	no gas	4429246	1.47	4564130	97.04	70	120	
In	115	3	H2	6038024	0.27	5826290	103.63	70	120	
Tb	159	1	He	4565445	0.86	4638687	98.42	70	120	
Tb	159	2	no gas	5710569	1.33	5623529	101.55	70	120	
Bi	209	2	no gas	3404575	0.14	3475006	97.97	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-12-B MS^5
Data File Name	160SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:47:30-05:00
Sample Type	Sample
Dilution	1
Comment	439514_20
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	16.043	16.043	2.63	517450	0.00	200	
Be	6	9	2	no gas	10.244	10.244	2.39	77791	0.01	200	
B	6	11	2	no gas	39.449	39.449	2.57	181082	0.02	400	
Na	72	23	1	He	11417.270	11417.270	0.62	44961551	0.03	50000	
Mg	72	24	1	He	4550.493	4550.493	0.74	10454058	0.04	50000	
Al	45	27	3	H2	103.233	103.233	0.71	1338438	0.01	50000	
Si	45	28	3	H2	4168.694	4168.694	0.30	27826613	0.01	2000	>LDR
K	72	39	1	He	2674.900	2674.900	0.67	9611461	0.03	50000	
Ca	72	44	1	He	31717.930	31717.930	0.39	4947174	0.64	25000	>LDR
Ti	72	49	1	He	10.158	10.158	2.75	6458	0.16	200	
V	72	51	1	He	10.174	10.174	0.85	164391	0.01	200	
Cr	72	52	1	He	9.843	9.843	0.26	166430	0.01	200	
Mn	72	55	1	He	194.533	194.533	0.74	2854761	0.01	2500	
Fe	72	56	3	H2	1867.853	1867.853	0.85	70351579	0.00	50000	
Co	72	59	1	He	10.036	10.036	0.68	215699	0.00	200	
Ni	72	60	1	He	10.096	10.096	3.72	50849	0.02	200	
copper	72	63	1	He	9.952	9.952	1.20	128602	0.01	200	
Zn	72	66	1	He	10.244	10.244	2.06	28122	0.04	200	
arsenic	72	75	1	He	25.586	25.586	0.67	53341	0.05	200	
selenium	72	78	3	H2	10.579	10.579	2.76	11155	0.09	200	
Sr	72	88	1	He	198.446	198.446	0.71	4263054	0.00	500	
Mo	115	95	1	He	11.505	11.505	2.36	76248	0.02	200	
Ag	115	107	1	He	9.682	9.682	1.44	174884	0.01	200	
Cd	72	111	1	He	10.562	10.562	3.04	36297	0.03	200	
Sn	115	120	1	He	9.837	9.837	2.09	135567	0.01	200	
antimony	159	121	1	He	9.621	9.621	1.90	110729	0.01	200	
Ba	115	137	1	He	148.154	148.154	0.84	742075	0.02	1000	
Tl	159	205	2	no gas	2.102	2.102	1.06	84051	0.00	40	
[Pb]	209	206	2	no gas	10.744	10.744	0.72	148116	0.01	200	
[Pb]	209	207	2	no gas	10.660	10.660	1.55	128140	0.01	200	
Pb	209	208	2	no gas	10.330	10.330	2.08	582313	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1766797	2.40	1982866	89.10	70	120	
Sc	45	1	He	687434	0.78	767851	89.53	70	120	
Ge	72	1	He	291301	0.20	320058	91.02	70	125	
Ge	72	2	no gas	623673	1.08	673177	92.65	70	125	
Ge	72	3	H2	756854	0.21	821457	92.14	70	120	
Y	89	1	He	2490753	0.62	2786775	89.38	70	120	
In	115	1	He	2835427	0.80	3045232	93.11	70	120	
In	115	2	no gas	4456027	0.97	4564130	97.63	70	120	
In	115	3	H2	6139010	0.25	5826290	105.37	70	120	
Tb	159	1	He	4572249	1.70	4638687	98.57	70	120	
Tb	159	2	no gas	5728203	1.55	5623529	101.86	70	120	
Bi	209	2	no gas	3402086	2.00	3475006	97.90	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	162_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T22:55:29-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	51.079	51.079	3.02	1434438	0.00	50	
Be	6	9	2	no gas	48.541	48.541	2.20	382376	0.01	50	
B	6	11	2	no gas	97.425	97.425	1.88	434184	0.02	100	
Na	72	23	1	He	4833.812	4833.812	1.97	19432558	0.02	5000	
Mg	72	24	1	He	4826.893	4826.893	2.15	11290570	0.04	5000	
Al	45	27	3	H2	484.397	484.397	1.98	6375239	0.01	500	
K	72	39	1	He	4816.425	4816.425	1.18	17313583	0.03	5000	
Ca	72	44	1	He	4712.791	4712.791	1.22	752225	0.63	5000	
Ti	72	49	1	He	49.404	49.404	1.79	31310	0.16	50	
V	72	51	1	He	46.553	46.553	1.09	750745	0.01	50	
Cr	72	52	1	He	46.773	46.773	0.87	797530	0.01	50	
Mn	72	55	1	He	483.517	483.517	1.57	7218739	0.01	500	
Fe	72	56	3	H2	4842.684	4842.684	1.32	185618004	0.00	5000	
Co	72	59	1	He	47.521	47.521	1.74	1038010	0.00	50	
Ni	72	60	1	He	48.640	48.640	1.82	248696	0.02	50	
copper	72	63	1	He	47.805	47.805	1.70	625916	0.01	50	
dwCu63	72	63	2	no gas	47.775	47.775	0.53	932605	0.01	50	
Zn	72	66	1	He	49.231	49.231	0.71	133817	0.04	50	
arsenic	72	75	1	He	46.713	46.713	1.52	98689	0.05	50	
dwAs75	72	75	2	no gas	47.643	47.643	1.03	205464	0.02	50	
selenium	72	78	3	H2	50.679	50.679	0.98	53644	0.09	50	
Sr	72	88	1	He	49.206	49.206	2.23	1078101	0.00	50	
Mo	115	95	1	He	49.168	49.168	1.06	322390	0.02	50	
Ag	115	107	1	He	47.154	47.154	0.69	857098	0.01	50	
Cd	72	111	1	He	50.383	50.383	1.51	176148	0.03	50	
Sn	115	120	1	He	49.500	49.500	0.22	668734	0.01	50	
antimony	159	121	1	He	49.595	49.595	1.09	563914	0.01	50	
dwSb121	159	121	2	no gas	53.714	53.714	0.96	812738	0.01	50	
Ba	115	137	1	He	47.493	47.493	1.09	240189	0.02	50	
Tl	159	205	2	no gas	10.106	10.106	0.63	405248	0.00	10	
[Pb]	209	206	2	no gas	50.546	50.546	1.93	688508	0.01	50	
[Pb]	209	207	2	no gas	50.109	50.109	0.50	595861	0.01	50	
Pb	209	208	2	no gas	48.987	48.987	1.77	2731503	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1835068	1.93	1982866	92.55	70	120	
Sc	45	1	He	712974	0.93	767851	92.85	70	120	
Ge	72	1	He	296669	1.40	320058	92.69	70	125	
Ge	72	2	no gas	634664	0.62	673177	94.28	70	125	
Ge	72	3	H2	772779	0.70	821457	94.07	70	120	
Y	89	1	He	2546953	1.41	2786775	91.39	70	120	
In	115	1	He	2859962	0.68	3045232	93.92	70	120	
In	115	2	no gas	4516844	1.38	4564130	98.96	70	120	
In	115	3	H2	6277134	0.62	5826290	107.74	70	120	
Tb	159	1	He	4620606	0.19	4638687	99.61	70	120	
Tb	159	2	no gas	5753780	1.00	5623529	102.32	70	120	
Bi	209	2	no gas	3473980	0.46	3475006	99.97	60	120	

Sample Report

Sample Table

Sample Name	CCB
Data File Name	164_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:03:17-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.046	0.046	214.51	126144	0.00	0.5	
Be	6	9	2	no gas	-0.005	-0.005	-37.86	71	-0.01	0.5	
B	6	11	2	no gas	-0.800	-0.800	-29.08	17903	0.00	5	
Na	72	23	1	He	-2.344	-2.344	-10.35	51909	0.00	100	
Mg	72	24	1	He	-1.507	-1.507	-4.68	2614	-0.06	50	
Al	45	27	3	H2	0.155	0.155	29.57	16054	0.00	50	
K	72	39	1	He	0.993	0.993	58.36	372425	0.00	50	
Ca	72	44	1	He	-0.935	-0.935	-66.77	2200	-0.04	50	
Ti	72	49	1	He	-0.056	-0.056	-37.19	130	-0.04	0.5	
V	72	51	1	He	0.032	0.032	26.57	5603	0.00	0.5	
Cr	72	52	1	He	-0.011	-0.011	-77.45	2030	0.00	0.5	
Mn	72	55	1	He	-0.190	-0.190	-2.64	1787	-0.01	2	
Fe	72	56	3	H2	-5.073	-5.073	-0.46	117863	0.00	25	
Co	72	59	1	He	-0.017	-0.017	-7.37	140	-0.01	0.5	
Ni	72	60	1	He	-0.022	-0.022	-58.38	117	-0.02	1.5	
copper	72	63	1	He	-0.019	-0.019	-17.40	450	0.00	0.5	
dwCu63	72	63	2	no gas	-0.012	-0.012	-33.57	723	0.00	0.5	
Zn	72	66	1	He	-0.103	-0.103	-84.88	997	-0.01	4	
arsenic	72	75	1	He	-0.063	-0.063	-11.15	442	-0.01	0.25	
dwAs75	72	75	2	no gas	0.012	0.012	1408.14	-144	-0.01	5	
selenium	72	78	3	H2	-0.091	-0.091	-3.90	135	-0.07	0.25	
dwSe82	72	82	2	no gas	-0.295	-0.295	-18.27	200	-0.15	5	
Sr	72	88	1	He	-0.014	-0.014	-13.08	403	0.00	0.5	
Mo	115	95	1	He	-0.216	-0.216	-13.46	717	-0.03	1	
Ag	115	107	1	He	-0.017	-0.017	-11.65	228	-0.01	0.05	
Cd	72	111	1	He	-0.016	-0.016	-17.76	10	-0.16	0.25	
Sn	115	120	1	He	-0.119	-0.119	-24.13	3117	0.00	0.5	
antimony	159	121	1	He	-0.131	-0.131	-13.89	1335	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.238	-0.238	-4.18	3273	-0.01	5	
Ba	115	137	1	He	-0.010	-0.010	-38.30	89	-0.01	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-6.14	63	0.00	0.1	
[Pb]	209	206	2	no gas	-0.024	-0.024	-106.70	6235	0.00	0.25	
[Pb]	209	207	2	no gas	-0.029	-0.029	-140.26	5174	0.00	0.25	
Pb	209	208	2	no gas	-0.016	-0.016	-160.19	24042	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1851002	0.62	1982866	93.35	70	120	
Sc	45	1	He	707643	1.16	767851	92.16	70	120	
Ge	72	1	He	294599	0.20	320058	92.05	70	125	
Ge	72	2	no gas	628994	0.37	673177	93.44	70	125	
Ge	72	3	H2	775807	0.21	821457	94.44	70	120	
Y	89	1	He	2528546	1.36	2786775	90.73	70	120	
In	115	1	He	2855061	0.99	3045232	93.76	70	120	
In	115	2	no gas	4552485	0.29	4564130	99.74	70	120	
In	115	3	H2	6290784	1.27	5826290	107.97	70	120	
Tb	159	1	He	4647686	1.70	4638687	100.19	70	120	
Tb	159	2	no gas	5840263	1.58	5623529	103.85	70	120	
Bi	209	2	no gas	3578981	1.61	3475006	102.99	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-12-C MSD^5
Data File Name	165SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:07:19-05:00
Sample Type	Sample
Dilution	1
Comment	439514_21
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	15.659	15.659	4.58	522115	0.00	200	
Be	6	9	2	no gas	9.961	9.961	2.26	78118	0.01	200	
B	6	11	2	no gas	37.431	37.431	3.80	179861	0.02	400	
Na	72	23	1	He	11195.657	11195.657	0.48	44035896	0.03	50000	
Mg	72	24	1	He	4501.984	4501.984	1.09	10329367	0.04	50000	
Al	45	27	3	H2	102.305	102.305	0.39	1310958	0.01	50000	
Si	45	28	3	H2	4203.363	4203.363	0.35	27772202	0.02	2000	>LDR
K	72	39	1	He	2641.891	2641.891	0.64	9478789	0.03	50000	
Ca	72	44	1	He	31368.209	31368.209	0.79	4886357	0.64	25000	>LDR
Ti	72	49	1	He	10.680	10.680	4.06	6772	0.16	200	
V	72	51	1	He	10.062	10.062	0.71	162392	0.01	200	
Cr	72	52	1	He	9.745	9.745	1.92	164699	0.01	200	
Mn	72	55	1	He	194.767	194.767	0.76	2854797	0.01	2500	
Fe	72	56	3	H2	1826.964	1826.964	0.58	68589607	0.00	50000	
Co	72	59	1	He	10.036	10.036	0.94	215460	0.00	200	
Ni	72	60	1	He	9.987	9.987	1.47	50267	0.02	200	
copper	72	63	1	He	9.994	9.994	1.23	128882	0.01	200	
Zn	72	66	1	He	10.471	10.471	1.16	28713	0.04	200	
arsenic	72	75	1	He	25.554	25.554	1.16	53199	0.05	200	
selenium	72	78	3	H2	10.183	10.183	1.67	10714	0.10	200	
Sr	72	88	1	He	197.749	197.749	0.69	4242818	0.00	500	
Mo	115	95	1	He	11.305	11.305	1.74	75369	0.02	200	
Ag	115	107	1	He	9.474	9.474	0.90	171263	0.01	200	
Cd	72	111	1	He	10.485	10.485	2.24	36017	0.03	200	
Sn	115	120	1	He	9.453	9.453	1.16	130520	0.01	200	
antimony	159	121	1	He	9.356	9.356	1.24	107344	0.01	200	
Ba	115	137	1	He	145.943	145.943	1.13	731245	0.02	1000	
Tl	159	205	2	no gas	2.084	2.084	1.76	83808	0.00	40	
[Pb]	209	206	2	no gas	10.420	10.420	1.35	146675	0.01	200	
[Pb]	209	207	2	no gas	10.417	10.417	1.87	127834	0.01	200	
Pb	209	208	2	no gas	10.128	10.128	1.79	582368	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1824900	2.74	1982866	92.03	70	120	
Sc	45	1	He	693103	0.55	767851	90.27	70	120	
Ge	72	1	He	290935	0.47	320058	90.90	70	125	
Ge	72	2	no gas	624040	0.91	673177	92.70	70	125	
Ge	72	3	H2	754612	0.07	821457	91.86	70	120	
Y	89	1	He	2478462	2.15	2786775	88.94	70	120	
In	115	1	He	2836495	0.90	3045232	93.15	70	120	
In	115	2	no gas	4472281	2.41	4564130	97.99	70	120	
In	115	3	H2	6160004	0.16	5826290	105.73	70	120	
Tb	159	1	He	4554137	0.82	4638687	98.18	70	120	
Tb	159	2	no gas	5763631	2.33	5623529	102.49	70	120	
Bi	209	2	no gas	3465208	1.24	3475006	99.72	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-13-A^5
Data File Name	166SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:11:15-05:00
Sample Type	Sample
Dilution	1
Comment	439514_22
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.602	4.602	3.43	240244	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-62.44	79	-0.01	200	
B	6	11	2	no gas	14.772	14.772	1.94	83667	0.02	400	
Na	72	23	1	He	7163.979	7163.979	1.67	28405835	0.03	50000	
Mg	72	24	1	He	3669.981	3669.981	1.83	8483152	0.04	50000	
Al	45	27	3	H2	5.952	5.952	6.65	87919	0.01	50000	
Si	45	28	3	H2	2756.528	2756.528	1.85	18022407	0.02	2000	>LDR
K	72	39	1	He	1830.371	1830.371	0.79	6727764	0.03	50000	
Ca	72	44	1	He	33965.950	33965.950	1.17	5329608	0.64	25000	>LDR
Ti	72	49	1	He	0.255	0.255	32.13	323	0.08	200	
V	72	51	1	He	0.143	0.143	12.61	7317	0.00	200	
Cr	72	52	1	He	0.022	0.022	12.08	2570	0.00	200	
Mn	72	55	1	He	134.512	134.512	0.74	1987554	0.01	2500	
Fe	72	56	3	H2	1102.593	1102.593	0.22	41502320	0.00	50000	
Co	72	59	1	He	0.059	0.059	8.65	1760	0.00	200	
Ni	72	60	1	He	0.147	0.147	29.81	967	0.02	200	
copper	72	63	1	He	0.009	0.009	37.31	810	0.00	200	
Zn	72	66	1	He	0.223	0.223	40.25	1854	0.01	200	
arsenic	72	75	1	He	1.472	1.472	4.10	3624	0.04	200	
selenium	72	78	3	H2	-0.075	-0.075	-10.15	148	-0.05	200	
Sr	72	88	1	He	192.526	192.526	2.15	4160919	0.00	500	
Mo	115	95	1	He	1.251	1.251	9.88	10210	0.01	200	
Ag	115	107	1	He	-0.013	-0.013	-16.15	298	0.00	200	
Cd	72	111	1	He	-0.006	-0.006	-118.57	47	-0.01	200	
Sn	115	120	1	He	-0.159	-0.159	-4.32	2560	-0.01	200	
antimony	159	121	1	He	-0.164	-0.164	-7.80	938	-0.02	200	
Ba	115	137	1	He	125.284	125.284	1.17	627530	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-26.87	109	0.00	40	
[Pb]	209	206	2	no gas	0.003	0.003	779.84	6408	0.00	200	
[Pb]	209	207	2	no gas	-0.003	-0.003	-959.73	5318	0.00	200	
Pb	209	208	2	no gas	0.000	0.000	-10075.53	24132	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1823073	1.72	1982866	91.94	70	120	
Sc	45	1	He	690367	0.55	767851	89.91	70	120	
Ge	72	1	He	293069	0.64	320058	91.57	70	125	
Ge	72	2	no gas	624270	0.61	673177	92.73	70	125	
Ge	72	3	H2	754382	0.47	821457	91.83	70	120	
Y	89	1	He	2523229	0.37	2786775	90.54	70	120	
In	115	1	He	2835497	0.81	3045232	93.11	70	120	
In	115	2	no gas	4435768	1.36	4564130	97.19	70	120	
In	115	3	H2	6167706	1.57	5826290	105.86	70	120	
Tb	159	1	He	4516879	0.74	4638687	97.37	70	120	
Tb	159	2	no gas	5752012	0.70	5623529	102.28	70	120	
Bi	209	2	no gas	3463113	1.61	3475006	99.66	60	120	

Sample Report

Sample Table

Sample Name	400-169273-E-14-A^5
Data File Name	167SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:15:12-05:00
Sample Type	Sample
Dilution	1
Comment	439514_23
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	11.177	11.177	3.47	396006	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-89.63	69	-0.01	200	
B	6	11	2	no gas	12.556	12.556	2.95	72143	0.02	400	
Na	72	23	1	He	9059.625	9059.625	0.96	35188629	0.03	50000	
Mg	72	24	1	He	4545.301	4545.301	1.01	10295040	0.04	50000	
Al	45	27	3	H2	1.890	1.890	10.68	37432	0.01	50000	
Si	45	28	3	H2	6248.970	6248.970	1.67	41168130	0.02	2000	>LDR
K	72	39	1	He	2959.312	2959.312	1.01	10438056	0.03	50000	
Ca	72	44	1	He	29059.673	29059.673	1.31	4469415	0.65	25000	>LDR
Ti	72	49	1	He	0.184	0.184	20.86	273	0.07	200	
V	72	51	1	He	0.218	0.218	11.35	8332	0.00	200	
Cr	72	52	1	He	0.002	0.002	170.49	2204	0.00	200	
Mn	72	55	1	He	22.305	22.305	0.83	326721	0.01	2500	
Fe	72	56	3	H2	1799.701	1799.701	1.30	67326636	0.00	50000	
Co	72	59	1	He	0.010	0.010	18.95	699	0.00	200	
Ni	72	60	1	He	0.083	0.083	4.89	630	0.01	200	
copper	72	63	1	He	-0.004	-0.004	-58.79	618	0.00	200	
Zn	72	66	1	He	0.179	0.179	19.14	1703	0.01	200	
arsenic	72	75	1	He	14.752	14.752	0.54	30554	0.05	200	
selenium	72	78	3	H2	-0.149	-0.149	-9.92	71	-0.21	200	
Sr	72	88	1	He	76.473	76.473	0.62	1620303	0.00	500	
Mo	115	95	1	He	-0.221	-0.221	-6.46	670	-0.03	200	
Ag	115	107	1	He	-0.018	-0.018	-2.25	198	-0.01	200	
Cd	72	111	1	He	-0.012	-0.012	-14.27	23	-0.05	200	
Sn	115	120	1	He	-0.022	-0.022	-60.43	4341	0.00	200	
antimony	159	121	1	He	-0.190	-0.190	-4.29	659	-0.03	200	
Ba	115	137	1	He	2.440	2.440	2.82	12234	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-56.02	69	0.00	40	
[Pb]	209	206	2	no gas	0.123	0.123	29.46	7986	0.00	200	
[Pb]	209	207	2	no gas	0.085	0.085	71.66	6325	0.00	200	
Pb	209	208	2	no gas	0.110	0.110	18.95	30079	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1770951	1.21	1982866	89.31	70	120	
Sc	45	1	He	690316	0.26	767851	89.90	70	120	
Ge	72	1	He	287218	0.83	320058	89.74	70	125	
Ge	72	2	no gas	620757	0.81	673177	92.21	70	125	
Ge	72	3	H2	751913	0.42	821457	91.53	70	120	
Y	89	1	He	2476612	1.30	2786775	88.87	70	120	
In	115	1	He	2806177	0.55	3045232	92.15	70	120	
In	115	2	no gas	4451353	0.32	4564130	97.53	70	120	
In	115	3	H2	6227520	1.30	5826290	106.89	70	120	
Tb	159	1	He	4567493	0.89	4638687	98.47	70	120	
Tb	159	2	no gas	5751836	1.19	5623529	102.28	70	120	
Bi	209	2	no gas	3450887	1.06	3475006	99.31	60	120	

Sample Report

Sample Table

Sample Name	400-169273-F-14-A^5
Data File Name	168SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:19:11-05:00
Sample Type	Sample
Dilution	1
Comment	439514_24
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	10.892	10.892	2.65	395718	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-11.06	57	-0.01	200	
B	6	11	2	no gas	12.260	12.260	2.76	72156	0.02	400	
Na	72	23	1	He	9166.568	9166.568	0.27	35648586	0.03	50000	
Mg	72	24	1	He	4643.421	4643.421	1.46	10530789	0.04	50000	
Al	45	27	3	H2	0.768	0.768	16.07	23365	0.00	50000	
Si	45	28	3	H2	6400.925	6400.925	0.25	42421423	0.02	2000	>LDR
K	72	39	1	He	3001.118	3001.118	1.71	10594151	0.03	50000	
Ca	72	44	1	He	29038.056	29038.056	2.17	4471266	0.65	25000	>LDR
Ti	72	49	1	He	0.091	0.091	90.88	217	0.04	200	
V	72	51	1	He	0.381	0.381	4.53	10858	0.00	200	
Cr	72	52	1	He	0.001	0.001	811.85	2180	0.00	200	
Mn	72	55	1	He	22.576	22.576	1.23	331053	0.01	2500	
Fe	72	56	3	H2	1851.431	1851.431	0.90	68756509	0.00	50000	
Co	72	59	1	He	0.003	0.003	42.31	557	0.00	200	
Ni	72	60	1	He	0.095	0.095	36.82	690	0.01	200	
copper	72	63	1	He	-0.019	-0.019	-24.01	436	0.00	200	
Zn	72	66	1	He	0.162	0.162	42.89	1660	0.01	200	
arsenic	72	75	1	He	15.154	15.154	0.86	31412	0.05	200	
selenium	72	78	3	H2	-0.159	-0.159	-12.05	61	-0.26	200	
Sr	72	88	1	He	77.166	77.166	1.78	1636927	0.00	500	
Mo	115	95	1	He	-0.251	-0.251	-11.70	477	-0.05	200	
Ag	115	107	1	He	1.817	1.817	1.63	32855	0.01	200	
Cd	72	111	1	He	-0.016	-0.016	-18.24	10	-0.16	200	
Sn	115	120	1	He	-0.201	-0.201	-7.20	1984	-0.01	200	
antimony	159	121	1	He	-0.198	-0.198	-3.20	563	-0.04	200	
Ba	115	137	1	He	2.095	2.095	2.79	10501	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-30.93	60	0.00	40	
[Pb]	209	206	2	no gas	-0.032	-0.032	-49.64	5965	0.00	200	
[Pb]	209	207	2	no gas	-0.028	-0.028	-63.78	5051	0.00	200	
Pb	209	208	2	no gas	-0.021	-0.021	-40.74	23108	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1801578	1.31	1982866	90.86	70	120	
Sc	45	1	He	677413	1.28	767851	88.22	70	120	
Ge	72	1	He	287572	0.16	320058	89.85	70	125	
Ge	72	2	no gas	615629	0.83	673177	91.45	70	125	
Ge	72	3	H2	746495	0.02	821457	90.87	70	120	
Y	89	1	He	2460792	1.82	2786775	88.30	70	120	
In	115	1	He	2800470	0.43	3045232	91.96	70	120	
In	115	2	no gas	4427115	0.53	4564130	97.00	70	120	
In	115	3	H2	6210027	0.19	5826290	106.59	70	120	
Tb	159	1	He	4547634	0.02	4638687	98.04	70	120	
Tb	159	2	no gas	5773613	1.27	5623529	102.67	70	120	
Bi	209	2	no gas	3478936	0.08	3475006	100.11	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-15-A^5
Data File Name	169SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:23:06-05:00
Sample Type	Sample
Dilution	1
Comment	439514_25
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.198	4.198	3.26	226573	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-71.39	70	-0.01	200	
B	6	11	2	no gas	8.336	8.336	6.32	55535	0.02	400	
Na	72	23	1	He	4125.813	4125.813	0.88	16289272	0.03	50000	
Mg	72	24	1	He	2775.164	2775.164	0.62	6379087	0.04	50000	
Al	45	27	3	H2	2.301	2.301	2.74	43269	0.01	50000	
Si	45	28	3	H2	1850.941	1850.941	0.11	12429884	0.01	2000	>LDR
K	72	39	1	He	2673.892	2673.892	0.43	9602909	0.03	50000	
Ca	72	44	1	He	30826.205	30826.205	1.32	4809106	0.64	25000	>LDR
Ti	72	49	1	He	0.113	0.113	13.95	233	0.05	200	
V	72	51	1	He	0.544	0.544	1.94	13550	0.00	200	
Cr	72	52	1	He	0.003	0.003	290.54	2244	0.00	200	
Mn	72	55	1	He	59.469	59.469	0.92	876109	0.01	2500	
Fe	72	56	3	H2	80.004	80.004	1.17	3329325	0.00	50000	
Co	72	59	1	He	0.236	0.236	1.13	5560	0.00	200	
Ni	72	60	1	He	0.980	0.980	7.12	5141	0.02	200	
copper	72	63	1	He	0.018	0.018	21.17	911	0.00	200	
Zn	72	66	1	He	2.146	2.146	2.25	6892	0.03	200	
arsenic	72	75	1	He	0.204	0.204	13.33	988	0.02	200	
selenium	72	78	3	H2	-0.146	-0.146	-7.07	76	-0.19	200	
Sr	72	88	1	He	132.401	132.401	0.28	2845087	0.00	500	
Mo	115	95	1	He	3.997	3.997	1.21	27885	0.01	200	
Ag	115	107	1	He	-0.015	-0.015	-14.21	263	-0.01	200	
Cd	72	111	1	He	0.017	0.017	43.47	123	0.01	200	
Sn	115	120	1	He	-0.201	-0.201	-17.76	2001	-0.01	200	
antimony	159	121	1	He	-0.128	-0.128	-4.39	1349	-0.01	200	
Ba	115	137	1	He	25.212	25.212	0.53	125873	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-18.32	65	0.00	40	
[Pb]	209	206	2	no gas	-0.011	-0.011	-192.82	6221	0.00	200	
[Pb]	209	207	2	no gas	-0.019	-0.019	-22.25	5138	0.00	200	
Pb	209	208	2	no gas	-0.010	-0.010	-222.24	23618	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1796084	0.80	1982866	90.58	70	120	
Sc	45	1	He	689291	0.76	767851	89.77	70	120	
Ge	72	1	He	291356	0.57	320058	91.03	70	125	
Ge	72	2	no gas	622414	0.93	673177	92.46	70	125	
Ge	72	3	H2	762582	0.21	821457	92.83	70	120	
Y	89	1	He	2524201	1.49	2786775	90.58	70	120	
In	115	1	He	2823640	0.77	3045232	92.72	70	120	
In	115	2	no gas	4454254	0.68	4564130	97.59	70	120	
In	115	3	H2	6199665	0.18	5826290	106.41	70	120	
Tb	159	1	He	4566021	0.75	4638687	98.43	70	120	
Tb	159	2	no gas	5774559	0.32	5623529	102.69	70	120	
Bi	209	2	no gas	3467070	0.36	3475006	99.77	60	120	

Sample Report

Sample Table

Sample Name	400-169273-B-16-A^5
Data File Name	170SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:27:03-05:00
Sample Type	Sample
Dilution	1
Comment	439514_26
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.039	2.039	7.33	175567	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-9.07	40	-0.02	200	
B	6	11	2	no gas	2.810	2.810	17.08	33077	0.01	400	
Na	72	23	1	He	17537.339	17537.339	3.40	72918372	0.02	50000	
Mg	72	24	1	He	417.661	417.661	2.37	1019473	0.04	50000	
Al	45	27	3	H2	0.811	0.811	0.69	24493	0.00	50000	
Si	45	28	3	H2	195.531	195.531	0.99	1402159	0.01	2000	
K	72	39	1	He	1183.869	1183.869	2.30	4705920	0.03	50000	
Ca	72	44	1	He	4685.056	4685.056	2.28	774096	0.61	25000	
Ti	72	49	1	He	-0.056	-0.056	-78.16	137	-0.04	200	
V	72	51	1	He	0.245	0.245	9.81	9369	0.00	200	
Cr	72	52	1	He	0.005	0.005	97.84	2410	0.00	200	
Mn	72	55	1	He	24.569	24.569	2.71	385123	0.01	2500	
Fe	72	56	3	H2	336.275	336.275	0.65	13188077	0.00	50000	
Co	72	59	1	He	-0.010	-0.010	-16.37	298	0.00	200	
Ni	72	60	1	He	0.098	0.098	20.15	757	0.01	200	
copper	72	63	1	He	0.032	0.032	5.68	1151	0.00	200	
Zn	72	66	1	He	0.237	0.237	7.83	1987	0.01	200	
arsenic	72	75	1	He	0.016	0.016	100.64	633	0.00	200	
selenium	72	78	3	H2	-0.169	-0.169	-7.72	53	-0.32	200	
Sr	72	88	1	He	23.989	23.989	3.42	545013	0.00	500	
Mo	115	95	1	He	0.220	0.220	22.41	3697	0.01	200	
Ag	115	107	1	He	-0.020	-0.020	-9.98	190	-0.01	200	
Cd	72	111	1	He	-0.016	-0.016	-28.27	10	-0.16	200	
Sn	115	120	1	He	-0.204	-0.204	-15.88	2067	-0.01	200	
antimony	159	121	1	He	-0.215	-0.215	-0.46	387	-0.06	200	
Ba	115	137	1	He	2.540	2.540	1.14	13470	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-13.68	61	0.00	40	
[Pb]	209	206	2	no gas	0.051	0.051	51.25	7002	0.00	200	
[Pb]	209	207	2	no gas	0.079	0.079	31.74	6248	0.00	200	
Pb	209	208	2	no gas	0.078	0.078	7.90	28285	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1829420	1.89	1982866	92.26	70	120	
Sc	45	1	He	735411	3.55	767851	95.78	70	120	
Ge	72	1	He	307864	2.38	320058	96.19	70	125	
Ge	72	2	no gas	625376	0.24	673177	92.90	70	125	
Ge	72	3	H2	773070	0.49	821457	94.11	70	120	
Y	89	1	He	2658789	4.69	2786775	95.41	70	120	
In	115	1	He	2970080	2.60	3045232	97.53	70	120	
In	115	2	no gas	4420542	1.45	4564130	96.85	70	120	
In	115	3	H2	6239563	0.61	5826290	107.09	70	120	
Tb	159	1	He	4739628	2.76	4638687	102.18	70	120	
Tb	159	2	no gas	5720888	0.77	5623529	101.73	70	120	
Bi	209	2	no gas	3442470	2.22	3475006	99.06	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439758/1-A^5
Data File Name	171SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:31:01-05:00
Sample Type	Sample
Dilution	1
Comment	439758_1
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.095	0.095	95.30	127632	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-30.91	52	-0.01	200	
B	6	11	2	no gas	-2.426	-2.426	-3.67	10917	-0.02	400	
Na	72	23	1	He	5.506	5.506	26.67	82119	0.01	50000	
Mg	72	24	1	He	-0.895	-0.895	-6.71	3987	-0.02	50000	
Al	45	27	3	H2	1.500	1.500	7.01	33330	0.00	50000	
Si	45	28	3	H2	0.226	0.226	138.29	78924	0.00	2000	
K	72	39	1	He	-0.725	-0.725	-116.18	362049	0.00	50000	
Ca	72	44	1	He	3.514	3.514	11.63	2867	0.12	25000	
Ti	72	49	1	He	-0.086	-0.086	-71.32	110	-0.08	200	
V	72	51	1	He	0.223	0.223	5.57	8522	0.00	200	
Cr	72	52	1	He	0.016	0.016	34.85	2460	0.00	200	
Mn	72	55	1	He	-0.194	-0.194	-9.19	1710	-0.01	2500	
Fe	72	56	3	H2	-5.319	-5.319	-1.10	106729	0.00	50000	
Co	72	59	1	He	-0.018	-0.018	-5.34	117	-0.02	200	
Ni	72	60	1	He	-0.025	-0.025	-14.18	100	-0.02	200	
copper	72	63	1	He	-0.024	-0.024	-15.36	381	-0.01	200	
Zn	72	66	1	He	-0.066	-0.066	-72.01	1083	-0.01	200	
arsenic	72	75	1	He	-0.041	-0.041	-34.59	482	-0.01	200	
selenium	72	78	3	H2	-0.187	-0.187	-5.14	33	-0.57	200	
Sr	72	88	1	He	0.013	0.013	53.79	990	0.00	500	
Mo	115	95	1	He	-0.287	-0.287	-4.39	253	-0.11	200	
Ag	115	107	1	He	-0.019	-0.019	-18.06	196	-0.01	200	
Cd	72	111	1	He	-0.019	-0.019	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.198	-0.198	-13.25	2064	-0.01	200	
antimony	159	121	1	He	-0.224	-0.224	-1.03	278	-0.08	200	
Ba	115	137	1	He	-0.017	-0.017	-12.82	53	-0.03	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-14.34	48	-0.01	40	
[Pb]	209	206	2	no gas	-0.040	-0.040	-95.60	5941	0.00	200	
[Pb]	209	207	2	no gas	-0.038	-0.038	-24.15	5021	0.00	200	
Pb	209	208	2	no gas	-0.030	-0.030	-37.25	22968	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1854123	0.67	1982866	93.51	70	120	
Sc	45	1	He	691992	0.84	767851	90.12	70	120	
Ge	72	1	He	291086	0.51	320058	90.95	70	125	
Ge	72	2	no gas	617500	0.49	673177	91.73	70	125	
Ge	72	3	H2	763753	0.46	821457	92.98	70	120	
Y	89	1	He	2511163	0.70	2786775	90.11	70	120	
In	115	1	He	2858753	0.89	3045232	93.88	70	120	
In	115	2	no gas	4522631	1.48	4564130	99.09	70	120	
In	115	3	H2	6238123	2.21	5826290	107.07	70	120	
Tb	159	1	He	4522390	0.87	4638687	97.49	70	120	
Tb	159	2	no gas	5704009	0.60	5623529	101.43	70	120	
Bi	209	2	no gas	3537507	1.03	3475006	101.80	60	120	

Sample Report

Sample Table

Sample Name	LCS 400-439758/2-A
Data File Name	172SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:34:58-05:00
Sample Type	Sample
Dilution	1
Comment	439758_3
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.470	50.470	2.05	1444055	0.00	200	
Be	6	9	2	no gas	47.166	47.166	1.14	378588	0.01	200	
B	6	11	2	no gas	94.901	94.901	1.44	434239	0.02	400	
Na	72	23	1	He	4885.693	4885.693	1.71	19503789	0.03	50000	
Mg	72	24	1	He	4904.188	4904.188	0.37	11399744	0.04	50000	
Al	45	27	3	H2	495.312	495.312	1.17	6490405	0.01	50000	
Si	45	28	3	H2	54.061	54.061	1.15	445219	0.01	2000	
K	72	39	1	He	4778.321	4778.321	1.16	17070625	0.03	50000	
Ca	72	44	1	He	4750.210	4750.210	0.11	751695	0.63	25000	
Ti	72	49	1	He	48.857	48.857	2.27	30798	0.16	200	
V	72	51	1	He	46.660	46.660	0.62	744442	0.01	200	
Cr	72	52	1	He	46.988	46.988	1.07	796124	0.01	200	
Mn	72	55	1	He	485.902	485.902	0.79	7209108	0.01	2500	
Fe	72	56	3	H2	4868.659	4868.659	0.69	188028517	0.00	50000	
Co	72	59	1	He	48.063	48.063	0.46	1043563	0.00	200	
Ni	72	60	1	He	48.658	48.658	0.57	247278	0.02	200	
copper	72	63	1	He	47.986	47.986	0.50	624323	0.01	200	
Zn	72	66	1	He	48.772	48.772	1.32	130840	0.04	200	
arsenic	72	75	1	He	47.386	47.386	0.99	99456	0.05	200	
selenium	72	78	3	H2	48.941	48.941	1.14	52233	0.09	200	
Sr	72	88	1	He	49.750	49.750	0.42	1081995	0.00	500	
Mo	115	95	1	He	49.697	49.697	0.81	324708	0.02	200	
Ag	115	107	1	He	48.084	48.084	0.76	868505	0.01	200	
Cd	72	111	1	He	49.902	49.902	0.46	173419	0.03	200	
Sn	115	120	1	He	48.153	48.153	0.71	646791	0.01	200	
antimony	159	121	1	He	46.946	46.946	3.05	527436	0.01	200	
Ba	115	137	1	He	47.894	47.894	1.03	240474	0.02	1000	
Tl	159	205	2	no gas	10.028	10.028	0.61	405814	0.00	40	
[Pb]	209	206	2	no gas	50.268	50.268	1.03	693772	0.01	200	
[Pb]	209	207	2	no gas	50.150	50.150	0.86	604212	0.01	200	
Pb	209	208	2	no gas	49.822	49.822	1.06	2813579	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1869311	1.15	1982866	94.27	70	120	
Sc	45	1	He	696503	0.69	767851	90.71	70	120	
Ge	72	1	He	294762	0.15	320058	92.10	70	125	
Ge	72	2	no gas	633644	1.68	673177	94.13	70	125	
Ge	72	3	H2	778413	0.35	821457	94.76	70	120	
Y	89	1	He	2494366	1.71	2786775	89.51	70	120	
In	115	1	He	2841320	0.79	3045232	93.30	70	120	
In	115	2	no gas	4550238	1.20	4564130	99.70	70	120	
In	115	3	H2	6348730	1.61	5826290	108.97	70	120	
Tb	159	1	He	4556399	2.74	4638687	98.23	70	120	
Tb	159	2	no gas	5806587	0.61	5623529	103.26	70	120	
Bi	209	2	no gas	3518694	1.32	3475006	101.26	60	120	

Sample Report

Sample Table

Sample Name	400-169644-A-7-A^5
Data File Name	173SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:38:54-05:00
Sample Type	Sample
Dilution	1
Comment	439758_10
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.007	2.007	6.59	177437	0.00	200	
Be	6	9	2	no gas	0.004	0.004	63.18	148	0.00	200	
B	6	11	2	no gas	11.408	11.408	4.31	70683	0.02	400	
Na	72	23	1	He	31582.721	31582.721	0.75	126477655	0.02	50000	
Mg	72	24	1	He	1390.493	1390.493	2.76	3255517	0.04	50000	
Al	45	27	3	H2	99.999	99.999	1.97	1304087	0.01	50000	
Si	45	28	3	H2	471.880	471.880	4.92	3240466	0.01	2000	
K	72	39	1	He	391.538	391.538	1.77	1747799	0.02	50000	
Ca	72	44	1	He	4799.839	4799.839	0.65	763944	0.63	25000	
Ti	72	49	1	He	4.015	4.015	0.58	2698	0.15	200	
V	72	51	1	He	0.171	0.171	15.39	7852	0.00	200	
Cr	72	52	1	He	0.378	0.378	0.96	8652	0.00	200	
Mn	72	55	1	He	23.328	23.328	0.66	352523	0.01	2500	
Fe	72	56	3	H2	382.110	382.110	0.36	14951115	0.00	50000	
Co	72	59	1	He	0.150	0.150	2.01	3787	0.00	200	
Ni	72	60	1	He	1.785	1.785	5.22	9346	0.02	200	
copper	72	63	1	He	26.983	26.983	1.64	353414	0.01	200	
Zn	72	66	1	He	3.189	3.189	5.58	9800	0.03	200	
arsenic	72	75	1	He	0.403	0.403	10.63	1423	0.03	200	
selenium	72	78	3	H2	0.182	0.182	24.82	424	0.04	200	
Sr	72	88	1	He	30.092	30.092	0.79	658556	0.00	500	
Mo	115	95	1	He	0.378	0.378	11.65	4461	0.01	200	
Ag	115	107	1	He	0.001	0.001	196.01	541	0.00	200	
Cd	72	111	1	He	0.022	0.022	41.90	143	0.02	200	
Sn	115	120	1	He	0.123	0.123	35.15	6188	0.00	200	
antimony	159	121	1	He	0.439	0.439	8.94	7518	0.01	200	
Ba	115	137	1	He	6.965	6.965	1.86	34291	0.02	1000	
Tl	159	205	2	no gas	0.006	0.006	3.69	384	0.00	40	
[Pb]	209	206	2	no gas	2.887	2.887	0.60	45329	0.01	200	
[Pb]	209	207	2	no gas	2.849	2.849	1.31	38930	0.01	200	
Pb	209	208	2	no gas	2.784	2.784	0.65	177945	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1856716	0.59	1982866	93.64	70	120	
Sc	45	1	He	700858	0.31	767851	91.28	70	120	
Ge	72	1	He	296480	0.20	320058	92.63	70	125	
Ge	72	2	no gas	639539	0.33	673177	95.00	70	125	
Ge	72	3	H2	773496	0.40	821457	94.16	70	120	
Y	89	1	He	2528223	1.33	2786775	90.72	70	120	
In	115	1	He	2776182	0.48	3045232	91.16	70	120	
In	115	2	no gas	4438206	0.83	4564130	97.24	70	120	
In	115	3	H2	6187863	1.57	5826290	106.21	70	120	
Tb	159	1	He	4452245	0.64	4638687	95.98	70	120	
Tb	159	2	no gas	5798675	0.26	5623529	103.11	70	120	
Bi	209	2	no gas	3471529	1.36	3475006	99.90	60	120	

Sample Report

Sample Table

Sample Name	400-169337-P-1-B^5
Data File Name	174SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:42:53-05:00
Sample Type	Sample
Dilution	1
Comment	439758_4
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.793	0.793	7.07	143303	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-30.72	68	-0.01	200	
B	6	11	2	no gas	144.375	144.375	1.96	633405	0.02	400	
Na	72	23	1	He	16382.529	16382.529	1.27	64612204	0.03	50000	
Mg	72	24	1	He	4367.006	4367.006	0.83	10051768	0.04	50000	
Al	45	27	3	H2	1.701	1.701	1.58	34802	0.00	50000	
Si	45	28	3	H2	2261.353	2261.353	1.83	14845071	0.02	2000	>LDR
K	72	39	1	He	4327.381	4327.381	0.53	15343006	0.03	50000	
Ca	72	44	1	He	16022.288	16022.288	1.04	2505043	0.64	25000	
Ti	72	49	1	He	0.032	0.032	55.82	183	0.02	200	
V	72	51	1	He	0.155	0.155	15.49	7477	0.00	200	
Cr	72	52	1	He	0.149	0.149	9.27	4691	0.00	200	
Mn	72	55	1	He	81.578	81.578	0.68	1202235	0.01	2500	
Fe	72	56	3	H2	408.870	408.870	0.98	15714027	0.00	50000	
Co	72	59	1	He	0.539	0.539	2.48	12074	0.00	200	
Ni	72	60	1	He	2.151	2.151	5.77	11034	0.02	200	
copper	72	63	1	He	1.539	1.539	1.47	20489	0.01	200	
Zn	72	66	1	He	17.625	17.625	2.01	47618	0.04	200	
arsenic	72	75	1	He	0.605	0.605	3.18	1818	0.03	200	
selenium	72	78	3	H2	-0.101	-0.101	-29.78	122	-0.08	200	
Sr	72	88	1	He	158.805	158.805	1.07	3418211	0.00	500	
Mo	115	95	1	He	0.328	0.328	22.42	4191	0.01	200	
Ag	115	107	1	He	-0.014	-0.014	-19.79	269	-0.01	200	
Cd	72	111	1	He	-0.017	-0.017	-19.37	7	-0.26	200	
Sn	115	120	1	He	-0.127	-0.127	-10.35	2954	0.00	200	
antimony	159	121	1	He	-0.171	-0.171	-9.31	867	-0.02	200	
Ba	115	137	1	He	24.879	24.879	1.25	123393	0.02	1000	
Tl	159	205	2	no gas	0.000	0.000	380.70	165	0.00	40	
[Pb]	209	206	2	no gas	-0.003	-0.003	-636.33	6271	0.00	200	
[Pb]	209	207	2	no gas	-0.005	-0.005	-335.77	5248	0.00	200	
Pb	209	208	2	no gas	0.012	0.012	87.67	24599	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1823477	1.47	1982866	91.96	70	120	
Sc	45	1	He	696265	0.68	767851	90.68	70	120	
Ge	72	1	He	291871	0.76	320058	91.19	70	125	
Ge	72	2	no gas	617597	0.86	673177	91.74	70	125	
Ge	72	3	H2	760788	0.17	821457	92.61	70	120	
Y	89	1	He	2512130	1.46	2786775	90.14	70	120	
In	115	1	He	2805235	0.95	3045232	92.12	70	120	
In	115	2	no gas	4430515	0.37	4564130	97.07	70	120	
In	115	3	H2	6132326	0.35	5826290	105.25	70	120	
Tb	159	1	He	4546381	1.06	4638687	98.01	70	120	
Tb	159	2	no gas	5777829	1.89	5623529	102.74	70	120	
Bi	209	2	no gas	3433040	0.50	3475006	98.79	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	176_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:50:48-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.286	50.286	1.35	1436152	0.00	50	
Be	6	9	2	no gas	47.805	47.805	1.66	383298	0.01	50	
B	6	11	2	no gas	95.493	95.493	1.10	437833	0.02	100	
Na	72	23	1	He	5224.878	5224.878	19.17	19351983	0.03	5000	
Mg	72	24	1	He	5223.956	5223.956	21.48	11226774	0.05	5000	
Al	45	27	3	H2	483.857	483.857	2.56	6262328	0.01	500	
K	72	39	1	He	5206.864	5206.864	18.75	17235090	0.03	5000	
Ca	72	44	1	He	5088.742	5088.742	20.44	746160	0.68	5000	
Ti	72	49	1	He	53.165	53.165	20.79	30945	0.17	50	
V	72	51	1	He	50.476	50.476	21.21	748150	0.01	50	
Cr	72	52	1	He	50.903	50.903	20.77	798046	0.01	50	
Mn	72	55	1	He	529.599	529.599	20.56	7271789	0.01	500	
Fe	72	56	3	H2	4825.142	4825.142	0.42	183973951	0.00	5000	
Co	72	59	1	He	51.329	51.329	20.71	1031112	0.00	50	
Ni	72	60	1	He	52.611	52.611	21.29	247258	0.02	50	
copper	72	63	1	He	51.350	51.350	20.32	618600	0.01	50	
dwCu63	72	63	2	no gas	47.648	47.648	0.48	925096	0.01	50	
Zn	72	66	1	He	52.376	52.376	20.79	130847	0.04	50	
arsenic	72	75	1	He	50.523	50.523	20.47	98078	0.05	50	
dwAs75	72	75	2	no gas	48.189	48.189	1.20	204299	0.02	50	
selenium	72	78	3	H2	50.242	50.242	0.74	52833	0.10	50	
Sr	72	88	1	He	53.495	53.495	21.17	1076441	0.00	50	
Mo	115	95	1	He	53.715	53.715	29.49	321330	0.02	50	
Ag	115	107	1	He	51.246	51.246	29.26	851816	0.01	50	
Cd	72	111	1	He	54.333	54.333	19.38	174965	0.03	50	
Sn	115	120	1	He	54.427	54.427	30.11	669816	0.01	50	
antimony	159	121	1	He	54.709	54.709	30.32	561491	0.01	50	
dwSb121	159	121	2	no gas	53.322	53.322	0.95	796352	0.01	50	
Ba	115	137	1	He	51.980	51.980	28.68	240493	0.02	50	
Tl	159	205	2	no gas	10.270	10.270	0.76	407694	0.00	10	
[Pb]	209	206	2	no gas	50.771	50.771	0.90	687583	0.01	50	
[Pb]	209	207	2	no gas	50.294	50.294	0.46	595039	0.01	50	
Pb	209	208	2	no gas	49.516	49.516	2.83	2746598	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1867723	1.38	1982866	94.19	70	120	
Sc	45	1	He	686960	24.52	767851	89.47	70	120	
Ge	72	1	He	279469	17.29	320058	87.32	70	125	
Ge	72	2	no gas	631314	0.38	673177	93.78	70	125	
Ge	72	3	H2	769282	0.44	821457	93.65	70	120	
Y	89	1	He	2427918	23.71	2786775	87.12	70	120	
In	115	1	He	2743588	23.92	3045232	90.09	70	120	
In	115	2	no gas	4511751	2.08	4564130	98.85	70	120	
In	115	3	H2	6235750	1.27	5826290	107.03	70	120	
Tb	159	1	He	4393090	24.15	4638687	94.71	70	120	
Tb	159	2	no gas	5697407	1.02	5623529	101.31	70	120	
Bi	209	2	no gas	3457704	0.20	3475006	99.50	60	120	

Sample Table

Sample Name	CCB
Data File Name	178_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-06T23:58:38-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.160	-0.160	-91.52	123311	0.00	0.5	
Be	6	9	2	no gas	-0.007	-0.007	-37.47	72	-0.01	0.5	
B	6	11	2	no gas	-1.073	-1.073	-38.57	19384	-0.01	5	
Na	72	23	1	He	-2.352	-2.352	-1.09	50860	0.00	100	
Mg	72	24	1	He	-1.439	-1.439	-5.96	2444	-0.06	50	
Al	45	27	3	H2	0.113	0.113	53.52	15800	0.00	50	
K	72	39	1	He	-2.524	-2.524	-36.36	365171	0.00	50	
Ca	72	44	1	He	-2.491	-2.491	-25.52	1697	-0.15	50	
Ti	72	49	1	He	-0.094	-0.094	-47.26	93	-0.10	0.5	
V	72	51	1	He	0.026	0.026	38.72	5653	0.00	0.5	
Cr	72	52	1	He	-0.018	-0.018	-48.27	1930	0.00	0.5	
Mn	72	55	1	He	-0.179	-0.179	-8.27	1757	-0.01	2	
Fe	72	56	3	H2	-4.748	-4.748	-1.05	103425	0.00	25	
Co	72	59	1	He	-0.011	-0.011	-9.80	170	-0.01	0.5	
Ni	72	60	1	He	0.000	0.000	2094.46	150	0.00	1.5	
copper	72	63	1	He	-0.016	-0.016	-8.65	558	0.00	0.5	
dwCu63	72	63	2	no gas	0.005	0.005	126.53	927	0.00	0.5	
Zn	72	66	1	He	-0.046	-0.046	-45.25	987	0.00	4	
arsenic	72	75	1	He	-0.073	-0.073	-12.72	425	-0.02	0.25	
dwAs75	72	75	2	no gas	-0.428	-0.428	-124.80	-799	0.05	5	
selenium	72	78	3	H2	-0.098	-0.098	-6.24	127	-0.08	0.25	
dwSe82	72	82	2	no gas	-0.256	-0.256	-9.72	221	-0.12	5	
Sr	72	88	1	He	-0.018	-0.018	-9.78	247	-0.01	0.5	
Mo	115	95	1	He	-0.161	-0.161	-16.99	620	-0.03	1	
Ag	115	107	1	He	-0.019	-0.019	-14.20	240	-0.01	0.05	
Cd	72	111	1	He	-0.016	-0.016	-28.19	17	-0.09	0.25	
Sn	115	120	1	He	-0.124	-0.124	-5.07	3084	0.00	0.5	
antimony	159	121	1	He	-0.156	-0.156	-6.25	1054	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.274	-0.274	-2.31	2728	-0.01	5	
Ba	115	137	1	He	-0.008	-0.008	-61.93	64	-0.01	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-13.92	87	0.00	0.1	
[Pb]	209	206	2	no gas	-0.023	-0.023	-90.65	6271	0.00	0.25	
[Pb]	209	207	2	no gas	-0.030	-0.030	-134.63	5434	0.00	0.25	
Pb	209	208	2	no gas	-0.022	-0.022	-27.80	24392	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1876895	1.39	1982866	94.66	70	120	
Sc	45	1	He	702335	1.03	767851	91.47	70	120	
Ge	72	1	He	295768	0.74	320058	92.41	70	125	
Ge	72	2	no gas	623897	1.45	673177	92.68	70	125	
Ge	72	3	H2	771628	0.33	821457	93.93	70	120	
Y	89	1	He	2579495	0.96	2786775	92.56	70	120	
In	115	1	He	2880891	1.81	3045232	94.60	70	120	
In	115	2	no gas	4577711	1.29	4564130	100.30	70	120	
In	115	3	H2	6268183	0.78	5826290	107.58	70	120	
Tb	159	1	He	4622582	0.52	4638687	99.65	70	120	
Tb	159	2	no gas	5819984	1.09	5623529	103.49	70	120	
Bi	209	2	no gas	3549993	0.95	3475006	102.16	60	120	

Sample Report

Sample Table

Sample Name	400-169337-P-1-B SD^25
Data File Name	179SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:02:36-05:00
Sample Type	Sample
Dilution	1
Comment	439758_5
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.198	0.198	110.83	131357	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-99.26	88	-0.01	200	
B	6	11	2	no gas	26.555	26.555	2.36	138649	0.02	400	
Na	72	23	1	He	3911.744	3911.744	11.85	13418984	0.03	50000	
Mg	72	24	1	He	1069.621	1069.621	12.55	2137938	0.05	50000	
Al	45	27	3	H2	8.120	8.120	0.90	119698	0.01	50000	
Si	45	28	3	H2	457.211	457.211	0.86	3170260	0.01	2000	
K	72	39	1	He	1043.838	1043.838	12.54	3454311	0.03	50000	
Ca	72	44	1	He	3853.834	3853.834	11.93	523866	0.74	25000	
Ti	72	49	1	He	0.076	0.076	212.20	169	0.05	200	
V	72	51	1	He	0.170	0.170	26.67	6808	0.00	200	
Cr	72	52	1	He	0.080	0.080	37.20	3064	0.00	200	
Mn	72	55	1	He	19.444	19.444	11.44	251463	0.01	2500	
Fe	72	56	3	H2	79.766	79.766	0.83	3313334	0.00	50000	
Co	72	59	1	He	0.118	0.118	10.55	2549	0.00	200	
Ni	72	60	1	He	0.501	0.501	3.28	2327	0.02	200	
copper	72	63	1	He	0.364	0.364	15.94	4715	0.01	200	
Zn	72	66	1	He	4.634	4.634	7.35	11571	0.04	200	
arsenic	72	75	1	He	0.121	0.121	34.67	713	0.02	200	
selenium	72	78	3	H2	-0.145	-0.145	-11.01	77	-0.19	200	
Sr	72	88	1	He	37.176	37.176	11.48	694561	0.01	500	
Mo	115	95	1	He	-0.072	-0.072	-17.20	1020	-0.01	200	
Ag	115	107	1	He	-0.020	-0.020	-18.05	187	-0.01	200	
Cd	72	111	1	He	-0.017	-0.017	-20.75	10	-0.17	200	
Sn	115	120	1	He	-0.114	-0.114	-38.54	2674	0.00	200	
antimony	159	121	1	He	-0.167	-0.167	-7.14	768	-0.02	200	
Ba	115	137	1	He	6.179	6.179	13.19	26084	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-20.26	69	0.00	40	
[Pb]	209	206	2	no gas	-0.015	-0.015	-151.75	6331	0.00	200	
[Pb]	209	207	2	no gas	-0.053	-0.053	-58.93	5124	0.00	200	
Pb	209	208	2	no gas	-0.028	-0.028	-49.48	23841	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1858683	1.99	1982866	93.74	70	120	
Sc	45	1	He	587979	11.44	767851	76.57	70	120	
Ge	72	1	He	255529	12.01	320058	79.84	70	125	
Ge	72	2	no gas	624093	0.60	673177	92.71	70	125	
Ge	72	3	H2	766999	0.89	821457	93.37	70	120	
Y	89	1	He	2140385	12.21	2786775	76.81	70	120	
In	115	1	He	2411001	13.77	3045232	79.17	70	120	
In	115	2	no gas	4539696	0.02	4564130	99.46	70	120	
In	115	3	H2	6243799	1.75	5826290	107.17	70	120	
Tb	159	1	He	3840340	12.26	4638687	82.79	70	120	
Tb	159	2	no gas	5754347	0.66	5623529	102.33	70	120	
Bi	209	2	no gas	3522699	1.67	3475006	101.37	60	120	

Sample Report

Sample Table

Sample Name	400-169337-P-1-B PDS^5
Data File Name	180SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:06:36-05:00
Sample Type	Sample
Dilution	1
Comment	439758_6
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	53.937	53.937	15.39	1446263	0.00	200	
Be	6	9	2	no gas	51.121	51.121	15.49	385994	0.01	200	
B	6	11	2	no gas	253.666	253.666	16.30	1059760	0.02	400	
Na	72	23	1	He	21199.312	21199.312	0.21	84570927	0.03	50000	
Mg	72	24	1	He	9141.968	9141.968	1.26	21280294	0.04	50000	
Al	45	27	3	H2	486.942	486.942	2.68	5906171	0.01	50000	
Si	45	28	3	H2	2350.159	2350.159	2.85	14852986	0.02	2000	>LDR
K	72	39	1	He	9106.026	9106.026	2.04	32251588	0.03	50000	
Ca	72	44	1	He	20277.905	20277.905	1.74	3206504	0.63	25000	
Ti	72	49	1	He	49.479	49.479	3.18	31221	0.16	200	
V	72	51	1	He	47.118	47.118	2.51	752960	0.01	200	
Cr	72	52	1	He	46.808	46.808	2.78	794272	0.01	200	
Mn	72	55	1	He	562.396	562.396	2.33	8355743	0.01	2500	
Fe	72	56	3	H2	5289.845	5289.845	0.38	194896917	0.00	50000	
Co	72	59	1	He	47.782	47.782	1.16	1039059	0.00	200	
Ni	72	60	1	He	49.812	49.812	3.17	253440	0.02	200	
copper	72	63	1	He	48.546	48.546	0.54	632739	0.01	200	
Zn	72	66	1	He	65.917	65.917	1.28	176515	0.04	200	
arsenic	72	75	1	He	46.825	46.825	1.74	98446	0.05	200	
selenium	72	78	3	H2	49.734	49.734	0.88	50648	0.10	200	
Sr	72	88	1	He	204.569	204.569	1.73	4453986	0.00	500	
Mo	115	95	1	He	50.686	50.686	2.38	326733	0.02	200	
Ag	115	107	1	He	43.450	43.450	2.81	775483	0.01	200	
Cd	72	111	1	He	48.941	48.941	0.73	170367	0.03	200	
Sn	115	120	1	He	43.496	43.496	3.29	577627	0.01	200	
antimony	159	121	1	He	41.748	41.748	1.71	472337	0.01	200	
Ba	115	137	1	He	73.845	73.845	2.51	366238	0.02	1000	
Tl	159	205	2	no gas	10.794	10.794	22.32	398193	0.00	40	
[Pb]	209	206	2	no gas	54.650	54.650	18.47	676831	0.01	200	
[Pb]	209	207	2	no gas	54.521	54.521	18.74	589517	0.01	200	
Pb	209	208	2	no gas	52.783	52.783	18.93	2674438	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1783848	13.99	1982866	89.96	70	120	
Sc	45	1	He	713630	2.61	767851	92.94	70	120	
Ge	72	1	He	295274	1.37	320058	92.26	70	125	
Ge	72	2	no gas	589610	13.62	673177	87.59	70	125	
Ge	72	3	H2	742812	0.56	821457	90.43	70	120	
Y	89	1	He	2550473	3.05	2786775	91.52	70	120	
In	115	1	He	2808399	2.45	3045232	92.22	70	120	
In	115	2	no gas	4203897	20.88	4564130	92.11	70	120	
In	115	3	H2	6030157	1.92	5826290	103.50	70	120	
Tb	159	1	He	4583837	1.96	4638687	98.82	70	120	
Tb	159	2	no gas	5449714	19.37	5623529	96.91	70	120	
Bi	209	2	no gas	3218152	14.98	3475006	92.61	60	120	

Sample Report

Sample Table

Sample Name	400-169337-P-1-C MS^5
Data File Name	181SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:10:30-05:00
Sample Type	Sample
Dilution	1
Comment	439758_7
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	11.476	11.476	2.31	417410	0.00	200	
Be	6	9	2	no gas	9.824	9.824	2.07	77239	0.01	200	
B	6	11	2	no gas	169.198	169.198	2.31	743196	0.02	400	
Na	72	23	1	He	17857.981	17857.981	1.84	70624472	0.03	50000	
Mg	72	24	1	He	5425.482	5425.482	1.01	12521948	0.04	50000	
Al	45	27	3	H2	101.604	101.604	2.03	1289247	0.01	50000	
Si	45	28	3	H2	2305.412	2305.412	0.96	15117506	0.02	2000	>LDR
K	72	39	1	He	5346.560	5346.560	0.44	18926555	0.03	50000	
Ca	72	44	1	He	16954.546	16954.546	1.10	2657843	0.64	25000	
Ti	72	49	1	He	10.437	10.437	1.15	6649	0.16	200	
V	72	51	1	He	9.677	9.677	0.90	157441	0.01	200	
Cr	72	52	1	He	9.641	9.641	0.62	163953	0.01	200	
Mn	72	55	1	He	184.078	184.078	1.45	2714466	0.01	2500	
Fe	72	56	3	H2	1415.052	1415.052	0.19	52835466	0.00	50000	
Co	72	59	1	He	10.284	10.284	0.39	222013	0.00	200	
Ni	72	60	1	He	11.955	11.955	1.51	60417	0.02	200	
copper	72	63	1	He	11.230	11.230	1.76	145677	0.01	200	
Zn	72	66	1	He	27.408	27.408	2.10	73400	0.04	200	
arsenic	72	75	1	He	10.529	10.529	0.68	22389	0.05	200	
selenium	72	78	3	H2	10.299	10.299	0.68	10766	0.10	200	
Sr	72	88	1	He	172.663	172.663	1.04	3726985	0.00	500	
Mo	115	95	1	He	10.745	10.745	3.04	70734	0.02	200	
Ag	115	107	1	He	9.753	9.753	0.58	174981	0.01	200	
Cd	72	111	1	He	10.050	10.050	2.63	34734	0.03	200	
Sn	115	120	1	He	9.898	9.898	1.11	135392	0.01	200	
antimony	159	121	1	He	9.929	9.929	0.53	113028	0.01	200	
Ba	115	137	1	He	35.366	35.366	1.64	175919	0.02	1000	
Tl	159	205	2	no gas	1.999	1.999	0.35	80030	0.00	40	
[Pb]	209	206	2	no gas	10.263	10.263	1.63	142858	0.01	200	
[Pb]	209	207	2	no gas	10.165	10.165	0.79	123657	0.01	200	
Pb	209	208	2	no gas	9.824	9.824	0.68	559628	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1828889	1.86	1982866	92.23	70	120	
Sc	45	1	He	700553	0.03	767851	91.24	70	120	
Ge	72	1	He	292689	0.25	320058	91.45	70	125	
Ge	72	2	no gas	624765	0.94	673177	92.81	70	125	
Ge	72	3	H2	749892	0.60	821457	91.29	70	120	
Y	89	1	He	2522797	1.52	2786775	90.53	70	120	
In	115	1	He	2814740	0.62	3045232	92.43	70	120	
In	115	2	no gas	4385640	1.47	4564130	96.09	70	120	
In	115	3	H2	6113372	2.03	5826290	104.93	70	120	
Tb	159	1	He	4525218	0.36	4638687	97.55	70	120	
Tb	159	2	no gas	5733635	0.31	5623529	101.96	70	120	
Bi	209	2	no gas	3422962	1.03	3475006	98.50	60	120	

Sample Report

Sample Table

Sample Name	400-169337-P-1-D MSD^5
Data File Name	182SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:14:26-05:00
Sample Type	Sample
Dilution	1
Comment	439758_8
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	11.352	11.352	0.79	416673	0.00	200	
Be	6	9	2	no gas	9.805	9.805	0.58	77547	0.01	200	
B	6	11	2	no gas	167.820	167.820	0.84	741695	0.02	400	
Na	72	23	1	He	17249.555	17249.555	1.58	68245034	0.03	50000	
Mg	72	24	1	He	5352.687	5352.687	1.36	12358205	0.04	50000	
Al	45	27	3	H2	100.624	100.624	3.43	1279744	0.01	50000	
Si	45	28	3	H2	2256.262	2256.262	2.06	14831460	0.02	2000	>LDR
K	72	39	1	He	5223.388	5223.388	1.19	18505786	0.03	50000	
Ca	72	44	1	He	16860.311	16860.311	0.41	2644184	0.64	25000	
Ti	72	49	1	He	10.074	10.074	0.84	6426	0.16	200	
V	72	51	1	He	9.756	9.756	0.36	158739	0.01	200	
Cr	72	52	1	He	9.682	9.682	0.66	164701	0.01	200	
Mn	72	55	1	He	182.419	182.419	0.51	2691170	0.01	2500	
Fe	72	56	3	H2	1396.163	1396.163	0.42	52073241	0.00	50000	
Co	72	59	1	He	10.233	10.233	1.61	220989	0.00	200	
Ni	72	60	1	He	12.062	12.062	1.09	60982	0.02	200	
copper	72	63	1	He	11.186	11.186	0.85	145171	0.01	200	
Zn	72	66	1	He	27.250	27.250	1.19	73009	0.04	200	
arsenic	72	75	1	He	10.319	10.319	1.88	21962	0.05	200	
selenium	72	78	3	H2	10.292	10.292	1.32	10746	0.10	200	
Sr	72	88	1	He	168.614	168.614	0.75	3640952	0.00	500	
Mo	115	95	1	He	10.741	10.741	3.73	70131	0.02	200	
Ag	115	107	1	He	9.728	9.728	0.58	173088	0.01	200	
Cd	72	111	1	He	10.024	10.024	4.46	34654	0.03	200	
Sn	115	120	1	He	9.840	9.840	2.19	133509	0.01	200	
antimony	159	121	1	He	9.658	9.658	1.30	109679	0.01	200	
Ba	115	137	1	He	35.246	35.246	1.09	173866	0.02	1000	
Tl	159	205	2	no gas	2.022	2.022	2.16	80151	0.00	40	
[Pb]	209	206	2	no gas	10.222	10.222	2.13	140449	0.01	200	
[Pb]	209	207	2	no gas	10.299	10.299	1.36	123572	0.01	200	
Pb	209	208	2	no gas	10.001	10.001	1.65	561793	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1839227	0.28	1982866	92.76	70	120	
Sc	45	1	He	695397	0.73	767851	90.56	70	120	
Ge	72	1	He	292814	0.89	320058	91.49	70	125	
Ge	72	2	no gas	626513	0.83	673177	93.07	70	125	
Ge	72	3	H2	749017	0.09	821457	91.18	70	120	
Y	89	1	He	2515284	0.46	2786775	90.26	70	120	
In	115	1	He	2791464	0.73	3045232	91.67	70	120	
In	115	2	no gas	4459110	1.98	4564130	97.70	70	120	
In	115	3	H2	6109418	0.62	5826290	104.86	70	120	
Tb	159	1	He	4511218	0.42	4638687	97.25	70	120	
Tb	159	2	no gas	5676805	0.89	5623529	100.95	70	120	
Bi	209	2	no gas	3378377	1.18	3475006	97.22	60	120	

Sample Report

Sample Table

Sample Name	400-169324-B-1-A^5
Data File Name	183SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:18:22-05:00
Sample Type	Sample
Dilution	1
Comment	439758_9
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.704	1.704	15.10	169784	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-14.82	81	-0.01	200	
B	6	11	2	no gas	46.672	46.672	1.31	224784	0.02	400	
Na	72	23	1	He	14224.532	14224.532	2.49	56582596	0.03	50000	
Mg	72	24	1	He	1733.944	1733.944	1.71	4028307	0.04	50000	
Al	45	27	3	H2	4.754	4.754	0.99	74034	0.01	50000	
Si	45	28	3	H2	928.729	928.729	2.12	6197851	0.01	2000	
K	72	39	1	He	2594.937	2594.937	0.46	9429023	0.03	50000	
Ca	72	44	1	He	4022.358	4022.358	0.41	635689	0.63	25000	
Ti	72	49	1	He	0.031	0.031	55.86	171	0.02	200	
V	72	51	1	He	0.232	0.232	3.97	8879	0.00	200	
Cr	72	52	1	He	0.059	0.059	7.65	3220	0.00	200	
Mn	72	55	1	He	4.551	4.551	0.51	71769	0.01	2500	
Fe	72	56	3	H2	14.151	14.151	0.77	819990	0.00	50000	
Co	72	59	1	He	0.010	0.010	33.43	616	0.00	200	
Ni	72	60	1	He	0.277	0.277	11.73	1553	0.02	200	
copper	72	63	1	He	0.605	0.605	2.34	8619	0.01	200	
Zn	72	66	1	He	11.151	11.151	5.83	30689	0.04	200	
arsenic	72	75	1	He	0.244	0.244	4.73	1085	0.02	200	
selenium	72	78	3	H2	-0.005	-0.005	-564.22	224	0.00	200	
Sr	72	88	1	He	162.437	162.437	2.28	3525819	0.00	500	
Mo	115	95	1	He	0.136	0.136	42.72	2512	0.01	200	
Ag	115	107	1	He	-0.011	-0.011	-25.82	381	0.00	200	
Cd	72	111	1	He	-0.010	-0.010	-140.05	37	-0.03	200	
Sn	115	120	1	He	0.013	0.013	213.62	4801	0.00	200	
antimony	159	121	1	He	0.011	0.011	195.51	2861	0.00	200	
Ba	115	137	1	He	2.439	2.439	7.40	12196	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-45.97	117	0.00	40	
[Pb]	209	206	2	no gas	-0.029	-0.029	-15.18	6088	0.00	200	
[Pb]	209	207	2	no gas	-0.027	-0.027	-53.96	5384	0.00	200	
Pb	209	208	2	no gas	0.003	0.003	263.84	25393	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1851537	2.20	1982866	93.38	70	120	
Sc	45	1	He	695959	0.71	767851	90.64	70	120	
Ge	72	1	He	294336	0.37	320058	91.96	70	125	
Ge	72	2	no gas	625272	0.42	673177	92.88	70	125	
Ge	72	3	H2	766291	1.37	821457	93.28	70	120	
Y	89	1	He	2539524	1.04	2786775	91.13	70	120	
In	115	1	He	2806787	0.22	3045232	92.17	70	120	
In	115	2	no gas	4480618	1.07	4564130	98.17	70	120	
In	115	3	H2	6204949	1.19	5826290	106.50	70	120	
Tb	159	1	He	4485817	1.14	4638687	96.70	70	120	
Tb	159	2	no gas	5813772	1.43	5623529	103.38	70	120	
Bi	209	2	no gas	3492334	1.42	3475006	100.50	60	120	

Sample Report

Sample Table

Sample Name	680-168415-C-1-A^5
Data File Name	184SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:22:18-05:00
Sample Type	Sample
Dilution	1
Comment	439758_11
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	13.201	13.201	1.12	455354	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-109.97	92	0.00	200	
B	6	11	2	no gas	1296.010	1296.010	0.45	5463479	0.02	400	>LDR
Na	72	23	1	He	6317.738	6317.738	1.11	25140120	0.03	50000	
Mg	72	24	1	He	5775.124	5775.124	1.22	13390186	0.04	50000	
Al	45	27	3	H2	11.454	11.454	2.75	157373	0.01	50000	
Si	45	28	3	H2	765.325	765.325	0.32	5067175	0.02	2000	
K	72	39	1	He	1428.700	1428.700	2.06	5352998	0.03	50000	
Ca	72	44	1	He	54696.654	54696.654	1.92	8608804	0.64	25000	>LDR
Ti	72	49	1	He	1.169	1.169	4.40	883	0.13	200	
V	72	51	1	He	0.534	0.534	4.56	13640	0.00	200	
Cr	72	52	1	He	0.074	0.074	43.47	3470	0.00	200	
Mn	72	55	1	He	39.228	39.228	1.34	584587	0.01	2500	
Fe	72	56	3	H2	231.581	231.581	0.50	8999192	0.00	50000	
Co	72	59	1	He	0.846	0.846	1.57	18703	0.00	200	
Ni	72	60	1	He	1.833	1.833	2.84	9433	0.02	200	
copper	72	63	1	He	0.152	0.152	1.87	2736	0.01	200	
Zn	72	66	1	He	1.421	1.421	3.94	4868	0.03	200	
arsenic	72	75	1	He	0.395	0.395	5.40	1397	0.03	200	
selenium	72	78	3	H2	3.543	3.543	1.04	3904	0.09	200	
Sr	72	88	1	He	300.781	300.781	1.09	6522101	0.00	500	
Mo	115	95	1	He	3.873	3.873	1.31	27061	0.01	200	
Ag	115	107	1	He	-0.019	-0.019	-3.90	240	-0.01	200	
Cd	72	111	1	He	0.039	0.039	9.60	207	0.02	200	
Sn	115	120	1	He	-0.121	-0.121	-20.98	3100	0.00	200	
antimony	159	121	1	He	-0.083	-0.083	-22.90	1836	0.00	200	
Ba	115	137	1	He	10.584	10.584	3.03	53699	0.02	1000	
Tl	159	205	2	no gas	0.366	0.366	2.56	14800	0.00	40	
[Pb]	209	206	2	no gas	-0.003	-0.003	-765.96	6305	0.00	200	
[Pb]	209	207	2	no gas	-0.004	-0.004	-285.60	5534	0.00	200	
Pb	209	208	2	no gas	0.003	0.003	385.05	24852	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1804305	0.21	1982866	90.99	70	120	
Sc	45	1	He	690109	0.32	767851	89.88	70	120	
Ge	72	1	He	294063	1.10	320058	91.88	70	125	
Ge	72	2	no gas	625960	0.17	673177	92.99	70	125	
Ge	72	3	H2	760124	1.19	821457	92.53	70	120	
Y	89	1	He	2553256	1.20	2786775	91.62	70	120	
In	115	1	He	2868354	2.24	3045232	94.19	70	120	
In	115	2	no gas	4421146	0.81	4564130	96.87	70	120	
In	115	3	H2	6300395	1.05	5826290	108.14	70	120	
Tb	159	1	He	4534606	2.47	4638687	97.76	70	120	
Tb	159	2	no gas	5730963	0.72	5623529	101.91	70	120	
Bi	209	2	no gas	3417849	0.57	3475006	98.36	60	120	

Sample Report

Sample Table

Sample Name	680-168415-C-1-A^25
Data File Name	185SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:26:13-05:00
Sample Type	Sample
Dilution	1
Comment	439758_12
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.638	2.638	5.34	196803	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-18.96	73	-0.01	200	
B	6	11	2	no gas	272.835	272.835	2.68	1215841	0.02	400	
Na	72	23	1	He	1259.471	1259.471	1.44	5208357	0.02	50000	
Mg	72	24	1	He	1181.436	1181.436	2.03	2824066	0.04	50000	
Al	45	27	3	H2	3.256	3.256	1.94	56877	0.01	50000	
Si	45	28	3	H2	160.391	160.391	0.77	1173690	0.01	2000	
K	72	39	1	He	296.382	296.382	1.35	1446375	0.02	50000	
Ca	72	44	1	He	11134.136	11134.136	1.77	1805533	0.62	25000	
Ti	72	49	1	He	0.156	0.156	34.11	257	0.06	200	
V	72	51	1	He	0.279	0.279	6.69	9888	0.00	200	
Cr	72	52	1	He	0.010	0.010	163.84	2447	0.00	200	
Mn	72	55	1	He	7.636	7.636	0.21	120767	0.01	2500	
Fe	72	56	3	H2	43.940	43.940	1.37	2009748	0.00	50000	
Co	72	59	1	He	0.156	0.156	2.30	3892	0.00	200	
Ni	72	60	1	He	0.391	0.391	14.43	2190	0.02	200	
copper	72	63	1	He	0.011	0.011	52.85	937	0.00	200	
Zn	72	66	1	He	0.367	0.367	15.05	2137	0.02	200	
arsenic	72	75	1	He	0.037	0.037	71.08	671	0.01	200	
selenium	72	78	3	H2	0.571	0.571	8.19	852	0.07	200	
Sr	72	88	1	He	60.451	60.451	1.67	1349719	0.00	500	
Mo	115	95	1	He	0.628	0.628	8.61	5848	0.01	200	
Ag	115	107	1	He	-0.022	-0.022	-3.05	194	-0.01	200	
Cd	72	111	1	He	-0.002	-0.002	-255.40	67	0.00	200	
Sn	115	120	1	He	-0.173	-0.173	-17.51	2427	-0.01	200	
antimony	159	121	1	He	-0.154	-0.154	-13.15	1057	-0.01	200	
Ba	115	137	1	He	2.105	2.105	5.05	10877	0.02	1000	
Tl	159	205	2	no gas	0.071	0.071	2.95	3067	0.00	40	
[Pb]	209	206	2	no gas	-0.030	-0.030	-39.22	6135	0.00	200	
[Pb]	209	207	2	no gas	-0.054	-0.054	-65.68	5121	0.00	200	
Pb	209	208	2	no gas	-0.013	-0.013	-85.21	24722	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1878291	2.55	1982866	94.73	70	120	
Sc	45	1	He	721967	1.19	767851	94.02	70	120	
Ge	72	1	He	302662	0.65	320058	94.56	70	125	
Ge	72	2	no gas	644249	0.97	673177	95.70	70	125	
Ge	72	3	H2	789458	0.75	821457	96.10	70	120	
Y	89	1	He	2606119	0.45	2786775	93.52	70	120	
In	115	1	He	2896384	0.95	3045232	95.11	70	120	
In	115	2	no gas	4490561	1.71	4564130	98.39	70	120	
In	115	3	H2	6355126	0.98	5826290	109.08	70	120	
Tb	159	1	He	4548757	1.38	4638687	98.06	70	120	
Tb	159	2	no gas	5776389	1.37	5623529	102.72	70	120	
Bi	209	2	no gas	3527763	0.30	3475006	101.52	60	120	

Sample Report

Sample Table

Sample Name	680-168414-C-1-A^25
Data File Name	187SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:34:07-05:00
Sample Type	Sample
Dilution	1
Comment	439758_14
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.556	0.556	27.19	144218	0.00	200	
Be	6	9	2	no gas	-0.010	-0.010	-26.16	46	-0.02	200	
B	6	11	2	no gas	245.422	245.422	0.74	1112181	0.02	400	
Na	72	23	1	He	370.196	370.196	0.71	1616594	0.02	50000	
Mg	72	24	1	He	573.713	573.713	1.15	1411358	0.04	50000	
Al	45	27	3	H2	1.752	1.752	2.84	38162	0.00	50000	
Si	45	28	3	H2	86.134	86.134	0.86	685840	0.01	2000	
K	72	39	1	He	356.031	356.031	2.41	1704937	0.02	50000	
Ca	72	44	1	He	4820.102	4820.102	1.64	803842	0.60	25000	
Ti	72	49	1	He	0.038	0.038	91.57	186	0.02	200	
V	72	51	1	He	0.184	0.184	7.98	8567	0.00	200	
Cr	72	52	1	He	-0.004	-0.004	-198.40	2270	0.00	200	
Mn	72	55	1	He	38.850	38.850	1.83	611932	0.01	2500	
Fe	72	56	3	H2	-5.080	-5.080	-1.41	94504	-0.01	50000	
Co	72	59	1	He	0.092	0.092	4.41	2527	0.00	200	
Ni	72	60	1	He	0.204	0.204	9.23	1250	0.02	200	
copper	72	63	1	He	0.012	0.012	62.94	973	0.00	200	
Zn	72	66	1	He	0.006	0.006	428.28	1183	0.00	200	
arsenic	72	75	1	He	0.088	0.088	16.67	801	0.01	200	
selenium	72	78	3	H2	0.691	0.691	9.00	998	0.07	200	
Sr	72	88	1	He	53.410	53.410	1.39	1224538	0.00	500	
Mo	115	95	1	He	15.734	15.734	1.86	106796	0.01	200	
Ag	115	107	1	He	-0.021	-0.021	-16.87	204	-0.01	200	
Cd	72	111	1	He	-0.008	-0.008	-82.27	47	-0.02	200	
Sn	115	120	1	He	-0.151	-0.151	-8.20	2750	-0.01	200	
antimony	159	121	1	He	0.003	0.003	758.92	2844	0.00	200	
Ba	115	137	1	He	1.752	1.752	4.73	9149	0.02	1000	
Tl	159	205	2	no gas	0.027	0.027	6.61	1296	0.00	40	
[Pb]	209	206	2	no gas	-0.037	-0.037	-29.74	6085	0.00	200	
[Pb]	209	207	2	no gas	-0.069	-0.069	-18.43	4971	0.00	200	
Pb	209	208	2	no gas	-0.039	-0.039	-20.55	23462	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1905161	1.47	1982866	96.08	70	120	
Sc	45	1	He	729635	0.84	767851	95.02	70	120	
Ge	72	1	He	310790	0.82	320058	97.10	70	125	
Ge	72	2	no gas	647677	2.10	673177	96.21	70	125	
Ge	72	3	H2	803623	0.78	821457	97.83	70	120	
Y	89	1	He	2623230	0.33	2786775	94.13	70	120	
In	115	1	He	2924037	1.60	3045232	96.02	70	120	
In	115	2	no gas	4557240	1.59	4564130	99.85	70	120	
In	115	3	H2	6482703	1.42	5826290	111.27	70	120	
Tb	159	1	He	4610646	1.79	4638687	99.40	70	120	
Tb	159	2	no gas	5809337	0.54	5623529	103.30	70	120	
Bi	209	2	no gas	3557637	0.53	3475006	102.38	60	120	

Sample Report

Sample Table

Sample Name	400-169351-B-1-B^5
Data File Name	188SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:38:04-05:00
Sample Type	Sample
Dilution	1
Comment	439758_15
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.299	4.299	3.20	235927	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-15.58	66	-0.01	200	
B	6	11	2	no gas	36.198	36.198	1.82	178860	0.02	400	
Na	72	23	1	He	85467.054	85467.054	0.88	341777968	0.03	50000	>LDR
Mg	72	24	1	He	5264.665	5264.665	0.58	12294327	0.04	50000	
Al	45	27	3	H2	2.304	2.304	4.92	41418	0.01	50000	
Si	45	28	3	H2	1856.970	1856.970	1.54	11868120	0.02	2000	>LDR
K	72	39	1	He	2311.600	2311.600	1.06	8492152	0.03	50000	
Ca	72	44	1	He	46830.473	46830.473	0.73	7424313	0.63	25000	>LDR
Ti	72	49	1	He	0.426	0.426	6.53	421	0.10	200	
V	72	51	1	He	0.430	0.430	9.47	12087	0.00	200	
Cr	72	52	1	He	0.231	0.231	8.11	6148	0.00	200	
Mn	72	55	1	He	114.623	114.623	1.53	1711930	0.01	2500	
Fe	72	56	3	H2	2.934	2.934	2.48	385460	0.00	50000	
Co	72	59	1	He	0.597	0.597	1.15	13406	0.00	200	
Ni	72	60	1	He	23.648	23.648	0.60	120778	0.02	200	
copper	72	63	1	He	1.114	1.114	0.94	15316	0.01	200	
Zn	72	66	1	He	4.691	4.691	4.18	13632	0.03	200	
arsenic	72	75	1	He	1.481	1.481	2.23	3683	0.04	200	
selenium	72	78	3	H2	0.334	0.334	3.70	565	0.06	200	
Sr	72	88	1	He	107.186	107.186	0.67	2341179	0.00	500	
Mo	115	95	1	He	100.608	100.608	0.83	638740	0.02	200	
Ag	115	107	1	He	-0.019	-0.019	-7.07	234	-0.01	200	
Cd	72	111	1	He	0.026	0.026	29.65	160	0.02	200	
Sn	115	120	1	He	-0.192	-0.192	-0.38	2074	-0.01	200	
antimony	159	121	1	He	2.653	2.653	4.09	32039	0.01	200	
Ba	115	137	1	He	83.710	83.710	1.01	409917	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-30.08	128	0.00	40	
[Pb]	209	206	2	no gas	-0.022	-0.022	-103.12	5745	0.00	200	
[Pb]	209	207	2	no gas	-0.057	-0.057	-4.42	4671	0.00	200	
Pb	209	208	2	no gas	-0.034	-0.034	-44.32	21674	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1843209	1.13	1982866	92.96	70	120	
Sc	45	1	He	718345	0.88	767851	93.55	70	120	
Ge	72	1	He	296146	0.10	320058	92.53	70	125	
Ge	72	2	no gas	632245	0.57	673177	93.92	70	125	
Ge	72	3	H2	749207	1.12	821457	91.20	70	120	
Y	89	1	He	2564909	0.57	2786775	92.04	70	120	
In	115	1	He	2771971	0.67	3045232	91.03	70	120	
In	115	2	no gas	4325554	0.79	4564130	94.77	70	120	
In	115	3	H2	6159425	1.29	5826290	105.72	70	120	
Tb	159	1	He	4501455	2.23	4638687	97.04	70	120	
Tb	159	2	no gas	5756317	1.69	5623529	102.36	70	120	
Bi	209	2	no gas	3246126	0.56	3475006	93.41	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	190_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:46:00-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.508	50.508	1.90	1444882	0.00	50	
Be	6	9	2	no gas	48.553	48.553	0.63	389943	0.01	50	
B	6	11	2	no gas	96.309	96.309	1.51	494638	0.02	100	
Na	72	23	1	He	4914.775	4914.775	1.36	20004316	0.02	5000	
Mg	72	24	1	He	4868.387	4868.387	0.29	11480922	0.04	5000	
Al	45	27	3	H2	485.378	485.378	1.35	6356010	0.01	500	
K	72	39	1	He	4881.275	4881.275	0.48	17698223	0.03	5000	
Ca	72	44	1	He	4759.998	4759.998	1.06	766494	0.62	5000	
Ti	72	49	1	He	49.750	49.750	0.37	31752	0.16	50	
V	72	51	1	He	47.293	47.293	0.37	768113	0.01	50	
Cr	72	52	1	He	47.461	47.461	1.09	815540	0.01	50	
Mn	72	55	1	He	492.888	492.888	1.77	7417045	0.01	500	
Fe	72	56	3	H2	4884.787	4884.787	1.83	187846411	0.00	5000	
Co	72	59	1	He	47.671	47.671	0.17	1049647	0.00	50	
Ni	72	60	1	He	48.961	48.961	0.31	252397	0.02	50	
copper	72	63	1	He	47.932	47.932	0.66	632647	0.01	50	
dwCu63	72	63	2	no gas	48.144	48.144	0.17	940331	0.01	50	
Zn	72	66	1	He	49.408	49.408	0.98	135402	0.04	50	
arsenic	72	75	1	He	47.179	47.179	0.58	100340	0.05	50	
dwAs75	72	75	2	no gas	48.144	48.144	1.30	206006	0.02	50	
selenium	72	78	3	H2	50.461	50.461	1.75	53506	0.09	50	
Sr	72	88	1	He	49.625	49.625	0.48	1095351	0.00	50	
Mo	115	95	1	He	49.570	49.570	2.03	325881	0.02	50	
Ag	115	107	1	He	47.414	47.414	1.22	859351	0.01	50	
Cd	72	111	1	He	49.616	49.616	0.85	174858	0.03	50	
Sn	115	120	1	He	49.959	49.959	1.37	671315	0.01	50	
antimony	159	121	1	He	50.635	50.635	1.07	566500	0.01	50	
dwSb121	159	121	2	no gas	53.943	53.943	1.15	810058	0.01	50	
Ba	115	137	1	He	48.154	48.154	1.98	242766	0.02	50	
Tl	159	205	2	no gas	10.183	10.183	1.03	406374	0.00	10	
[Pb]	209	206	2	no gas	50.618	50.618	1.06	691847	0.01	50	
[Pb]	209	207	2	no gas	50.750	50.750	1.04	605372	0.01	50	
Pb	209	208	2	no gas	50.483	50.483	0.55	2822065	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1870618	0.75	1982866	94.34	70	120	
Sc	45	1	He	729647	1.31	767851	95.02	70	120	
Ge	72	1	He	299033	0.43	320058	93.43	70	125	
Ge	72	2	no gas	635023	0.26	673177	94.33	70	125	
Ge	72	3	H2	776215	0.55	821457	94.49	70	120	
Y	89	1	He	2583489	1.68	2786775	92.71	70	120	
In	115	1	He	2852407	1.98	3045232	93.67	70	120	
In	115	2	no gas	4491412	1.79	4564130	98.41	70	120	
In	115	3	H2	6261076	1.14	5826290	107.46	70	120	
Tb	159	1	He	4554314	0.34	4638687	98.18	70	120	
Tb	159	2	no gas	5727480	1.21	5623529	101.85	70	120	
Bi	209	2	no gas	3485748	0.67	3475006	100.31	60	120	

Sample Table

Sample Name	CCB
Data File Name	192_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:53:49-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.139	0.139	39.56	129224	0.00	0.5	
Be	6	9	2	no gas	-0.004	-0.004	-55.75	77	-0.01	0.5	
B	6	11	2	no gas	-1.948	-1.948	-17.08	54725	0.00	5	
Na	72	23	1	He	-3.682	-3.682	-14.79	54914	-0.01	100	
Mg	72	24	1	He	-1.705	-1.705	-4.33	2640	-0.06	50	
Al	45	27	3	H2	0.112	0.112	107.67	15842	0.00	50	
K	72	39	1	He	-7.935	-7.935	-8.75	384193	0.00	50	
Ca	72	44	1	He	-3.907	-3.907	-9.75	2014	-0.19	50	
Ti	72	49	1	He	-0.069	-0.069	-78.36	123	-0.06	0.5	
V	72	51	1	He	-0.004	-0.004	-542.05	5481	0.00	0.5	
Cr	72	52	1	He	-0.012	-0.012	-153.07	1940	0.00	0.5	
Mn	72	55	1	He	-0.155	-0.155	-6.80	2207	-0.01	2	
Fe	72	56	3	H2	-4.943	-4.943	-1.34	96846	-0.01	25	
Co	72	59	1	He	-0.017	-0.017	-2.86	108	-0.02	0.5	
Ni	72	60	1	He	-0.002	-0.002	-244.38	183	0.00	1.5	
copper	72	63	1	He	-0.023	-0.023	-21.85	532	0.00	0.5	
dwCu63	72	63	2	no gas	-0.010	-0.010	-21.81	790	0.00	0.5	
Zn	72	66	1	He	-0.029	-0.029	-224.13	1147	0.00	4	
arsenic	72	75	1	He	-0.097	-0.097	-10.35	444	-0.02	0.25	
dwAs75	72	75	2	no gas	-0.054	-0.054	-221.05	-1338	0.00	5	
selenium	72	78	3	H2	-0.113	-0.113	-10.32	113	-0.10	0.25	
dwSe82	72	82	2	no gas	-0.221	-0.221	-34.19	230	-0.10	5	
Sr	72	88	1	He	-0.008	-0.008	-38.10	387	0.00	0.5	
Mo	115	95	1	He	-0.265	-0.265	-6.67	740	-0.04	1	
Ag	115	107	1	He	-0.021	-0.021	-10.42	213	-0.01	0.05	
Cd	72	111	1	He	-0.011	-0.011	0.00	0	#DIV/0!	0.25	
Sn	115	120	1	He	-0.113	-0.113	-5.57	3207	0.00	0.5	
antimony	159	121	1	He	-0.147	-0.147	-13.13	1155	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.276	-0.276	-4.83	2661	-0.01	5	
Ba	115	137	1	He	-0.016	-0.016	-52.57	67	-0.02	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-20.29	75	0.00	0.1	
[Pb]	209	206	2	no gas	-0.054	-0.054	-83.06	5921	0.00	0.25	
[Pb]	209	207	2	no gas	-0.009	-0.009	-384.44	5231	0.00	0.25	
Pb	209	208	2	no gas	-0.030	-0.030	-39.19	23391	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1879706	0.31	1982866	94.80	70	120	
Sc	45	1	He	721679	1.26	767851	93.99	70	120	
Ge	72	1	He	301141	0.20	320058	94.09	70	125	
Ge	72	2	no gas	624336	0.40	673177	92.74	70	125	
Ge	72	3	H2	777341	0.71	821457	94.63	70	120	
Y	89	1	He	2585291	0.40	2786775	92.77	70	120	
In	115	1	He	2867039	1.47	3045232	94.15	70	120	
In	115	2	no gas	4443445	1.38	4564130	97.36	70	120	
In	115	3	H2	6288114	0.63	5826290	107.93	70	120	
Tb	159	1	He	4645627	1.54	4638687	100.15	70	120	
Tb	159	2	no gas	5762264	1.15	5623529	102.47	70	120	
Bi	209	2	no gas	3571812	1.82	3475006	102.79	60	120	

Sample Report

Sample Table

Sample Name	400-169549-K-1-A^5
Data File Name	193SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T00:57:47-05:00
Sample Type	Sample
Dilution	1
Comment	439758_16
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.294	0.294	21.77	135604	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-22.68	52	-0.01	200	
B	6	11	2	no gas	-1.425	-1.425	-2.25	58015	0.00	400	
Na	72	23	1	He	38575.287	38575.287	0.20	159397228	0.02	50000	
Mg	72	24	1	He	145.272	145.272	1.02	357075	0.04	50000	
Al	45	27	3	H2	4.202	4.202	2.71	67561	0.01	50000	
Si	45	28	3	H2	599.814	599.814	1.60	4047263	0.01	2000	
K	72	39	1	He	58346.775	58346.775	1.58	212077970	0.03	50000	>LDR
Ca	72	44	1	He	1065.805	1065.805	1.28	177182	0.60	25000	
Ti	72	49	1	He	-0.071	-0.071	-60.77	124	-0.06	200	
V	72	51	1	He	0.072	0.072	15.05	6813	0.00	200	
Cr	72	52	1	He	2.395	2.395	46.69	44156	0.01	200	
Mn	72	55	1	He	0.698	0.698	7.39	15370	0.00	2500	
Fe	72	56	3	H2	56.972	56.972	0.52	2463308	0.00	50000	
Co	72	59	1	He	0.004	0.004	29.88	593	0.00	200	
Ni	72	60	1	He	1.492	1.492	5.62	8055	0.02	200	
copper	72	63	1	He	0.403	0.403	2.99	6282	0.01	200	
Zn	72	66	1	He	0.329	0.329	35.05	2150	0.02	200	
arsenic	72	75	1	He	-0.079	-0.079	-14.44	491	-0.02	200	
selenium	72	78	3	H2	-0.117	-0.117	-4.28	108	-0.11	200	
Sr	72	88	1	He	4.167	4.167	1.21	94578	0.00	500	
Mo	115	95	1	He	-0.170	-0.170	-16.48	1343	-0.01	200	
Ag	115	107	1	He	-0.017	-0.017	-2.93	281	-0.01	200	
Cd	72	111	1	He	-0.006	-0.006	-25.33	17	-0.04	200	
Sn	115	120	1	He	-0.158	-0.158	-3.42	2567	-0.01	200	
antimony	159	121	1	He	-0.172	-0.172	-4.56	846	-0.02	200	
Ba	115	137	1	He	2.063	2.063	5.39	10441	0.02	1000	
Tl	159	205	2	no gas	0.003	0.003	38.32	272	0.00	40	
[Pb]	209	206	2	no gas	-0.033	-0.033	-68.15	5715	0.00	200	
[Pb]	209	207	2	no gas	-0.023	-0.023	-52.92	4658	0.00	200	
Pb	209	208	2	no gas	-0.013	-0.013	-115.02	22364	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1912753	1.44	1982866	96.46	70	120	
Sc	45	1	He	738421	0.67	767851	96.17	70	120	
Ge	72	1	He	305927	0.18	320058	95.58	70	125	
Ge	72	2	no gas	641492	0.07	673177	95.29	70	125	
Ge	72	3	H2	771901	0.94	821457	93.97	70	120	
Y	89	1	He	2587248	1.05	2786775	92.84	70	120	
In	115	1	He	2826733	1.00	3045232	92.82	70	120	
In	115	2	no gas	4408393	1.28	4564130	96.59	70	120	
In	115	3	H2	6291862	1.03	5826290	107.99	70	120	
Tb	159	1	He	4488178	1.23	4638687	96.76	70	120	
Tb	159	2	no gas	5731041	1.02	5623529	101.91	70	120	
Bi	209	2	no gas	3283185	2.88	3475006	94.48	60	120	

Sample Report

Sample Table

Sample Name	x400-169549-K-1-B MS^5
Data File Name	194SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:01:44-05:00
Sample Type	Sample
Dilution	1
Comment	439758_17
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	9.727	9.727	11.57	419870	0.00	200	
Be	6	9	2	no gas	8.868	8.868	11.55	78773	0.01	200	
B	6	11	2	no gas	14.221	14.221	20.91	138023	0.01	400	
Na	72	23	1	He	39337.824	39337.824	0.62	160256364	0.02	50000	
Mg	72	24	1	He	1165.440	1165.440	1.00	2777308	0.04	50000	
Al	45	27	3	H2	162.556	162.556	19.06	1255908	0.01	50000	
Si	45	28	3	H2	1013.557	1013.557	17.75	4095560	0.02	2000	
K	72	39	1	He	59105.346	59105.346	0.70	211809597	0.03	50000	>LDR
Ca	72	44	1	He	2056.432	2056.432	1.24	334608	0.61	25000	
Ti	72	49	1	He	10.167	10.167	2.11	6691	0.15	200	
V	72	51	1	He	9.737	9.737	0.40	163435	0.01	200	
Cr	72	52	1	He	11.215	11.215	1.38	196044	0.01	200	
Mn	72	55	1	He	102.999	102.999	1.71	1567187	0.01	2500	
Fe	72	56	3	H2	1558.876	1558.876	17.12	39940915	0.00	50000	
Co	72	59	1	He	9.640	9.640	0.61	214551	0.00	200	
Ni	72	60	1	He	11.101	11.101	2.33	57863	0.02	200	
copper	72	63	1	He	10.032	10.032	0.77	134240	0.01	200	
Zn	72	66	1	He	10.001	10.001	1.27	28412	0.04	200	
arsenic	72	75	1	He	9.622	9.622	0.88	21198	0.05	200	
selenium	72	78	3	H2	14.460	14.460	16.16	10328	0.14	200	
Sr	72	88	1	He	14.360	14.360	2.10	319934	0.00	500	
Mo	115	95	1	He	10.109	10.109	2.59	67241	0.02	200	
Ag	115	107	1	He	9.570	9.570	1.51	171222	0.01	200	
Cd	72	111	1	He	9.722	9.722	3.53	34594	0.03	200	
Sn	115	120	1	He	9.509	9.509	1.59	129882	0.01	200	
antimony	159	121	1	He	9.473	9.473	3.05	105807	0.01	200	
Ba	115	137	1	He	11.700	11.700	1.72	58140	0.02	1000	
Tl	159	205	2	no gas	1.721	1.721	14.11	74947	0.00	40	
[Pb]	209	206	2	no gas	9.305	9.305	15.01	134930	0.01	200	
[Pb]	209	207	2	no gas	9.438	9.438	12.95	119136	0.01	200	
Pb	209	208	2	no gas	8.980	8.980	13.12	532648	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2081897	10.01	1982866	104.99	70	120	
Sc	45	1	He	738850	1.06	767851	96.22	70	120	
Ge	72	1	He	301619	0.45	320058	94.24	70	125	
Ge	72	2	no gas	675666	9.49	673177	100.37	70	125	
Ge	72	3	H2	523888	15.25	821457	63.78	70	120	ISTD Failed
Y	89	1	He	2575318	0.82	2786775	92.41	70	120	
In	115	1	He	2806701	0.40	3045232	92.17	70	120	
In	115	2	no gas	4963154	14.33	4564130	108.74	70	120	
In	115	3	H2	3897286	16.44	5826290	66.89	70	120	ISTD Failed
Tb	159	1	He	4436607	1.83	4638687	95.64	70	120	
Tb	159	2	no gas	6324497	14.82	5623529	112.46	70	120	
Bi	209	2	no gas	3592477	12.98	3475006	103.38	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439758/1-A^1
Data File Name	195SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:05:40-05:00
Sample Type	Sample
Dilution	1
Comment	439758_2
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.081	0.081	102.49	127481	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-9.96	66	-0.01	200	
B	6	11	2	no gas	-4.707	-4.707	-4.46	42595	-0.01	400	
Na	72	23	1	He	11.725	11.725	24.98	115498	0.01	50000	
Mg	72	24	1	He	-2.140	-2.140	-6.95	1580	-0.14	50000	
Al	45	27	3	H2	1.710	1.710	8.40	36812	0.00	50000	
Si	45	28	3	H2	7.336	7.336	3.93	132737	0.01	2000	
K	72	39	1	He	2.921	2.921	105.25	415407	0.00	50000	
Ca	72	44	1	He	-5.258	-5.258	-6.65	1763	-0.30	25000	
Ti	72	49	1	He	0.085	0.085	78.22	218	0.04	200	
V	72	51	1	He	0.145	0.145	4.58	7748	0.00	200	
Cr	72	52	1	He	0.060	0.060	7.81	3124	0.00	200	
Mn	72	55	1	He	-0.141	-0.141	-11.34	2380	-0.01	2500	
Fe	72	56	3	H2	-3.782	-3.782	-1.67	140174	0.00	50000	
Co	72	59	1	He	-0.014	-0.014	-10.32	177	-0.01	200	
Ni	72	60	1	He	0.003	0.003	140.17	203	0.00	200	
copper	72	63	1	He	-0.027	-0.027	-3.90	466	-0.01	200	
Zn	72	66	1	He	0.089	0.089	100.46	1440	0.01	200	
arsenic	72	75	1	He	-0.037	-0.037	-44.43	561	-0.01	200	
selenium	72	78	3	H2	-0.106	-0.106	-11.08	118	-0.09	200	
Sr	72	88	1	He	0.007	0.007	19.77	707	0.00	500	
Mo	115	95	1	He	-0.247	-0.247	-13.23	850	-0.03	200	
Ag	115	107	1	He	-0.015	-0.015	-44.42	321	0.00	200	
Cd	72	111	1	He	-0.008	-0.008	-35.08	10	-0.08	200	
Sn	115	120	1	He	-0.106	-0.106	-11.16	3280	0.00	200	
antimony	159	121	1	He	-0.173	-0.173	-7.42	831	-0.02	200	
Ba	115	137	1	He	-0.012	-0.012	-67.29	82	-0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-14.21	67	0.00	40	
[Pb]	209	206	2	no gas	-0.064	-0.064	-10.34	5765	0.00	200	
[Pb]	209	207	2	no gas	-0.008	-0.008	-355.57	5228	0.00	200	
Pb	209	208	2	no gas	-0.019	-0.019	-100.47	23918	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1876776	1.39	1982866	94.65	70	120	
Sc	45	1	He	707170	0.44	767851	92.10	70	120	
Ge	72	1	He	295721	1.25	320058	92.40	70	125	
Ge	72	2	no gas	626273	0.32	673177	93.03	70	125	
Ge	72	3	H2	769678	0.45	821457	93.70	70	120	
Y	89	1	He	2574576	0.74	2786775	92.39	70	120	
In	115	1	He	2841562	1.16	3045232	93.31	70	120	
In	115	2	no gas	4518410	0.65	4564130	99.00	70	120	
In	115	3	H2	6255848	2.12	5826290	107.37	70	120	
Tb	159	1	He	4500545	1.37	4638687	97.02	70	120	
Tb	159	2	no gas	5717962	1.37	5623529	101.68	70	120	
Bi	209	2	no gas	3558462	1.11	3475006	102.40	60	120	

Sample Report

Sample Table

Sample Name	400-169321-A-2-A^1
Data File Name	196SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:09:37-05:00
Sample Type	Sample
Dilution	1
Comment	439758_18
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	69.671	69.671	0.52	1885312	0.00	200	
Be	6	9	2	no gas	0.018	0.018	15.86	243	0.01	200	
B	6	11	2	no gas	2786.456	2786.456	0.56	11810905	0.02	400	>LDR
Na	72	23	1	He	12564.557	12564.557	0.65	51459294	0.02	50000	
Mg	72	24	1	He	14819.072	14819.072	0.85	35391603	0.04	50000	
Al	45	27	3	H2	104.858	104.858	6.05	1287475	0.01	50000	
Si	45	28	3	H2	3184.558	3184.558	2.66	20181131	0.02	2000	>LDR
K	72	39	1	He	7727.442	7727.442	0.48	28174982	0.03	50000	
Ca	72	44	1	He	71608.609	71608.609	0.40	11612599	0.62	25000	>LDR
Ti	72	49	1	He	1.705	1.705	38.70	1267	0.13	200	
V	72	51	1	He	1.900	1.900	2.62	36517	0.01	200	
Cr	72	52	1	He	0.220	0.220	12.52	5971	0.00	200	
Mn	72	55	1	He	32.469	32.469	0.77	499357	0.01	2500	
Fe	72	56	3	H2	475.606	475.606	1.16	18324222	0.00	50000	
Co	72	59	1	He	0.247	0.247	3.77	5990	0.00	200	
Ni	72	60	1	He	2.116	2.116	7.88	11234	0.02	200	
copper	72	63	1	He	0.836	0.836	3.26	12008	0.01	200	
Zn	72	66	1	He	3.362	3.362	4.65	10410	0.03	200	
arsenic	72	75	1	He	3.139	3.139	1.38	7387	0.04	200	
selenium	72	78	3	H2	1.959	1.959	3.87	2276	0.09	200	
Sr	72	88	1	He	1716.579	1716.579	1.40	38346915	0.00	500	>LDR
Mo	115	95	1	He	135.668	135.668	1.32	869086	0.02	200	
Ag	115	107	1	He	-0.008	-0.008	-33.01	431	0.00	200	
Cd	72	111	1	He	0.094	0.094	14.73	373	0.03	200	
Sn	115	120	1	He	0.480	0.480	10.54	10921	0.00	200	
antimony	159	121	1	He	3.712	3.712	1.95	44072	0.01	200	
Ba	115	137	1	He	90.088	90.088	0.81	445054	0.02	1000	
Tl	159	205	2	no gas	0.218	0.218	1.29	8792	0.00	40	
[Pb]	209	206	2	no gas	0.017	0.017	49.57	6368	0.00	200	
[Pb]	209	207	2	no gas	0.054	0.054	22.14	5521	0.00	200	
Pb	209	208	2	no gas	0.046	0.046	41.88	25556	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1812541	0.99	1982866	91.41	70	120	
Sc	45	1	He	703030	1.00	767851	91.56	70	120	
Ge	72	1	He	302948	0.44	320058	94.65	70	125	
Ge	72	2	no gas	642531	0.62	673177	95.45	70	125	
Ge	72	3	H2	765835	1.06	821457	93.23	70	120	
Y	89	1	He	2504541	0.61	2786775	89.87	70	120	
In	115	1	He	2796189	0.42	3045232	91.82	70	120	
In	115	2	no gas	4331916	1.67	4564130	94.91	70	120	
In	115	3	H2	6157047	0.30	5826290	105.68	70	120	
Tb	159	1	He	4534747	0.35	4638687	97.76	70	120	
Tb	159	2	no gas	5690435	1.42	5623529	101.19	70	120	
Bi	209	2	no gas	3291222	0.35	3475006	94.71	60	120	

Sample Report

Sample Table

Sample Name	400-169321-A-3-A^1
Data File Name	197SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:13:31-05:00
Sample Type	Sample
Dilution	1
Comment	439758_19
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.643	0.643	8.82	142472	0.00	200	
Be	6	9	2	no gas	0.006	0.006	85.87	161	0.00	200	
B	6	11	2	no gas	46.095	46.095	3.00	264897	0.02	400	
Na	72	23	1	He	5346.739	5346.739	0.98	21825395	0.02	50000	
Mg	72	24	1	He	1451.734	1451.734	1.64	3455119	0.04	50000	
Al	45	27	3	H2	200.749	200.749	3.61	2627808	0.01	50000	
Si	45	28	3	H2	2537.468	2537.468	1.11	17240400	0.01	2000	>LDR
K	72	39	1	He	1710.906	1710.906	0.97	6527518	0.03	50000	
Ca	72	44	1	He	6136.521	6136.521	0.83	992443	0.62	25000	
Ti	72	49	1	He	6.253	6.253	6.89	4178	0.15	200	
V	72	51	1	He	1.084	1.084	2.83	23113	0.00	200	
Cr	72	52	1	He	0.493	0.493	27.47	10666	0.00	200	
Mn	72	55	1	He	31.663	31.663	0.92	484573	0.01	2500	
Fe	72	56	3	H2	309.535	309.535	0.79	12334090	0.00	50000	
Co	72	59	1	He	0.105	0.105	3.79	2826	0.00	200	
Ni	72	60	1	He	0.377	0.377	7.75	2150	0.02	200	
copper	72	63	1	He	0.754	0.754	1.20	10858	0.01	200	
Zn	72	66	1	He	1.436	1.436	5.11	5128	0.03	200	
arsenic	72	75	1	He	0.292	0.292	4.74	1275	0.02	200	
selenium	72	78	3	H2	-0.070	-0.070	-2.87	160	-0.04	200	
Sr	72	88	1	He	26.566	26.566	1.41	590925	0.00	500	
Mo	115	95	1	He	0.661	0.661	26.72	6782	0.01	200	
Ag	115	107	1	He	-0.017	-0.017	-6.87	287	-0.01	200	
Cd	72	111	1	He	0.000	0.000	3290.96	40	0.00	200	
Sn	115	120	1	He	-0.163	-0.163	-10.12	2537	-0.01	200	
antimony	159	121	1	He	-0.109	-0.109	-14.37	1552	-0.01	200	
Ba	115	137	1	He	16.742	16.742	3.61	84685	0.02	1000	
Tl	159	205	2	no gas	0.009	0.009	8.48	515	0.00	40	
[Pb]	209	206	2	no gas	0.172	0.172	37.80	9003	0.00	200	
[Pb]	209	207	2	no gas	0.204	0.204	10.97	7765	0.00	200	
Pb	209	208	2	no gas	0.174	0.174	7.56	34720	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1880054	1.21	1982866	94.81	70	120	
Sc	45	1	He	713051	0.31	767851	92.86	70	120	
Ge	72	1	He	301399	0.84	320058	94.17	70	125	
Ge	72	2	no gas	638284	0.36	673177	94.82	70	125	
Ge	72	3	H2	785556	0.38	821457	95.63	70	120	
Y	89	1	He	2539411	0.65	2786775	91.12	70	120	
In	115	1	He	2859786	1.24	3045232	93.91	70	120	
In	115	2	no gas	4590212	0.34	4564130	100.57	70	120	
In	115	3	H2	6366636	1.78	5826290	109.27	70	120	
Tb	159	1	He	4531653	1.84	4638687	97.69	70	120	
Tb	159	2	no gas	5801171	1.47	5623529	103.16	70	120	
Bi	209	2	no gas	3547617	0.86	3475006	102.09	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439757/1-B^5
Data File Name	198SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:17:28-05:00
Sample Type	Sample
Dilution	1
Comment	439758_20
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.089	0.089	82.36	128191	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-26.98	43	-0.02	200	
B	6	11	2	no gas	10.641	10.641	7.20	109996	0.01	400	
Na	72	23	1	He	0.798	0.798	117.07	73151	0.00	50000	
Mg	72	24	1	He	-0.577	-0.577	-36.91	5318	-0.01	50000	
Al	45	27	3	H2	1.300	1.300	6.32	32061	0.00	50000	
Si	45	28	3	H2	-0.149	-0.149	-266.09	83456	0.00	2000	
K	72	39	1	He	-5.937	-5.937	-10.03	391483	0.00	50000	
Ca	72	44	1	He	0.638	0.638	172.43	2747	0.02	25000	
Ti	72	49	1	He	-0.125	-0.125	-16.38	88	-0.14	200	
V	72	51	1	He	0.277	0.277	11.81	10034	0.00	200	
Cr	72	52	1	He	0.017	0.017	77.91	2440	0.00	200	
Mn	72	55	1	He	1.349	1.349	2.27	25001	0.01	2500	
Fe	72	56	3	H2	-5.377	-5.377	-0.86	80895	-0.01	50000	
Co	72	59	1	He	-0.017	-0.017	-2.71	102	-0.02	200	
Ni	72	60	1	He	0.000	0.000	3108.38	193	0.00	200	
copper	72	63	1	He	0.000	0.000	-2482.63	831	0.00	200	
Zn	72	66	1	He	0.010	0.010	578.70	1253	0.00	200	
arsenic	72	75	1	He	-0.049	-0.049	-20.23	548	-0.01	200	
selenium	72	78	3	H2	-0.182	-0.182	-2.03	39	-0.46	200	
Sr	72	88	1	He	0.036	0.036	12.51	1370	0.00	500	
Mo	115	95	1	He	-0.236	-0.236	-10.52	943	-0.02	200	
Ag	115	107	1	He	-0.020	-0.020	-6.29	233	-0.01	200	
Cd	72	111	1	He	-0.011	-0.011	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.171	-0.171	-13.48	2447	-0.01	200	
antimony	159	121	1	He	-0.212	-0.212	-2.76	404	-0.05	200	
Ba	115	137	1	He	-0.011	-0.011	-82.03	93	-0.01	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-19.19	60	0.00	40	
[Pb]	209	206	2	no gas	-0.028	-0.028	-43.58	6311	0.00	200	
[Pb]	209	207	2	no gas	-0.002	-0.002	-1002.02	5331	0.00	200	
Pb	209	208	2	no gas	-0.011	-0.011	-145.60	24529	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1884251	2.25	1982866	95.03	70	120	
Sc	45	1	He	723450	0.55	767851	94.22	70	120	
Ge	72	1	He	301265	0.39	320058	94.13	70	125	
Ge	72	2	no gas	641516	0.85	673177	95.30	70	125	
Ge	72	3	H2	784540	0.46	821457	95.51	70	120	
Y	89	1	He	2586229	1.90	2786775	92.80	70	120	
In	115	1	He	2891136	0.95	3045232	94.94	70	120	
In	115	2	no gas	4585467	1.49	4564130	100.47	70	120	
In	115	3	H2	6311698	0.15	5826290	108.33	70	120	
Tb	159	1	He	4548206	1.48	4638687	98.05	70	120	
Tb	159	2	no gas	5824699	2.05	5623529	103.58	70	120	
Bi	209	2	no gas	3583068	0.59	3475006	103.11	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-1-B^5
Data File Name	199SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:21:25-05:00
Sample Type	Sample
Dilution	1
Comment	439758_23
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.194	0.194	35.98	129136	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-34.77	64	-0.01	200	
B	6	11	2	no gas	12.700	12.700	3.83	117398	0.01	400	
Na	72	23	1	He	6001.677	6001.677	0.61	24566367	0.02	50000	
Mg	72	24	1	He	506.111	506.111	0.91	1212635	0.04	50000	
Al	45	27	3	H2	196.043	196.043	1.69	2534351	0.01	50000	
Si	45	28	3	H2	470.011	470.011	2.77	3220281	0.01	2000	
K	72	39	1	He	221.719	221.719	2.48	1208917	0.02	50000	
Ca	72	44	1	He	5397.787	5397.787	0.56	875962	0.62	25000	
Ti	72	49	1	He	4.806	4.806	8.32	3258	0.15	200	
V	72	51	1	He	0.986	0.986	2.09	21594	0.00	200	
Cr	72	52	1	He	0.798	0.798	1.25	15974	0.00	200	
Mn	72	55	1	He	9.420	9.420	0.28	147829	0.01	2500	
Fe	72	56	3	H2	1027.481	1027.481	0.57	39476862	0.00	50000	
Co	72	59	1	He	0.029	0.029	17.54	1122	0.00	200	
Ni	72	60	1	He	0.382	0.382	13.69	2184	0.02	200	
copper	72	63	1	He	0.734	0.734	3.51	10631	0.01	200	
Zn	72	66	1	He	0.999	0.999	7.81	3951	0.03	200	
arsenic	72	75	1	He	90.994	90.994	0.64	195400	0.05	200	
selenium	72	78	3	H2	0.131	0.131	29.48	368	0.04	200	
Sr	72	88	1	He	37.516	37.516	1.20	836816	0.00	500	
Mo	115	95	1	He	0.201	0.201	18.49	3751	0.01	200	
Ag	115	107	1	He	-0.021	-0.021	-8.46	208	-0.01	200	
Cd	72	111	1	He	-0.006	-0.006	-26.28	17	-0.04	200	
Sn	115	120	1	He	-0.123	-0.123	-15.22	3037	0.00	200	
antimony	159	121	1	He	0.519	0.519	2.41	8535	0.01	200	
Ba	115	137	1	He	2.402	2.402	1.77	12167	0.02	1000	
Tl	159	205	2	no gas	0.000	0.000	-405.59	151	0.00	40	
[Pb]	209	206	2	no gas	-0.008	-0.008	-233.32	6468	0.00	200	
[Pb]	209	207	2	no gas	0.018	0.018	57.99	5474	0.00	200	
Pb	209	208	2	no gas	0.015	0.015	39.11	25583	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1858165	1.84	1982866	93.71	70	120	
Sc	45	1	He	710224	0.54	767851	92.50	70	120	
Ge	72	1	He	302314	0.50	320058	94.46	70	125	
Ge	72	2	no gas	640435	1.01	673177	95.14	70	125	
Ge	72	3	H2	770111	0.07	821457	93.75	70	120	
Y	89	1	He	2580016	1.23	2786775	92.58	70	120	
In	115	1	He	2834127	0.53	3045232	93.07	70	120	
In	115	2	no gas	4542517	1.05	4564130	99.53	70	120	
In	115	3	H2	6322446	0.88	5826290	108.52	70	120	
Tb	159	1	He	4532147	0.53	4638687	97.70	70	120	
Tb	159	2	no gas	5776477	2.56	5623529	102.72	70	120	
Bi	209	2	no gas	3519201	0.57	3475006	101.27	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-2-B^5
Data File Name	200SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:25:21-05:00
Sample Type	Sample
Dilution	1
Comment	439758_25
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.257	0.257	16.84	130429	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-35.29	78	0.00	200	
B	6	11	2	no gas	9.471	9.471	6.83	103152	0.01	400	
Na	72	23	1	He	5824.901	5824.901	1.13	23521026	0.02	50000	
Mg	72	24	1	He	496.098	496.098	1.34	1172667	0.04	50000	
Al	45	27	3	H2	171.658	171.658	1.89	2234871	0.01	50000	
Si	45	28	3	H2	437.442	437.442	2.92	3022279	0.01	2000	
K	72	39	1	He	214.079	214.079	2.98	1165485	0.02	50000	
Ca	72	44	1	He	5265.795	5265.795	0.74	843041	0.62	25000	
Ti	72	49	1	He	4.523	4.523	3.91	3035	0.15	200	
V	72	51	1	He	0.851	0.851	3.64	19135	0.00	200	
Cr	72	52	1	He	1.073	1.073	5.61	20455	0.01	200	
Mn	72	55	1	He	13.004	13.004	0.96	199578	0.01	2500	
Fe	72	56	3	H2	1521.003	1521.003	1.41	58267207	0.00	50000	
Co	72	59	1	He	0.050	0.050	7.19	1580	0.00	200	
Ni	72	60	1	He	0.571	0.571	5.41	3120	0.02	200	
copper	72	63	1	He	0.981	0.981	2.28	13724	0.01	200	
Zn	72	66	1	He	0.977	0.977	18.44	3841	0.03	200	
arsenic	72	75	1	He	81.800	81.800	0.99	173345	0.05	200	
selenium	72	78	3	H2	0.114	0.114	2.95	350	0.03	200	
Sr	72	88	1	He	36.877	36.877	1.21	811441	0.00	500	
Mo	115	95	1	He	0.214	0.214	13.14	3827	0.01	200	
Ag	115	107	1	He	-0.021	-0.021	-4.49	216	-0.01	200	
Cd	72	111	1	He	-0.005	-0.005	-192.25	20	-0.03	200	
Sn	115	120	1	He	-0.098	-0.098	-16.48	3367	0.00	200	
antimony	159	121	1	He	0.449	0.449	8.21	7788	0.01	200	
Ba	115	137	1	He	2.342	2.342	4.88	11829	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-118.51	123	0.00	40	
[Pb]	209	206	2	no gas	0.015	0.015	81.75	6748	0.00	200	
[Pb]	209	207	2	no gas	0.028	0.028	115.68	5568	0.00	200	
Pb	209	208	2	no gas	0.034	0.034	28.69	26510	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1852945	1.08	1982866	93.45	70	120	
Sc	45	1	He	699250	1.17	767851	91.07	70	120	
Ge	72	1	He	298231	0.85	320058	93.18	70	125	
Ge	72	2	no gas	627649	0.65	673177	93.24	70	125	
Ge	72	3	H2	769727	1.26	821457	93.70	70	120	
Y	89	1	He	2563932	0.80	2786775	92.00	70	120	
In	115	1	He	2825670	0.84	3045232	92.79	70	120	
In	115	2	no gas	4436116	1.71	4564130	97.20	70	120	
In	115	3	H2	6207483	1.20	5826290	106.54	70	120	
Tb	159	1	He	4548190	0.37	4638687	98.05	70	120	
Tb	159	2	no gas	5705974	0.80	5623529	101.47	70	120	
Bi	209	2	no gas	3500361	0.98	3475006	100.73	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-3-B^5
Data File Name	201SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:29:19-05:00
Sample Type	Sample
Dilution	1
Comment	439758_27
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.372	0.372	16.49	131033	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-21.28	53	-0.01	200	
B	6	11	2	no gas	8.545	8.545	5.43	97431	0.01	400	
Na	72	23	1	He	5927.709	5927.709	1.40	23747968	0.02	50000	
Mg	72	24	1	He	495.932	495.932	2.23	1163123	0.04	50000	
Al	45	27	3	H2	183.225	183.225	1.94	2365187	0.01	50000	
Si	45	28	3	H2	448.612	448.612	3.05	3072235	0.01	2000	
K	72	39	1	He	209.411	209.411	0.80	1140090	0.02	50000	
Ca	72	44	1	He	5300.550	5300.550	0.63	841956	0.63	25000	
Ti	72	49	1	He	5.752	5.752	8.56	3785	0.15	200	
V	72	51	1	He	0.820	0.820	1.12	18489	0.00	200	
Cr	72	52	1	He	1.324	1.324	4.46	24560	0.01	200	
Mn	72	55	1	He	15.196	15.196	0.84	230645	0.01	2500	
Fe	72	56	3	H2	1905.354	1905.354	0.98	72945332	0.00	50000	
Co	72	59	1	He	0.062	0.062	3.29	1818	0.00	200	
Ni	72	60	1	He	0.663	0.663	6.69	3570	0.02	200	
copper	72	63	1	He	1.190	1.190	4.22	16347	0.01	200	
Zn	72	66	1	He	0.957	0.957	11.45	3754	0.03	200	
arsenic	72	75	1	He	83.941	83.941	0.84	176478	0.05	200	
selenium	72	78	3	H2	0.139	0.139	38.47	376	0.04	200	
Sr	72	88	1	He	36.870	36.870	0.50	804976	0.00	500	
Mo	115	95	1	He	0.207	0.207	15.58	3797	0.01	200	
Ag	115	107	1	He	-0.021	-0.021	-6.32	202	-0.01	200	
Cd	72	111	1	He	-0.004	-0.004	-216.09	23	-0.02	200	
Sn	115	120	1	He	-0.095	-0.095	-4.50	3417	0.00	200	
antimony	159	121	1	He	0.476	0.476	5.99	8056	0.01	200	
Ba	115	137	1	He	2.290	2.290	3.92	11626	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-34.18	112	0.00	40	
[Pb]	209	206	2	no gas	0.004	0.004	491.01	6675	0.00	200	
[Pb]	209	207	2	no gas	0.021	0.021	8.99	5555	0.00	200	
Pb	209	208	2	no gas	0.018	0.018	102.36	25903	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1820004	1.46	1982866	91.79	70	120	
Sc	45	1	He	702667	0.59	767851	91.51	70	120	
Ge	72	1	He	295894	0.39	320058	92.45	70	125	
Ge	72	2	no gas	628078	1.50	673177	93.30	70	125	
Ge	72	3	H2	769931	0.85	821457	93.73	70	120	
Y	89	1	He	2539960	0.18	2786775	91.14	70	120	
In	115	1	He	2838867	1.24	3045232	93.22	70	120	
In	115	2	no gas	4510195	0.55	4564130	98.82	70	120	
In	115	3	H2	6172436	1.57	5826290	105.94	70	120	
Tb	159	1	He	4531201	1.35	4638687	97.68	70	120	
Tb	159	2	no gas	5689021	0.97	5623529	101.16	70	120	
Bi	209	2	no gas	3542937	0.56	3475006	101.95	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-4-B^5
Data File Name	202SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:33:16-05:00
Sample Type	Sample
Dilution	1
Comment	439758_29
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.338	0.338	4.12	131742	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-7.85	49	-0.02	200	
B	6	11	2	no gas	6.927	6.927	7.58	91656	0.01	400	
Na	72	23	1	He	5993.481	5993.481	0.25	24196587	0.02	50000	
Mg	72	24	1	He	499.884	499.884	1.04	1181404	0.04	50000	
Al	45	27	3	H2	167.653	167.653	1.92	2161100	0.01	50000	
Si	45	28	3	H2	430.868	430.868	1.14	2948140	0.01	2000	
K	72	39	1	He	214.493	214.493	1.35	1166847	0.02	50000	
Ca	72	44	1	He	5317.687	5317.687	0.71	851198	0.62	25000	
Ti	72	49	1	He	4.401	4.401	14.12	2956	0.15	200	
V	72	51	1	He	0.771	0.771	3.16	17847	0.00	200	
Cr	72	52	1	He	1.444	1.444	0.88	26800	0.01	200	
Mn	72	55	1	He	17.963	17.963	1.17	273930	0.01	2500	
Fe	72	56	3	H2	2194.172	2194.172	0.82	83855259	0.00	50000	
Co	72	59	1	He	0.080	0.080	1.55	2246	0.00	200	
Ni	72	60	1	He	0.815	0.815	5.50	4377	0.02	200	
copper	72	63	1	He	1.320	1.320	1.59	18178	0.01	200	
Zn	72	66	1	He	1.029	1.029	11.71	3977	0.03	200	
arsenic	72	75	1	He	80.527	80.527	0.50	170630	0.05	200	
selenium	72	78	3	H2	0.106	0.106	20.56	341	0.03	200	
Sr	72	88	1	He	37.086	37.086	0.92	815915	0.00	500	
Mo	115	95	1	He	0.249	0.249	6.50	4077	0.01	200	
Ag	115	107	1	He	-0.022	-0.022	-5.08	201	-0.01	200	
Cd	72	111	1	He	0.000	0.000	1055.19	40	0.00	200	
Sn	115	120	1	He	-0.084	-0.084	-36.73	3574	0.00	200	
antimony	159	121	1	He	0.456	0.456	2.13	7770	0.01	200	
Ba	115	137	1	He	2.225	2.225	2.18	11326	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-24.27	93	0.00	40	
[Pb]	209	206	2	no gas	0.016	0.016	161.23	6758	0.00	200	
[Pb]	209	207	2	no gas	0.036	0.036	186.17	5668	0.00	200	
Pb	209	208	2	no gas	0.020	0.020	106.85	25719	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1842163	1.09	1982866	92.90	70	120	
Sc	45	1	He	705359	0.92	767851	91.86	70	120	
Ge	72	1	He	298174	0.38	320058	93.16	70	125	
Ge	72	2	no gas	634124	0.68	673177	94.20	70	125	
Ge	72	3	H2	768990	0.37	821457	93.61	70	120	
Y	89	1	He	2507596	0.96	2786775	89.98	70	120	
In	115	1	He	2844922	0.36	3045232	93.42	70	120	
In	115	2	no gas	4486521	1.76	4564130	98.30	70	120	
In	115	3	H2	6145442	0.33	5826290	105.48	70	120	
Tb	159	1	He	4493288	0.57	4638687	96.87	70	120	
Tb	159	2	no gas	5723316	1.07	5623529	101.77	70	120	
Bi	209	2	no gas	3500955	0.30	3475006	100.75	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	204_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:41:19-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.020	50.020	2.02	1453833	0.00	50	
Be	6	9	2	no gas	47.549	47.549	1.03	387172	0.01	50	
B	6	11	2	no gas	94.327	94.327	2.56	481006	0.02	100	
Na	72	23	1	He	4708.618	4708.618	0.82	19602621	0.02	5000	
Mg	72	24	1	He	4701.550	4701.550	0.71	11391774	0.04	5000	
Al	45	27	3	H2	484.189	484.189	0.10	6263193	0.01	500	
K	72	39	1	He	4689.922	4689.922	0.73	17473132	0.03	5000	
Ca	72	44	1	He	4605.179	4605.179	0.68	760104	0.61	5000	
Ti	72	49	1	He	47.279	47.279	2.76	31072	0.15	50	
V	72	51	1	He	45.425	45.425	1.23	756889	0.01	50	
Cr	72	52	1	He	46.046	46.046	0.80	813150	0.01	50	
Mn	72	55	1	He	476.752	476.752	0.21	7373233	0.01	500	
Fe	72	56	3	H2	4901.565	4901.565	1.26	187069377	0.00	5000	
Co	72	59	1	He	45.811	45.811	1.23	1036645	0.00	50	
Ni	72	60	1	He	47.003	47.003	1.15	248995	0.02	50	
copper	72	63	1	He	46.174	46.174	0.73	626277	0.01	50	
dwCu63	72	63	2	no gas	48.113	48.113	0.97	927470	0.01	50	
Zn	72	66	1	He	47.412	47.412	1.75	133650	0.04	50	
arsenic	72	75	1	He	45.286	45.286	0.86	99477	0.05	50	
dwAs75	72	75	2	no gas	47.497	47.497	1.12	203917	0.02	50	
selenium	72	78	3	H2	50.595	50.595	1.81	53165	0.10	50	
Sr	72	88	1	He	47.933	47.933	0.97	1086824	0.00	50	
Mo	115	95	1	He	47.416	47.416	1.00	318666	0.01	50	
Ag	115	107	1	He	45.332	45.332	0.57	846685	0.01	50	
Cd	72	111	1	He	47.890	47.890	0.25	173471	0.03	50	
Sn	115	120	1	He	48.081	48.081	0.47	665793	0.01	50	
antimony	159	121	1	He	49.009	49.009	0.52	560210	0.01	50	
dwSb121	159	121	2	no gas	53.600	53.600	0.82	800934	0.01	50	
Ba	115	137	1	He	45.813	45.813	0.29	237903	0.02	50	
Tl	159	205	2	no gas	10.114	10.114	1.55	401861	0.00	10	
[Pb]	209	206	2	no gas	50.276	50.276	1.26	680032	0.01	50	
[Pb]	209	207	2	no gas	49.805	49.805	1.43	588161	0.01	50	
Pb	209	208	2	no gas	50.509	50.509	1.66	2794865	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1896520	0.83	1982866	95.65	70	120	
Sc	45	1	He	749599	1.36	767851	97.62	70	120	
Ge	72	1	He	307333	0.90	320058	96.02	70	125	
Ge	72	2	no gas	626622	0.80	673177	93.08	70	125	
Ge	72	3	H2	769336	1.51	821457	93.66	70	120	
Y	89	1	He	2623859	1.71	2786775	94.15	70	120	
In	115	1	He	2939103	0.56	3045232	96.51	70	120	
In	115	2	no gas	4381404	1.41	4564130	96.00	70	120	
In	115	3	H2	6218101	0.70	5826290	106.72	70	120	
Tb	159	1	He	4655136	1.06	4638687	100.35	70	120	
Tb	159	2	no gas	5702340	0.21	5623529	101.40	70	120	
Bi	209	2	no gas	3450832	1.16	3475006	99.30	60	120	

Sample Table

Sample Name	CCB
Data File Name	206_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:49:08-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.030	0.030	720.30	128787	0.00	0.5	
Be	6	9	2	no gas	-0.006	-0.006	-40.19	77	-0.01	0.5	
B	6	11	2	no gas	-1.685	-1.685	-31.94	52499	0.00	5	
Na	72	23	1	He	-2.089	-2.089	-17.64	50559	0.00	100	
Mg	72	24	1	He	-1.738	-1.738	-7.58	2494	-0.07	50	
Al	45	27	3	H2	0.159	0.159	16.07	15547	0.00	50	
K	72	39	1	He	-2.895	-2.895	-49.06	374610	0.00	50	
Ca	72	44	1	He	-1.173	-1.173	-66.90	1974	-0.06	50	
Ti	72	49	1	He	-0.133	-0.133	-11.95	108	-0.12	0.5	
V	72	51	1	He	0.030	0.030	26.69	5498	0.00	0.5	
Cr	72	52	1	He	-0.001	-0.001	-254.47	2097	0.00	0.5	
Mn	72	55	1	He	-0.194	-0.194	-10.16	1760	-0.01	2	
Fe	72	56	3	H2	-5.435	-5.435	-1.06	112175	0.00	25	
Co	72	59	1	He	-0.017	-0.017	-5.74	126	-0.01	0.5	
Ni	72	60	1	He	-0.015	-0.015	-52.39	167	-0.01	1.5	
copper	72	63	1	He	-0.024	-0.024	-10.75	479	-0.01	0.5	
dwCu63	72	63	2	no gas	-0.014	-0.014	-25.78	760	0.00	0.5	
Zn	72	66	1	He	-0.045	-0.045	-97.68	950	0.00	4	
arsenic	72	75	1	He	-0.061	-0.061	-27.30	518	-0.01	0.25	
dwAs75	72	75	2	no gas	-0.378	-0.378	-102.93	-451	0.08	5	
selenium	72	78	3	H2	-0.096	-0.096	-18.35	129	-0.07	0.25	
dwSe82	72	82	2	no gas	-0.272	-0.272	-28.90	223	-0.12	5	
Sr	72	88	1	He	-0.011	-0.011	-15.77	387	0.00	0.5	
Mo	115	95	1	He	-0.223	-0.223	-16.43	713	-0.03	1	
Ag	115	107	1	He	-0.019	-0.019	-9.57	228	-0.01	0.05	
Cd	72	111	1	He	-0.017	-0.017	-0.11	10	-0.17	0.25	
Sn	115	120	1	He	-0.106	-0.106	-22.55	3310	0.00	0.5	
antimony	159	121	1	He	-0.145	-0.145	-12.72	1157	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.277	-0.277	-3.33	2647	-0.01	5	
Ba	115	137	1	He	-0.021	-0.021	-25.35	102	-0.02	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-12.66	47	-0.01	0.1	
[Pb]	209	206	2	no gas	-0.041	-0.041	-50.72	5911	0.00	0.25	
[Pb]	209	207	2	no gas	0.004	0.004	780.32	5118	0.00	0.25	
Pb	209	208	2	no gas	-0.015	-0.015	-43.15	23922	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1910669	2.61	1982866	96.36	70	120	
Sc	45	1	He	704094	0.65	767851	91.70	70	120	
Ge	72	1	He	297191	0.66	320058	92.86	70	125	
Ge	72	2	no gas	622034	0.77	673177	92.40	70	125	
Ge	72	3	H2	769872	0.76	821457	93.72	70	120	
Y	89	1	He	2587792	0.81	2786775	92.86	70	120	
In	115	1	He	2868565	0.53	3045232	94.20	70	120	
In	115	2	no gas	4441113	1.20	4564130	97.30	70	120	
In	115	3	H2	6268108	0.63	5826290	107.58	70	120	
Tb	159	1	He	4549474	0.28	4638687	98.08	70	120	
Tb	159	2	no gas	5756707	1.01	5623529	102.37	70	120	
Bi	209	2	no gas	3537712	0.84	3475006	101.80	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-5-B^5
Data File Name	207SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:53:08-05:00
Sample Type	Sample
Dilution	1
Comment	439758_31
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.215	0.215	111.67	131089	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-18.18	76	-0.01	200	
B	6	11	2	no gas	3.586	3.586	9.24	74464	0.00	400	
Na	72	23	1	He	5949.050	5949.050	1.78	24158710	0.02	50000	
Mg	72	24	1	He	505.118	505.118	0.71	1201266	0.04	50000	
Al	45	27	3	H2	187.499	187.499	6.49	2424364	0.01	50000	
Si	45	28	3	H2	458.811	458.811	1.13	3148963	0.01	2000	
K	72	39	1	He	222.863	222.863	2.49	1181478	0.02	50000	
Ca	72	44	1	He	5399.217	5399.217	0.38	869240	0.62	25000	
Ti	72	49	1	He	5.010	5.010	5.26	3392	0.15	200	
V	72	51	1	He	0.824	0.824	1.01	18356	0.00	200	
Cr	72	52	1	He	2.149	2.149	4.07	39098	0.01	200	
Mn	72	55	1	He	24.462	24.462	0.33	373943	0.01	2500	
Fe	72	56	3	H2	3373.349	3373.349	0.81	129228291	0.00	50000	
Co	72	59	1	He	0.118	0.118	3.52	3110	0.00	200	
Ni	72	60	1	He	1.180	1.180	4.09	6348	0.02	200	
copper	72	63	1	He	1.926	1.926	2.85	26285	0.01	200	
Zn	72	66	1	He	1.073	1.073	2.96	3981	0.03	200	
arsenic	72	75	1	He	84.605	84.605	1.19	180377	0.05	200	
selenium	72	78	3	H2	0.175	0.175	9.04	415	0.04	200	
Sr	72	88	1	He	37.494	37.494	1.04	830180	0.00	500	
Mo	115	95	1	He	0.458	0.458	5.80	5048	0.01	200	
Ag	115	107	1	He	-0.018	-0.018	-13.63	240	-0.01	200	
Cd	72	111	1	He	-0.009	-0.009	-95.77	40	-0.02	200	
Sn	115	120	1	He	0.010	0.010	87.34	4748	0.00	200	
antimony	159	121	1	He	0.489	0.489	7.60	8094	0.01	200	
Ba	115	137	1	He	2.401	2.401	2.72	12062	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-50.76	131	0.00	40	
[Pb]	209	206	2	no gas	0.006	0.006	467.17	6472	0.00	200	
[Pb]	209	207	2	no gas	0.054	0.054	57.16	5641	0.00	200	
Pb	209	208	2	no gas	0.023	0.023	73.03	25746	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1872923	2.50	1982866	94.46	70	120	
Sc	45	1	He	704334	0.80	767851	91.73	70	120	
Ge	72	1	He	300073	0.65	320058	93.76	70	125	
Ge	72	2	no gas	634120	0.85	673177	94.20	70	125	
Ge	72	3	H2	771549	0.77	821457	93.92	70	120	
Y	89	1	He	2561422	0.54	2786775	91.91	70	120	
In	115	1	He	2797050	0.53	3045232	91.85	70	120	
In	115	2	no gas	4450416	1.05	4564130	97.51	70	120	
In	115	3	H2	6303901	1.73	5826290	108.20	70	120	
Tb	159	1	He	4470976	1.76	4638687	96.38	70	120	
Tb	159	2	no gas	5757851	0.33	5623529	102.39	70	120	
Bi	209	2	no gas	3495643	0.51	3475006	100.59	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-6-B^5
Data File Name	208SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T01:57:07-05:00
Sample Type	Sample
Dilution	1
Comment	439758_33
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.157	0.157	52.04	131552	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-27.81	64	-0.01	200	
B	6	11	2	no gas	3.039	3.039	15.25	73099	0.00	400	
Na	72	23	1	He	5886.421	5886.421	2.68	23712114	0.02	50000	
Mg	72	24	1	He	501.147	501.147	2.17	1182229	0.04	50000	
Al	45	27	3	H2	172.265	172.265	2.33	2237794	0.01	50000	
Si	45	28	3	H2	429.648	429.648	1.44	2965284	0.01	2000	
K	72	39	1	He	218.195	218.195	1.71	1155498	0.02	50000	
Ca	72	44	1	He	5332.058	5332.058	1.27	851496	0.63	25000	
Ti	72	49	1	He	5.028	5.028	15.91	3375	0.15	200	
V	72	51	1	He	0.746	0.746	5.34	16958	0.00	200	
Cr	72	52	1	He	2.700	2.700	4.73	48178	0.01	200	
Mn	72	55	1	He	32.424	32.424	0.97	490111	0.01	2500	
Fe	72	56	3	H2	4249.849	4249.849	0.98	162765264	0.00	50000	
Co	72	59	1	He	0.157	0.157	3.77	3926	0.00	200	
Ni	72	60	1	He	1.501	1.501	6.67	7942	0.02	200	
copper	72	63	1	He	2.738	2.738	3.18	36724	0.01	200	
Zn	72	66	1	He	1.287	1.287	10.65	4524	0.03	200	
arsenic	72	75	1	He	78.207	78.207	0.14	165444	0.05	200	
selenium	72	78	3	H2	0.133	0.133	2.36	371	0.04	200	
Sr	72	88	1	He	37.110	37.110	0.82	815068	0.00	500	
Mo	115	95	1	He	0.490	0.490	3.27	5351	0.01	200	
Ag	115	107	1	He	-0.018	-0.018	-13.71	237	-0.01	200	
Cd	72	111	1	He	-0.012	-0.012	-26.52	27	-0.05	200	
Sn	115	120	1	He	0.029	0.029	67.43	5094	0.00	200	
antimony	159	121	1	He	0.414	0.414	6.34	7270	0.01	200	
Ba	115	137	1	He	2.277	2.277	2.26	11669	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-25.16	124	0.00	40	
[Pb]	209	206	2	no gas	0.034	0.034	55.39	6878	0.00	200	
[Pb]	209	207	2	no gas	0.051	0.051	40.12	5628	0.00	200	
Pb	209	208	2	no gas	0.033	0.033	29.19	26373	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1900146	1.31	1982866	95.83	70	120	
Sc	45	1	He	708734	0.89	767851	92.30	70	120	
Ge	72	1	He	297643	0.27	320058	93.00	70	125	
Ge	72	2	no gas	631829	1.38	673177	93.86	70	125	
Ge	72	3	H2	771731	1.02	821457	93.95	70	120	
Y	89	1	He	2536844	0.89	2786775	91.03	70	120	
In	115	1	He	2850689	0.73	3045232	93.61	70	120	
In	115	2	no gas	4441465	0.69	4564130	97.31	70	120	
In	115	3	H2	6314009	1.10	5826290	108.37	70	120	
Tb	159	1	He	4472884	1.35	4638687	96.43	70	120	
Tb	159	2	no gas	5683791	1.38	5623529	101.07	70	120	
Bi	209	2	no gas	3508847	1.73	3475006	100.97	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-7-B^5
Data File Name	209SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:01:04-05:00
Sample Type	Sample
Dilution	1
Comment	439758_35
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.160	0.160	25.93	131311	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-52.91	69	-0.01	200	
B	6	11	2	no gas	3.006	3.006	6.46	72784	0.00	400	
Na	72	23	1	He	5897.769	5897.769	0.94	23806751	0.02	50000	
Mg	72	24	1	He	488.897	488.897	1.49	1155820	0.04	50000	
Al	45	27	3	H2	203.345	203.345	1.05	2619102	0.01	50000	
Si	45	28	3	H2	466.672	466.672	3.53	3189139	0.01	2000	
K	72	39	1	He	222.689	222.689	0.36	1173719	0.02	50000	
Ca	72	44	1	He	5294.188	5294.188	0.92	847173	0.62	25000	
Ti	72	49	1	He	6.477	6.477	9.10	4302	0.15	200	
V	72	51	1	He	0.977	0.977	2.59	20703	0.00	200	
Cr	72	52	1	He	3.936	3.936	1.01	69417	0.01	200	
Mn	72	55	1	He	38.594	38.594	0.69	583670	0.01	2500	
Fe	72	56	3	H2	6386.155	6386.155	1.18	244560583	0.00	50000	
Co	72	59	1	He	0.191	0.191	3.28	4686	0.00	200	
Ni	72	60	1	He	1.850	1.850	2.10	9750	0.02	200	
copper	72	63	1	He	3.469	3.469	0.71	46418	0.01	200	
Zn	72	66	1	He	1.543	1.543	2.00	5221	0.03	200	
arsenic	72	75	1	He	95.627	95.627	0.53	202554	0.05	200	
selenium	72	78	3	H2	0.136	0.136	29.94	374	0.04	200	
Sr	72	88	1	He	37.310	37.310	0.84	821087	0.00	500	
Mo	115	95	1	He	0.868	0.868	2.72	7835	0.01	200	
Ag	115	107	1	He	-0.016	-0.016	-6.81	277	-0.01	200	
Cd	72	111	1	He	-0.012	-0.012	-24.76	30	-0.04	200	
Sn	115	120	1	He	0.135	0.135	5.78	6521	0.00	200	
antimony	159	121	1	He	0.541	0.541	3.80	8771	0.01	200	
Ba	115	137	1	He	2.357	2.357	2.46	12100	0.02	1000	
Tl	159	205	2	no gas	0.000	0.000	-230.40	152	0.00	40	
[Pb]	209	206	2	no gas	0.037	0.037	16.54	6862	0.00	200	
[Pb]	209	207	2	no gas	0.038	0.038	27.72	5424	0.00	200	
Pb	209	208	2	no gas	0.020	0.020	53.09	25412	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1895428	1.71	1982866	95.59	70	120	
Sc	45	1	He	714286	1.04	767851	93.02	70	120	
Ge	72	1	He	298238	0.25	320058	93.18	70	125	
Ge	72	2	no gas	632224	0.84	673177	93.92	70	125	
Ge	72	3	H2	772152	0.65	821457	94.00	70	120	
Y	89	1	He	2569207	0.62	2786775	92.19	70	120	
In	115	1	He	2857267	0.90	3045232	93.83	70	120	
In	115	2	no gas	4439340	1.39	4564130	97.27	70	120	
In	115	3	H2	6293031	0.64	5826290	108.01	70	120	
Tb	159	1	He	4523611	0.62	4638687	97.52	70	120	
Tb	159	2	no gas	5724054	0.95	5623529	101.79	70	120	
Bi	209	2	no gas	3477392	0.29	3475006	100.07	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-8-B^5
Data File Name	210SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:05:04-05:00
Sample Type	Sample
Dilution	1
Comment	439758_37
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.211	0.211	52.25	133357	0.00	200	
Be	6	9	2	no gas	-0.010	-0.010	-11.37	42	-0.02	200	
B	6	11	2	no gas	2.301	2.301	24.58	70047	0.00	400	
Na	72	23	1	He	6004.181	6004.181	1.16	24256570	0.02	50000	
Mg	72	24	1	He	503.234	503.234	0.98	1190638	0.04	50000	
Al	45	27	3	H2	201.779	201.779	3.57	2627706	0.01	50000	
Si	45	28	3	H2	469.967	469.967	3.72	3247080	0.01	2000	
K	72	39	1	He	225.868	225.868	2.00	1186015	0.02	50000	
Ca	72	44	1	He	5366.783	5366.783	0.03	859577	0.62	25000	
Ti	72	49	1	He	6.105	6.105	7.59	4069	0.15	200	
V	72	51	1	He	1.099	1.099	2.84	22682	0.00	200	
Cr	72	52	1	He	4.870	4.870	2.32	85445	0.01	200	
Mn	72	55	1	He	47.020	47.020	1.21	710700	0.01	2500	
Fe	72	56	3	H2	7899.564	7899.564	0.62	305116835	0.00	50000	
Co	72	59	1	He	0.241	0.241	2.39	5796	0.00	200	
Ni	72	60	1	He	2.440	2.440	4.80	12792	0.02	200	
copper	72	63	1	He	4.327	4.327	1.52	57746	0.01	200	
Zn	72	66	1	He	1.470	1.470	6.69	5028	0.03	200	
arsenic	72	75	1	He	98.117	98.117	0.91	208002	0.05	200	
selenium	72	78	3	H2	0.125	0.125	15.39	366	0.03	200	
Sr	72	88	1	He	37.587	37.587	0.35	827952	0.00	500	
Mo	115	95	1	He	0.938	0.938	1.51	8352	0.01	200	
Ag	115	107	1	He	-0.019	-0.019	-8.29	222	-0.01	200	
Cd	72	111	1	He	-0.013	-0.013	-11.84	23	-0.06	200	
Sn	115	120	1	He	0.217	0.217	13.81	7685	0.00	200	
antimony	159	121	1	He	0.534	0.534	2.41	8714	0.01	200	
Ba	115	137	1	He	2.308	2.308	3.85	11933	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-192.53	143	0.00	40	
[Pb]	209	206	2	no gas	0.023	0.023	170.77	6735	0.00	200	
[Pb]	209	207	2	no gas	0.040	0.040	41.88	5501	0.00	200	
Pb	209	208	2	no gas	0.027	0.027	36.35	26063	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1906129	2.02	1982866	96.13	70	120	
Sc	45	1	He	708246	0.58	767851	92.24	70	120	
Ge	72	1	He	298521	0.73	320058	93.27	70	125	
Ge	72	2	no gas	630834	0.65	673177	93.71	70	125	
Ge	72	3	H2	778988	0.58	821457	94.83	70	120	
Y	89	1	He	2567710	0.94	2786775	92.14	70	120	
In	115	1	He	2877622	0.84	3045232	94.50	70	120	
In	115	2	no gas	4418935	1.04	4564130	96.82	70	120	
In	115	3	H2	6375778	1.36	5826290	109.43	70	120	
Tb	159	1	He	4534793	0.91	4638687	97.76	70	120	
Tb	159	2	no gas	5811364	0.93	5623529	103.34	70	120	
Bi	209	2	no gas	3507271	1.74	3475006	100.93	60	120	

Sample Table

Sample Name	CCB
Data File Name	260_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T05:22:16-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.155	-0.155	-109.64	118565	0.00	0.5	
Be	6	9	2	no gas	-0.017	-0.017	-18.53	64	-0.03	0.5	
B	6	11	2	no gas	-0.530	-0.530	-67.84	22254	0.00	5	
Na	72	23	1	He	-2.624	-2.624	-17.57	46145	-0.01	100	
Mg	72	24	1	He	-2.182	-2.182	-2.82	2540	-0.09	50	
Al	45	27	3	H2	0.044	0.044	283.22	16147	0.00	50	
K	72	39	1	He	-2.903	-2.903	-71.82	360321	0.00	50	
Ca	72	44	1	He	-2.059	-2.059	-68.93	2030	-0.10	50	
Ti	72	49	1	He	-0.155	-0.155	-38.59	128	-0.12	0.5	
V	72	51	1	He	0.007	0.007	92.43	4656	0.00	0.5	
Cr	72	52	1	He	-0.030	-0.030	-11.91	1733	0.00	0.5	
Mn	72	55	1	He	-0.223	-0.223	-9.67	2064	-0.01	2	
Fe	72	56	3	H2	-10.373	-10.373	-2.05	143111	-0.01	25	
Co	72	59	1	He	-0.019	-0.019	-8.02	154	-0.01	0.5	
Ni	72	60	1	He	-0.027	-0.027	-20.32	130	-0.02	1.5	
copper	72	63	1	He	-0.024	-0.024	-10.83	489	0.00	0.5	
dwCu63	72	63	2	no gas	-0.024	-0.024	-30.00	757	0.00	0.5	
Zn	72	66	1	He	-0.042	-0.042	-61.44	1010	0.00	4	
arsenic	72	75	1	He	-0.107	-0.107	-17.43	423	-0.03	0.25	
dwAs75	72	75	2	no gas	0.005	0.005	4456.78	-33	-0.01	5	
selenium	72	78	3	H2	-0.031	-0.031	-26.17	180	-0.02	0.25	
dwSe82	72	82	2	no gas	-0.626	-0.626	-0.84	209	-0.30	5	
Sr	72	88	1	He	-0.015	-0.015	-28.45	413	0.00	0.5	
Mo	115	95	1	He	-0.366	-0.366	-7.54	683	-0.05	1	
Ag	115	107	1	He	-0.023	-0.023	-7.85	289	-0.01	0.05	
Cd	72	111	1	He	-0.015	-0.015	-19.56	10	-0.15	0.25	
Sn	115	120	1	He	-0.063	-0.063	-54.34	3815	0.00	0.5	
antimony	159	121	1	He	-0.119	-0.119	-13.70	1410	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.194	-0.194	-6.52	3649	-0.01	5	
Ba	115	137	1	He	-0.031	-0.031	-13.33	56	-0.06	0.5	
Tl	159	205	2	no gas	-0.009	-0.009	-10.02	117	-0.01	0.1	
[Pb]	209	206	2	no gas	-0.001	-0.001	-1461.02	5805	0.00	0.25	
[Pb]	209	207	2	no gas	-0.005	-0.005	-161.36	4868	0.00	0.25	
Pb	209	208	2	no gas	-0.005	-0.005	-218.99	22824	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1814172	0.98	1982866	91.49	70	120	
Sc	45	1	He	684513	0.65	767851	89.15	70	120	
Ge	72	1	He	285622	1.57	320058	89.24	70	125	
Ge	72	2	no gas	581254	0.34	673177	86.34	70	125	
Ge	72	3	H2	699750	0.40	821457	85.18	70	120	
Y	89	1	He	2475097	0.31	2786775	88.82	70	120	
In	115	1	He	2815541	0.75	3045232	92.46	70	120	
In	115	2	no gas	4180993	0.75	4564130	91.61	70	120	
In	115	3	H2	5909511	1.37	5826290	101.43	70	120	
Tb	159	1	He	4434627	0.12	4638687	95.60	70	120	
Tb	159	2	no gas	5392665	0.80	5623529	95.89	70	120	
Bi	209	2	no gas	3369265	0.99	3475006	96.96	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439757/1-B^1
Data File Name	211SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:09:00-05:00
Sample Type	Sample
Dilution	1
Comment	439758_21
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.022	0.022	844.86	126807	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-47.16	73	-0.01	200	
B	6	11	2	no gas	-4.077	-4.077	-13.30	41272	-0.01	400	
Na	72	23	1	He	10.941	10.941	7.76	102389	0.01	50000	
Mg	72	24	1	He	-1.989	-1.989	-3.28	1900	-0.10	50000	
Al	45	27	3	H2	1.740	1.740	4.72	36189	0.00	50000	
Si	45	28	3	H2	7.625	7.625	2.46	134762	0.01	2000	
K	72	39	1	He	1.418	1.418	193.45	388091	0.00	50000	
Ca	72	44	1	He	-0.865	-0.865	-117.51	2014	-0.04	25000	
Ti	72	49	1	He	0.157	0.157	31.30	290	0.05	200	
V	72	51	1	He	0.004	0.004	550.96	5054	0.00	200	
Cr	72	52	1	He	0.065	0.065	33.71	3210	0.00	200	
Mn	72	55	1	He	7.267	7.267	1.22	112806	0.01	2500	
Fe	72	56	3	H2	8.103	8.103	3.73	636882	0.00	50000	
Co	72	59	1	He	-0.016	-0.016	-6.10	132	-0.01	200	
Ni	72	60	1	He	0.035	0.035	58.89	420	0.01	200	
copper	72	63	1	He	0.101	0.101	6.09	2110	0.00	200	
Zn	72	66	1	He	0.087	0.087	47.73	1297	0.01	200	
arsenic	72	75	1	He	0.174	0.174	43.31	1007	0.02	200	
selenium	72	78	3	H2	-0.183	-0.183	-0.36	38	-0.49	200	
Sr	72	88	1	He	0.016	0.016	27.12	960	0.00	500	
Mo	115	95	1	He	-0.290	-0.290	-4.18	270	-0.11	200	
Ag	115	107	1	He	-0.021	-0.021	-10.15	187	-0.01	200	
Cd	72	111	1	He	-0.019	-0.019	-8.68	3	-0.57	200	
Sn	115	120	1	He	-0.154	-0.154	-20.98	2634	-0.01	200	
antimony	159	121	1	He	-0.211	-0.211	-1.74	414	-0.05	200	
Ba	115	137	1	He	0.006	0.006	132.29	236	0.00	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-10.18	28	-0.01	40	
[Pb]	209	206	2	no gas	-0.036	-0.036	-106.27	6058	0.00	200	
[Pb]	209	207	2	no gas	0.000	0.000	10475.32	5138	0.00	200	
Pb	209	208	2	no gas	-0.024	-0.024	-145.26	23708	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1884587	3.20	1982866	95.04	70	120	
Sc	45	1	He	705430	1.04	767851	91.87	70	120	
Ge	72	1	He	295884	0.33	320058	92.45	70	125	
Ge	72	2	no gas	626927	0.58	673177	93.13	70	125	
Ge	72	3	H2	780225	0.89	821457	94.98	70	120	
Y	89	1	He	2562003	1.87	2786775	91.93	70	120	
In	115	1	He	2834097	0.70	3045232	93.07	70	120	
In	115	2	no gas	4550903	0.90	4564130	99.71	70	120	
In	115	3	H2	6278932	0.96	5826290	107.77	70	120	
Tb	159	1	He	4520445	0.47	4638687	97.45	70	120	
Tb	159	2	no gas	5700609	0.78	5623529	101.37	70	120	
Bi	209	2	no gas	3583910	0.17	3475006	103.13	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-9-B
Data File Name	212SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:12:57-05:00
Sample Type	Sample
Dilution	1
Comment	439758_22
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.723	0.723	17.34	143654	0.00	200	
Be	6	9	2	no gas	-0.003	-0.003	-136.68	100	0.00	200	
B	6	11	2	no gas	30.329	30.329	2.86	189884	0.02	400	
Na	72	23	1	He	29317.488	29317.488	1.03	116997048	0.03	50000	
Mg	72	24	1	He	2347.401	2347.401	1.07	5472474	0.04	50000	
Al	45	27	3	H2	825.973	825.973	0.25	10255410	0.01	50000	
Si	45	28	3	H2	2108.220	2108.220	1.83	13662664	0.02	2000	>LDR
K	72	39	1	He	1077.194	1077.194	1.52	4156123	0.03	50000	
Ca	72	44	1	He	25682.831	25682.831	0.70	4062865	0.63	25000	>LDR
Ti	72	49	1	He	23.328	23.328	0.64	14850	0.16	200	
V	72	51	1	He	3.513	3.513	2.05	60776	0.01	200	
Cr	72	52	1	He	0.988	0.988	5.03	18840	0.01	200	
Mn	72	55	1	He	17.391	17.391	0.76	263079	0.01	2500	
Fe	72	56	3	H2	151.055	151.055	0.96	5981577	0.00	50000	
Co	72	59	1	He	0.048	0.048	4.87	1530	0.00	200	
Ni	72	60	1	He	0.613	0.613	7.71	3360	0.02	200	
copper	72	63	1	He	1.014	1.014	1.23	14000	0.01	200	
Zn	72	66	1	He	4.278	4.278	2.45	12455	0.03	200	
arsenic	72	75	1	He	474.226	474.226	0.77	992498	0.05	200	>LDR
selenium	72	78	3	H2	1.343	1.343	3.27	1614	0.08	200	
Sr	72	88	1	He	181.517	181.517	1.67	3954801	0.00	500	
Mo	115	95	1	He	1.340	1.340	8.41	10590	0.01	200	
Ag	115	107	1	He	-0.018	-0.018	-3.06	232	-0.01	200	
Cd	72	111	1	He	0.004	0.004	40.66	83	0.00	200	
Sn	115	120	1	He	-0.161	-0.161	-15.02	2477	-0.01	200	
antimony	159	121	1	He	3.389	3.389	1.68	40164	0.01	200	
Ba	115	137	1	He	11.412	11.412	1.79	56089	0.02	1000	
Tl	159	205	2	no gas	0.007	0.007	31.66	429	0.00	40	
[Pb]	209	206	2	no gas	0.170	0.170	13.35	8443	0.00	200	
[Pb]	209	207	2	no gas	0.198	0.198	18.15	7142	0.00	200	
Pb	209	208	2	no gas	0.179	0.179	10.74	33422	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1862251	0.38	1982866	93.92	70	120	
Sc	45	1	He	712403	0.04	767851	92.78	70	120	
Ge	72	1	He	295439	0.50	320058	92.31	70	125	
Ge	72	2	no gas	633511	1.09	673177	94.11	70	125	
Ge	72	3	H2	757457	0.34	821457	92.21	70	120	
Y	89	1	He	2556555	0.77	2786775	91.74	70	120	
In	115	1	He	2773185	1.15	3045232	91.07	70	120	
In	115	2	no gas	4367407	0.57	4564130	95.69	70	120	
In	115	3	H2	6152489	0.71	5826290	105.60	70	120	
Tb	159	1	He	4498627	0.73	4638687	96.98	70	120	
Tb	159	2	no gas	5676191	1.77	5623529	100.94	70	120	
Bi	209	2	no gas	3394000	0.80	3475006	97.67	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-1-B
Data File Name	213SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:16:52-05:00
Sample Type	Sample
Dilution	1
Comment	439758_24
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.855	0.855	20.35	144352	0.00	200	
Be	6	9	2	no gas	-0.003	-0.003	-116.18	96	0.00	200	
B	6	11	2	no gas	31.896	31.896	1.55	193078	0.02	400	
Na	72	23	1	He	29315.199	29315.199	1.69	117915788	0.02	50000	
Mg	72	24	1	He	2392.092	2392.092	0.55	5621418	0.04	50000	
Al	45	27	3	H2	859.817	859.817	2.03	10857204	0.01	50000	
Si	45	28	3	H2	2207.821	2207.821	0.63	14547230	0.02	2000	>LDR
K	72	39	1	He	1086.381	1086.381	0.12	4222215	0.03	50000	
Ca	72	44	1	He	25937.076	25937.076	1.33	4135825	0.63	25000	>LDR
Ti	72	49	1	He	29.918	29.918	11.59	19143	0.16	200	
V	72	51	1	He	3.653	3.653	1.77	63515	0.01	200	
Cr	72	52	1	He	3.815	3.815	2.41	67242	0.01	200	
Mn	72	55	1	He	45.405	45.405	1.48	684806	0.01	2500	
Fe	72	56	3	H2	4930.015	4930.015	0.73	185112904	0.00	50000	
Co	72	59	1	He	0.213	0.213	0.81	5164	0.00	200	
Ni	72	60	1	He	1.966	1.966	9.82	10323	0.02	200	
copper	72	63	1	He	3.539	3.539	1.05	47265	0.01	200	
Zn	72	66	1	He	4.870	4.870	3.08	14142	0.03	200	
arsenic	72	75	1	He	441.387	441.387	0.61	931240	0.05	200	>LDR
selenium	72	78	3	H2	1.317	1.317	2.14	1586	0.08	200	
Sr	72	88	1	He	182.928	182.928	0.96	4017395	0.00	500	
Mo	115	95	1	He	2.055	2.055	5.97	15174	0.01	200	
Ag	115	107	1	He	-0.015	-0.015	-22.20	282	-0.01	200	
Cd	72	111	1	He	0.000	0.000	-5328.40	70	0.00	200	
Sn	115	120	1	He	0.060	0.060	11.90	5378	0.00	200	
antimony	159	121	1	He	3.411	3.411	1.47	39917	0.01	200	
Ba	115	137	1	He	11.595	11.595	2.16	57165	0.02	1000	
Tl	159	205	2	no gas	0.008	0.008	12.16	484	0.00	40	
[Pb]	209	206	2	no gas	0.189	0.189	12.16	8749	0.00	200	
[Pb]	209	207	2	no gas	0.214	0.214	6.75	7372	0.00	200	
Pb	209	208	2	no gas	0.199	0.199	18.41	34659	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1828075	1.40	1982866	92.19	70	120	
Sc	45	1	He	710501	0.53	767851	92.53	70	120	
Ge	72	1	He	297820	1.14	320058	93.05	70	125	
Ge	72	2	no gas	628178	0.22	673177	93.32	70	125	
Ge	72	3	H2	756794	0.34	821457	92.13	70	120	
Y	89	1	He	2547775	1.68	2786775	91.42	70	120	
In	115	1	He	2782075	1.23	3045232	91.36	70	120	
In	115	2	no gas	4344085	2.04	4564130	95.18	70	120	
In	115	3	H2	6226809	1.02	5826290	106.87	70	120	
Tb	159	1	He	4444671	1.24	4638687	95.82	70	120	
Tb	159	2	no gas	5622869	1.18	5623529	99.99	70	120	
Bi	209	2	no gas	3413741	1.05	3475006	98.24	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-3-B
Data File Name	215SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:24:35-05:00
Sample Type	Sample
Dilution	1
Comment	439758_28
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.670	0.670	4.82	142406	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-91.68	87	0.00	200	
B	6	11	2	no gas	29.870	29.870	3.46	188076	0.02	400	
Na	72	23	1	He	28668.962	28668.962	1.03	115287938	0.02	50000	
Mg	72	24	1	He	2353.230	2353.230	0.46	5528297	0.04	50000	
Al	45	27	3	H2	815.005	815.005	3.10	10353441	0.01	50000	
Si	45	28	3	H2	2131.708	2131.708	1.33	14133559	0.02	2000	>LDR
K	72	39	1	He	1077.550	1077.550	1.67	4189475	0.03	50000	
Ca	72	44	1	He	25392.673	25392.673	1.14	4047877	0.63	25000	>LDR
Ti	72	49	1	He	24.494	24.494	3.86	15703	0.16	200	
V	72	51	1	He	3.576	3.576	1.24	62253	0.01	200	
Cr	72	52	1	He	6.276	6.276	1.11	109214	0.01	200	
Mn	72	55	1	He	74.649	74.649	0.82	1122527	0.01	2500	
Fe	72	56	3	H2	9394.329	9394.329	0.94	354963475	0.00	50000	
Co	72	59	1	He	0.368	0.368	3.56	8564	0.00	200	
Ni	72	60	1	He	3.425	3.425	6.64	17806	0.02	200	
copper	72	63	1	He	5.701	5.701	1.86	75619	0.01	200	
Zn	72	66	1	He	5.053	5.053	4.32	14630	0.03	200	
arsenic	72	75	1	He	411.543	411.543	0.08	868022	0.05	200	>LDR
selenium	72	78	3	H2	1.296	1.296	6.72	1575	0.08	200	
Sr	72	88	1	He	180.493	180.493	1.59	3962596	0.00	500	
Mo	115	95	1	He	2.442	2.442	4.37	17659	0.01	200	
Ag	115	107	1	He	-0.018	-0.018	-20.01	230	-0.01	200	
Cd	72	111	1	He	-0.004	-0.004	-341.75	57	-0.01	200	
Sn	115	120	1	He	0.299	0.299	11.70	8506	0.00	200	
antimony	159	121	1	He	3.247	3.247	1.08	38217	0.01	200	
Ba	115	137	1	He	11.278	11.278	2.03	55712	0.02	1000	
Tl	159	205	2	no gas	0.006	0.006	20.04	389	0.00	40	
[Pb]	209	206	2	no gas	0.193	0.193	24.07	8683	0.00	200	
[Pb]	209	207	2	no gas	0.208	0.208	13.94	7192	0.00	200	
Pb	209	208	2	no gas	0.186	0.186	7.71	33479	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1864161	1.01	1982866	94.01	70	120	
Sc	45	1	He	712569	0.30	767851	92.80	70	120	
Ge	72	1	He	297704	0.14	320058	93.02	70	125	
Ge	72	2	no gas	629622	0.60	673177	93.53	70	125	
Ge	72	3	H2	762163	1.09	821457	92.78	70	120	
Y	89	1	He	2556752	0.33	2786775	91.75	70	120	
In	115	1	He	2786835	0.25	3045232	91.51	70	120	
In	115	2	no gas	4348815	1.29	4564130	95.28	70	120	
In	115	3	H2	6280489	1.45	5826290	107.80	70	120	
Tb	159	1	He	4455411	1.23	4638687	96.05	70	120	
Tb	159	2	no gas	5665430	0.47	5623529	100.75	70	120	
Bi	209	2	no gas	3365616	0.70	3475006	96.85	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-4-B
Data File Name	216SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:28:29-05:00
Sample Type	Sample
Dilution	1
Comment	439758_30
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.644	0.644	13.16	139391	0.00	200	
Be	6	9	2	no gas	-0.002	-0.002	-209.02	104	0.00	200	
B	6	11	2	no gas	30.635	30.635	3.20	188233	0.02	400	
Na	72	23	1	He	28920.665	28920.665	0.79	117298812	0.02	50000	
Mg	72	24	1	He	2364.114	2364.114	1.01	5601343	0.04	50000	
Al	45	27	3	H2	766.308	766.308	0.73	9571514	0.01	50000	
Si	45	28	3	H2	2061.348	2061.348	1.05	13436937	0.02	2000	>LDR
K	72	39	1	He	1081.452	1081.452	1.21	4239138	0.03	50000	
Ca	72	44	1	He	25484.290	25484.290	2.04	4097022	0.62	25000	>LDR
Ti	72	49	1	He	24.436	24.436	2.71	15803	0.15	200	
V	72	51	1	He	3.471	3.471	1.98	61092	0.01	200	
Cr	72	52	1	He	7.093	7.093	2.20	124201	0.01	200	
Mn	72	55	1	He	88.590	88.590	1.13	1342690	0.01	2500	
Fe	72	56	3	H2	10605.005	10605.005	0.28	400199514	0.00	50000	
Co	72	59	1	He	0.430	0.430	0.28	10007	0.00	200	
Ni	72	60	1	He	4.028	4.028	0.35	21079	0.02	200	
copper	72	63	1	He	6.439	6.439	2.70	86040	0.01	200	
Zn	72	66	1	He	4.967	4.967	4.45	14520	0.03	200	
arsenic	72	75	1	He	392.661	392.661	1.13	835307	0.05	200	>LDR
selenium	72	78	3	H2	1.254	1.254	6.41	1530	0.08	200	
Sr	72	88	1	He	183.974	183.974	1.49	4073717	0.00	500	
Mo	115	95	1	He	2.547	2.547	5.27	18480	0.01	200	
Ag	115	107	1	He	-0.017	-0.017	-3.30	251	-0.01	200	
Cd	72	111	1	He	0.009	0.009	130.20	103	0.01	200	
Sn	115	120	1	He	0.387	0.387	26.27	9726	0.00	200	
antimony	159	121	1	He	3.124	3.124	1.52	37054	0.01	200	
Ba	115	137	1	He	11.180	11.180	2.53	55681	0.02	1000	
Tl	159	205	2	no gas	0.006	0.006	25.23	420	0.00	40	
[Pb]	209	206	2	no gas	0.216	0.216	20.60	8970	0.00	200	
[Pb]	209	207	2	no gas	0.209	0.209	20.14	7192	0.00	200	
Pb	209	208	2	no gas	0.203	0.203	4.91	34346	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1833478	1.45	1982866	92.47	70	120	
Sc	45	1	He	713052	0.38	767851	92.86	70	120	
Ge	72	1	He	300268	0.82	320058	93.82	70	125	
Ge	72	2	no gas	632368	0.86	673177	93.94	70	125	
Ge	72	3	H2	761266	1.68	821457	92.67	70	120	
Y	89	1	He	2532033	1.16	2786775	90.86	70	120	
In	115	1	He	2810227	1.50	3045232	92.28	70	120	
In	115	2	no gas	4392944	1.15	4564130	96.25	70	120	
In	115	3	H2	6215809	0.50	5826290	106.69	70	120	
Tb	159	1	He	4476200	1.03	4638687	96.50	70	120	
Tb	159	2	no gas	5607689	1.28	5623529	99.72	70	120	
Bi	209	2	no gas	3360984	1.05	3475006	96.72	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	218_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:36:20-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	51.720	51.720	2.13	1493352	0.00	50	
Be	6	9	2	no gas	49.261	49.261	1.08	399512	0.01	50	
B	6	11	2	no gas	99.493	99.493	1.98	475801	0.02	100	
Na	72	23	1	He	4909.480	4909.480	1.06	20289325	0.02	5000	
Mg	72	24	1	He	4865.995	4865.995	0.74	11687341	0.04	5000	
Al	45	27	3	H2	474.284	474.284	1.73	6108362	0.01	500	
K	72	39	1	He	4933.884	4933.884	1.09	18213542	0.03	5000	
Ca	72	44	1	He	4752.659	4752.659	0.54	778506	0.61	5000	
Ti	72	49	1	He	50.248	50.248	1.35	32805	0.15	50	
V	72	51	1	He	47.333	47.333	1.21	779817	0.01	50	
Cr	72	52	1	He	47.653	47.653	0.81	834159	0.01	50	
Mn	72	55	1	He	492.155	492.155	2.20	7543141	0.01	500	
Fe	72	56	3	H2	4818.554	4818.554	0.90	186872771	0.00	5000	
Co	72	59	1	He	47.324	47.324	1.29	1061387	0.00	50	
Ni	72	60	1	He	48.893	48.893	2.17	256748	0.02	50	
copper	72	63	1	He	47.326	47.326	0.85	636200	0.01	50	
dwCu63	72	63	2	no gas	48.238	48.238	1.01	945180	0.01	50	
Zn	72	66	1	He	48.578	48.578	1.47	135590	0.04	50	
arsenic	72	75	1	He	46.473	46.473	0.75	102326	0.05	50	
dwAs75	72	75	2	no gas	46.550	46.550	2.00	206661	0.02	50	
selenium	72	78	3	H2	50.785	50.785	1.07	54103	0.09	50	
Sr	72	88	1	He	49.342	49.342	1.11	1109561	0.00	50	
Mo	115	95	1	He	49.388	49.388	0.64	324245	0.02	50	
Ag	115	107	1	He	47.682	47.682	0.94	869754	0.01	50	
Cd	72	111	1	He	48.693	48.693	1.29	174802	0.03	50	
Sn	115	120	1	He	49.939	49.939	0.42	675703	0.01	50	
antimony	159	121	1	He	50.997	50.997	1.11	565797	0.01	50	
dwSb121	159	121	2	no gas	53.511	53.511	1.31	792219	0.01	50	
Ba	115	137	1	He	47.322	47.322	1.23	239990	0.02	50	
Tl	159	205	2	no gas	10.027	10.027	1.01	394635	0.00	10	
[Pb]	209	206	2	no gas	49.942	49.942	2.08	668799	0.01	50	
[Pb]	209	207	2	no gas	50.099	50.099	0.62	586256	0.01	50	
Pb	209	208	2	no gas	49.869	49.869	2.14	2735010	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1889122	1.66	1982866	95.27	70	120	
Sc	45	1	He	741211	0.72	767851	96.53	70	120	
Ge	72	1	He	304607	0.84	320058	95.17	70	125	
Ge	72	2	no gas	636974	0.49	673177	94.62	70	125	
Ge	72	3	H2	780075	1.32	821457	94.96	70	120	
Y	89	1	He	2574262	1.17	2786775	92.37	70	120	
In	115	1	He	2870333	0.40	3045232	94.26	70	120	
In	115	2	no gas	4441808	1.81	4564130	97.32	70	120	
In	115	3	H2	6339028	0.88	5826290	108.80	70	120	
Tb	159	1	He	4517836	0.89	4638687	97.39	70	120	
Tb	159	2	no gas	5648976	1.16	5623529	100.45	70	120	
Bi	209	2	no gas	3418076	1.76	3475006	98.36	60	120	

Sample Table

Sample Name	CCB
Data File Name	220_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:44:08-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.047	-0.047	-510.30	128008	0.00	0.5	
Be	6	9	2	no gas	-0.005	-0.005	-16.69	76	-0.01	0.5	
B	6	11	2	no gas	-0.991	-0.991	-27.46	36015	0.00	5	
Na	72	23	1	He	-2.581	-2.581	-9.51	53912	0.00	100	
Mg	72	24	1	He	-1.663	-1.663	-0.47	2574	-0.06	50	
Al	45	27	3	H2	-0.038	-0.038	-75.54	15237	0.00	50	
K	72	39	1	He	-1.077	-1.077	-71.80	382883	0.00	50	
Ca	72	44	1	He	-3.692	-3.692	-20.98	1860	-0.20	50	
Ti	72	49	1	He	-0.123	-0.123	-7.83	147	-0.08	0.5	
V	72	51	1	He	0.019	0.019	93.98	4902	0.00	0.5	
Cr	72	52	1	He	-0.024	-0.024	-50.74	1960	0.00	0.5	
Mn	72	55	1	He	-0.168	-0.168	-19.18	1910	-0.01	2	
Fe	72	56	3	H2	-5.986	-5.986	-0.93	148864	0.00	25	
Co	72	59	1	He	-0.014	-0.014	-4.33	146	-0.01	0.5	
Ni	72	60	1	He	-0.007	-0.007	-123.13	170	0.00	1.5	
copper	72	63	1	He	-0.024	-0.024	-26.64	467	-0.01	0.5	
dwCu63	72	63	2	no gas	-0.009	-0.009	-41.58	737	0.00	0.5	
Zn	72	66	1	He	0.023	0.023	127.97	1187	0.00	4	
arsenic	72	75	1	He	-0.109	-0.109	-22.96	586	-0.02	0.25	
dwAs75	72	75	2	no gas	-0.011	-0.011	-1135.29	1002	0.00	5	
selenium	72	78	3	H2	-0.109	-0.109	-11.03	118	-0.09	0.25	
dwSe82	72	82	2	no gas	-0.209	-0.209	-22.37	220	-0.10	5	
Sr	72	88	1	He	-0.020	-0.020	-22.59	333	-0.01	0.5	
Mo	115	95	1	He	-0.183	-0.183	-10.24	557	-0.03	1	
Ag	115	107	1	He	-0.018	-0.018	-5.86	250	-0.01	0.05	
Cd	72	111	1	He	-0.016	-0.016	-30.20	10	-0.16	0.25	
Sn	115	120	1	He	-0.128	-0.128	-16.19	3077	0.00	0.5	
antimony	159	121	1	He	-0.147	-0.147	-12.43	1133	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.274	-0.274	-3.74	2631	-0.01	5	
Ba	115	137	1	He	-0.019	-0.019	-7.19	53	-0.04	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-21.70	81	0.00	0.1	
[Pb]	209	206	2	no gas	-0.050	-0.050	-23.74	5808	0.00	0.25	
[Pb]	209	207	2	no gas	-0.003	-0.003	-1152.60	5151	0.00	0.25	
Pb	209	208	2	no gas	-0.017	-0.017	-53.83	23932	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1919688	3.07	1982866	96.81	70	120	
Sc	45	1	He	727195	0.88	767851	94.71	70	120	
Ge	72	1	He	301558	0.38	320058	94.22	70	125	
Ge	72	2	no gas	622220	0.45	673177	92.43	70	125	
Ge	72	3	H2	782617	0.91	821457	95.27	70	120	
Y	89	1	He	2603167	1.78	2786775	93.41	70	120	
In	115	1	He	2925992	0.61	3045232	96.08	70	120	
In	115	2	no gas	4460374	0.41	4564130	97.73	70	120	
In	115	3	H2	6414799	0.52	5826290	110.10	70	120	
Tb	159	1	He	4520788	1.08	4638687	97.46	70	120	
Tb	159	2	no gas	5621356	0.44	5623529	99.96	70	120	
Bi	209	2	no gas	3509209	2.08	3475006	100.98	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-5-B
Data File Name	221SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:48:05-05:00
Sample Type	Sample
Dilution	1
Comment	439758_32
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.676	0.676	21.08	145835	0.00	200	
Be	6	9	2	no gas	-0.002	-0.002	-66.86	96	0.00	200	
B	6	11	2	no gas	34.089	34.089	2.25	190520	0.02	400	
Na	72	23	1	He	29059.503	29059.503	0.25	117823795	0.02	50000	
Mg	72	24	1	He	2358.916	2358.916	0.84	5586970	0.04	50000	
Al	45	27	3	H2	808.985	808.985	3.18	10037070	0.01	50000	
Si	45	28	3	H2	2098.541	2098.541	2.09	13585758	0.02	2000	>LDR
K	72	39	1	He	1092.580	1092.580	0.56	4273756	0.03	50000	
Ca	72	44	1	He	25714.403	25714.403	0.66	4133264	0.62	25000	>LDR
Ti	72	49	1	He	25.273	25.273	3.16	16363	0.15	200	
V	72	51	1	He	3.969	3.969	3.02	68624	0.01	200	
Cr	72	52	1	He	10.565	10.565	1.67	184134	0.01	200	
Mn	72	55	1	He	121.637	121.637	1.29	1840955	0.01	2500	
Fe	72	56	3	H2	16372.323	16372.323	1.20	609684151	0.00	50000	
Co	72	59	1	He	0.626	0.626	0.87	14282	0.00	200	
Ni	72	60	1	He	5.561	5.561	2.07	28953	0.02	200	
copper	72	63	1	He	9.347	9.347	0.58	124468	0.01	200	
Zn	72	66	1	He	5.591	5.591	6.09	16244	0.03	200	
arsenic	72	75	1	He	408.592	408.592	0.72	869039	0.05	200	>LDR
selenium	72	78	3	H2	1.311	1.311	4.46	1569	0.08	200	
Sr	72	88	1	He	182.781	182.781	0.33	4046175	0.00	500	
Mo	115	95	1	He	3.233	3.233	5.71	22167	0.01	200	
Ag	115	107	1	He	-0.010	-0.010	-11.53	362	0.00	200	
Cd	72	111	1	He	0.006	0.006	78.16	87	0.01	200	
Sn	115	120	1	He	0.706	0.706	2.57	13769	0.01	200	
antimony	159	121	1	He	3.093	3.093	2.36	36281	0.01	200	
Ba	115	137	1	He	11.706	11.706	1.30	57475	0.02	1000	
Tl	159	205	2	no gas	0.007	0.007	39.34	457	0.00	40	
[Pb]	209	206	2	no gas	0.212	0.212	13.05	8919	0.00	200	
[Pb]	209	207	2	no gas	0.193	0.193	41.51	7105	0.00	200	
Pb	209	208	2	no gas	0.198	0.198	9.79	34136	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1898234	1.92	1982866	95.73	70	120	
Sc	45	1	He	715582	0.32	767851	93.19	70	120	
Ge	72	1	He	300158	0.66	320058	93.78	70	125	
Ge	72	2	no gas	639332	0.99	673177	94.97	70	125	
Ge	72	3	H2	751332	0.87	821457	91.46	70	120	
Y	89	1	He	2523849	0.66	2786775	90.57	70	120	
In	115	1	He	2773115	0.42	3045232	91.06	70	120	
In	115	2	no gas	4336545	0.50	4564130	95.01	70	120	
In	115	3	H2	6131424	2.27	5826290	105.24	70	120	
Tb	159	1	He	4424989	1.32	4638687	95.39	70	120	
Tb	159	2	no gas	5667567	1.69	5623529	100.78	70	120	
Bi	209	2	no gas	3332600	1.54	3475006	95.90	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-6-B
Data File Name	222SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:52:02-05:00
Sample Type	Sample
Dilution	1
Comment	439758_34
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.651	0.651	25.85	140451	0.00	200	
Be	6	9	2	no gas	-0.003	-0.003	-41.31	82	0.00	200	
B	6	11	2	no gas	33.764	33.764	2.31	182945	0.02	400	
Na	72	23	1	He	28323.215	28323.215	1.18	115241538	0.02	50000	
Mg	72	24	1	He	2336.555	2336.555	2.16	5553071	0.04	50000	
Al	45	27	3	H2	752.561	752.561	2.69	9270694	0.01	50000	
Si	45	28	3	H2	2006.154	2006.154	1.08	12893820	0.02	2000	>LDR
K	72	39	1	He	1070.272	1070.272	2.43	4208599	0.03	50000	
Ca	72	44	1	He	25031.088	25031.088	0.80	4037485	0.62	25000	>LDR
Ti	72	49	1	He	22.478	22.478	3.95	14626	0.15	200	
V	72	51	1	He	3.881	3.881	1.83	67423	0.01	200	
Cr	72	52	1	He	12.709	12.709	1.23	221806	0.01	200	
Mn	72	55	1	He	154.118	154.118	1.73	2339375	0.01	2500	
Fe	72	56	3	H2	20245.879	20245.879	0.84	759261615	0.00	50000	
Co	72	59	1	He	0.829	0.829	0.66	18846	0.00	200	
Ni	72	60	1	He	7.496	7.496	0.56	39101	0.02	200	
copper	72	63	1	He	13.209	13.209	0.94	176201	0.01	200	
Zn	72	66	1	He	5.724	5.724	1.81	16665	0.03	200	
arsenic	72	75	1	He	376.192	376.192	0.73	803016	0.05	200	>LDR
selenium	72	78	3	H2	1.221	1.221	4.64	1488	0.08	200	
Sr	72	88	1	He	178.225	178.225	1.25	3958960	0.00	500	
Mo	115	95	1	He	3.778	3.778	2.41	25742	0.01	200	
Ag	115	107	1	He	-0.013	-0.013	-7.59	312	0.00	200	
Cd	72	111	1	He	0.005	0.005	92.77	83	0.01	200	
Sn	115	120	1	He	0.892	0.892	6.69	16265	0.01	200	
antimony	159	121	1	He	2.761	2.761	2.56	32902	0.01	200	
Ba	115	137	1	He	11.418	11.418	0.51	56332	0.02	1000	
Tl	159	205	2	no gas	0.007	0.007	11.31	451	0.00	40	
[Pb]	209	206	2	no gas	0.202	0.202	0.62	8739	0.00	200	
[Pb]	209	207	2	no gas	0.211	0.211	11.42	7282	0.00	200	
Pb	209	208	2	no gas	0.195	0.195	7.61	33786	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1836483	1.58	1982866	92.62	70	120	
Sc	45	1	He	712376	0.30	767851	92.78	70	120	
Ge	72	1	He	301221	0.98	320058	94.11	70	125	
Ge	72	2	no gas	634827	0.82	673177	94.30	70	125	
Ge	72	3	H2	756784	1.95	821457	92.13	70	120	
Y	89	1	He	2551200	1.11	2786775	91.55	70	120	
In	115	1	He	2786261	1.05	3045232	91.50	70	120	
In	115	2	no gas	4371406	0.49	4564130	95.78	70	120	
In	115	3	H2	6191792	0.43	5826290	106.27	70	120	
Tb	159	1	He	4455832	1.35	4638687	96.06	70	120	
Tb	159	2	no gas	5595623	0.16	5623529	99.50	70	120	
Bi	209	2	no gas	3314581	1.45	3475006	95.38	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-7-B
Data File Name	223SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:55:58-05:00
Sample Type	Sample
Dilution	1
Comment	439758_36
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.713	0.713	11.59	138306	0.00	200	
Be	6	9	2	no gas	0.004	0.004	136.70	132	0.00	200	
B	6	11	2	no gas	36.916	36.916	23.53	187184	0.02	400	
Na	72	23	1	He	27914.246	27914.246	0.87	112748858	0.02	50000	
Mg	72	24	1	He	2327.450	2327.450	0.59	5491715	0.04	50000	
Al	45	27	3	H2	942.045	942.045	2.84	11418055	0.01	50000	
Si	45	28	3	H2	2215.917	2215.917	3.39	14016267	0.02	2000	>LDR
K	72	39	1	He	1073.835	1073.835	0.72	4190911	0.03	50000	
Ca	72	44	1	He	24867.742	24867.742	1.09	3981777	0.62	25000	>LDR
Ti	72	49	1	He	30.815	30.815	3.95	19821	0.16	200	
V	72	51	1	He	5.147	5.147	2.44	87278	0.01	200	
Cr	72	52	1	He	18.974	18.974	0.42	327584	0.01	200	
Mn	72	55	1	He	183.751	183.751	0.50	2768161	0.01	2500	
Fe	72	56	3	H2	30382.941	30382.941	1.16	1127651477	0.00	50000	
Co	72	59	1	He	0.980	0.980	1.31	22027	0.00	200	
Ni	72	60	1	He	8.862	8.862	2.03	45846	0.02	200	
copper	72	63	1	He	16.352	16.352	0.26	216356	0.01	200	
Zn	72	66	1	He	7.102	7.102	0.14	20255	0.04	200	
arsenic	72	75	1	He	459.814	459.814	0.73	974171	0.05	200	>LDR
selenium	72	78	3	H2	1.234	1.234	7.55	1485	0.08	200	
Sr	72	88	1	He	179.373	179.373	0.69	3955604	0.00	500	
Mo	115	95	1	He	5.185	5.185	1.26	34764	0.01	200	
Ag	115	107	1	He	0.000	0.000	-467.88	541	0.00	200	
Cd	72	111	1	He	0.016	0.016	49.88	123	0.01	200	
Sn	115	120	1	He	1.467	1.467	1.97	23820	0.01	200	
antimony	159	121	1	He	3.368	3.368	1.97	39754	0.01	200	
Ba	115	137	1	He	11.998	11.998	1.06	59288	0.02	1000	
Tl	159	205	2	no gas	0.009	0.009	27.49	496	0.00	40	
[Pb]	209	206	2	no gas	0.264	0.264	36.71	8880	0.00	200	
[Pb]	209	207	2	no gas	0.273	0.273	15.87	7522	0.00	200	
Pb	209	208	2	no gas	0.276	0.276	29.07	35582	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1789411	17.78	1982866	90.24	70	120	
Sc	45	1	He	716684	0.22	767851	93.34	70	120	
Ge	72	1	He	299016	0.61	320058	93.43	70	125	
Ge	72	2	no gas	611885	19.01	673177	90.90	70	125	
Ge	72	3	H2	749067	1.06	821457	91.19	70	120	
Y	89	1	He	2513970	1.45	2786775	90.21	70	120	
In	115	1	He	2790915	1.07	3045232	91.65	70	120	
In	115	2	no gas	4140829	28.90	4564130	90.73	70	120	
In	115	3	H2	6125728	0.25	5826290	105.14	70	120	
Tb	159	1	He	4479449	0.90	4638687	96.57	70	120	
Tb	159	2	no gas	5409596	28.26	5623529	96.20	70	120	
Bi	209	2	no gas	3151386	23.08	3475006	90.69	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-8-B
Data File Name	224SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T02:59:55-05:00
Sample Type	Sample
Dilution	1
Comment	439758_38
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.731	0.731	12.63	144175	0.00	200	
Be	6	9	2	no gas	0.000	0.000	-477.66	108	0.00	200	
B	6	11	2	no gas	33.780	33.780	3.45	185120	0.02	400	
Na	72	23	1	He	28237.811	28237.811	0.49	115051788	0.02	50000	
Mg	72	24	1	He	2334.986	2334.986	0.61	5557462	0.04	50000	
Al	45	27	3	H2	905.479	905.479	3.37	11110772	0.01	50000	
Si	45	28	3	H2	2197.947	2197.947	3.03	14074816	0.02	2000	>LDR
K	72	39	1	He	1058.658	1058.658	0.84	4173149	0.03	50000	
Ca	72	44	1	He	25619.357	25619.357	1.13	4137881	0.62	25000	>LDR
Ti	72	49	1	He	31.609	31.609	6.38	20504	0.15	200	
V	72	51	1	He	5.537	5.537	1.39	94377	0.01	200	
Cr	72	52	1	He	23.249	23.249	0.38	404337	0.01	200	
Mn	72	55	1	He	224.734	224.734	0.58	3414097	0.01	2500	
Fe	72	56	3	H2	37961.485	37961.485	1.69	1426421205	0.00	50000	
Co	72	59	1	He	1.231	1.231	0.81	27798	0.00	200	
Ni	72	60	1	He	10.741	10.741	2.51	56010	0.02	200	
copper	72	63	1	He	20.344	20.344	1.07	271327	0.01	200	
Zn	72	66	1	He	7.340	7.340	1.81	21079	0.03	200	
arsenic	72	75	1	He	463.292	463.292	0.46	990090	0.05	200	>LDR
selenium	72	78	3	H2	1.240	1.240	4.63	1510	0.08	200	
Sr	72	88	1	He	182.107	182.107	1.01	4050756	0.00	500	
Mo	115	95	1	He	6.173	6.173	2.90	40887	0.02	200	
Ag	115	107	1	He	-0.012	-0.012	-12.64	341	0.00	200	
Cd	72	111	1	He	0.022	0.022	52.56	147	0.02	200	
Sn	115	120	1	He	1.732	1.732	2.33	27182	0.01	200	
antimony	159	121	1	He	3.463	3.463	1.29	40584	0.01	200	
Ba	115	137	1	He	11.810	11.810	2.64	58113	0.02	1000	
Tl	159	205	2	no gas	0.008	0.008	23.13	463	0.00	40	
[Pb]	209	206	2	no gas	0.276	0.276	13.33	9476	0.00	200	
[Pb]	209	207	2	no gas	0.303	0.303	25.68	8136	0.00	200	
Pb	209	208	2	no gas	0.276	0.276	2.70	37219	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1857743	1.19	1982866	93.69	70	120	
Sc	45	1	He	714741	0.27	767851	93.08	70	120	
Ge	72	1	He	301618	0.15	320058	94.24	70	125	
Ge	72	2	no gas	642386	1.43	673177	95.43	70	125	
Ge	72	3	H2	758426	0.22	821457	92.33	70	120	
Y	89	1	He	2539641	1.27	2786775	91.13	70	120	
In	115	1	He	2779194	0.35	3045232	91.26	70	120	
In	115	2	no gas	4304500	0.63	4564130	94.31	70	120	
In	115	3	H2	6149507	1.30	5826290	105.55	70	120	
Tb	159	1	He	4455499	0.33	4638687	96.05	70	120	
Tb	159	2	no gas	5603203	1.06	5623529	99.64	70	120	
Bi	209	2	no gas	3241057	1.31	3475006	93.27	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439769/1-A^5
Data File Name	225SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:03:56-05:00
Sample Type	Sample
Dilution	1
Comment	439769_1
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.007	-0.007	-3184.01	126250	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-24.10	51	-0.01	200	
B	6	11	2	no gas	-2.784	-2.784	-13.90	27388	-0.01	400	
Na	72	23	1	He	8.040	8.040	25.86	94388	0.01	50000	
Mg	72	24	1	He	-0.564	-0.564	-51.22	5038	-0.01	50000	
Al	45	27	3	H2	1.253	1.253	1.86	30909	0.00	50000	
Si	45	28	3	H2	-0.320	-0.320	-47.89	79366	0.00	2000	
K	72	39	1	He	-1.805	-1.805	-40.05	369455	0.00	50000	
Ca	72	44	1	He	5.485	5.485	70.22	3247	0.17	25000	
Ti	72	49	1	He	0.244	0.244	20.26	371	0.07	200	
V	72	51	1	He	-0.068	-0.068	-14.15	3400	0.00	200	
Cr	72	52	1	He	0.000	0.000	4826.63	2317	0.00	200	
Mn	72	55	1	He	-0.125	-0.125	-21.70	2490	-0.01	2500	
Fe	72	56	3	H2	24.687	24.687	0.96	1286440	0.00	50000	
Co	72	59	1	He	-0.016	-0.016	-6.94	104	-0.01	200	
Ni	72	60	1	He	-0.016	-0.016	-18.64	117	-0.01	200	
copper	72	63	1	He	-0.018	-0.018	-12.86	527	0.00	200	
Zn	72	66	1	He	-0.001	-0.001	-1198.31	1090	0.00	200	
arsenic	72	75	1	He	0.708	0.708	17.82	2262	0.03	200	
selenium	72	78	3	H2	-0.178	-0.178	-2.84	42	-0.42	200	
Sr	72	88	1	He	0.040	0.040	7.03	1627	0.00	500	
Mo	115	95	1	He	-0.199	-0.199	-3.48	437	-0.05	200	
Ag	115	107	1	He	-0.019	-0.019	-8.08	216	-0.01	200	
Cd	72	111	1	He	-0.018	-0.018	-9.29	3	-0.54	200	
Sn	115	120	1	He	-0.187	-0.187	-4.22	2187	-0.01	200	
antimony	159	121	1	He	-0.211	-0.211	-0.89	409	-0.05	200	
Ba	115	137	1	He	-0.018	-0.018	-19.81	53	-0.03	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-12.59	33	-0.01	40	
[Pb]	209	206	2	no gas	-0.057	-0.057	-28.61	5741	0.00	200	
[Pb]	209	207	2	no gas	-0.018	-0.018	-11.93	5004	0.00	200	
Pb	209	208	2	no gas	-0.040	-0.040	-17.80	22738	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1877230	2.36	1982866	94.67	70	120	
Sc	45	1	He	700651	1.10	767851	91.25	70	120	
Ge	72	1	He	292979	0.44	320058	91.54	70	125	
Ge	72	2	no gas	609111	1.07	673177	90.48	70	125	
Ge	72	3	H2	752553	1.08	821457	91.61	70	120	
Y	89	1	He	2541246	0.47	2786775	91.19	70	120	
In	115	1	He	2829010	1.05	3045232	92.90	70	120	
In	115	2	no gas	4385636	1.26	4564130	96.09	70	120	
In	115	3	H2	6276711	1.41	5826290	107.73	70	120	
Tb	159	1	He	4479720	0.35	4638687	96.57	70	120	
Tb	159	2	no gas	5593445	0.80	5623529	99.47	70	120	
Bi	209	2	no gas	3525782	0.89	3475006	101.46	60	120	

Sample Report

Sample Table

Sample Name	LCS 400-439769/2-A
Data File Name	226SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:07:53-05:00
Sample Type	Sample
Dilution	1
Comment	439769_2
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	49.602	49.602	1.61	1438490	0.00	200	
Be	6	9	2	no gas	47.251	47.251	1.62	383867	0.01	200	
B	6	11	2	no gas	95.409	95.409	1.54	459826	0.02	400	
Na	72	23	1	He	4915.335	4915.335	1.22	19972051	0.02	50000	
Mg	72	24	1	He	4895.274	4895.274	1.12	11582338	0.04	50000	
Al	45	27	3	H2	472.740	472.740	1.09	5930622	0.01	50000	
Si	45	28	3	H2	52.502	52.502	0.72	422715	0.01	2000	
K	72	39	1	He	4845.866	4845.866	1.21	17623339	0.03	50000	
Ca	72	44	1	He	4761.117	4761.117	0.77	766824	0.62	25000	
Ti	72	49	1	He	49.700	49.700	1.30	31938	0.16	200	
V	72	51	1	He	46.932	46.932	0.69	761451	0.01	200	
Cr	72	52	1	He	46.657	46.657	0.26	804698	0.01	200	
Mn	72	55	1	He	485.042	485.042	1.12	7323506	0.01	2500	
Fe	72	56	3	H2	4781.318	4781.318	1.26	181148731	0.00	50000	
Co	72	59	1	He	47.930	47.930	1.24	1059027	0.00	200	
Ni	72	60	1	He	48.129	48.129	1.20	248894	0.02	200	
copper	72	63	1	He	47.934	47.934	0.81	634781	0.01	200	
Zn	72	66	1	He	48.509	48.509	1.65	132270	0.04	200	
arsenic	72	75	1	He	47.431	47.431	0.79	101547	0.05	200	
selenium	72	78	3	H2	49.628	49.628	0.26	51938	0.10	200	
Sr	72	88	1	He	49.604	49.604	0.40	1098036	0.00	500	
Mo	115	95	1	He	50.008	50.008	0.38	324899	0.02	200	
Ag	115	107	1	He	51.725	51.725	0.97	930102	0.01	200	
Cd	72	111	1	He	48.729	48.729	2.08	172333	0.03	200	
Sn	115	120	1	He	47.048	47.048	0.89	629236	0.01	200	
antimony	159	121	1	He	46.988	46.988	1.21	515528	0.01	200	
Ba	115	137	1	He	47.006	47.006	1.13	234982	0.02	1000	
Tl	159	205	2	no gas	9.861	9.861	0.20	385279	0.00	40	
[Pb]	209	206	2	no gas	50.155	50.155	1.44	660270	0.01	200	
[Pb]	209	207	2	no gas	50.157	50.157	2.35	576071	0.01	200	
Pb	209	208	2	no gas	48.577	48.577	1.92	2616939	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1892048	1.11	1982866	95.42	70	120	
Sc	45	1	He	725833	0.99	767851	94.53	70	120	
Ge	72	1	He	300001	0.92	320058	93.73	70	125	
Ge	72	2	no gas	628906	0.79	673177	93.42	70	125	
Ge	72	3	H2	763345	0.43	821457	92.93	70	120	
Y	89	1	He	2555222	0.45	2786775	91.69	70	120	
In	115	1	He	2828667	0.34	3045232	92.89	70	120	
In	115	2	no gas	4428500	2.22	4564130	97.03	70	120	
In	115	3	H2	6222488	1.19	5826290	106.80	70	120	
Tb	159	1	He	4447520	1.34	4638687	95.88	70	120	
Tb	159	2	no gas	5605901	0.61	5623529	99.69	70	120	
Bi	209	2	no gas	3356558	2.25	3475006	96.59	60	120	

Sample Report

Sample Table

Sample Name	400-169468-I-1-C^5
Data File Name	227SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:11:50-05:00
Sample Type	Sample
Dilution	1
Comment	439769_3
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.159	0.159	21.84	130524	0.00	200	
Be	6	9	2	no gas	0.019	0.019	19.18	263	0.01	200	
B	6	11	2	no gas	-0.066	-0.066	-673.61	39208	0.00	400	
Na	72	23	1	He	345.709	345.709	0.47	1456817	0.02	50000	
Mg	72	24	1	He	175.449	175.449	0.63	419171	0.04	50000	
Al	45	27	3	H2	64.419	64.419	9.43	823970	0.01	50000	
Si	45	28	3	H2	452.395	452.395	1.80	3033867	0.01	2000	
K	72	39	1	He	193.646	193.646	1.58	1068042	0.02	50000	
Ca	72	44	1	He	105.978	105.978	4.87	19364	0.55	25000	
Ti	72	49	1	He	1.202	1.202	18.92	987	0.12	200	
V	72	51	1	He	0.165	0.165	7.18	7207	0.00	200	
Cr	72	52	1	He	28.440	28.440	4.01	488764	0.01	200	
Mn	72	55	1	He	6.543	6.543	2.68	102638	0.01	2500	
Fe	72	56	3	H2	482.974	482.974	1.00	18553500	0.00	50000	
Co	72	59	1	He	0.375	0.375	1.94	8695	0.00	200	
Ni	72	60	1	He	15.468	15.468	3.07	79716	0.02	200	
copper	72	63	1	He	0.671	0.671	0.96	9607	0.01	200	
Zn	72	66	1	He	2.934	2.934	1.01	9006	0.03	200	
arsenic	72	75	1	He	0.113	0.113	49.49	1048	0.01	200	
selenium	72	78	3	H2	0.297	0.297	4.16	535	0.06	200	
Sr	72	88	1	He	1.454	1.454	4.77	32777	0.00	500	
Mo	115	95	1	He	0.823	0.823	16.24	7002	0.01	200	
Ag	115	107	1	He	0.001	0.001	192.44	578	0.00	200	
Cd	72	111	1	He	0.013	0.013	59.62	113	0.01	200	
Sn	115	120	1	He	0.046	0.046	102.45	5251	0.00	200	
antimony	159	121	1	He	-0.080	-0.080	-35.29	1871	0.00	200	
Ba	115	137	1	He	6.689	6.689	3.40	33437	0.02	1000	
Tl	159	205	2	no gas	0.008	0.008	25.04	469	0.00	40	
[Pb]	209	206	2	no gas	0.007	0.007	467.32	6575	0.00	200	
[Pb]	209	207	2	no gas	0.012	0.012	192.24	5331	0.00	200	
Pb	209	208	2	no gas	0.007	0.007	156.94	25232	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1874539	1.48	1982866	94.54	70	120	
Sc	45	1	He	703824	0.23	767851	91.66	70	120	
Ge	72	1	He	298464	1.15	320058	93.25	70	125	
Ge	72	2	no gas	619641	1.51	673177	92.05	70	125	
Ge	72	3	H2	760115	0.14	821457	92.53	70	120	
Y	89	1	He	2575416	0.98	2786775	92.42	70	120	
In	115	1	He	2819253	2.34	3045232	92.58	70	120	
In	115	2	no gas	4388210	0.43	4564130	96.15	70	120	
In	115	3	H2	6267695	0.69	5826290	107.58	70	120	
Tb	159	1	He	4516375	0.73	4638687	97.36	70	120	
Tb	159	2	no gas	5595488	0.71	5623529	99.50	70	120	
Bi	209	2	no gas	3508227	2.88	3475006	100.96	60	120	

Sample Report

Sample Table

Sample Name	400-169468-I-1-C SD^25
Data File Name	228SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:15:51-05:00
Sample Type	Sample
Dilution	1
Comment	439769_4
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.047	0.047	245.05	128163	0.00	200	
Be	6	9	2	no gas	-0.003	-0.003	-106.85	86	0.00	200	
B	6	11	2	no gas	-2.970	-2.970	-3.06	26680	-0.01	400	
Na	72	23	1	He	66.373	66.373	2.08	325872	0.02	50000	
Mg	72	24	1	He	33.148	33.148	0.21	83086	0.04	50000	
Al	45	27	3	H2	11.672	11.672	16.70	161331	0.01	50000	
Si	45	28	3	H2	90.138	90.138	0.99	667708	0.01	2000	
K	72	39	1	He	35.066	35.066	1.22	498753	0.01	50000	
Ca	72	44	1	He	18.783	18.783	5.92	5344	0.35	25000	
Ti	72	49	1	He	0.182	0.182	26.40	333	0.05	200	
V	72	51	1	He	0.025	0.025	59.81	4876	0.00	200	
Cr	72	52	1	He	5.590	5.590	1.46	96419	0.01	200	
Mn	72	55	1	He	1.102	1.102	9.30	20636	0.01	2500	
Fe	72	56	3	H2	91.191	91.191	1.31	3783426	0.00	50000	
Co	72	59	1	He	0.059	0.059	5.28	1718	0.00	200	
Ni	72	60	1	He	3.090	3.090	3.80	15834	0.02	200	
copper	72	63	1	He	0.114	0.114	10.71	2231	0.01	200	
Zn	72	66	1	He	0.513	0.513	12.10	2454	0.02	200	
arsenic	72	75	1	He	-0.084	-0.084	-29.02	621	-0.01	200	
selenium	72	78	3	H2	-0.087	-0.087	-7.02	136	-0.06	200	
Sr	72	88	1	He	0.274	0.274	4.79	6688	0.00	500	
Mo	115	95	1	He	-0.025	-0.025	-150.06	1553	0.00	200	
Ag	115	107	1	He	-0.018	-0.018	-15.83	231	-0.01	200	
Cd	72	111	1	He	-0.017	-0.017	-9.77	7	-0.25	200	
Sn	115	120	1	He	-0.130	-0.130	-4.67	2944	0.00	200	
antimony	159	121	1	He	-0.203	-0.203	-6.00	494	-0.04	200	
Ba	115	137	1	He	1.305	1.305	6.82	6648	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-43.85	119	0.00	40	
[Pb]	209	206	2	no gas	-0.010	-0.010	-54.89	6358	0.00	200	
[Pb]	209	207	2	no gas	-0.008	-0.008	-261.52	5098	0.00	200	
Pb	209	208	2	no gas	-0.013	-0.013	-58.07	24149	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1883045	0.53	1982866	94.97	70	120	
Sc	45	1	He	694329	1.32	767851	90.42	70	120	
Ge	72	1	He	293688	1.13	320058	91.76	70	125	
Ge	72	2	no gas	620527	0.44	673177	92.18	70	125	
Ge	72	3	H2	756167	0.15	821457	92.05	70	120	
Y	89	1	He	2517166	0.33	2786775	90.33	70	120	
In	115	1	He	2822039	1.08	3045232	92.67	70	120	
In	115	2	no gas	4345748	0.62	4564130	95.22	70	120	
In	115	3	H2	6249421	2.59	5826290	107.26	70	120	
Tb	159	1	He	4450925	1.54	4638687	95.95	70	120	
Tb	159	2	no gas	5646242	2.24	5623529	100.40	70	120	
Bi	209	2	no gas	3507784	0.27	3475006	100.94	60	120	

Sample Report

Sample Table

Sample Name	400-169468-I-1-C PDS^5
Data File Name	229SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:19:51-05:00
Sample Type	Sample
Dilution	1
Comment	439769_5
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	51.194	51.194	1.02	1488194	0.00	200	
Be	6	9	2	no gas	48.050	48.050	1.56	392356	0.01	200	
B	6	11	2	no gas	98.947	98.947	1.62	477830	0.02	400	
Na	72	23	1	He	5293.555	5293.555	0.66	21427569	0.02	50000	
Mg	72	24	1	He	5174.347	5174.347	0.87	12197867	0.04	50000	
Al	45	27	3	H2	542.370	542.370	2.26	6749423	0.01	50000	
Si	45	28	3	H2	526.037	526.037	2.86	3474775	0.02	2000	
K	72	39	1	He	5129.672	5129.672	1.02	18565054	0.03	50000	
Ca	72	44	1	He	4951.977	4951.977	1.33	794578	0.62	25000	
Ti	72	49	1	He	50.358	50.358	2.05	32241	0.16	200	
V	72	51	1	He	47.971	47.971	1.69	775350	0.01	200	
Cr	72	52	1	He	89.423	89.423	25.08	1536426	0.01	200	
Mn	72	55	1	He	502.772	502.772	1.32	7563675	0.01	2500	
Fe	72	56	3	H2	5386.850	5386.850	0.85	202259984	0.00	50000	
Co	72	59	1	He	48.457	48.457	0.70	1066865	0.00	200	
Ni	72	60	1	He	63.856	63.856	0.64	328981	0.02	200	
copper	72	63	1	He	48.938	48.938	0.71	645732	0.01	200	
Zn	72	66	1	He	51.243	51.243	1.24	139172	0.04	200	
arsenic	72	75	1	He	47.295	47.295	0.43	100896	0.05	200	
selenium	72	78	3	H2	50.241	50.241	0.18	52117	0.10	200	
Sr	72	88	1	He	52.045	52.045	1.45	1147842	0.00	500	
Mo	115	95	1	He	51.211	51.211	0.95	331302	0.02	200	
Ag	115	107	1	He	44.543	44.543	1.21	797732	0.01	200	
Cd	72	111	1	He	49.418	49.418	1.09	174158	0.03	200	
Sn	115	120	1	He	45.414	45.414	0.99	605048	0.01	200	
antimony	159	121	1	He	42.743	42.743	1.92	470794	0.01	200	
Ba	115	137	1	He	54.381	54.381	1.47	270693	0.02	1000	
Tl	159	205	2	no gas	10.139	10.139	0.37	393978	0.00	40	
[Pb]	209	206	2	no gas	50.268	50.268	0.90	669871	0.01	200	
[Pb]	209	207	2	no gas	50.444	50.444	0.81	586527	0.01	200	
Pb	209	208	2	no gas	48.771	48.771	0.97	2659797	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1901672	0.62	1982866	95.91	70	120	
Sc	45	1	He	725540	0.83	767851	94.49	70	120	
Ge	72	1	He	298922	0.80	320058	93.40	70	125	
Ge	72	2	no gas	629189	0.91	673177	93.47	70	125	
Ge	72	3	H2	756650	0.65	821457	92.11	70	120	
Y	89	1	He	2564280	0.65	2786775	92.02	70	120	
In	115	1	He	2817123	1.01	3045232	92.51	70	120	
In	115	2	no gas	4413097	1.44	4564130	96.69	70	120	
In	115	3	H2	6142354	0.88	5826290	105.42	70	120	
Tb	159	1	He	4462497	0.57	4638687	96.20	70	120	
Tb	159	2	no gas	5575120	1.25	5623529	99.14	70	120	
Bi	209	2	no gas	3397147	0.58	3475006	97.76	60	120	

Sample Report

Sample Table

Sample Name	400-169468-I-1-D MS^5
Data File Name	230SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:23:46-05:00
Sample Type	Sample
Dilution	1
Comment	439769_6
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	10.636	10.636	2.86	415281	0.00	200	
Be	6	9	2	no gas	9.546	9.546	1.93	78910	0.01	200	
B	6	11	2	no gas	19.490	19.490	6.57	127703	0.02	400	
Na	72	23	1	He	1329.181	1329.181	0.84	5422878	0.02	50000	
Mg	72	24	1	He	1194.729	1194.729	0.90	2818525	0.04	50000	
Al	45	27	3	H2	172.738	172.738	11.92	2189623	0.01	50000	
Si	45	28	3	H2	488.168	488.168	5.84	3268974	0.01	2000	
K	72	39	1	He	1190.819	1190.819	0.88	4599727	0.03	50000	
Ca	72	44	1	He	1076.984	1076.984	1.04	174550	0.62	25000	
Ti	72	49	1	He	11.140	11.140	3.01	7299	0.15	200	
V	72	51	1	He	9.657	9.657	0.44	159577	0.01	200	
Cr	72	52	1	He	34.999	34.999	12.69	601744	0.01	200	
Mn	72	55	1	He	108.850	108.850	0.54	1639516	0.01	2500	
Fe	72	56	3	H2	1448.172	1448.172	0.69	54797574	0.00	50000	
Co	72	59	1	He	10.116	10.116	0.56	222882	0.00	200	
Ni	72	60	1	He	22.995	22.995	1.91	118481	0.02	200	
copper	72	63	1	He	10.524	10.524	0.98	139342	0.01	200	
Zn	72	66	1	He	12.501	12.501	1.29	34760	0.04	200	
arsenic	72	75	1	He	9.710	9.710	0.85	21337	0.05	200	
selenium	72	78	3	H2	10.554	10.554	0.74	11158	0.09	200	
Sr	72	88	1	He	11.722	11.722	1.31	258877	0.00	500	
Mo	115	95	1	He	10.348	10.348	1.76	69000	0.01	200	
Ag	115	107	1	He	10.320	10.320	0.57	187117	0.01	200	
Cd	72	111	1	He	10.240	10.240	2.24	36104	0.03	200	
Sn	115	120	1	He	9.599	9.599	1.24	132878	0.01	200	
antimony	159	121	1	He	10.031	10.031	1.35	113601	0.01	200	
Ba	115	137	1	He	16.191	16.191	1.57	81513	0.02	1000	
Tl	159	205	2	no gas	2.030	2.030	1.26	79711	0.00	40	
[Pb]	209	206	2	no gas	10.018	10.018	0.82	142309	0.01	200	
[Pb]	209	207	2	no gas	10.080	10.080	1.72	124537	0.01	200	
Pb	209	208	2	no gas	9.736	9.736	0.92	565229	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1923068	1.45	1982866	96.98	70	120	
Sc	45	1	He	715582	1.16	767851	93.19	70	120	
Ge	72	1	He	298631	0.57	320058	93.31	70	125	
Ge	72	2	no gas	625575	0.26	673177	92.93	70	125	
Ge	72	3	H2	758784	0.76	821457	92.37	70	120	
Y	89	1	He	2519465	0.87	2786775	90.41	70	120	
In	115	1	He	2845405	0.33	3045232	93.44	70	120	
In	115	2	no gas	4389066	0.53	4564130	96.16	70	120	
In	115	3	H2	6192800	0.62	5826290	106.29	70	120	
Tb	159	1	He	4502978	0.57	4638687	97.07	70	120	
Tb	159	2	no gas	5626425	1.52	5623529	100.05	70	120	
Bi	209	2	no gas	3489732	0.33	3475006	100.42	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	232_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:31:44-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	49.532	49.532	2.10	1468111	0.00	50	
Be	6	9	2	no gas	47.254	47.254	0.76	392914	0.01	50	
B	6	11	2	no gas	95.201	95.201	0.69	459665	0.02	100	
Na	72	23	1	He	4886.052	4886.052	1.19	19819026	0.02	5000	
Mg	72	24	1	He	4848.124	4848.124	0.61	11451719	0.04	5000	
Al	45	27	3	H2	468.754	468.754	0.93	5950491	0.01	500	
K	72	39	1	He	4909.418	4909.418	0.56	17819940	0.03	5000	
Ca	72	44	1	He	4781.799	4781.799	0.63	769170	0.62	5000	
Ti	72	49	1	He	49.507	49.507	1.28	31740	0.16	50	
V	72	51	1	He	47.232	47.232	0.76	765218	0.01	50	
Cr	72	52	1	He	47.167	47.167	0.11	812095	0.01	50	
Mn	72	55	1	He	491.115	491.115	1.17	7404487	0.01	500	
Fe	72	56	3	H2	4831.532	4831.532	0.32	182236931	0.00	5000	
Co	72	59	1	He	47.295	47.295	0.96	1043431	0.00	50	
Ni	72	60	1	He	48.400	48.400	1.61	250039	0.02	50	
copper	72	63	1	He	47.398	47.398	0.93	626834	0.01	50	
dwCu63	72	63	2	no gas	47.998	47.998	0.15	931805	0.01	50	
Zn	72	66	1	He	49.107	49.107	0.70	135098	0.04	50	
arsenic	72	75	1	He	46.891	46.891	0.25	99998	0.05	50	
dwAs75	72	75	2	no gas	47.184	47.184	1.28	201877	0.02	50	
selenium	72	78	3	H2	50.558	50.558	1.26	52676	0.10	50	
Sr	72	88	1	He	49.303	49.303	0.31	1089668	0.00	50	
Mo	115	95	1	He	49.140	49.140	1.01	321817	0.02	50	
Ag	115	107	1	He	46.790	46.790	1.71	850095	0.01	50	
Cd	72	111	1	He	49.257	49.257	1.45	173945	0.03	50	
Sn	115	120	1	He	49.836	49.836	1.18	672699	0.01	50	
antimony	159	121	1	He	50.864	50.864	0.87	557267	0.01	50	
dwSb121	159	121	2	no gas	53.793	53.793	1.13	788173	0.01	50	
Ba	115	137	1	He	46.894	46.894	1.76	236846	0.02	50	
Tl	159	205	2	no gas	9.919	9.919	0.70	383295	0.00	10	
[Pb]	209	206	2	no gas	48.610	48.610	1.78	653103	0.01	50	
[Pb]	209	207	2	no gas	48.914	48.914	1.46	573788	0.01	50	
Pb	209	208	2	no gas	48.078	48.078	3.32	2643853	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1936604	0.49	1982866	97.67	70	120	
Sc	45	1	He	731751	1.08	767851	95.30	70	120	
Ge	72	1	He	299607	0.34	320058	93.61	70	125	
Ge	72	2	no gas	631090	0.82	673177	93.75	70	125	
Ge	72	3	H2	760680	0.72	821457	92.60	70	120	
Y	89	1	He	2554204	0.44	2786775	91.65	70	120	
In	115	1	He	2858602	0.84	3045232	93.87	70	120	
In	115	2	no gas	4423942	2.21	4564130	96.93	70	120	
In	115	3	H2	6276620	0.46	5826290	107.73	70	120	
Tb	159	1	He	4438676	0.38	4638687	95.69	70	120	
Tb	159	2	no gas	5544157	0.64	5623529	98.59	70	120	
Bi	209	2	no gas	3427577	1.05	3475006	98.64	60	120	

Sample Table

Sample Name	CCB
Data File Name	234_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:39:36-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.057	-0.057	-147.82	127089	0.00	0.5	
Be	6	9	2	no gas	-0.007	-0.007	-50.87	90	-0.01	0.5	
B	6	11	2	no gas	-0.733	-0.733	-7.84	30138	0.00	5	
Na	72	23	1	He	-2.267	-2.267	-7.25	48909	0.00	100	
Mg	72	24	1	He	-1.539	-1.539	-2.09	2630	-0.06	50	
Al	45	27	3	H2	-0.304	-0.304	-5.62	14393	0.00	50	
K	72	39	1	He	-3.393	-3.393	-29.86	371854	0.00	50	
Ca	72	44	1	He	-3.841	-3.841	-23.57	1904	-0.20	50	
Ti	72	49	1	He	-0.069	-0.069	-16.70	176	-0.04	0.5	
V	72	51	1	He	0.014	0.014	126.71	4422	0.00	0.5	
Cr	72	52	1	He	-0.019	-0.019	-28.17	1957	0.00	0.5	
Mn	72	55	1	He	-0.167	-0.167	-13.66	1980	-0.01	2	
Fe	72	56	3	H2	-4.394	-4.394	-2.27	118937	0.00	25	
Co	72	59	1	He	-0.016	-0.016	-11.36	132	-0.01	0.5	
Ni	72	60	1	He	-0.020	-0.020	-29.83	173	-0.01	1.5	
copper	72	63	1	He	-0.026	-0.026	-8.93	494	-0.01	0.5	
dwCu63	72	63	2	no gas	-0.015	-0.015	-47.55	767	0.00	0.5	
Zn	72	66	1	He	-0.033	-0.033	-115.40	1053	0.00	4	
arsenic	72	75	1	He	-0.069	-0.069	-37.64	499	-0.01	0.25	
dwAs75	72	75	2	no gas	-0.050	-0.050	-187.99	-57	0.09	5	
selenium	72	78	3	H2	-0.068	-0.068	-16.68	156	-0.04	0.25	
dwSe82	72	82	2	no gas	-0.244	-0.244	-21.25	231	-0.11	5	
Sr	72	88	1	He	-0.015	-0.015	-26.89	327	0.00	0.5	
Mo	115	95	1	He	-0.232	-0.232	-15.77	660	-0.04	1	
Ag	115	107	1	He	-0.015	-0.015	-19.72	254	-0.01	0.05	
Cd	72	111	1	He	-0.005	-0.005	-65.45	13	-0.04	0.25	
Sn	115	120	1	He	-0.097	-0.097	-9.71	3394	0.00	0.5	
antimony	159	121	1	He	-0.083	-0.083	-16.98	1781	0.00	0.5	
dwSb121	159	121	2	no gas	-0.165	-0.165	-8.42	4191	0.00	5	
Ba	115	137	1	He	-0.017	-0.017	-8.28	93	-0.02	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-9.67	68	0.00	0.1	
[Pb]	209	206	2	no gas	0.000	0.000	-11485.14	5691	0.00	0.25	
[Pb]	209	207	2	no gas	-0.020	-0.020	-107.20	4851	0.00	0.25	
Pb	209	208	2	no gas	-0.003	-0.003	-241.96	23048	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1926064	1.20	1982866	97.14	70	120	
Sc	45	1	He	708648	1.64	767851	92.29	70	120	
Ge	72	1	He	295947	0.88	320058	92.47	70	125	
Ge	72	2	no gas	613758	0.62	673177	91.17	70	125	
Ge	72	3	H2	758789	0.24	821457	92.37	70	120	
Y	89	1	He	2555687	0.36	2786775	91.71	70	120	
In	115	1	He	2836278	1.01	3045232	93.14	70	120	
In	115	2	no gas	4412619	1.21	4564130	96.68	70	120	
In	115	3	H2	6216716	0.19	5826290	106.70	70	120	
Tb	159	1	He	4385843	0.61	4638687	94.55	70	120	
Tb	159	2	no gas	5568450	0.62	5623529	99.02	70	120	
Bi	209	2	no gas	3463345	1.39	3475006	99.66	60	120	

Sample Report

Sample Table

Sample Name	400-169468-I-1-E MSD^5
Data File Name	235SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:43:35-05:00
Sample Type	Sample
Dilution	1
Comment	439769_7
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	10.631	10.631	4.95	411015	0.00	200	
Be	6	9	2	no gas	9.467	9.467	4.13	77714	0.01	200	
B	6	11	2	no gas	19.727	19.727	3.04	120780	0.02	400	
Na	72	23	1	He	1305.653	1305.653	1.37	5328132	0.02	50000	
Mg	72	24	1	He	1174.913	1174.913	1.14	2774588	0.04	50000	
Al	45	27	3	H2	159.723	159.723	3.53	2009192	0.01	50000	
Si	45	28	3	H2	460.253	460.253	0.97	3051860	0.02	2000	
K	72	39	1	He	1171.994	1171.994	0.86	4542196	0.03	50000	
Ca	72	44	1	He	1061.435	1061.435	2.68	172347	0.62	25000	
Ti	72	49	1	He	10.881	10.881	2.77	7141	0.15	200	
V	72	51	1	He	9.506	9.506	0.85	156999	0.01	200	
Cr	72	52	1	He	37.679	37.679	29.04	647648	0.01	200	
Mn	72	55	1	He	106.549	106.549	0.97	1606782	0.01	2500	
Fe	72	56	3	H2	1409.310	1409.310	0.61	53428851	0.00	50000	
Co	72	59	1	He	10.011	10.011	0.76	220844	0.00	200	
Ni	72	60	1	He	22.243	22.243	0.63	114814	0.02	200	
copper	72	63	1	He	10.331	10.331	1.29	137006	0.01	200	
Zn	72	66	1	He	12.179	12.179	2.00	33968	0.04	200	
arsenic	72	75	1	He	9.489	9.489	0.72	20735	0.05	200	
selenium	72	78	3	H2	9.918	9.918	1.35	10533	0.09	200	
Sr	72	88	1	He	11.365	11.365	1.17	251165	0.00	500	
Mo	115	95	1	He	10.095	10.095	2.48	67639	0.01	200	
Ag	115	107	1	He	10.192	10.192	2.06	184363	0.01	200	
Cd	72	111	1	He	9.970	9.970	1.09	35155	0.03	200	
Sn	115	120	1	He	9.330	9.330	1.30	129012	0.01	200	
antimony	159	121	1	He	9.463	9.463	2.28	104756	0.01	200	
Ba	115	137	1	He	15.772	15.772	1.08	79276	0.02	1000	
Tl	159	205	2	no gas	1.968	1.968	1.05	78226	0.00	40	
[Pb]	209	206	2	no gas	9.903	9.903	1.05	138995	0.01	200	
[Pb]	209	207	2	no gas	9.919	9.919	1.01	121673	0.01	200	
Pb	209	208	2	no gas	9.604	9.604	1.05	552427	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1910649	3.73	1982866	96.36	70	120	
Sc	45	1	He	715533	0.71	767851	93.19	70	120	
Ge	72	1	He	298948	0.43	320058	93.40	70	125	
Ge	72	2	no gas	617109	0.50	673177	91.67	70	125	
Ge	72	3	H2	761295	1.37	821457	92.68	70	120	
Y	89	1	He	2511886	0.86	2786775	90.14	70	120	
In	115	1	He	2839764	1.75	3045232	93.25	70	120	
In	115	2	no gas	4429160	0.25	4564130	97.04	70	120	
In	115	3	H2	6276988	1.10	5826290	107.74	70	120	
Tb	159	1	He	4396105	1.46	4638687	94.77	70	120	
Tb	159	2	no gas	5692197	1.00	5623529	101.22	70	120	
Bi	209	2	no gas	3464010	1.41	3475006	99.68	60	120	

Sample Report

Sample Table

Sample Name	400-169468-F-2-C^5
Data File Name	236SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:47:33-05:00
Sample Type	Sample
Dilution	1
Comment	439769_8
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.001	-0.001	-8035.70	128592	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-8.69	80	-0.01	200	
B	6	11	2	no gas	330.297	330.297	1.85	1513409	0.02	400	
Na	72	23	1	He	9223.103	9223.103	0.82	36903418	0.02	50000	
Mg	72	24	1	He	5505.397	5505.397	0.31	12846241	0.04	50000	
Al	45	27	3	H2	4.655	4.655	11.20	75846	0.01	50000	
Si	45	28	3	H2	440.670	440.670	2.62	2911078	0.02	2000	
K	72	39	1	He	11622.474	11622.474	0.91	41164322	0.03	50000	
Ca	72	44	1	He	34010.881	34010.881	1.78	5388385	0.63	25000	>LDR
Ti	72	49	1	He	0.215	0.215	30.30	354	0.06	200	
V	72	51	1	He	0.405	0.405	2.35	10630	0.00	200	
Cr	72	52	1	He	0.045	0.045	32.54	3040	0.00	200	
Mn	72	55	1	He	63.426	63.426	0.53	948515	0.01	2500	
Fe	72	56	3	H2	0.850	0.850	16.28	316887	0.00	50000	
Co	72	59	1	He	0.027	0.027	15.98	1078	0.00	200	
Ni	72	60	1	He	0.056	0.056	23.11	560	0.01	200	
copper	72	63	1	He	0.034	0.034	6.83	1278	0.00	200	
Zn	72	66	1	He	0.217	0.217	35.68	1720	0.01	200	
arsenic	72	75	1	He	0.126	0.126	32.20	909	0.01	200	
selenium	72	78	3	H2	-0.028	-0.028	-29.26	199	-0.01	200	
Sr	72	88	1	He	166.904	166.904	1.27	3642191	0.00	500	
Mo	115	95	1	He	-0.204	-0.204	-6.58	820	-0.02	200	
Ag	115	107	1	He	-0.007	-0.007	-28.55	387	0.00	200	
Cd	72	111	1	He	-0.004	-0.004	-145.21	17	-0.02	200	
Sn	115	120	1	He	-0.092	-0.092	-53.98	3371	0.00	200	
antimony	159	121	1	He	-0.115	-0.115	-13.29	1449	-0.01	200	
Ba	115	137	1	He	10.283	10.283	1.51	50432	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-4.53	127	0.00	40	
[Pb]	209	206	2	no gas	0.047	0.047	16.16	6018	0.00	200	
[Pb]	209	207	2	no gas	-0.009	-0.009	-462.94	4738	0.00	200	
Pb	209	208	2	no gas	0.020	0.020	32.18	23141	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1925943	0.26	1982866	97.13	70	120	
Sc	45	1	He	708675	0.93	767851	92.29	70	120	
Ge	72	1	He	295905	0.27	320058	92.45	70	125	
Ge	72	2	no gas	624412	0.87	673177	92.76	70	125	
Ge	72	3	H2	760988	1.41	821457	92.64	70	120	
Y	89	1	He	2553448	0.69	2786775	91.63	70	120	
In	115	1	He	2767332	0.56	3045232	90.87	70	120	
In	115	2	no gas	4420703	0.91	4564130	96.86	70	120	
In	115	3	H2	6191294	0.70	5826290	106.26	70	120	
Tb	159	1	He	4437621	1.24	4638687	95.67	70	120	
Tb	159	2	no gas	5594682	1.10	5623529	99.49	70	120	
Bi	209	2	no gas	3294888	0.91	3475006	94.82	60	120	

Sample Report

Sample Table

Sample Name	400-169312-A-1-A^5
Data File Name	237SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:51:32-05:00
Sample Type	Sample
Dilution	1
Comment	439769_9
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.148	0.148	82.92	129452	0.00	200	
Be	6	9	2	no gas	0.000	0.000	1371.99	143	0.00	200	
B	6	11	2	no gas	4.267	4.267	17.27	51282	0.01	400	
Na	72	23	1	He	1554.754	1554.754	0.92	6199083	0.03	50000	
Mg	72	24	1	He	444.729	444.729	0.23	1031776	0.04	50000	
Al	45	27	3	H2	54.967	54.967	5.76	694800	0.01	50000	
Si	45	28	3	H2	992.026	992.026	0.80	6415643	0.02	2000	
K	72	39	1	He	88.541	88.541	1.07	686624	0.01	50000	
Ca	72	44	1	He	1331.824	1331.824	0.16	211035	0.63	25000	
Ti	72	49	1	He	1.549	1.549	44.49	1181	0.13	200	
V	72	51	1	He	0.087	0.087	35.51	5513	0.00	200	
Cr	72	52	1	He	0.058	0.058	35.60	3227	0.00	200	
Mn	72	55	1	He	399.022	399.022	1.37	5877197	0.01	2500	
Fe	72	56	3	H2	5910.879	5910.879	0.94	219692590	0.00	50000	
Co	72	59	1	He	14.821	14.821	0.55	319777	0.00	200	
Ni	72	60	1	He	0.274	0.274	11.01	1653	0.02	200	
copper	72	63	1	He	0.042	0.042	17.91	1364	0.00	200	
Zn	72	66	1	He	0.845	0.845	9.33	3357	0.03	200	
arsenic	72	75	1	He	0.195	0.195	21.42	1041	0.02	200	
selenium	72	78	3	H2	-0.118	-0.118	-23.20	103	-0.11	200	
Sr	72	88	1	He	2.770	2.770	1.71	60416	0.00	500	
Mo	115	95	1	He	-0.259	-0.259	-4.00	473	-0.05	200	
Ag	115	107	1	He	-0.017	-0.017	-7.71	208	-0.01	200	
Cd	72	111	1	He	0.020	0.020	51.86	100	0.02	200	
Sn	115	120	1	He	-0.085	-0.085	-20.29	3470	0.00	200	
antimony	159	121	1	He	-0.154	-0.154	-9.41	999	-0.02	200	
Ba	115	137	1	He	4.113	4.113	2.08	20332	0.02	1000	
Tl	159	205	2	no gas	0.007	0.007	1.50	433	0.00	40	
[Pb]	209	206	2	no gas	0.070	0.070	47.12	6592	0.00	200	
[Pb]	209	207	2	no gas	0.029	0.029	148.97	5401	0.00	200	
Pb	209	208	2	no gas	0.033	0.033	55.35	24885	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1880695	1.75	1982866	94.85	70	120	
Sc	45	1	He	693796	0.49	767851	90.36	70	120	
Ge	72	1	He	292597	0.14	320058	91.42	70	125	
Ge	72	2	no gas	617789	0.61	673177	91.77	70	125	
Ge	72	3	H2	749449	0.68	821457	91.23	70	120	
Y	89	1	He	2489622	1.27	2786775	89.34	70	120	
In	115	1	He	2775316	0.55	3045232	91.14	70	120	
In	115	2	no gas	4370469	1.17	4564130	95.76	70	120	
In	115	3	H2	6245341	0.52	5826290	107.19	70	120	
Tb	159	1	He	4296246	0.49	4638687	92.62	70	120	
Tb	159	2	no gas	5542488	1.43	5623529	98.56	70	120	
Bi	209	2	no gas	3441688	1.14	3475006	99.04	60	120	

Sample Report

Sample Table

Sample Name	400-169357-H-1-A^5
Data File Name	238SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:55:28-05:00
Sample Type	Sample
Dilution	1
Comment	439769_10
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.480	1.480	7.10	163705	0.00	200	
Be	6	9	2	no gas	0.015	0.015	27.36	262	0.01	200	
B	6	11	2	no gas	17.088	17.088	2.57	106886	0.02	400	
Na	72	23	1	He	20702.176	20702.176	2.00	82627637	0.03	50000	
Mg	72	24	1	He	163.900	163.900	0.13	387862	0.04	50000	
Al	45	27	3	H2	261.026	261.026	5.03	3232022	0.01	50000	
Si	45	28	3	H2	1416.585	1416.585	2.63	9131632	0.02	2000	
K	72	39	1	He	409.795	409.795	1.40	1818803	0.02	50000	
Ca	72	44	1	He	1613.784	1613.784	0.27	257664	0.63	25000	
Ti	72	49	1	He	5.817	5.817	6.69	3874	0.15	200	
V	72	51	1	He	0.421	0.421	7.72	10877	0.00	200	
Cr	72	52	1	He	0.801	0.801	8.08	15844	0.01	200	
Mn	72	55	1	He	29.416	29.416	0.41	441612	0.01	2500	
Fe	72	56	3	H2	1047.311	1047.311	1.52	39223667	0.00	50000	
Co	72	59	1	He	0.163	0.163	2.42	4024	0.00	200	
Ni	72	60	1	He	0.701	0.701	7.86	3841	0.02	200	
copper	72	63	1	He	0.218	0.218	7.28	3673	0.01	200	
Zn	72	66	1	He	25.114	25.114	1.85	68010	0.04	200	
arsenic	72	75	1	He	-0.016	-0.016	-65.84	610	0.00	200	
selenium	72	78	3	H2	-0.154	-0.154	-4.90	66	-0.23	200	
Sr	72	88	1	He	22.041	22.041	0.40	480791	0.00	500	
Mo	115	95	1	He	0.957	0.957	6.34	8222	0.01	200	
Ag	115	107	1	He	-0.018	-0.018	-8.92	194	-0.01	200	
Cd	72	111	1	He	-0.007	-0.007	-47.55	7	-0.10	200	
Sn	115	120	1	He	-0.101	-0.101	-45.53	3296	0.00	200	
antimony	159	121	1	He	-0.174	-0.174	-4.27	798	-0.02	200	
Ba	115	137	1	He	6.948	6.948	2.77	34414	0.02	1000	
Tl	159	205	2	no gas	0.002	0.002	62.32	239	0.00	40	
[Pb]	209	206	2	no gas	0.142	0.142	43.86	7345	0.00	200	
[Pb]	209	207	2	no gas	0.082	0.082	32.56	5851	0.00	200	
Pb	209	208	2	no gas	0.104	0.104	14.29	27985	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1871552	0.55	1982866	94.39	70	120	
Sc	45	1	He	706900	0.36	767851	92.06	70	120	
Ge	72	1	He	295438	0.48	320058	92.31	70	125	
Ge	72	2	no gas	615434	0.97	673177	91.42	70	125	
Ge	72	3	H2	750663	1.01	821457	91.38	70	120	
Y	89	1	He	2534769	0.99	2786775	90.96	70	120	
In	115	1	He	2791409	2.54	3045232	91.66	70	120	
In	115	2	no gas	4322991	0.33	4564130	94.72	70	120	
In	115	3	H2	6171035	0.54	5826290	105.92	70	120	
Tb	159	1	He	4382220	1.25	4638687	94.47	70	120	
Tb	159	2	no gas	5522994	0.71	5623529	98.21	70	120	
Bi	209	2	no gas	3348158	0.84	3475006	96.35	60	120	

Sample Report

Sample Table

Sample Name	400-169586-A-1-A
Data File Name	239SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T03:59:25-05:00
Sample Type	Sample
Dilution	1
Comment	439769_11
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.784	4.784	6.36	256820	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-30.08	81	-0.01	200	
B	6	11	2	no gas	1.983	1.983	16.23	42221	0.00	400	
Na	72	23	1	He	3199.807	3199.807	1.12	12906133	0.02	50000	
Mg	72	24	1	He	2130.054	2130.054	2.46	4998730	0.04	50000	
Al	45	27	3	H2	49.586	49.586	1.22	627802	0.01	50000	
Si	45	28	3	H2	545.110	545.110	1.60	3555129	0.02	2000	
K	72	39	1	He	6421.590	6421.590	1.82	23029689	0.03	50000	
Ca	72	44	1	He	9775.420	9775.420	2.84	1558137	0.63	25000	
Ti	72	49	1	He	2.826	2.826	1.61	2008	0.14	200	
V	72	51	1	He	0.232	0.232	16.86	7923	0.00	200	
Cr	72	52	1	He	0.191	0.191	4.06	5561	0.00	200	
Mn	72	55	1	He	331.851	331.851	2.03	4968304	0.01	2500	
Fe	72	56	3	H2	803.167	803.167	0.55	30220069	0.00	50000	
Co	72	59	1	He	0.366	0.366	2.24	8504	0.00	200	
Ni	72	60	1	He	1.165	1.165	4.52	6241	0.02	200	
copper	72	63	1	He	0.219	0.219	1.73	3706	0.01	200	
Zn	72	66	1	He	1.067	1.067	16.07	4004	0.03	200	
arsenic	72	75	1	He	2.132	2.132	3.60	5135	0.04	200	
selenium	72	78	3	H2	0.455	0.455	8.33	692	0.07	200	
Sr	72	88	1	He	39.423	39.423	1.48	865098	0.00	500	
Mo	115	95	1	He	1.144	1.144	10.14	9420	0.01	200	
Ag	115	107	1	He	0.000	0.000	-2699.64	511	0.00	200	
Cd	72	111	1	He	0.041	0.041	13.83	173	0.02	200	
Sn	115	120	1	He	-0.146	-0.146	-0.36	2697	-0.01	200	
antimony	159	121	1	He	-0.055	-0.055	-46.72	2116	0.00	200	
Ba	115	137	1	He	15.117	15.117	0.48	74655	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-41.99	121	0.00	40	
[Pb]	209	206	2	no gas	0.631	0.631	3.68	13606	0.00	200	
[Pb]	209	207	2	no gas	0.541	0.541	3.22	10964	0.00	200	
Pb	209	208	2	no gas	0.559	0.559	2.80	51775	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1922453	1.30	1982866	96.95	70	120	
Sc	45	1	He	714130	0.36	767851	93.00	70	120	
Ge	72	1	He	297427	1.52	320058	92.93	70	125	
Ge	72	2	no gas	618425	1.03	673177	91.87	70	125	
Ge	72	3	H2	752551	1.08	821457	91.61	70	120	
Y	89	1	He	2532479	0.11	2786775	90.87	70	120	
In	115	1	He	2789596	1.72	3045232	91.61	70	120	
In	115	2	no gas	4374438	1.08	4564130	95.84	70	120	
In	115	3	H2	6186897	2.19	5826290	106.19	70	120	
Tb	159	1	He	4458000	1.04	4638687	96.10	70	120	
Tb	159	2	no gas	5523961	0.61	5623529	98.23	70	120	
Bi	209	2	no gas	3319509	1.47	3475006	95.53	60	120	

Sample Report

Sample Table

Sample Name	400-169586-A-2-A
Data File Name	240SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:03:25-05:00
Sample Type	Sample
Dilution	1
Comment	439769_12
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	5.596	5.596	2.38	276786	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-26.79	77	-0.01	200	
B	6	11	2	no gas	3.561	3.561	7.50	48937	0.01	400	
Na	72	23	1	He	3191.402	3191.402	0.81	12755443	0.03	50000	
Mg	72	24	1	He	1943.983	1943.983	0.78	4521623	0.04	50000	
Al	45	27	3	H2	56.299	56.299	4.78	722615	0.01	50000	
Si	45	28	3	H2	502.474	502.474	0.95	3339603	0.02	2000	
K	72	39	1	He	6803.514	6803.514	0.92	24157430	0.03	50000	
Ca	72	44	1	He	9656.843	9656.843	0.26	1525549	0.63	25000	
Ti	72	49	1	He	3.121	3.121	6.93	2175	0.14	200	
V	72	51	1	He	0.233	0.233	13.65	7860	0.00	200	
Cr	72	52	1	He	0.237	0.237	5.40	6285	0.00	200	
Mn	72	55	1	He	320.221	320.221	0.45	4751333	0.01	2500	
Fe	72	56	3	H2	769.144	769.144	1.08	29201865	0.00	50000	
Co	72	59	1	He	0.376	0.376	1.48	8640	0.00	200	
Ni	72	60	1	He	1.248	1.248	5.07	6608	0.02	200	
copper	72	63	1	He	0.202	0.202	0.56	3458	0.01	200	
Zn	72	66	1	He	1.053	1.053	6.76	3934	0.03	200	
arsenic	72	75	1	He	2.093	2.093	2.57	5010	0.04	200	
selenium	72	78	3	H2	0.484	0.484	5.84	728	0.07	200	
Sr	72	88	1	He	39.997	39.997	0.22	869774	0.00	500	
Mo	115	95	1	He	1.191	1.191	6.34	9683	0.01	200	
Ag	115	107	1	He	0.048	0.048	8.10	1356	0.00	200	
Cd	72	111	1	He	0.021	0.021	15.86	103	0.02	200	
Sn	115	120	1	He	-0.149	-0.149	-7.27	2650	-0.01	200	
antimony	159	121	1	He	-0.075	-0.075	-6.06	1849	0.00	200	
Ba	115	137	1	He	15.147	15.147	2.04	74565	0.02	1000	
Tl	159	205	2	no gas	0.002	0.002	43.57	240	0.00	40	
[Pb]	209	206	2	no gas	0.605	0.605	5.08	13226	0.00	200	
[Pb]	209	207	2	no gas	0.557	0.557	3.77	11124	0.01	200	
Pb	209	208	2	no gas	0.546	0.546	3.56	50947	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1909861	3.39	1982866	96.32	70	120	
Sc	45	1	He	713390	0.63	767851	92.91	70	120	
Ge	72	1	He	294699	0.30	320058	92.08	70	125	
Ge	72	2	no gas	615196	0.41	673177	91.39	70	125	
Ge	72	3	H2	759148	1.50	821457	92.41	70	120	
Y	89	1	He	2547084	1.09	2786775	91.40	70	120	
In	115	1	He	2780816	0.41	3045232	91.32	70	120	
In	115	2	no gas	4329468	0.36	4564130	94.86	70	120	
In	115	3	H2	6257485	1.25	5826290	107.40	70	120	
Tb	159	1	He	4337756	0.84	4638687	93.51	70	120	
Tb	159	2	no gas	5548384	1.37	5623529	98.66	70	120	
Bi	209	2	no gas	3309836	0.56	3475006	95.25	60	120	

Sample Report

Sample Table

Sample Name	400-169586-A-3-A
Data File Name	241SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:07:21-05:00
Sample Type	Sample
Dilution	1
Comment	439769_13
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	19.107	19.107	0.51	634970	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-28.39	74	-0.01	200	
B	6	11	2	no gas	0.853	0.853	6.78	36797	0.00	400	
Na	72	23	1	He	3543.407	3543.407	1.72	13962197	0.03	50000	
Mg	72	24	1	He	2591.831	2591.831	1.60	5944119	0.04	50000	
Al	45	27	3	H2	10.446	10.446	7.62	144002	0.01	50000	
Si	45	28	3	H2	2639.044	2639.044	0.60	16653937	0.02	2000	>LDR
K	72	39	1	He	10623.440	10623.440	0.86	36994674	0.03	50000	
Ca	72	44	1	He	19100.807	19100.807	1.03	2973925	0.64	25000	
Ti	72	49	1	He	0.623	0.623	17.84	600	0.10	200	
V	72	51	1	He	0.177	0.177	12.61	6878	0.00	200	
Cr	72	52	1	He	0.226	0.226	12.69	6018	0.00	200	
Mn	72	55	1	He	42.357	42.357	1.38	623684	0.01	2500	
Fe	72	56	3	H2	26.401	26.401	2.79	1246402	0.00	50000	
Co	72	59	1	He	0.068	0.068	5.91	1938	0.00	200	
Ni	72	60	1	He	1.650	1.650	1.79	8532	0.02	200	
copper	72	63	1	He	0.421	0.421	2.36	6206	0.01	200	
Zn	72	66	1	He	2.094	2.094	4.08	6608	0.03	200	
arsenic	72	75	1	He	0.347	0.347	2.75	1347	0.03	200	
selenium	72	78	3	H2	0.654	0.654	1.79	882	0.07	200	
Sr	72	88	1	He	107.836	107.836	0.70	2311873	0.00	500	
Mo	115	95	1	He	1.357	1.357	6.05	10727	0.01	200	
Ag	115	107	1	He	0.008	0.008	53.89	644	0.00	200	
Cd	72	111	1	He	0.008	0.008	144.56	57	0.01	200	
Sn	115	120	1	He	-0.131	-0.131	-7.79	2884	0.00	200	
antimony	159	121	1	He	-0.146	-0.146	-5.16	1099	-0.01	200	
Ba	115	137	1	He	16.706	16.706	0.67	82172	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-10.03	57	-0.01	40	
[Pb]	209	206	2	no gas	0.199	0.199	20.91	8122	0.00	200	
[Pb]	209	207	2	no gas	0.162	0.162	10.32	6782	0.00	200	
Pb	209	208	2	no gas	0.162	0.162	9.07	31133	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1902706	0.56	1982866	95.96	70	120	
Sc	45	1	He	699018	1.39	767851	91.04	70	120	
Ge	72	1	He	290677	0.41	320058	90.82	70	125	
Ge	72	2	no gas	612213	1.50	673177	90.94	70	125	
Ge	72	3	H2	740982	0.40	821457	90.20	70	120	
Y	89	1	He	2481958	1.26	2786775	89.06	70	120	
In	115	1	He	2778907	1.12	3045232	91.25	70	120	
In	115	2	no gas	4302863	1.80	4564130	94.28	70	120	
In	115	3	H2	6076980	2.25	5826290	104.30	70	120	
Tb	159	1	He	4366426	1.53	4638687	94.13	70	120	
Tb	159	2	no gas	5521455	0.90	5623529	98.18	70	120	
Bi	209	2	no gas	3356989	0.91	3475006	96.60	60	120	

Sample Report

Sample Table

Sample Name	400-169586-A-4-A
Data File Name	242SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:11:16-05:00
Sample Type	Sample
Dilution	1
Comment	439769_14
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	19.354	19.354	2.33	660603	0.00	200	
Be	6	9	2	no gas	-0.010	-0.010	-38.05	66	-0.01	200	
B	6	11	2	no gas	0.825	0.825	40.11	37752	0.00	400	
Na	72	23	1	He	3920.902	3920.902	1.08	15591022	0.03	50000	
Mg	72	24	1	He	3229.172	3229.172	1.25	7474696	0.04	50000	
Al	45	27	3	H2	11.543	11.543	3.42	159076	0.01	50000	
Si	45	28	3	H2	2465.295	2465.295	2.31	15742325	0.02	2000	>LDR
K	72	39	1	He	12128.771	12128.771	0.13	42585859	0.03	50000	
Ca	72	44	1	He	19914.777	19914.777	1.56	3129931	0.64	25000	
Ti	72	49	1	He	0.718	0.718	10.73	666	0.11	200	
V	72	51	1	He	0.244	0.244	7.72	8002	0.00	200	
Cr	72	52	1	He	0.314	0.314	2.45	7545	0.00	200	
Mn	72	55	1	He	70.816	70.816	0.35	1049745	0.01	2500	
Fe	72	56	3	H2	49.611	49.611	0.95	2107384	0.00	50000	
Co	72	59	1	He	0.055	0.055	4.89	1678	0.00	200	
Ni	72	60	1	He	1.671	1.671	4.83	8719	0.02	200	
copper	72	63	1	He	0.358	0.358	1.44	5454	0.01	200	
Zn	72	66	1	He	2.359	2.359	2.16	7372	0.03	200	
arsenic	72	75	1	He	0.374	0.374	3.02	1415	0.03	200	
selenium	72	78	3	H2	0.574	0.574	5.56	805	0.07	200	
Sr	72	88	1	He	109.290	109.290	1.75	2365426	0.00	500	
Mo	115	95	1	He	1.169	1.169	8.04	9536	0.01	200	
Ag	115	107	1	He	-0.004	-0.004	-39.13	443	0.00	200	
Cd	72	111	1	He	0.024	0.024	73.25	113	0.02	200	
Sn	115	120	1	He	-0.102	-0.102	-9.94	3254	0.00	200	
antimony	159	121	1	He	-0.149	-0.149	-4.10	1061	-0.01	200	
Ba	115	137	1	He	19.094	19.094	2.90	93902	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-21.78	65	0.00	40	
[Pb]	209	206	2	no gas	0.187	0.187	5.86	8179	0.00	200	
[Pb]	209	207	2	no gas	0.147	0.147	16.38	6778	0.00	200	
Pb	209	208	2	no gas	0.168	0.168	7.09	32321	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1959799	2.35	1982866	98.84	70	120	
Sc	45	1	He	706183	1.29	767851	91.97	70	120	
Ge	72	1	He	293453	0.52	320058	91.69	70	125	
Ge	72	2	no gas	632265	1.38	673177	93.92	70	125	
Ge	72	3	H2	744214	0.48	821457	90.60	70	120	
Y	89	1	He	2498177	1.65	2786775	89.64	70	120	
In	115	1	He	2780428	2.29	3045232	91.30	70	120	
In	115	2	no gas	4443475	2.46	4564130	97.36	70	120	
In	115	3	H2	6193037	1.85	5826290	106.29	70	120	
Tb	159	1	He	4328877	1.75	4638687	93.32	70	120	
Tb	159	2	no gas	5659654	1.70	5623529	100.64	70	120	
Bi	209	2	no gas	3446390	1.76	3475006	99.18	60	120	

Sample Report

Sample Table

Sample Name	400-169586-A-5-A
Data File Name	243SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:15:13-05:00
Sample Type	Sample
Dilution	1
Comment	439769_15
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	20.654	20.654	1.28	654991	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-28.44	68	-0.01	200	
B	6	11	2	no gas	0.094	0.094	329.51	32389	0.00	400	
Na	72	23	1	He	3985.664	3985.664	0.60	15685118	0.03	50000	
Mg	72	24	1	He	2818.405	2818.405	2.32	6457358	0.04	50000	
Al	45	27	3	H2	10.039	10.039	3.21	139572	0.01	50000	
Si	45	28	3	H2	2318.950	2318.950	1.95	14701099	0.02	2000	>LDR
K	72	39	1	He	14045.470	14045.470	2.60	48744604	0.03	50000	
Ca	72	44	1	He	27069.982	27069.982	1.00	4209982	0.64	25000	>LDR
Ti	72	49	1	He	0.450	0.450	43.04	493	0.09	200	
V	72	51	1	He	0.300	0.300	5.16	8795	0.00	200	
Cr	72	52	1	He	0.180	0.180	6.58	5241	0.00	200	
Mn	72	55	1	He	38.449	38.449	0.91	566099	0.01	2500	
Fe	72	56	3	H2	12.141	12.141	0.94	716102	0.00	50000	
Co	72	59	1	He	0.078	0.078	5.57	2150	0.00	200	
Ni	72	60	1	He	1.813	1.813	2.90	9339	0.02	200	
copper	72	63	1	He	0.467	0.467	2.55	6791	0.01	200	
Zn	72	66	1	He	1.797	1.797	8.14	5824	0.03	200	
arsenic	72	75	1	He	0.342	0.342	10.33	1337	0.03	200	
selenium	72	78	3	H2	0.373	0.373	3.58	593	0.06	200	
Sr	72	88	1	He	116.787	116.787	1.24	2501574	0.00	500	
Mo	115	95	1	He	2.053	2.053	2.70	14917	0.01	200	
Ag	115	107	1	He	0.015	0.015	20.54	759	0.00	200	
Cd	72	111	1	He	0.015	0.015	65.87	83	0.02	200	
Sn	115	120	1	He	-0.112	-0.112	-12.99	3080	0.00	200	
antimony	159	121	1	He	-0.152	-0.152	-6.32	1026	-0.01	200	
Ba	115	137	1	He	20.065	20.065	0.55	97130	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-25.78	75	0.00	40	
[Pb]	209	206	2	no gas	0.128	0.128	11.93	7215	0.00	200	
[Pb]	209	207	2	no gas	0.099	0.099	27.09	6078	0.00	200	
Pb	209	208	2	no gas	0.090	0.090	11.73	27374	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1843496	1.08	1982866	92.97	70	120	
Sc	45	1	He	698813	0.91	767851	91.01	70	120	
Ge	72	1	He	290439	0.60	320058	90.75	70	125	
Ge	72	2	no gas	612598	1.11	673177	91.00	70	125	
Ge	72	3	H2	733870	1.69	821457	89.34	70	120	
Y	89	1	He	2500505	0.56	2786775	89.73	70	120	
In	115	1	He	2735917	0.82	3045232	89.84	70	120	
In	115	2	no gas	4329750	1.32	4564130	94.86	70	120	
In	115	3	H2	6104396	0.09	5826290	104.77	70	120	
Tb	159	1	He	4339498	1.14	4638687	93.55	70	120	
Tb	159	2	no gas	5556234	1.17	5623529	98.80	70	120	
Bi	209	2	no gas	3366722	1.30	3475006	96.88	60	120	

Sample Report

Sample Table

Sample Name	400-169586-A-6-A
Data File Name	244SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:19:11-05:00
Sample Type	Sample
Dilution	1
Comment	439769_16
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	22.728	22.728	9.72	672845	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-30.61	60	-0.02	200	
B	6	11	2	no gas	0.697	0.697	125.34	33170	0.00	400	
Na	72	23	1	He	4492.484	4492.484	1.15	17692438	0.03	50000	
Mg	72	24	1	He	3458.413	3458.413	2.27	7930121	0.04	50000	
Al	45	27	3	H2	8.139	8.139	2.22	120074	0.01	50000	
Si	45	28	3	H2	2440.227	2440.227	0.93	15937901	0.02	2000	>LDR
K	72	39	1	He	16283.773	16283.773	3.02	56500331	0.03	50000	
Ca	72	44	1	He	30575.409	30575.409	2.27	4759366	0.64	25000	>LDR
Ti	72	49	1	He	0.354	0.354	30.90	433	0.08	200	
V	72	51	1	He	0.356	0.356	5.93	9688	0.00	200	
Cr	72	52	1	He	0.232	0.232	16.37	6101	0.00	200	
Mn	72	55	1	He	73.543	73.543	2.56	1079731	0.01	2500	
Fe	72	56	3	H2	19.131	19.131	2.61	986280	0.00	50000	
Co	72	59	1	He	0.120	0.120	10.71	3044	0.00	200	
Ni	72	60	1	He	1.870	1.870	4.41	9643	0.02	200	
copper	72	63	1	He	0.461	0.461	7.60	6716	0.01	200	
Zn	72	66	1	He	2.285	2.285	11.64	7098	0.03	200	
arsenic	72	75	1	He	0.338	0.338	9.90	1329	0.03	200	
selenium	72	78	3	H2	0.228	0.228	18.61	455	0.05	200	
Sr	72	88	1	He	130.153	130.153	2.21	2790516	0.00	500	
Mo	115	95	1	He	1.420	1.420	8.72	11431	0.01	200	
Ag	115	107	1	He	-0.006	-0.006	-27.18	412	0.00	200	
Cd	72	111	1	He	0.023	0.023	28.73	110	0.02	200	
Sn	115	120	1	He	-0.122	-0.122	-21.57	3077	0.00	200	
antimony	159	121	1	He	-0.157	-0.157	-3.51	1019	-0.02	200	
Ba	115	137	1	He	22.571	22.571	3.72	113989	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-30.54	73	0.00	40	
[Pb]	209	206	2	no gas	0.141	0.141	8.31	6632	0.00	200	
[Pb]	209	207	2	no gas	0.136	0.136	50.49	5791	0.00	200	
Pb	209	208	2	no gas	0.149	0.149	26.45	27277	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1759860	9.61	1982866	88.75	70	120	
Sc	45	1	He	713942	3.61	767851	92.98	70	120	
Ge	72	1	He	290830	3.02	320058	90.87	70	125	
Ge	72	2	no gas	570145	11.60	673177	84.69	70	125	
Ge	72	3	H2	746131	1.86	821457	90.83	70	120	
Y	89	1	He	2592790	3.63	2786775	93.04	70	120	
In	115	1	He	2858275	4.85	3045232	93.86	70	120	
In	115	2	no gas	3901628	12.98	4564130	85.48	70	120	
In	115	3	H2	6262240	1.44	5826290	107.48	70	120	
Tb	159	1	He	4519395	3.48	4638687	97.43	70	120	
Tb	159	2	no gas	4996220	12.47	5623529	88.84	70	120	
Bi	209	2	no gas	3021370	11.65	3475006	86.95	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	246_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:27:08-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.550	50.550	1.72	1442354	0.00	50	
Be	6	9	2	no gas	47.326	47.326	0.98	378724	0.01	50	
B	6	11	2	no gas	97.609	97.609	1.45	447882	0.02	100	
Na	72	23	1	He	4856.863	4856.863	1.01	18652271	0.03	5000	
Mg	72	24	1	He	4866.611	4866.611	0.28	10881672	0.04	5000	
Al	45	27	3	H2	463.171	463.171	1.78	5517861	0.01	500	
K	72	39	1	He	4893.116	4893.116	0.32	16852592	0.03	5000	
Ca	72	44	1	He	4732.715	4732.715	0.72	723122	0.65	5000	
Ti	72	49	1	He	49.661	49.661	0.99	30057	0.17	50	
V	72	51	1	He	47.155	47.155	0.35	726548	0.01	50	
Cr	72	52	1	He	47.267	47.267	0.70	770351	0.01	50	
Mn	72	55	1	He	488.923	488.923	0.61	6976425	0.01	500	
Fe	72	56	3	H2	4790.715	4790.715	1.02	171584151	0.00	5000	
Co	72	59	1	He	47.788	47.788	0.64	997723	0.00	50	
Ni	72	60	1	He	49.209	49.209	1.08	240592	0.02	50	
copper	72	63	1	He	47.929	47.929	0.71	599785	0.01	50	
dwCu63	72	63	2	no gas	47.729	47.729	1.37	878101	0.01	50	
Zn	72	66	1	He	49.297	49.297	0.90	128014	0.04	50	
arsenic	72	75	1	He	47.249	47.249	0.83	95325	0.05	50	
dwAs75	72	75	2	no gas	48.143	48.143	0.73	194090	0.02	50	
selenium	72	78	3	H2	50.477	50.477	0.80	49835	0.10	50	
Sr	72	88	1	He	50.014	50.014	0.97	1047396	0.00	50	
Mo	115	95	1	He	48.941	48.941	1.39	306752	0.02	50	
Ag	115	107	1	He	47.477	47.477	0.90	827104	0.01	50	
Cd	72	111	1	He	50.113	50.113	1.08	167456	0.03	50	
Sn	115	120	1	He	49.603	49.603	0.96	640741	0.01	50	
antimony	159	121	1	He	50.021	50.021	0.54	537495	0.01	50	
dwSb121	159	121	2	no gas	52.863	52.863	0.98	764346	0.01	50	
Ba	115	137	1	He	47.199	47.199	1.10	228689	0.02	50	
Tl	159	205	2	no gas	10.004	10.004	1.42	384498	0.00	10	
[Pb]	209	206	2	no gas	49.315	49.315	0.70	647454	0.01	50	
[Pb]	209	207	2	no gas	50.156	50.156	1.34	574470	0.01	50	
Pb	209	208	2	no gas	48.698	48.698	1.66	2616593	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1863795	0.52	1982866	94.00	70	120	
Sc	45	1	He	692056	0.39	767851	90.13	70	120	
Ge	72	1	He	283543	0.26	320058	88.59	70	125	
Ge	72	2	no gas	598210	0.48	673177	88.86	70	125	
Ge	72	3	H2	722872	1.23	821457	88.00	70	120	
Y	89	1	He	2466687	0.96	2786775	88.51	70	120	
In	115	1	He	2741503	0.89	3045232	90.03	70	120	
In	115	2	no gas	4277396	0.86	4564130	93.72	70	120	
In	115	3	H2	5954551	0.83	5826290	102.20	70	120	
Tb	159	1	He	4376008	0.95	4638687	94.34	70	120	
Tb	159	2	no gas	5516360	1.04	5623529	98.09	70	120	
Bi	209	2	no gas	3348374	1.06	3475006	96.36	60	120	

Sample Table

Sample Name	CCB
Data File Name	248_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:34:56-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.148	0.148	46.86	124856	0.00	0.5	
Be	6	9	2	no gas	-0.013	-0.013	-20.14	76	-0.02	0.5	
B	6	11	2	no gas	-0.825	-0.825	-27.55	26513	0.00	5	
Na	72	23	1	He	-4.008	-4.008	-9.76	46680	-0.01	100	
Mg	72	24	1	He	-2.380	-2.380	-4.93	2607	-0.09	50	
Al	45	27	3	H2	-0.009	-0.009	-3105.77	21250	0.00	50	
K	72	39	1	He	-7.466	-7.466	-18.66	371502	0.00	50	
Ca	72	44	1	He	-3.573	-3.573	-29.26	2024	-0.18	50	
Ti	72	49	1	He	-0.096	-0.096	-159.18	188	-0.05	0.5	
V	72	51	1	He	-0.005	-0.005	-279.44	4991	0.00	0.5	
Cr	72	52	1	He	-0.033	-0.033	-14.18	1927	0.00	0.5	
Mn	72	55	1	He	-0.243	-0.243	-15.93	1930	-0.01	2	
Fe	72	56	3	H2	-10.908	-10.908	-0.29	141174	-0.01	25	
Co	72	59	1	He	-0.025	-0.025	-6.12	123	-0.02	0.5	
Ni	72	60	1	He	-0.034	-0.034	-26.22	127	-0.03	1.5	
copper	72	63	1	He	-0.028	-0.028	-10.07	474	-0.01	0.5	
dwCu63	72	63	2	no gas	-0.019	-0.019	-29.66	680	0.00	0.5	
Zn	72	66	1	He	-0.053	-0.053	-90.16	1103	0.00	4	
arsenic	72	75	1	He	-0.160	-0.160	-2.72	422	-0.04	0.25	
dwAs75	72	75	2	no gas	-0.651	-0.651	-50.41	-913	0.07	5	
selenium	72	78	3	H2	-0.032	-0.032	-51.09	185	-0.02	0.25	
dwSe82	72	82	2	no gas	-0.795	-0.795	-2.25	202	-0.39	5	
Sr	72	88	1	He	-0.028	-0.028	-2.19	243	-0.01	0.5	
Mo	115	95	1	He	-0.429	-0.429	-7.67	867	-0.05	1	
Ag	115	107	1	He	-0.021	-0.021	-15.09	278	-0.01	0.05	
Cd	72	111	1	He	-0.028	-0.028	-12.09	13	-0.21	0.25	
Sn	115	120	1	He	-0.098	-0.098	-26.33	3284	0.00	0.5	
antimony	159	121	1	He	-0.106	-0.106	-17.26	1517	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.204	-0.204	-7.06	3567	-0.01	5	
Ba	115	137	1	He	-0.024	-0.024	-7.93	91	-0.03	0.5	
Tl	159	205	2	no gas	-0.006	-0.006	-13.72	111	-0.01	0.1	
[Pb]	209	206	2	no gas	-0.029	-0.029	-108.54	5548	0.00	0.25	
[Pb]	209	207	2	no gas	0.012	0.012	194.33	5198	0.00	0.25	
Pb	209	208	2	no gas	-0.016	-0.016	-100.83	22624	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1854884	0.42	1982866	93.55	70	120	
Sc	45	1	He	682385	0.75	767851	88.87	70	120	
Ge	72	1	He	285367	0.54	320058	89.16	70	125	
Ge	72	2	no gas	597798	0.71	673177	88.80	70	125	
Ge	72	3	H2	723454	1.27	821457	88.07	70	120	
Y	89	1	He	2455831	0.73	2786775	88.12	70	120	
In	115	1	He	2763262	1.40	3045232	90.74	70	120	
In	115	2	no gas	4302435	2.31	4564130	94.27	70	120	
In	115	3	H2	6057663	1.77	5826290	103.97	70	120	
Tb	159	1	He	4319770	0.61	4638687	93.12	70	120	
Tb	159	2	no gas	5473846	1.57	5623529	97.34	70	120	
Bi	209	2	no gas	3410076	0.82	3475006	98.13	60	120	

Sample Report

Sample Table

Sample Name	400-169700-C-1-A
Data File Name	249SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:38:55-05:00
Sample Type	Sample
Dilution	1
Comment	439769_17
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.705	2.705	6.41	192637	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-26.90	111	-0.01	200	
B	6	11	2	no gas	1.036	1.036	42.22	34819	0.00	400	
Na	72	23	1	He	3384.423	3384.423	1.05	12974431	0.03	50000	
Mg	72	24	1	He	2855.268	2855.268	0.76	6368150	0.04	50000	
Al	45	27	3	H2	54.987	54.987	4.26	668347	0.01	50000	
Si	45	28	3	H2	824.835	824.835	0.70	5131950	0.02	2000	
K	72	39	1	He	7532.541	7532.541	2.03	25633739	0.03	50000	
Ca	72	44	1	He	11251.558	11251.558	1.61	1704228	0.66	25000	
Ti	72	49	1	He	3.514	3.514	16.32	2358	0.15	200	
V	72	51	1	He	0.233	0.233	2.20	8559	0.00	200	
Cr	72	52	1	He	0.253	0.253	4.31	6545	0.00	200	
Mn	72	55	1	He	513.699	513.699	0.87	7308038	0.01	2500	
Fe	72	56	3	H2	1500.148	1500.148	1.52	53841124	0.00	50000	
Co	72	59	1	He	0.672	0.672	1.61	14609	0.00	200	
Ni	72	60	1	He	1.115	1.115	11.72	5718	0.02	200	
copper	72	63	1	He	0.255	0.255	3.57	4002	0.01	200	
Zn	72	66	1	He	1.236	1.236	3.90	4377	0.03	200	
arsenic	72	75	1	He	2.931	2.931	0.95	6603	0.04	200	
selenium	72	78	3	H2	0.126	0.126	10.99	338	0.04	200	
Sr	72	88	1	He	44.270	44.270	1.46	923280	0.00	500	
Mo	115	95	1	He	0.202	0.202	6.58	4727	0.00	200	
Ag	115	107	1	He	0.304	0.304	6.04	5830	0.01	200	
Cd	72	111	1	He	0.008	0.008	179.05	133	0.01	200	
Sn	115	120	1	He	-0.074	-0.074	-7.81	3511	0.00	200	
antimony	159	121	1	He	0.049	0.049	47.80	3195	0.00	200	
Ba	115	137	1	He	20.487	20.487	0.58	97654	0.02	1000	
Tl	159	205	2	no gas	-0.006	-0.006	-11.71	127	0.00	40	
[Pb]	209	206	2	no gas	0.643	0.643	5.84	14303	0.00	200	
[Pb]	209	207	2	no gas	0.568	0.568	1.50	11511	0.00	200	
Pb	209	208	2	no gas	0.598	0.598	4.95	55330	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1870091	1.68	1982866	94.31	70	120	
Sc	45	1	He	678904	0.73	767851	88.42	70	120	
Ge	72	1	He	282620	0.90	320058	88.30	70	125	
Ge	72	2	no gas	598576	0.44	673177	88.92	70	125	
Ge	72	3	H2	717502	0.44	821457	87.35	70	120	
Y	89	1	He	2451762	0.42	2786775	87.98	70	120	
In	115	1	He	2693415	1.52	3045232	88.45	70	120	
In	115	2	no gas	4256715	0.94	4564130	93.26	70	120	
In	115	3	H2	5923750	1.73	5826290	101.67	70	120	
Tb	159	1	He	4379595	1.07	4638687	94.41	70	120	
Tb	159	2	no gas	5525874	0.40	5623529	98.26	70	120	
Bi	209	2	no gas	3374318	0.48	3475006	97.10	60	120	

Sample Report

Sample Table

Sample Name	400-169700-C-2-A
Data File Name	250SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:42:50-05:00
Sample Type	Sample
Dilution	1
Comment	439769_18
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	3.384	3.384	7.99	193057	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-19.42	102	-0.01	200	
B	6	11	2	no gas	0.780	0.780	153.18	30646	0.00	400	
Na	72	23	1	He	3071.957	3071.957	0.76	12069128	0.03	50000	
Mg	72	24	1	He	2300.710	2300.710	1.27	5257389	0.04	50000	
Al	45	27	3	H2	40.744	40.744	3.45	502056	0.01	50000	
Si	45	28	3	H2	665.347	665.347	2.07	4165372	0.02	2000	
K	72	39	1	He	6433.821	6433.821	0.87	22487964	0.03	50000	
Ca	72	44	1	He	9992.225	9992.225	0.91	1550635	0.64	25000	
Ti	72	49	1	He	2.721	2.721	13.99	1926	0.14	200	
V	72	51	1	He	0.147	0.147	2.74	7432	0.00	200	
Cr	72	52	1	He	0.205	0.205	9.14	5904	0.00	200	
Mn	72	55	1	He	441.468	441.468	0.85	6433753	0.01	2500	
Fe	72	56	3	H2	1278.718	1278.718	0.65	45805058	0.00	50000	
Co	72	59	1	He	0.552	0.552	1.25	12405	0.00	200	
Ni	72	60	1	He	1.108	1.108	7.28	5824	0.02	200	
copper	72	63	1	He	0.193	0.193	3.59	3310	0.01	200	
Zn	72	66	1	He	0.982	0.982	1.86	3821	0.03	200	
arsenic	72	75	1	He	2.384	2.384	1.32	5643	0.04	200	
selenium	72	78	3	H2	0.051	0.051	65.74	264	0.02	200	
Sr	72	88	1	He	40.874	40.874	0.75	873255	0.00	500	
Mo	115	95	1	He	0.115	0.115	9.41	4287	0.00	200	
Ag	115	107	1	He	0.006	0.006	39.04	753	0.00	200	
Cd	72	111	1	He	-0.017	-0.017	-20.20	53	-0.03	200	
Sn	115	120	1	He	-0.108	-0.108	-25.57	3147	0.00	200	
antimony	159	121	1	He	-0.010	-0.010	-271.57	2578	0.00	200	
Ba	115	137	1	He	18.035	18.035	2.08	87872	0.02	1000	
Tl	159	205	2	no gas	-0.006	-0.006	-8.15	89	-0.01	40	
[Pb]	209	206	2	no gas	0.467	0.467	21.88	11014	0.00	200	
[Pb]	209	207	2	no gas	0.521	0.521	16.63	10093	0.01	200	
Pb	209	208	2	no gas	0.482	0.482	20.84	45087	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1720138	11.42	1982866	86.75	70	120	
Sc	45	1	He	692922	1.04	767851	90.24	70	120	
Ge	72	1	He	289478	0.50	320058	90.45	70	125	
Ge	72	2	no gas	561857	13.06	673177	83.46	70	125	
Ge	72	3	H2	714919	0.32	821457	87.03	70	120	
Y	89	1	He	2498355	1.77	2786775	89.65	70	120	
In	115	1	He	2752534	0.88	3045232	90.39	70	120	
In	115	2	no gas	4026958	18.34	4564130	88.23	70	120	
In	115	3	H2	5903638	1.50	5826290	101.33	70	120	
Tb	159	1	He	4406835	1.38	4638687	95.00	70	120	
Tb	159	2	no gas	5085392	18.83	5623529	90.43	70	120	
Bi	209	2	no gas	3132935	15.25	3475006	90.16	60	120	

Sample Report

Sample Table

Sample Name	400-169700-C-3-A
Data File Name	251SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:46:46-05:00
Sample Type	Sample
Dilution	1
Comment	439769_19
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	20.732	20.732	2.52	662708	0.00	200	
Be	6	9	2	no gas	-0.014	-0.014	-10.82	73	-0.02	200	
B	6	11	2	no gas	1.906	1.906	18.43	38547	0.00	400	
Na	72	23	1	He	4017.751	4017.751	0.32	15243586	0.03	50000	
Mg	72	24	1	He	4849.392	4849.392	0.66	10706067	0.05	50000	
Al	45	27	3	H2	11.514	11.514	4.02	156608	0.01	50000	
Si	45	28	3	H2	3564.383	3564.383	1.45	21917886	0.02	2000	>LDR
K	72	39	1	He	13361.836	13361.836	0.32	44738303	0.03	50000	
Ca	72	44	1	He	26151.595	26151.595	0.45	3919915	0.67	25000	>LDR
Ti	72	49	1	He	0.688	0.688	25.38	651	0.11	200	
V	72	51	1	He	0.107	0.107	11.72	6585	0.00	200	
Cr	72	52	1	He	0.400	0.400	4.18	8839	0.00	200	
Mn	72	55	1	He	157.842	157.842	1.22	2227637	0.01	2500	
Fe	72	56	3	H2	161.161	161.161	2.00	6199075	0.00	50000	
Co	72	59	1	He	0.095	0.095	4.66	2575	0.00	200	
Ni	72	60	1	He	1.355	1.355	2.50	6821	0.02	200	
copper	72	63	1	He	0.377	0.377	2.81	5463	0.01	200	
Zn	72	66	1	He	2.612	2.612	3.01	7805	0.03	200	
arsenic	72	75	1	He	0.237	0.237	12.23	1203	0.02	200	
selenium	72	78	3	H2	0.105	0.105	19.05	314	0.03	200	
Sr	72	88	1	He	136.315	136.315	0.21	2814151	0.00	500	
Mo	115	95	1	He	-0.008	-0.008	-732.16	3457	0.00	200	
Ag	115	107	1	He	0.058	0.058	9.10	1638	0.00	200	
Cd	72	111	1	He	-0.006	-0.006	-101.96	87	-0.01	200	
Sn	115	120	1	He	-0.113	-0.113	-17.94	3030	0.00	200	
antimony	159	121	1	He	-0.117	-0.117	-9.84	1396	-0.01	200	
Ba	115	137	1	He	27.730	27.730	2.12	132901	0.02	1000	
Tl	159	205	2	no gas	-0.008	-0.008	-6.34	44	-0.02	40	
[Pb]	209	206	2	no gas	0.138	0.138	19.98	7752	0.00	200	
[Pb]	209	207	2	no gas	0.190	0.190	19.76	7249	0.00	200	
Pb	209	208	2	no gas	0.150	0.150	15.75	31564	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1868025	2.47	1982866	94.21	70	120	
Sc	45	1	He	669952	0.24	767851	87.25	70	120	
Ge	72	1	He	279902	0.35	320058	87.45	70	125	
Ge	72	2	no gas	598736	0.25	673177	88.94	70	125	
Ge	72	3	H2	710983	1.17	821457	86.55	70	120	
Y	89	1	He	2475097	0.14	2786775	88.82	70	120	
In	115	1	He	2709775	1.04	3045232	88.98	70	120	
In	115	2	no gas	4270158	2.54	4564130	93.56	70	120	
In	115	3	H2	5944316	1.06	5826290	102.03	70	120	
Tb	159	1	He	4326423	2.43	4638687	93.27	70	120	
Tb	159	2	no gas	5553437	3.26	5623529	98.75	70	120	
Bi	209	2	no gas	3407495	1.50	3475006	98.06	60	120	

Sample Report

Sample Table

Sample Name	400-169700-C-4-A
Data File Name	252SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:50:43-05:00
Sample Type	Sample
Dilution	1
Comment	439769_20
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	21.094	21.094	1.62	659558	0.00	200	
Be	6	9	2	no gas	-0.014	-0.014	-15.21	70	-0.02	200	
B	6	11	2	no gas	2.387	2.387	9.29	39876	0.01	400	
Na	72	23	1	He	4015.007	4015.007	1.21	15485086	0.03	50000	
Mg	72	24	1	He	4637.488	4637.488	1.07	10408185	0.04	50000	
Al	45	27	3	H2	10.590	10.590	3.50	144289	0.01	50000	
Si	45	28	3	H2	2987.084	2987.084	1.12	18213579	0.02	2000	>LDR
K	72	39	1	He	14170.551	14170.551	0.50	48207404	0.03	50000	
Ca	72	44	1	He	24350.323	24350.323	3.18	3710201	0.66	25000	>LDR
Ti	72	49	1	He	0.511	0.511	39.14	554	0.09	200	
V	72	51	1	He	0.219	0.219	5.76	8409	0.00	200	
Cr	72	52	1	He	0.441	0.441	0.57	9660	0.00	200	
Mn	72	55	1	He	156.283	156.283	1.48	2242161	0.01	2500	
Fe	72	56	3	H2	191.696	191.696	0.51	7311316	0.00	50000	
Co	72	59	1	He	0.071	0.071	11.35	2118	0.00	200	
Ni	72	60	1	He	1.332	1.332	12.10	6821	0.02	200	
copper	72	63	1	He	0.321	0.321	1.51	4855	0.01	200	
Zn	72	66	1	He	2.284	2.284	8.39	7092	0.03	200	
arsenic	72	75	1	He	0.237	0.237	11.86	1221	0.02	200	
selenium	72	78	3	H2	0.019	0.019	100.20	232	0.01	200	
Sr	72	88	1	He	126.412	126.412	0.67	2652963	0.00	500	
Mo	115	95	1	He	0.087	0.087	93.70	4061	0.00	200	
Ag	115	107	1	He	0.280	0.280	4.22	5480	0.01	200	
Cd	72	111	1	He	-0.012	-0.012	-59.32	67	-0.02	200	
Sn	115	120	1	He	-0.061	-0.061	-20.79	3717	0.00	200	
antimony	159	121	1	He	-0.137	-0.137	-0.93	1197	-0.01	200	
Ba	115	137	1	He	27.867	27.867	1.22	134183	0.02	1000	
Tl	159	205	2	no gas	-0.006	-0.006	-7.39	96	-0.01	40	
[Pb]	209	206	2	no gas	0.156	0.156	30.49	7765	0.00	200	
[Pb]	209	207	2	no gas	0.167	0.167	9.70	6792	0.00	200	
Pb	209	208	2	no gas	0.130	0.130	6.64	29659	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1832671	1.66	1982866	92.43	70	120	
Sc	45	1	He	672901	0.50	767851	87.63	70	120	
Ge	72	1	He	284540	0.52	320058	88.90	70	125	
Ge	72	2	no gas	599906	0.23	673177	89.12	70	125	
Ge	72	3	H2	714699	1.04	821457	87.00	70	120	
Y	89	1	He	2470235	0.71	2786775	88.64	70	120	
In	115	1	He	2722201	1.21	3045232	89.39	70	120	
In	115	2	no gas	4217773	0.50	4564130	92.41	70	120	
In	115	3	H2	5967244	1.58	5826290	102.42	70	120	
Tb	159	1	He	4376200	0.57	4638687	94.34	70	120	
Tb	159	2	no gas	5498555	1.51	5623529	97.78	70	120	
Bi	209	2	no gas	3312670	1.51	3475006	95.33	60	120	

Sample Report

Sample Table

Sample Name	400-169700-C-5-A
Data File Name	253SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:54:40-05:00
Sample Type	Sample
Dilution	1
Comment	439769_21
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	20.504	20.504	0.72	642793	0.00	200	
Be	6	9	2	no gas	-0.016	-0.016	-19.45	54	-0.03	200	
B	6	11	2	no gas	1.319	1.319	29.37	35240	0.00	400	
Na	72	23	1	He	4401.753	4401.753	0.48	16823787	0.03	50000	
Mg	72	24	1	He	5148.023	5148.023	0.41	11453026	0.04	50000	
Al	45	27	3	H2	8.649	8.649	2.92	121037	0.01	50000	
Si	45	28	3	H2	2989.471	2989.471	2.37	18143067	0.02	2000	>LDR
K	72	39	1	He	18095.924	18095.924	1.34	60916539	0.03	50000	
Ca	72	44	1	He	40592.072	40592.072	0.81	6130079	0.66	25000	>LDR
Ti	72	49	1	He	0.385	0.385	50.93	474	0.08	200	
V	72	51	1	He	0.234	0.234	0.37	8557	0.00	200	
Cr	72	52	1	He	0.257	0.257	8.51	6601	0.00	200	
Mn	72	55	1	He	150.939	150.939	0.85	2146901	0.01	2500	
Fe	72	56	3	H2	62.173	62.173	0.99	2702766	0.00	50000	
Co	72	59	1	He	0.111	0.111	4.07	2946	0.00	200	
Ni	72	60	1	He	1.655	1.655	1.37	8335	0.02	200	
copper	72	63	1	He	0.572	0.572	4.37	7928	0.01	200	
Zn	72	66	1	He	2.813	2.813	6.65	8379	0.03	200	
arsenic	72	75	1	He	0.288	0.288	14.42	1313	0.02	200	
selenium	72	78	3	H2	-0.007	-0.007	-318.75	204	0.00	200	
Sr	72	88	1	He	150.409	150.409	1.27	3128974	0.00	500	
Mo	115	95	1	He	0.211	0.211	10.92	4834	0.00	200	
Ag	115	107	1	He	0.030	0.030	24.83	1150	0.00	200	
Cd	72	111	1	He	0.002	0.002	1086.83	113	0.00	200	
Sn	115	120	1	He	-0.121	-0.121	-14.80	2944	0.00	200	
antimony	159	121	1	He	-0.148	-0.148	-5.98	1068	-0.01	200	
Ba	115	137	1	He	34.467	34.467	0.59	165833	0.02	1000	
Tl	159	205	2	no gas	-0.006	-0.006	-14.15	123	0.00	40	
[Pb]	209	206	2	no gas	0.100	0.100	23.34	7048	0.00	200	
[Pb]	209	207	2	no gas	0.130	0.130	25.86	6375	0.00	200	
Pb	209	208	2	no gas	0.102	0.102	18.34	28211	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1827801	0.34	1982866	92.18	70	120	
Sc	45	1	He	673788	0.27	767851	87.75	70	120	
Ge	72	1	He	282068	0.38	320058	88.13	70	125	
Ge	72	2	no gas	594097	0.69	673177	88.25	70	125	
Ge	72	3	H2	708446	0.80	821457	86.24	70	120	
Y	89	1	He	2449285	0.38	2786775	87.89	70	120	
In	115	1	He	2720745	0.82	3045232	89.34	70	120	
In	115	2	no gas	4225223	0.48	4564130	92.57	70	120	
In	115	3	H2	5873103	0.52	5826290	100.80	70	120	
Tb	159	1	He	4338136	1.57	4638687	93.52	70	120	
Tb	159	2	no gas	5514281	1.71	5623529	98.06	70	120	
Bi	209	2	no gas	3316260	2.36	3475006	95.43	60	120	

Sample Report

Sample Table

Sample Name	400-169700-C-6-A
Data File Name	254SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T04:58:34-05:00
Sample Type	Sample
Dilution	1
Comment	439769_22
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	20.949	20.949	0.78	660054	0.00	200	
Be	6	9	2	no gas	-0.013	-0.013	-7.83	78	-0.02	200	
B	6	11	2	no gas	2.192	2.192	8.11	39302	0.01	400	
Na	72	23	1	He	4946.337	4946.337	0.54	18705333	0.03	50000	
Mg	72	24	1	He	5452.566	5452.566	1.91	12005484	0.05	50000	
Al	45	27	3	H2	21.074	21.074	1.02	262365	0.01	50000	
Si	45	28	3	H2	3344.622	3344.622	1.36	20043259	0.02	2000	>LDR
K	72	39	1	He	20481.117	20481.117	0.52	68194142	0.03	50000	
Ca	72	44	1	He	42751.460	42751.460	1.33	6389954	0.67	25000	>LDR
Ti	72	49	1	He	0.278	0.278	36.96	406	0.07	200	
V	72	51	1	He	0.281	0.281	1.30	9171	0.00	200	
Cr	72	52	1	He	0.239	0.239	1.75	6245	0.00	200	
Mn	72	55	1	He	177.406	177.406	1.34	2496614	0.01	2500	
Fe	72	56	3	H2	81.861	81.861	1.20	3360106	0.00	50000	
Co	72	59	1	He	0.150	0.150	5.55	3706	0.00	200	
Ni	72	60	1	He	1.656	1.656	3.13	8252	0.02	200	
copper	72	63	1	He	0.555	0.555	1.26	7646	0.01	200	
Zn	72	66	1	He	3.513	3.513	5.18	10053	0.03	200	
arsenic	72	75	1	He	0.298	0.298	8.23	1319	0.02	200	
selenium	72	78	3	H2	-0.038	-0.038	-45.93	173	-0.02	200	
Sr	72	88	1	He	161.436	161.436	0.88	3324026	0.00	500	
Mo	115	95	1	He	0.086	0.086	72.46	4027	0.00	200	
Ag	115	107	1	He	-0.008	-0.008	-22.50	488	0.00	200	
Cd	72	111	1	He	0.013	0.013	38.18	150	0.01	200	
Sn	115	120	1	He	0.067	0.067	87.20	5301	0.00	200	
antimony	159	121	1	He	-0.147	-0.147	-12.54	1093	-0.01	200	
Ba	115	137	1	He	36.283	36.283	0.69	173165	0.02	1000	
Tl	159	205	2	no gas	-0.005	-0.005	-5.92	163	0.00	40	
[Pb]	209	206	2	no gas	0.144	0.144	26.48	7552	0.00	200	
[Pb]	209	207	2	no gas	0.158	0.158	9.96	6645	0.00	200	
Pb	209	208	2	no gas	0.139	0.139	12.03	29932	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1844246	0.37	1982866	93.01	70	120	
Sc	45	1	He	671013	0.61	767851	87.39	70	120	
Ge	72	1	He	279189	0.54	320058	87.23	70	125	
Ge	72	2	no gas	586829	1.26	673177	87.17	70	125	
Ge	72	3	H2	701477	0.81	821457	85.39	70	120	
Y	89	1	He	2437017	0.86	2786775	87.45	70	120	
In	115	1	He	2699243	1.45	3045232	88.64	70	120	
In	115	2	no gas	4174929	1.24	4564130	91.47	70	120	
In	115	3	H2	5845073	0.84	5826290	100.32	70	120	
Tb	159	1	He	4396100	1.36	4638687	94.77	70	120	
Tb	159	2	no gas	5444053	1.94	5623529	96.81	70	120	
Bi	209	2	no gas	3288118	1.32	3475006	94.62	60	120	

Sample Report

Sample Table

Sample Name	400-169700-A-7-A
Data File Name	255SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T05:02:33-05:00
Sample Type	Sample
Dilution	1
Comment	439769_23
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	20.762	20.762	2.17	653321	0.00	200	
Be	6	9	2	no gas	-0.018	-0.018	-10.52	43	-0.04	200	
B	6	11	2	no gas	-1.930	-1.930	-8.53	21547	-0.01	400	
Na	72	23	1	He	3515.334	3515.334	0.75	13556809	0.03	50000	
Mg	72	24	1	He	2.874	2.874	17.19	14373	0.02	50000	
Al	45	27	3	H2	100.011	100.011	3.58	1188297	0.01	50000	
Si	45	28	3	H2	267.758	267.758	4.70	1705872	0.02	2000	
K	72	39	1	He	6991.122	6991.122	1.40	23967533	0.03	50000	
Ca	72	44	1	He	37179.143	37179.143	0.42	5660209	0.66	25000	>LDR
Ti	72	49	1	He	-0.034	-0.034	-96.85	224	-0.02	200	
V	72	51	1	He	0.377	0.377	7.22	10815	0.00	200	
Cr	72	52	1	He	0.265	0.265	16.63	6781	0.00	200	
Mn	72	55	1	He	-0.094	-0.094	-23.54	4054	0.00	2500	
Fe	72	56	3	H2	-11.490	-11.490	-0.82	119502	-0.01	50000	
Co	72	59	1	He	-0.004	-0.004	-17.27	549	0.00	200	
Ni	72	60	1	He	2.285	2.285	3.26	11484	0.02	200	
copper	72	63	1	He	0.366	0.366	1.00	5410	0.01	200	
Zn	72	66	1	He	0.361	0.361	22.13	2160	0.02	200	
arsenic	72	75	1	He	0.120	0.120	10.88	986	0.01	200	
selenium	72	78	3	H2	1.059	1.059	1.06	1253	0.08	200	
Sr	72	88	1	He	225.230	225.230	1.35	4722968	0.00	500	
Mo	115	95	1	He	2.078	2.078	6.41	16358	0.01	200	
Ag	115	107	1	He	-0.026	-0.026	-8.91	183	-0.01	200	
Cd	72	111	1	He	-0.030	-0.030	-5.67	7	-0.46	200	
Sn	115	120	1	He	-0.197	-0.197	-8.25	1970	-0.01	200	
antimony	159	121	1	He	-0.175	-0.175	-5.09	789	-0.02	200	
Ba	115	137	1	He	7.854	7.854	2.48	37763	0.02	1000	
Tl	159	205	2	no gas	-0.008	-0.008	-4.67	43	-0.02	40	
[Pb]	209	206	2	no gas	-0.001	-0.001	-544.29	5735	0.00	200	
[Pb]	209	207	2	no gas	0.008	0.008	381.77	4998	0.00	200	
Pb	209	208	2	no gas	0.004	0.004	140.77	22984	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1839054	1.45	1982866	92.75	70	120	
Sc	45	1	He	676692	0.69	767851	88.13	70	120	
Ge	72	1	He	284342	0.12	320058	88.84	70	125	
Ge	72	2	no gas	592436	1.26	673177	88.01	70	125	
Ge	72	3	H2	718378	0.36	821457	87.45	70	120	
Y	89	1	He	2471802	0.38	2786775	88.70	70	120	
In	115	1	He	2708097	0.63	3045232	88.93	70	120	
In	115	2	no gas	4204985	1.09	4564130	92.13	70	120	
In	115	3	H2	6066296	0.80	5826290	104.12	70	120	
Tb	159	1	He	4377359	1.61	4638687	94.37	70	120	
Tb	159	2	no gas	5422806	0.40	5623529	96.43	70	120	
Bi	209	2	no gas	3304497	0.12	3475006	95.09	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	258_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T05:14:29-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	49.456	49.456	1.87	1387443	0.00	50	
Be	6	9	2	no gas	47.076	47.076	1.92	370606	0.01	50	
B	6	11	2	no gas	97.006	97.006	1.99	434386	0.02	100	
Na	72	23	1	He	4845.837	4845.837	1.13	18176191	0.03	5000	
Mg	72	24	1	He	4874.457	4874.457	0.28	10647174	0.05	5000	
Al	45	27	3	H2	463.014	463.014	4.68	5299753	0.01	500	
K	72	39	1	He	4861.730	4861.730	0.72	16329420	0.03	5000	
Ca	72	44	1	He	4729.882	4729.882	0.99	704178	0.67	5000	
Ti	72	49	1	He	49.555	49.555	1.07	29295	0.17	50	
V	72	51	1	He	46.852	46.852	0.51	705097	0.01	50	
Cr	72	52	1	He	47.159	47.159	0.58	750746	0.01	50	
Mn	72	55	1	He	493.803	493.803	0.73	6884541	0.01	500	
Fe	72	56	3	H2	4773.559	4773.559	0.64	164023661	0.00	5000	
Co	72	59	1	He	47.819	47.819	0.79	975512	0.00	50	
Ni	72	60	1	He	48.972	48.972	1.23	233816	0.02	50	
copper	72	63	1	He	47.869	47.869	0.89	585263	0.01	50	
dwCu63	72	63	2	no gas	48.239	48.239	0.92	860099	0.01	50	
Zn	72	66	1	He	49.392	49.392	1.43	125306	0.04	50	
arsenic	72	75	1	He	47.385	47.385	0.62	93371	0.05	50	
dwAs75	72	75	2	no gas	47.804	47.804	0.91	187619	0.03	50	
selenium	72	78	3	H2	50.970	50.970	0.46	48274	0.11	50	
Sr	72	88	1	He	50.049	50.049	1.12	1023071	0.00	50	
Mo	115	95	1	He	49.503	49.503	0.73	304344	0.02	50	
Ag	115	107	1	He	47.638	47.638	0.07	814064	0.01	50	
Cd	72	111	1	He	50.305	50.305	1.02	164256	0.03	50	
Sn	115	120	1	He	49.817	49.817	1.70	631234	0.01	50	
antimony	159	121	1	He	49.628	49.628	0.28	529138	0.01	50	
dwSb121	159	121	2	no gas	52.446	52.446	1.65	747237	0.01	50	
Ba	115	137	1	He	48.000	48.000	0.92	228039	0.02	50	
Tl	159	205	2	no gas	10.005	10.005	1.42	378957	0.00	10	
[Pb]	209	206	2	no gas	49.324	49.324	2.64	649608	0.01	50	
[Pb]	209	207	2	no gas	48.773	48.773	1.41	560810	0.01	50	
Pb	209	208	2	no gas	47.772	47.772	1.91	2575965	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1834048	2.07	1982866	92.49	70	120	
Sc	45	1	He	666085	0.69	767851	86.75	70	120	
Ge	72	1	He	277054	0.63	320058	86.56	70	125	
Ge	72	2	no gas	579665	0.48	673177	86.11	70	125	
Ge	72	3	H2	693461	0.89	821457	84.42	70	120	
Y	89	1	He	2439729	1.33	2786775	87.55	70	120	
In	115	1	He	2689053	0.43	3045232	88.30	70	120	
In	115	2	no gas	4121628	0.48	4564130	90.30	70	120	
In	115	3	H2	5749662	0.18	5826290	98.68	70	120	
Tb	159	1	He	4341671	0.69	4638687	93.60	70	120	
Tb	159	2	no gas	5437440	2.51	5623529	96.69	70	120	
Bi	209	2	no gas	3360201	1.43	3475006	96.70	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	265_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T08:38:53-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	49.425	49.425	1.38	1434047	0.00	50	
Be	6	9	2	no gas	46.396	46.396	1.29	378118	0.01	50	
B	6	11	2	no gas	96.927	96.927	2.06	436478	0.02	100	
Na	72	23	1	He	4818.581	4818.581	0.66	18222001	0.03	5000	
Mg	72	24	1	He	4859.825	4859.825	2.22	10707294	0.05	5000	
Al	45	27	3	H2	484.091	484.091	2.49	6308185	0.01	500	
K	72	39	1	He	4853.842	4853.842	2.71	16426593	0.03	5000	
Ca	72	44	1	He	4720.928	4720.928	0.90	708375	0.67	5000	
Ti	72	49	1	He	49.807	49.807	1.74	29712	0.17	50	
V	72	51	1	He	46.917	46.917	1.02	712983	0.01	50	
Cr	72	52	1	He	47.178	47.178	1.24	757672	0.01	50	
Mn	72	55	1	He	490.867	490.867	1.29	6901142	0.01	500	
Fe	72	56	3	H2	4801.527	4801.527	2.03	176400277	0.00	5000	
Co	72	59	1	He	47.710	47.710	0.92	981734	0.00	50	
Ni	72	60	1	He	49.116	49.116	0.39	236593	0.02	50	
copper	72	63	1	He	47.987	47.987	1.29	591709	0.01	50	
dwCu63	72	63	2	no gas	47.893	47.893	2.27	896401	0.01	50	
Zn	72	66	1	He	49.689	49.689	1.93	126276	0.04	50	
arsenic	72	75	1	He	46.974	46.974	1.05	93433	0.05	50	
dwAs75	72	75	2	no gas	48.410	48.410	1.48	197448	0.02	50	
selenium	72	78	3	H2	48.773	48.773	0.19	49417	0.10	50	
Sr	72	88	1	He	49.840	49.840	0.25	1027350	0.00	50	
Mo	115	95	1	He	49.095	49.095	0.74	303729	0.02	50	
Ag	115	107	1	He	47.584	47.584	1.02	818419	0.01	50	
Cd	72	111	1	He	50.433	50.433	0.82	166096	0.03	50	
Sn	115	120	1	He	49.933	49.933	0.88	635793	0.01	50	
antimony	159	121	1	He	49.076	49.076	0.06	528670	0.01	50	
dwSb121	159	121	2	no gas	52.135	52.135	2.10	790124	0.01	50	
Ba	115	137	1	He	47.342	47.342	2.66	226322	0.02	50	
Tl	159	205	2	no gas	9.889	9.889	0.65	398445	0.00	10	
[Pb]	209	206	2	no gas	48.837	48.837	1.61	679425	0.01	50	
[Pb]	209	207	2	no gas	49.174	49.174	1.68	597077	0.01	50	
Pb	209	208	2	no gas	49.107	49.107	3.93	2795671	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1898358	1.63	1982866	95.74	70	120	
Sc	45	1	He	677660	1.28	767851	88.25	70	120	
Ge	72	1	He	279459	0.59	320058	87.32	70	125	
Ge	72	2	no gas	608704	0.43	673177	90.42	70	125	
Ge	72	3	H2	741770	1.98	821457	90.30	70	120	
Y	89	1	He	2411370	0.82	2786775	86.53	70	120	
In	115	1	He	2706571	1.07	3045232	88.88	70	120	
In	115	2	no gas	4453151	0.70	4564130	97.57	70	120	
In	115	3	H2	5865568	2.26	5826290	100.67	70	120	
Tb	159	1	He	4387138	0.43	4638687	94.58	70	120	
Tb	159	2	no gas	5782949	0.55	5623529	102.83	70	120	
Bi	209	2	no gas	3549501	1.28	3475006	102.14	60	120	

Sample Table

Sample Name	CCB
Data File Name	267_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T08:46:44-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.026	0.026	660.34	121527	0.00	0.5	
Be	6	9	2	no gas	0.000	0.000	-539.46	70	0.00	0.5	
B	6	11	2	no gas	-0.496	-0.496	-15.39	10931	0.00	5	
Na	72	23	1	He	-1.322	-1.322	-15.71	39511	0.00	100	
Mg	72	24	1	He	-1.043	-1.043	-9.60	3264	-0.03	50	
Al	45	27	3	H2	0.023	0.023	324.01	21653	0.00	50	
K	72	39	1	He	-1.325	-1.325	-85.19	337425	0.00	50	
Ca	72	44	1	He	-0.951	-0.951	-79.89	1937	-0.05	50	
Ti	72	49	1	He	-0.101	-0.101	-32.82	134	-0.07	0.5	
V	72	51	1	He	0.009	0.009	152.12	4606	0.00	0.5	
Cr	72	52	1	He	-0.014	-0.014	-42.76	1817	0.00	0.5	
Mn	72	55	1	He	-0.083	-0.083	-8.75	1063	-0.01	2	
Fe	72	56	3	H2	-4.863	-4.863	-0.80	84270	-0.01	25	
Co	72	59	1	He	-0.008	-0.008	-5.55	133	-0.01	0.5	
Ni	72	60	1	He	-0.008	-0.008	-78.00	97	-0.01	1.5	
copper	72	63	1	He	-0.015	-0.015	-40.90	466	0.00	0.5	
dwCu63	72	63	2	no gas	0.002	0.002	32.19	800	0.00	0.5	
Zn	72	66	1	He	-0.006	-0.006	-878.02	850	0.00	4	
arsenic	72	75	1	He	-0.056	-0.056	-17.86	365	-0.02	0.25	
dwAs75	72	75	2	no gas	-0.233	-0.233	-89.33	-1374	0.02	5	
selenium	72	78	3	H2	-0.103	-0.103	-11.65	116	-0.09	0.25	
dwSe82	72	82	2	no gas	-0.280	-0.280	-7.19	194	-0.14	5	
Sr	72	88	1	He	-0.011	-0.011	-27.38	283	0.00	0.5	
Mo	115	95	1	He	-0.175	-0.175	-4.87	577	-0.03	1	
Ag	115	107	1	He	-0.012	-0.012	-11.23	232	-0.01	0.05	
Cd	72	111	1	He	-0.006	-0.006	-58.38	7	-0.09	0.25	
Sn	115	120	1	He	-0.174	-0.174	-4.78	2240	-0.01	0.5	
antimony	159	121	1	He	-0.170	-0.170	-7.64	844	-0.02	0.5	
dwSb121	159	121	2	no gas	-0.295	-0.295	-3.77	2294	-0.01	5	
Ba	115	137	1	He	-0.011	-0.011	-22.64	33	-0.03	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-20.94	75	0.00	0.1	
[Pb]	209	206	2	no gas	0.006	0.006	160.16	6141	0.00	0.25	
[Pb]	209	207	2	no gas	0.016	0.016	139.78	5278	0.00	0.25	
Pb	209	208	2	no gas	-0.003	-0.003	-494.63	23965	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1844126	0.82	1982866	93.00	70	120	
Sc	45	1	He	651256	0.41	767851	84.82	70	120	
Ge	72	1	He	277013	0.96	320058	86.55	70	125	
Ge	72	2	no gas	595882	0.80	673177	88.52	70	125	
Ge	72	3	H2	736106	0.77	821457	89.61	70	120	
Y	89	1	He	2398618	0.43	2786775	86.07	70	120	
In	115	1	He	2691234	1.60	3045232	88.38	70	120	
In	115	2	no gas	4403597	1.05	4564130	96.48	70	120	
In	115	3	H2	5864082	1.35	5826290	100.65	70	120	
Tb	159	1	He	4366874	1.21	4638687	94.14	70	120	
Tb	159	2	no gas	5580251	1.97	5623529	99.23	70	120	
Bi	209	2	no gas	3551915	1.27	3475006	102.21	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439769/1-A^5
Data File Name	268SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T08:56:03-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.026	-0.026	-334.93	123225	0.00	200	
Be	6	9	2	no gas	-0.002	-0.002	-170.49	60	0.00	200	
B	6	11	2	no gas	-1.250	-1.250	-9.53	7889	-0.02	400	
Na	72	23	1	He	-0.786	-0.786	-35.24	41598	0.00	50000	
Mg	72	24	1	He	-1.014	-1.014	-4.79	3334	-0.03	50000	
Al	45	27	3	H2	0.664	0.664	7.25	29179	0.00	50000	
Si	45	28	3	H2	1.739	1.739	7.89	77347	0.00	2000	
K	72	39	1	He	-5.901	-5.901	-8.80	323049	0.00	50000	
Ca	72	44	1	He	-0.178	-0.178	-1833.30	2057	-0.01	25000	
Ti	72	49	1	He	-0.122	-0.122	-55.10	122	-0.10	200	
V	72	51	1	He	0.075	0.075	19.82	5591	0.00	200	
Cr	72	52	1	He	-0.002	-0.002	-816.93	2017	0.00	200	
Mn	72	55	1	He	-0.108	-0.108	-9.58	723	-0.01	2500	
Fe	72	56	3	H2	-6.019	-6.019	-0.75	41188	-0.01	50000	
Co	72	59	1	He	-0.009	-0.009	-14.08	107	-0.01	200	
Ni	72	60	1	He	-0.014	-0.014	-52.12	70	-0.02	200	
copper	72	63	1	He	-0.023	-0.023	-18.14	369	-0.01	200	
Zn	72	66	1	He	0.029	0.029	214.95	940	0.00	200	
arsenic	72	75	1	He	-0.049	-0.049	-17.85	379	-0.01	200	
selenium	72	78	3	H2	-0.176	-0.176	-6.44	42	-0.42	200	
Sr	72	88	1	He	-0.008	-0.008	-35.91	347	0.00	500	
Mo	115	95	1	He	-0.229	-0.229	-3.03	250	-0.09	200	
Ag	115	107	1	He	-0.017	-0.017	-17.30	149	-0.01	200	
Cd	72	111	1	He	-0.008	-0.008	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.232	-0.232	-4.14	1513	-0.02	200	
antimony	159	121	1	He	-0.202	-0.202	-2.59	502	-0.04	200	
Ba	115	137	1	He	-0.010	-0.010	-41.37	36	-0.03	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-8.33	25	-0.01	40	
[Pb]	209	206	2	no gas	-0.019	-0.019	-160.36	5771	0.00	200	
[Pb]	209	207	2	no gas	-0.017	-0.017	-220.29	4874	0.00	200	
Pb	209	208	2	no gas	-0.023	-0.023	-125.46	22791	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1890257	0.46	1982866	95.33	70	120	
Sc	45	1	He	656312	1.33	767851	85.47	70	120	
Ge	72	1	He	277564	0.58	320058	86.72	70	125	
Ge	72	2	no gas	601450	1.30	673177	89.35	70	125	
Ge	72	3	H2	719857	0.26	821457	87.63	70	120	
Y	89	1	He	2398533	2.43	2786775	86.07	70	120	
In	115	1	He	2694921	0.39	3045232	88.50	70	120	
In	115	2	no gas	4472674	1.11	4564130	98.00	70	120	
In	115	3	H2	5637444	2.32	5826290	96.76	70	120	
Tb	159	1	He	4338749	0.65	4638687	93.53	70	120	
Tb	159	2	no gas	5648072	1.47	5623529	100.44	70	120	
Bi	209	2	no gas	3544864	0.88	3475006	102.01	60	120	

Sample Report

Sample Table

Sample Name	LCS 400-439769/2-A
Data File Name	269SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:00:01-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.018	50.018	3.20	1431823	0.00	200	
Be	6	9	2	no gas	46.503	46.503	2.12	374101	0.01	200	
B	6	11	2	no gas	94.998	94.998	3.05	427298	0.02	400	
Na	72	23	1	He	4792.364	4792.364	0.38	18425824	0.03	50000	
Mg	72	24	1	He	4828.273	4828.273	1.30	10816071	0.04	50000	
Al	45	27	3	H2	497.434	497.434	1.06	6289141	0.01	50000	
Si	45	28	3	H2	56.359	56.359	3.83	436110	0.01	2000	
K	72	39	1	He	4713.772	4713.772	1.00	16228255	0.03	50000	
Ca	72	44	1	He	4670.030	4670.030	1.13	712073	0.66	25000	
Ti	72	49	1	He	48.473	48.473	0.31	29489	0.16	200	
V	72	51	1	He	46.673	46.673	0.06	717363	0.01	200	
Cr	72	52	1	He	46.322	46.322	1.36	756313	0.01	200	
Mn	72	55	1	He	485.115	485.115	1.20	6933856	0.01	2500	
Fe	72	56	3	H2	4863.817	4863.817	0.50	179179871	0.00	50000	
Co	72	59	1	He	47.904	47.904	0.90	1002162	0.00	200	
Ni	72	60	1	He	48.758	48.758	0.77	238717	0.02	200	
copper	72	63	1	He	48.108	48.108	1.14	603172	0.01	200	
Zn	72	66	1	He	47.968	47.968	1.90	123699	0.04	200	
arsenic	72	75	1	He	46.936	46.936	1.10	94875	0.05	200	
selenium	72	78	3	H2	48.357	48.357	1.24	49243	0.10	200	
Sr	72	88	1	He	49.488	49.488	1.03	1037087	0.00	500	
Mo	115	95	1	He	49.336	49.336	0.81	310337	0.02	200	
Ag	115	107	1	He	50.961	50.961	0.20	887058	0.01	200	
Cd	72	111	1	He	49.426	49.426	1.16	165490	0.03	200	
Sn	115	120	1	He	47.170	47.170	0.74	610728	0.01	200	
antimony	159	121	1	He	46.096	46.096	0.25	497120	0.01	200	
Ba	115	137	1	He	46.786	46.786	1.03	226360	0.02	1000	
Tl	159	205	2	no gas	9.876	9.876	1.20	392103	0.00	40	
[Pb]	209	206	2	no gas	49.253	49.253	1.60	669200	0.01	200	
[Pb]	209	207	2	no gas	49.383	49.383	1.10	585708	0.01	200	
Pb	209	208	2	no gas	49.067	49.067	1.97	2729285	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1874015	1.98	1982866	94.51	70	120	
Sc	45	1	He	679857	1.61	767851	88.54	70	120	
Ge	72	1	He	284088	1.50	320058	88.76	70	125	
Ge	72	2	no gas	609260	0.84	673177	90.51	70	125	
Ge	72	3	H2	742691	0.68	821457	90.41	70	120	
Y	89	1	He	2444812	1.04	2786775	87.73	70	120	
In	115	1	He	2738475	0.91	3045232	89.93	70	120	
In	115	2	no gas	4404474	0.62	4564130	96.50	70	120	
In	115	3	H2	5843264	1.13	5826290	100.29	70	120	
Tb	159	1	He	4370913	0.64	4638687	94.23	70	120	
Tb	159	2	no gas	5696356	0.24	5623529	101.30	70	120	
Bi	209	2	no gas	3466012	1.38	3475006	99.74	60	120	

Sample Report

Sample Table

Sample Name	400-169468-I-1-C^5
Data File Name	270SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:03:58-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.184	0.184	32.34	128546	0.00	200	
Be	6	9	2	no gas	0.014	0.014	27.30	184	0.01	200	
B	6	11	2	no gas	1.982	1.982	1.02	22067	0.01	400	
Na	72	23	1	He	335.309	335.309	0.84	1311689	0.03	50000	
Mg	72	24	1	He	172.831	172.831	0.74	386783	0.04	50000	
Al	45	27	3	H2	65.973	65.973	27.97	833476	0.01	50000	
Si	45	28	3	H2	455.620	455.620	2.96	2989676	0.02	2000	
K	72	39	1	He	191.320	191.320	0.70	980156	0.02	50000	
Ca	72	44	1	He	110.069	110.069	2.69	18583	0.59	25000	
Ti	72	49	1	He	0.412	0.412	9.55	441	0.09	200	
V	72	51	1	He	0.134	0.134	13.64	6538	0.00	200	
Cr	72	52	1	He	28.550	28.550	3.63	460056	0.01	200	
Mn	72	55	1	He	6.451	6.451	1.80	93051	0.01	2500	
Fe	72	56	3	H2	487.772	487.772	1.59	17787097	0.00	50000	
Co	72	59	1	He	0.372	0.372	1.99	7953	0.00	200	
Ni	72	60	1	He	15.596	15.596	2.24	75314	0.02	200	
copper	72	63	1	He	0.687	0.687	2.00	9129	0.01	200	
Zn	72	66	1	He	2.692	2.692	7.46	7662	0.04	200	
arsenic	72	75	1	He	0.104	0.104	14.16	686	0.02	200	
selenium	72	78	3	H2	0.297	0.297	10.25	511	0.06	200	
Sr	72	88	1	He	1.410	1.410	2.84	29608	0.00	500	
Mo	115	95	1	He	0.737	0.737	7.73	6261	0.01	200	
Ag	115	107	1	He	0.000	0.000	4876.38	441	0.00	200	
Cd	72	111	1	He	0.005	0.005	33.59	43	0.01	200	
Sn	115	120	1	He	0.018	0.018	461.88	4721	0.00	200	
antimony	159	121	1	He	-0.097	-0.097	-30.45	1623	-0.01	200	
Ba	115	137	1	He	6.685	6.685	1.85	32272	0.02	1000	
Tl	159	205	2	no gas	0.007	0.007	3.64	405	0.00	40	
[Pb]	209	206	2	no gas	0.043	0.043	72.22	6612	0.00	200	
[Pb]	209	207	2	no gas	0.034	0.034	74.40	5478	0.00	200	
Pb	209	208	2	no gas	0.039	0.039	16.06	26190	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1887177	1.85	1982866	95.17	70	120	
Sc	45	1	He	657942	0.97	767851	85.69	70	120	
Ge	72	1	He	279838	0.65	320058	87.43	70	125	
Ge	72	2	no gas	603411	1.08	673177	89.64	70	125	
Ge	72	3	H2	725588	0.59	821457	88.33	70	120	
Y	89	1	He	2425567	1.36	2786775	87.04	70	120	
In	115	1	He	2725697	0.81	3045232	89.51	70	120	
In	115	2	no gas	4432766	0.66	4564130	97.12	70	120	
In	115	3	H2	5748303	2.52	5826290	98.66	70	120	
Tb	159	1	He	4364311	1.20	4638687	94.09	70	120	
Tb	159	2	no gas	5610039	0.86	5623529	99.76	70	120	
Bi	209	2	no gas	3535536	0.96	3475006	101.74	60	120	

Sample Report

Sample Table

Sample Name	400-169658-A-9-B^5
Data File Name	272SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:11:54-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.293	0.293	36.59	134731	0.00	200	
Be	6	9	2	no gas	-0.001	-0.001	-346.14	68	0.00	200	
B	6	11	2	no gas	10.774	10.774	4.33	62221	0.02	400	
Na	72	23	1	He	5736.240	5736.240	0.62	22701655	0.03	50000	
Mg	72	24	1	He	491.368	491.368	1.42	1138733	0.04	50000	
Al	45	27	3	H2	165.715	165.715	3.30	2162610	0.01	50000	
Si	45	28	3	H2	436.474	436.474	0.92	2998684	0.01	2000	
K	72	39	1	He	214.983	214.983	0.90	1106669	0.02	50000	
Ca	72	44	1	He	5177.609	5177.609	1.28	812745	0.64	25000	
Ti	72	49	1	He	5.017	5.017	25.28	3325	0.15	200	
V	72	51	1	He	0.870	0.870	2.22	18397	0.00	200	
Cr	72	52	1	He	0.184	0.184	9.63	5241	0.00	200	
Mn	72	55	1	He	3.455	3.455	1.24	53185	0.01	2500	
Fe	72	56	3	H2	23.709	23.709	4.82	1171032	0.00	50000	
Co	72	59	1	He	0.004	0.004	66.51	382	0.00	200	
Ni	72	60	1	He	0.104	0.104	13.77	670	0.02	200	
copper	72	63	1	He	0.195	0.195	2.09	3207	0.01	200	
Zn	72	66	1	He	0.941	0.941	13.15	3394	0.03	200	
arsenic	72	75	1	He	96.308	96.308	0.63	199950	0.05	200	
selenium	72	78	3	H2	0.151	0.151	17.67	387	0.04	200	
Sr	72	88	1	He	36.431	36.431	0.55	786336	0.00	500	
Mo	115	95	1	He	0.107	0.107	3.36	2397	0.00	200	
Ag	115	107	1	He	-0.013	-0.013	-10.32	221	-0.01	200	
Cd	72	111	1	He	-0.003	-0.003	-133.24	17	-0.02	200	
Sn	115	120	1	He	-0.229	-0.229	-2.90	1613	-0.01	200	
antimony	159	121	1	He	0.503	0.503	0.53	8090	0.01	200	
Ba	115	137	1	He	2.274	2.274	2.93	11291	0.02	1000	
Tl	159	205	2	no gas	0.000	0.000	151.63	156	0.00	40	
[Pb]	209	206	2	no gas	0.028	0.028	38.04	6431	0.00	200	
[Pb]	209	207	2	no gas	0.041	0.041	57.27	5571	0.00	200	
Pb	209	208	2	no gas	0.024	0.024	10.16	25456	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1935111	2.37	1982866	97.59	70	120	
Sc	45	1	He	683325	0.55	767851	88.99	70	120	
Ge	72	1	He	292527	0.39	320058	91.40	70	125	
Ge	72	2	no gas	635979	0.24	673177	94.47	70	125	
Ge	72	3	H2	765707	0.88	821457	93.21	70	120	
Y	89	1	He	2473637	1.90	2786775	88.76	70	120	
In	115	1	He	2789283	0.83	3045232	91.60	70	120	
In	115	2	no gas	4510305	0.12	4564130	98.82	70	120	
In	115	3	H2	6071560	0.71	5826290	104.21	70	120	
Tb	159	1	He	4386082	1.38	4638687	94.55	70	120	
Tb	159	2	no gas	5756780	0.76	5623529	102.37	70	120	
Bi	209	2	no gas	3549064	1.20	3475006	102.13	60	120	

Sample Report

Sample Table

Sample Name	400-169273-F-20-A^25
Data File Name	273SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:15:50-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	23.290	23.290	2.08	726932	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-48.22	44	-0.01	200	
B	6	11	2	no gas	8.173	8.173	2.71	48536	0.02	400	
Na	72	23	1	He	9729.321	9729.321	0.92	37276130	0.03	50000	
Mg	72	24	1	He	2145.704	2145.704	0.53	4799165	0.04	50000	
Al	45	27	3	H2	3.600	3.600	5.62	65223	0.01	50000	
Si	45	28	3	H2	2016.395	2016.395	0.66	12995561	0.02	2000	>LDR
K	72	39	1	He	1417.270	1417.270	0.83	5113280	0.03	50000	
Ca	72	44	1	He	9083.495	9083.495	2.22	1380098	0.66	25000	
Ti	72	49	1	He	0.003	0.003	569.41	200	0.00	200	
V	72	51	1	He	0.024	0.024	28.94	4936	0.00	200	
Cr	72	52	1	He	-0.015	-0.015	-70.39	1844	0.00	200	
Mn	72	55	1	He	146.147	146.147	1.64	2085901	0.01	2500	
Fe	72	56	3	H2	3454.997	3454.997	1.00	126392378	0.00	50000	
Co	72	59	1	He	2.243	2.243	0.84	47108	0.00	200	
Ni	72	60	1	He	3.102	3.102	5.14	15280	0.02	200	
copper	72	63	1	He	0.017	0.017	36.02	874	0.00	200	
Zn	72	66	1	He	2.060	2.060	2.97	6148	0.03	200	
arsenic	72	75	1	He	77.587	77.587	0.97	156171	0.05	200	
selenium	72	78	3	H2	-0.167	-0.167	-3.38	52	-0.32	200	
Sr	72	88	1	He	6.801	6.801	1.44	142653	0.00	500	
Mo	115	95	1	He	-0.188	-0.188	-11.22	513	-0.04	200	
Ag	115	107	1	He	-0.016	-0.016	-3.18	160	-0.01	200	
Cd	72	111	1	He	-0.002	-0.002	-139.37	20	-0.01	200	
Sn	115	120	1	He	-0.247	-0.247	-8.20	1350	-0.02	200	
antimony	159	121	1	He	-0.218	-0.218	-2.97	337	-0.06	200	
Ba	115	137	1	He	0.206	0.206	9.97	1089	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-35.49	87	0.00	40	
[Pb]	209	206	2	no gas	0.005	0.005	320.35	6015	0.00	200	
[Pb]	209	207	2	no gas	0.024	0.024	93.85	5274	0.00	200	
Pb	209	208	2	no gas	0.009	0.009	200.53	24189	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1859643	1.05	1982866	93.79	70	120	
Sc	45	1	He	668829	0.29	767851	87.10	70	120	
Ge	72	1	He	283445	0.73	320058	88.56	70	125	
Ge	72	2	no gas	605231	0.67	673177	89.91	70	125	
Ge	72	3	H2	737060	0.49	821457	89.73	70	120	
Y	89	1	He	2479987	2.67	2786775	88.99	70	120	
In	115	1	He	2750816	2.63	3045232	90.33	70	120	
In	115	2	no gas	4444775	0.50	4564130	97.38	70	120	
In	115	3	H2	5989145	0.37	5826290	102.80	70	120	
Tb	159	1	He	4457610	0.90	4638687	96.10	70	120	
Tb	159	2	no gas	5618222	1.21	5623529	99.91	70	120	
Bi	209	2	no gas	3488501	1.32	3475006	100.39	60	120	

Sample Report

Sample Table

Sample Name	400-169273-E-20-A^25
Data File Name	274SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:19:51-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	23.130	23.130	0.57	732047	0.00	200	
Be	6	9	2	no gas	-0.003	-0.003	-88.86	49	-0.01	200	
B	6	11	2	no gas	7.245	7.245	5.56	45067	0.02	400	
Na	72	23	1	He	9697.800	9697.800	1.77	37277869	0.03	50000	
Mg	72	24	1	He	2158.436	2158.436	1.31	4843263	0.04	50000	
Al	45	27	3	H2	2.721	2.721	4.63	55089	0.00	50000	
Si	45	28	3	H2	2032.765	2032.765	1.05	13272022	0.02	2000	>LDR
K	72	39	1	He	1424.889	1424.889	1.40	5155462	0.03	50000	
Ca	72	44	1	He	9220.172	9220.172	1.50	1405258	0.66	25000	
Ti	72	49	1	He	-0.037	-0.037	-278.67	177	-0.02	200	
V	72	51	1	He	-0.002	-0.002	-258.73	4556	0.00	200	
Cr	72	52	1	He	-0.027	-0.027	-51.54	1657	0.00	200	
Mn	72	55	1	He	149.557	149.557	0.54	2141652	0.01	2500	
Fe	72	56	3	H2	3495.449	3495.449	1.17	128923951	0.00	50000	
Co	72	59	1	He	2.271	2.271	2.44	47830	0.00	200	
Ni	72	60	1	He	3.196	3.196	3.60	15797	0.02	200	
copper	72	63	1	He	-0.005	-0.005	-32.35	608	0.00	200	
Zn	72	66	1	He	1.912	1.912	6.52	5788	0.03	200	
arsenic	72	75	1	He	78.307	78.307	0.21	158142	0.05	200	
selenium	72	78	3	H2	-0.177	-0.177	-5.77	42	-0.42	200	
Sr	72	88	1	He	6.879	6.879	1.99	144782	0.00	500	
Mo	115	95	1	He	-0.213	-0.213	-9.18	353	-0.06	200	
Ag	115	107	1	He	-0.015	-0.015	-8.31	178	-0.01	200	
Cd	72	111	1	He	-0.003	-0.003	-198.38	17	-0.02	200	
Sn	115	120	1	He	-0.256	-0.256	-3.09	1237	-0.02	200	
antimony	159	121	1	He	-0.224	-0.224	-3.86	272	-0.08	200	
Ba	115	137	1	He	0.206	0.206	3.49	1093	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-9.99	57	0.00	40	
[Pb]	209	206	2	no gas	-0.006	-0.006	-141.93	5928	0.00	200	
[Pb]	209	207	2	no gas	-0.021	-0.021	-137.42	4794	0.00	200	
Pb	209	208	2	no gas	-0.025	-0.025	-39.93	22541	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1883488	1.54	1982866	94.99	70	120	
Sc	45	1	He	670866	0.84	767851	87.37	70	120	
Ge	72	1	He	284381	0.96	320058	88.85	70	125	
Ge	72	2	no gas	613416	0.71	673177	91.12	70	125	
Ge	72	3	H2	743137	0.12	821457	90.47	70	120	
Y	89	1	He	2497426	0.86	2786775	89.62	70	120	
In	115	1	He	2760104	1.80	3045232	90.64	70	120	
In	115	2	no gas	4449122	0.52	4564130	97.48	70	120	
In	115	3	H2	6138330	1.69	5826290	105.36	70	120	
Tb	159	1	He	4456024	0.96	4638687	96.06	70	120	
Tb	159	2	no gas	5650219	0.34	5623529	100.47	70	120	
Bi	209	2	no gas	3522850	0.25	3475006	101.38	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439856/1-A^5
Data File Name	275SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:23:46-05:00
Sample Type	Sample
Dilution	1
Comment	439856_1
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.106	0.106	140.50	124294	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-27.38	43	-0.01	200	
B	6	11	2	no gas	0.530	0.530	35.43	15421	0.00	400	
Na	72	23	1	He	2.255	2.255	23.19	55627	0.00	50000	
Mg	72	24	1	He	-0.532	-0.532	-47.87	4604	-0.01	50000	
Al	45	27	3	H2	0.318	0.318	17.39	25378	0.00	50000	
Si	45	28	3	H2	1.852	1.852	6.63	79671	0.00	2000	
K	72	39	1	He	-0.643	-0.643	-62.44	357271	0.00	50000	
Ca	72	44	1	He	1.054	1.054	134.34	2350	0.04	25000	
Ti	72	49	1	He	-0.141	-0.141	-3.77	117	-0.12	200	
V	72	51	1	He	0.053	0.053	8.75	5536	0.00	200	
Cr	72	52	1	He	-0.009	-0.009	-25.40	1994	0.00	200	
Mn	72	55	1	He	-0.045	-0.045	-13.73	1687	0.00	2500	
Fe	72	56	3	H2	5.068	5.068	3.94	458771	0.00	50000	
Co	72	59	1	He	-0.009	-0.009	-30.41	112	-0.01	200	
Ni	72	60	1	He	-0.009	-0.009	-200.77	100	-0.01	200	
copper	72	63	1	He	-0.021	-0.021	-23.90	408	-0.01	200	
Zn	72	66	1	He	-0.023	-0.023	-424.45	850	0.00	200	
arsenic	72	75	1	He	0.043	0.043	25.25	589	0.01	200	
selenium	72	78	3	H2	-0.186	-0.186	-2.31	34	-0.55	200	
Sr	72	88	1	He	-0.011	-0.011	-14.41	290	0.00	500	
Mo	115	95	1	He	-0.244	-0.244	-6.03	163	-0.15	200	
Ag	115	107	1	He	-0.014	-0.014	-15.78	198	-0.01	200	
Cd	72	111	1	He	-0.008	-0.008	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.218	-0.218	-24.15	1762	-0.01	200	
antimony	159	121	1	He	-0.226	-0.226	-1.05	246	-0.09	200	
Ba	115	137	1	He	-0.011	-0.011	-51.19	36	-0.03	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-10.93	39	-0.01	40	
[Pb]	209	206	2	no gas	0.016	0.016	108.53	6161	0.00	200	
[Pb]	209	207	2	no gas	-0.005	-0.005	-138.10	4944	0.00	200	
Pb	209	208	2	no gas	-0.008	-0.008	-86.09	23258	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1855342	2.47	1982866	93.57	70	120	
Sc	45	1	He	685716	0.93	767851	89.30	70	120	
Ge	72	1	He	291357	0.51	320058	91.03	70	125	
Ge	72	2	no gas	618807	1.24	673177	91.92	70	125	
Ge	72	3	H2	756605	0.89	821457	92.11	70	120	
Y	89	1	He	2504194	0.33	2786775	89.86	70	120	
In	115	1	He	2790563	0.86	3045232	91.64	70	120	
In	115	2	no gas	4515544	0.67	4564130	98.94	70	120	
In	115	3	H2	6095556	1.39	5826290	104.62	70	120	
Tb	159	1	He	4446043	1.47	4638687	95.85	70	120	
Tb	159	2	no gas	5680080	2.47	5623529	101.01	70	120	
Bi	209	2	no gas	3491740	0.08	3475006	100.48	60	120	

Sample Report

Sample Table

Sample Name	LCS 400-439856/2-A
Data File Name	276SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:27:42-05:00
Sample Type	Sample
Dilution	1
Comment	439856_2
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	49.261	49.261	1.11	1428754	0.00	200	
Be	6	9	2	no gas	46.387	46.387	1.33	377522	0.01	200	
B	6	11	2	no gas	97.280	97.280	1.48	442380	0.02	400	
Na	72	23	1	He	4861.189	4861.189	1.86	19137027	0.03	50000	
Mg	72	24	1	He	4859.651	4859.651	0.58	11147494	0.04	50000	
Al	45	27	3	H2	479.768	479.768	1.23	6234349	0.01	50000	
Si	45	28	3	H2	53.516	53.516	1.12	429019	0.01	2000	
K	72	39	1	He	4788.742	4788.742	2.85	16876043	0.03	50000	
Ca	72	44	1	He	4770.911	4770.911	0.83	744913	0.64	25000	
Ti	72	49	1	He	49.854	49.854	2.15	31050	0.16	200	
V	72	51	1	He	47.750	47.750	0.87	751364	0.01	200	
Cr	72	52	1	He	47.808	47.808	0.50	799297	0.01	200	
Mn	72	55	1	He	491.752	491.752	0.75	7197672	0.01	2500	
Fe	72	56	3	H2	4868.598	4868.598	0.73	186004657	0.00	50000	
Co	72	59	1	He	48.712	48.712	0.77	1043546	0.00	200	
Ni	72	60	1	He	48.847	48.847	0.96	244891	0.02	200	
copper	72	63	1	He	48.782	48.782	0.23	626322	0.01	200	
Zn	72	66	1	He	49.205	49.205	0.23	129910	0.04	200	
arsenic	72	75	1	He	47.900	47.900	0.52	99141	0.05	200	
selenium	72	78	3	H2	48.653	48.653	1.51	51381	0.09	200	
Sr	72	88	1	He	50.658	50.658	0.29	1087087	0.00	500	
Mo	115	95	1	He	49.184	49.184	0.62	321313	0.02	200	
Ag	115	107	1	He	49.239	49.239	0.35	890126	0.01	200	
Cd	72	111	1	He	50.122	50.122	0.65	171856	0.03	200	
Sn	115	120	1	He	47.198	47.198	0.89	634643	0.01	200	
antimony	159	121	1	He	46.887	46.887	1.14	513091	0.01	200	
Ba	115	137	1	He	46.857	46.857	1.35	235447	0.02	1000	
Tl	159	205	2	no gas	9.889	9.889	1.26	392270	0.00	40	
[Pb]	209	206	2	no gas	49.612	49.612	1.84	669950	0.01	200	
[Pb]	209	207	2	no gas	49.957	49.957	1.48	588870	0.01	200	
Pb	209	208	2	no gas	49.526	49.526	2.48	2737340	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1895624	1.67	1982866	95.60	70	120	
Sc	45	1	He	705474	1.06	767851	91.88	70	120	
Ge	72	1	He	290889	0.32	320058	90.89	70	125	
Ge	72	2	no gas	628342	0.23	673177	93.34	70	125	
Ge	72	3	H2	770202	0.10	821457	93.76	70	120	
Y	89	1	He	2557071	0.21	2786775	91.76	70	120	
In	115	1	He	2843940	0.26	3045232	93.39	70	120	
In	115	2	no gas	4433003	0.95	4564130	97.13	70	120	
In	115	3	H2	6197661	0.52	5826290	106.37	70	120	
Tb	159	1	He	4436109	1.69	4638687	95.63	70	120	
Tb	159	2	no gas	5691849	0.46	5623529	101.21	70	120	
Bi	209	2	no gas	3444981	1.05	3475006	99.14	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	279_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:39:40-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	48.818	48.818	2.23	1442673	0.00	50	
Be	6	9	2	no gas	47.125	47.125	0.40	389343	0.01	50	
B	6	11	2	no gas	95.212	95.212	1.23	443759	0.02	100	
Na	72	23	1	He	4840.896	4840.896	2.29	19427343	0.02	5000	
Mg	72	24	1	He	4796.934	4796.934	1.19	11215636	0.04	5000	
Al	45	27	3	H2	475.046	475.046	2.46	6020264	0.01	500	
K	72	39	1	He	4824.749	4824.749	0.97	17343657	0.03	5000	
Ca	72	44	1	He	4746.784	4746.784	1.01	755837	0.63	5000	
Ti	72	49	1	He	48.828	48.828	1.12	30899	0.16	50	
V	72	51	1	He	47.290	47.290	0.97	758887	0.01	50	
Cr	72	52	1	He	47.367	47.367	0.56	807064	0.01	50	
Mn	72	55	1	He	488.915	488.915	2.01	7294115	0.01	500	
Fe	72	56	3	H2	4856.792	4856.792	0.53	182725237	0.00	5000	
Co	72	59	1	He	47.566	47.566	1.49	1038625	0.00	50	
Ni	72	60	1	He	49.202	49.202	2.26	251395	0.02	50	
copper	72	63	1	He	47.928	47.928	1.32	627206	0.01	50	
dwCu63	72	63	2	no gas	48.311	48.311	1.46	926938	0.01	50	
Zn	72	66	1	He	48.930	48.930	2.18	132090	0.04	50	
arsenic	72	75	1	He	46.989	46.989	1.28	99086	0.05	50	
dwAs75	72	75	2	no gas	48.483	48.483	1.84	204927	0.02	50	
selenium	72	78	3	H2	50.677	50.677	1.34	52614	0.10	50	
Sr	72	88	1	He	49.567	49.567	1.98	1084223	0.00	50	
Mo	115	95	1	He	49.531	49.531	0.88	319291	0.02	50	
Ag	115	107	1	He	47.712	47.712	1.45	853969	0.01	50	
Cd	72	111	1	He	49.353	49.353	0.97	172487	0.03	50	
Sn	115	120	1	He	49.790	49.790	2.51	660131	0.01	50	
antimony	159	121	1	He	50.385	50.385	0.76	555317	0.01	50	
dwSb121	159	121	2	no gas	53.570	53.570	0.12	792098	0.01	50	
Ba	115	137	1	He	47.721	47.721	1.82	237433	0.02	50	
Tl	159	205	2	no gas	10.023	10.023	0.37	393757	0.00	10	
[Pb]	209	206	2	no gas	49.428	49.428	0.22	666417	0.01	50	
[Pb]	209	207	2	no gas	49.471	49.471	0.99	582019	0.01	50	
Pb	209	208	2	no gas	49.088	49.088	1.68	2707750	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1924228	0.72	1982866	97.04	70	120	
Sc	45	1	He	709729	1.06	767851	92.43	70	120	
Ge	72	1	He	296570	0.97	320058	92.66	70	125	
Ge	72	2	no gas	623904	0.84	673177	92.68	70	125	
Ge	72	3	H2	759108	0.16	821457	92.41	70	120	
Y	89	1	He	2533643	0.82	2786775	90.92	70	120	
In	115	1	He	2816891	1.89	3045232	92.50	70	120	
In	115	2	no gas	4428052	0.62	4564130	97.02	70	120	
In	115	3	H2	6124146	0.37	5826290	105.11	70	120	
Tb	159	1	He	4487304	1.16	4638687	96.74	70	120	
Tb	159	2	no gas	5637233	0.30	5623529	100.24	70	120	
Bi	209	2	no gas	3438692	0.29	3475006	98.96	60	120	

Sample Table

Sample Name	CCB
Data File Name	281_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:47:29-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.032	-0.032	-159.23	124954	0.00	0.5	
Be	6	9	2	no gas	-0.005	-0.005	-24.87	72	-0.01	0.5	
B	6	11	2	no gas	-0.735	-0.735	-14.57	16368	0.00	5	
Na	72	23	1	He	-1.487	-1.487	-5.32	43142	0.00	100	
Mg	72	24	1	He	-0.922	-0.922	-11.36	3704	-0.02	50	
Al	45	27	3	H2	0.019	0.019	268.63	20969	0.00	50	
K	72	39	1	He	0.185	0.185	157.07	364248	0.00	50	
Ca	72	44	1	He	-2.548	-2.548	-50.84	1960	-0.13	50	
Ti	72	49	1	He	-0.028	-0.028	-127.83	126	-0.02	0.5	
V	72	51	1	He	0.017	0.017	73.56	4732	0.00	0.5	
Cr	72	52	1	He	-0.008	-0.008	-72.83	1810	0.00	0.5	
Mn	72	55	1	He	-0.106	-0.106	-7.76	1033	-0.01	2	
Fe	72	56	3	H2	-4.875	-4.875	-1.76	99994	0.00	25	
Co	72	59	1	He	-0.010	-0.010	-28.29	152	-0.01	0.5	
Ni	72	60	1	He	-0.015	-0.015	-61.25	57	-0.03	1.5	
copper	72	63	1	He	-0.015	-0.015	-23.45	500	0.00	0.5	
dwCu63	72	63	2	no gas	-0.011	-0.011	-107.29	787	0.00	0.5	
Zn	72	66	1	He	-0.033	-0.033	-150.74	920	0.00	4	
arsenic	72	75	1	He	-0.051	-0.051	-39.00	426	-0.01	0.25	
dwAs75	72	75	2	no gas	-0.274	-0.274	-86.63	-826	0.03	5	
selenium	72	78	3	H2	-0.092	-0.092	-24.51	130	-0.07	0.25	
dwSe82	72	82	2	no gas	-0.253	-0.253	-29.61	220	-0.11	5	
Sr	72	88	1	He	-0.011	-0.011	-34.02	323	0.00	0.5	
Mo	115	95	1	He	-0.198	-0.198	-16.18	660	-0.03	1	
Ag	115	107	1	He	-0.010	-0.010	-17.34	278	0.00	0.05	
Cd	72	111	1	He	-0.012	-0.012	-28.83	7	-0.18	0.25	
Sn	115	120	1	He	-0.163	-0.163	-11.85	2464	-0.01	0.5	
antimony	159	121	1	He	-0.157	-0.157	-12.22	987	-0.02	0.5	
dwSb121	159	121	2	no gas	-0.293	-0.293	-4.09	2366	-0.01	5	
Ba	115	137	1	He	-0.003	-0.003	-156.63	73	0.00	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-13.19	60	-0.01	0.1	
[Pb]	209	206	2	no gas	-0.020	-0.020	-98.42	5968	0.00	0.25	
[Pb]	209	207	2	no gas	-0.014	-0.014	-103.08	4971	0.00	0.25	
Pb	209	208	2	no gas	-0.023	-0.023	-34.22	22871	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1875793	1.16	1982866	94.60	70	120	
Sc	45	1	He	692442	0.97	767851	90.18	70	120	
Ge	72	1	He	288595	0.89	320058	90.17	70	125	
Ge	72	2	no gas	613478	0.77	673177	91.13	70	125	
Ge	72	3	H2	750737	0.53	821457	91.39	70	120	
Y	89	1	He	2512679	1.04	2786775	90.16	70	120	
In	115	1	He	2787299	0.24	3045232	91.53	70	120	
In	115	2	no gas	4433698	0.57	4564130	97.14	70	120	
In	115	3	H2	6174586	1.42	5826290	105.98	70	120	
Tb	159	1	He	4392555	0.78	4638687	94.69	70	120	
Tb	159	2	no gas	5660730	1.29	5623529	100.66	70	120	
Bi	209	2	no gas	3474250	0.10	3475006	99.98	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439747/1-A^5
Data File Name	282SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:51:26-05:00
Sample Type	Sample
Dilution	1
Comment	439747_1
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.203	0.203	26.14	130110	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-27.81	43	-0.02	200	
B	6	11	2	no gas	-1.154	-1.154	-16.12	14426	-0.01	400	
Na	72	23	1	He	2.600	2.600	60.58	56385	0.00	50000	
Mg	72	24	1	He	0.887	0.887	57.86	7438	0.01	50000	
Al	45	27	3	H2	2.314	2.314	4.68	51238	0.00	50000	
Si	45	28	3	H2	1.409	1.409	15.43	78333	0.00	2000	
K	72	39	1	He	5.647	5.647	233.79	365137	0.00	50000	
Ca	72	44	1	He	1.065	1.065	281.67	2390	0.04	25000	
Ti	72	49	1	He	0.152	0.152	43.16	224	0.07	200	
V	72	51	1	He	0.309	0.309	28.97	8811	0.00	200	
Cr	72	52	1	He	0.054	0.054	44.16	2707	0.00	200	
Mn	72	55	1	He	-0.011	-0.011	-134.36	2320	0.00	2500	
Fe	72	56	3	H2	-4.429	-4.429	-0.88	119588	0.00	50000	
Co	72	59	1	He	-0.011	-0.011	-7.77	122	-0.01	200	
Ni	72	60	1	He	0.001	0.001	401.18	130	0.00	200	
copper	72	63	1	He	-0.011	-0.011	-65.55	532	0.00	200	
Zn	72	66	1	He	0.076	0.076	65.49	1153	0.01	200	
arsenic	72	75	1	He	0.085	0.085	48.32	672	0.01	200	
selenium	72	78	3	H2	-0.133	-0.133	-12.41	90	-0.15	200	
Sr	72	88	1	He	0.000	0.000	-1351.27	527	0.00	500	
Mo	115	95	1	He	-0.230	-0.230	-7.75	443	-0.05	200	
Ag	115	107	1	He	-0.011	-0.011	-35.76	266	0.00	200	
Cd	72	111	1	He	-0.008	-0.008	-39.61	20	-0.04	200	
Sn	115	120	1	He	-0.123	-0.123	-30.66	2917	0.00	200	
antimony	159	121	1	He	-0.153	-0.153	-21.40	990	-0.02	200	
Ba	115	137	1	He	-0.002	-0.002	-20.79	78	0.00	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-49.90	107	0.00	40	
[Pb]	209	206	2	no gas	-0.020	-0.020	-142.89	6015	0.00	200	
[Pb]	209	207	2	no gas	-0.033	-0.033	-82.24	4788	0.00	200	
Pb	209	208	2	no gas	-0.025	-0.025	-42.39	22914	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1861133	1.42	1982866	93.86	70	120	
Sc	45	1	He	681504	9.77	767851	88.75	70	120	
Ge	72	1	He	277603	11.14	320058	86.74	70	125	
Ge	72	2	no gas	626483	0.65	673177	93.06	70	125	
Ge	72	3	H2	769925	0.59	821457	93.73	70	120	
Y	89	1	He	2486928	9.12	2786775	89.24	70	120	
In	115	1	He	2743734	10.67	3045232	90.10	70	120	
In	115	2	no gas	4460475	1.79	4564130	97.73	70	120	
In	115	3	H2	6101087	0.21	5826290	104.72	70	120	
Tb	159	1	He	4309793	11.00	4638687	92.91	70	120	
Tb	159	2	no gas	5608630	1.50	5623529	99.74	70	120	
Bi	209	2	no gas	3499703	0.63	3475006	100.71	60	120	

Sample Report

Sample Table

Sample Name	LCS 400-439747/2-A^100
Data File Name	283SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T09:55:26-05:00
Sample Type	Sample
Dilution	1
Comment	439747_2
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	10.605	10.605	3.93	415539	0.00	200	
Be	6	9	2	no gas	4.694	4.694	2.95	39020	0.01	200	
B	6	11	2	no gas	7.636	7.636	3.76	54465	0.01	400	
Na	72	23	1	He	103.756	103.756	0.42	461723	0.02	50000	
Mg	72	24	1	He	105.095	105.095	1.07	249444	0.04	50000	
Al	45	27	3	H2	98.932	98.932	1.72	1326460	0.01	50000	
Si	45	28	3	H2	9.554	9.554	47.46	136177	0.01	2000	
K	72	39	1	He	99.135	99.135	2.63	716104	0.01	50000	
Ca	72	44	1	He	109.507	109.507	0.80	19631	0.56	25000	
Ti	72	49	1	He	9.795	9.795	0.76	6271	0.16	200	
V	72	51	1	He	9.547	9.547	0.28	155444	0.01	200	
Cr	72	52	1	He	9.613	9.613	0.82	163992	0.01	200	
Mn	72	55	1	He	10.146	10.146	2.09	152660	0.01	2500	
Fe	72	56	3	H2	92.197	92.197	1.77	3854205	0.00	50000	
Co	72	59	1	He	10.024	10.024	1.09	217344	0.00	200	
Ni	72	60	1	He	10.206	10.206	2.58	51822	0.02	200	
copper	72	63	1	He	10.030	10.030	1.22	130717	0.01	200	
Zn	72	66	1	He	10.341	10.341	2.43	28426	0.04	200	
arsenic	72	75	1	He	9.925	9.925	0.62	21201	0.05	200	
selenium	72	78	3	H2	9.874	9.874	1.33	10747	0.09	200	
Sr	72	88	1	He	10.244	10.244	1.11	222641	0.00	500	
Mo	115	95	1	He	9.850	9.850	0.94	65477	0.02	200	
Ag	115	107	1	He	5.057	5.057	0.42	91176	0.01	200	
Cd	72	111	1	He	5.101	5.101	4.44	17719	0.03	200	
Sn	115	120	1	He	9.840	9.840	0.98	135045	0.01	200	
antimony	159	121	1	He	9.631	9.631	2.09	108352	0.01	200	
Ba	115	137	1	He	9.679	9.679	0.51	48360	0.02	1000	
Tl	159	205	2	no gas	10.010	10.010	3.03	396665	0.00	40	
[Pb]	209	206	2	no gas	8.885	8.885	1.72	145497	0.01	200	
[Pb]	209	207	2	no gas	8.726	8.726	0.13	124544	0.01	200	
Pb	209	208	2	no gas	8.462	8.462	0.37	567068	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1931653	2.80	1982866	97.42	70	120	
Sc	45	1	He	693550	0.93	767851	90.32	70	120	
Ge	72	1	He	294017	0.66	320058	91.86	70	125	
Ge	72	2	no gas	629716	1.31	673177	93.54	70	125	
Ge	72	3	H2	780059	0.72	821457	94.96	70	120	
Y	89	1	He	2524182	0.31	2786775	90.58	70	120	
In	115	1	He	2823530	0.78	3045232	92.72	70	120	
In	115	2	no gas	4435315	2.43	4564130	97.18	70	120	
In	115	3	H2	6414971	1.57	5826290	110.10	70	120	
Tb	159	1	He	4469390	0.91	4638687	96.35	70	120	
Tb	159	2	no gas	5688428	2.59	5623529	101.15	70	120	
Bi	209	2	no gas	4005848	1.21	3475006	115.28	60	120	

Sample Report

Sample Table

Sample Name	400-169700-B-7-A^5
Data File Name	285SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:03:21-05:00
Sample Type	Sample
Dilution	1
Comment	439747_3
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	24.337	24.337	2.04	737305	0.00	200	
Be	6	9	2	no gas	0.097	0.097	12.08	863	0.01	200	
B	6	11	2	no gas	9.872	9.872	3.23	60502	0.02	400	
Na	72	23	1	He	3618.609	3618.609	1.56	14108589	0.03	50000	
Mg	72	24	1	He	8309.312	8309.312	1.47	18853118	0.04	50000	
Al	45	27	3	H2	1348.480	1348.480	1.76	16768035	0.01	50000	
Si	45	28	3	H2	2777.441	2777.441	3.28	17996434	0.02	2000	>LDR
K	72	39	1	He	7212.677	7212.677	0.36	24976449	0.03	50000	
Ca	72	44	1	He	53149.715	53149.715	0.53	8188492	0.65	25000	>LDR
Ti	72	49	1	He	48.092	48.092	1.21	29582	0.16	200	
V	72	51	1	He	3.439	3.439	1.89	57657	0.01	200	
Cr	72	52	1	He	20.806	20.806	1.03	345167	0.01	200	
Mn	72	55	1	He	22.565	22.565	0.94	329209	0.01	2500	
Fe	72	56	3	H2	2939.103	2939.103	2.10	109722432	0.00	50000	
Co	72	59	1	He	0.628	0.628	0.97	13669	0.00	200	
Ni	72	60	1	He	6.005	6.005	3.72	29898	0.02	200	
copper	72	63	1	He	5.482	5.482	1.03	70243	0.01	200	
Zn	72	66	1	He	7.018	7.018	0.92	19207	0.04	200	
arsenic	72	75	1	He	1.822	1.822	5.29	4241	0.04	200	
selenium	72	78	3	H2	1.146	1.146	0.40	1407	0.08	200	
Sr	72	88	1	He	246.620	246.620	0.85	5233992	0.00	500	
Mo	115	95	1	He	6.295	6.295	4.41	40148	0.02	200	
Ag	115	107	1	He	0.027	0.027	17.19	888	0.00	200	
Cd	72	111	1	He	0.014	0.014	161.00	93	0.01	200	
Sn	115	120	1	He	0.221	0.221	7.72	7162	0.00	200	
antimony	159	121	1	He	0.002	0.002	549.14	2714	0.00	200	
Ba	115	137	1	He	15.856	15.856	1.26	74686	0.02	1000	
Tl	159	205	2	no gas	0.012	0.012	6.70	632	0.00	40	
[Pb]	209	206	2	no gas	5.656	5.656	1.04	78994	0.01	200	
[Pb]	209	207	2	no gas	5.572	5.572	2.75	67728	0.01	200	
Pb	209	208	2	no gas	5.437	5.437	1.30	310431	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1811167	0.56	1982866	91.34	70	120	
Sc	45	1	He	672910	0.60	767851	87.64	70	120	
Ge	72	1	He	287790	0.34	320058	89.92	70	125	
Ge	72	2	no gas	622627	0.47	673177	92.49	70	125	
Ge	72	3	H2	751887	1.02	821457	91.53	70	120	
Y	89	1	He	2479818	1.52	2786775	88.99	70	120	
In	115	1	He	2664215	1.32	3045232	87.49	70	120	
In	115	2	no gas	4289646	0.10	4564130	93.99	70	120	
In	115	3	H2	6043973	1.06	5826290	103.74	70	120	
Tb	159	1	He	4419665	0.74	4638687	95.28	70	120	
Tb	159	2	no gas	5583734	0.50	5623529	99.29	70	120	
Bi	209	2	no gas	3322554	0.96	3475006	95.61	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-1-B^5
Data File Name	286SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:07:18-05:00
Sample Type	Sample
Dilution	1
Comment	439856_3
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.112	0.112	61.38	131746	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-45.39	50	-0.02	200	
B	6	11	2	no gas	45.353	45.353	7.34	222062	0.02	400	
Na	72	23	1	He	45852.619	45852.619	2.18	181856257	0.03	50000	>LDR
Mg	72	24	1	He	5419.964	5419.964	1.23	12552680	0.04	50000	
Al	45	27	3	H2	33.303	33.303	8.65	438366	0.01	50000	
Si	45	28	3	H2	2331.649	2331.649	3.33	15266041	0.02	2000	>LDR
K	72	39	1	He	103.855	103.855	3.80	731747	0.01	50000	
Ca	72	44	1	He	13024.585	13024.585	1.67	2049694	0.64	25000	
Ti	72	49	1	He	1.201	1.201	19.82	896	0.13	200	
V	72	51	1	He	1.333	1.333	7.17	25581	0.01	200	
Cr	72	52	1	He	0.076	0.076	4.80	3264	0.00	200	
Mn	72	55	1	He	6.873	6.873	3.77	104139	0.01	2500	
Fe	72	56	3	H2	41.196	41.196	3.22	1848467	0.00	50000	
Co	72	59	1	He	0.078	0.078	6.22	2051	0.00	200	
Ni	72	60	1	He	0.107	0.107	16.11	673	0.02	200	
copper	72	63	1	He	0.138	0.138	8.51	2486	0.01	200	
Zn	72	66	1	He	0.160	0.160	16.86	1447	0.01	200	
arsenic	72	75	1	He	0.037	0.037	39.80	618	0.01	200	
selenium	72	78	3	H2	0.396	0.396	3.02	642	0.06	200	
Sr	72	88	1	He	85.948	85.948	2.26	1861743	0.00	500	
Mo	115	95	1	He	0.005	0.005	271.33	1984	0.00	200	
Ag	115	107	1	He	-0.014	-0.014	-19.36	216	-0.01	200	
Cd	72	111	1	He	-0.011	-0.011	-45.87	10	-0.11	200	
Sn	115	120	1	He	-0.091	-0.091	-247.82	3447	0.00	200	
antimony	159	121	1	He	-0.216	-0.216	-1.57	358	-0.06	200	
Ba	115	137	1	He	3.791	3.791	0.40	19077	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-4.39	55	-0.01	40	
[Pb]	209	206	2	no gas	-0.023	-0.023	-122.07	5825	0.00	200	
[Pb]	209	207	2	no gas	-0.034	-0.034	-90.21	4648	0.00	200	
Pb	209	208	2	no gas	-0.029	-0.029	-95.08	22104	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1920034	5.79	1982866	96.83	70	120	
Sc	45	1	He	698799	0.80	767851	91.01	70	120	
Ge	72	1	He	293734	1.22	320058	91.78	70	125	
Ge	72	2	no gas	637979	3.18	673177	94.77	70	125	
Ge	72	3	H2	765593	1.62	821457	93.20	70	120	
Y	89	1	He	2558549	1.85	2786775	91.81	70	120	
In	115	1	He	2835462	1.73	3045232	93.11	70	120	
In	115	2	no gas	4450547	3.05	4564130	97.51	70	120	
In	115	3	H2	6377919	2.12	5826290	109.47	70	120	
Tb	159	1	He	4480983	0.66	4638687	96.60	70	120	
Tb	159	2	no gas	5780334	4.21	5623529	102.79	70	120	
Bi	209	2	no gas	3413881	4.41	3475006	98.24	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-2-D^5
Data File Name	287SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:11:12-05:00
Sample Type	Sample
Dilution	1
Comment	439856_4
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.163	0.163	21.12	127244	0.00	200	
Be	6	9	2	no gas	-0.008	-0.008	-18.51	54	-0.01	200	
B	6	11	2	no gas	28.998	28.998	1.08	142933	0.02	400	
Na	72	23	1	He	14941.041	14941.041	0.33	58656342	0.03	50000	
Mg	72	24	1	He	10173.580	10173.580	0.64	23302498	0.04	50000	
Al	45	27	3	H2	1.377	1.377	7.56	36746	0.00	50000	
Si	45	28	3	H2	2534.706	2534.706	2.04	16040436	0.02	2000	>LDR
K	72	39	1	He	127.022	127.022	1.66	803659	0.02	50000	
Ca	72	44	1	He	22366.183	22366.183	1.76	3480108	0.64	25000	
Ti	72	49	1	He	0.006	0.006	305.61	148	0.00	200	
V	72	51	1	He	0.837	0.837	1.80	17567	0.00	200	
Cr	72	52	1	He	0.021	0.021	50.68	2317	0.00	200	
Mn	72	55	1	He	167.465	167.465	3.22	2449439	0.01	2500	
Fe	72	56	3	H2	-2.698	-2.698	-23.10	178033	0.00	50000	
Co	72	59	1	He	0.072	0.072	6.71	1898	0.00	200	
Ni	72	60	1	He	0.155	0.155	7.41	910	0.02	200	
copper	72	63	1	He	0.084	0.084	7.86	1778	0.00	200	
Zn	72	66	1	He	0.045	0.045	85.74	1130	0.00	200	
arsenic	72	75	1	He	0.037	0.037	53.99	610	0.01	200	
selenium	72	78	3	H2	-0.152	-0.152	-3.11	67	-0.23	200	
Sr	72	88	1	He	103.712	103.712	2.90	2221983	0.00	500	
Mo	115	95	1	He	0.066	0.066	56.45	2314	0.00	200	
Ag	115	107	1	He	-0.014	-0.014	-12.56	208	-0.01	200	
Cd	72	111	1	He	-0.009	-0.009	-19.50	17	-0.05	200	
Sn	115	120	1	He	-0.240	-0.240	-0.82	1443	-0.02	200	
antimony	159	121	1	He	-0.222	-0.222	-3.71	293	-0.08	200	
Ba	115	137	1	He	26.523	26.523	1.59	129319	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-2.37	67	0.00	40	
[Pb]	209	206	2	no gas	-0.024	-0.024	-31.34	5688	0.00	200	
[Pb]	209	207	2	no gas	0.022	0.022	120.89	5181	0.00	200	
Pb	209	208	2	no gas	-0.001	-0.001	-939.71	23121	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1834749	0.39	1982866	92.53	70	120	
Sc	45	1	He	691965	0.48	767851	90.12	70	120	
Ge	72	1	He	290549	1.24	320058	90.78	70	125	
Ge	72	2	no gas	618461	0.88	673177	91.87	70	125	
Ge	72	3	H2	739420	1.33	821457	90.01	70	120	
Y	89	1	He	2512055	2.02	2786775	90.14	70	120	
In	115	1	He	2759449	2.58	3045232	90.62	70	120	
In	115	2	no gas	4354734	1.05	4564130	95.41	70	120	
In	115	3	H2	6071555	0.47	5826290	104.21	70	120	
Tb	159	1	He	4432267	2.56	4638687	95.55	70	120	
Tb	159	2	no gas	5651607	1.04	5623529	100.50	70	120	
Bi	209	2	no gas	3338570	1.74	3475006	96.07	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-2-D SD^25
Data File Name	288SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:15:09-05:00
Sample Type	Sample
Dilution	1
Comment	439856_5
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.008	0.008	305.45	127444	0.00	200	
Be	6	9	2	no gas	-0.009	-0.009	-27.00	41	-0.02	200	
B	6	11	2	no gas	4.103	4.103	3.98	37905	0.01	400	
Na	72	23	1	He	2971.467	2971.467	1.44	11858410	0.03	50000	
Mg	72	24	1	He	2050.253	2050.253	0.90	4762119	0.04	50000	
Al	45	27	3	H2	1.539	1.539	25.83	30108	0.01	50000	
Si	45	28	3	H2	690.496	690.496	12.45	3437322	0.02	2000	
K	72	39	1	He	24.934	24.934	6.51	457819	0.01	50000	
Ca	72	44	1	He	4574.961	4574.961	0.78	723069	0.63	25000	
Ti	72	49	1	He	-0.080	-0.080	-14.23	96	-0.08	200	
V	72	51	1	He	0.469	0.469	5.71	11977	0.00	200	
Cr	72	52	1	He	0.010	0.010	150.70	2164	0.00	200	
Mn	72	55	1	He	33.659	33.659	1.05	500926	0.01	2500	
Fe	72	56	3	H2	-5.386	-5.386	-3.52	64854	-0.01	50000	
Co	72	59	1	He	0.006	0.006	7.71	499	0.00	200	
Ni	72	60	1	He	0.016	0.016	95.24	213	0.01	200	
copper	72	63	1	He	0.008	0.008	36.56	806	0.00	200	
Zn	72	66	1	He	-0.047	-0.047	-13.82	900	-0.01	200	
arsenic	72	75	1	He	-0.005	-0.005	-265.42	530	0.00	200	
selenium	72	78	3	H2	-0.171	-0.171	-10.01	39	-0.43	200	
Sr	72	88	1	He	20.125	20.125	1.17	437299	0.00	500	
Mo	115	95	1	He	-0.210	-0.210	-4.99	583	-0.04	200	
Ag	115	107	1	He	-0.015	-0.015	-9.68	200	-0.01	200	
Cd	72	111	1	He	-0.005	-0.005	-196.08	30	-0.02	200	
Sn	115	120	1	He	-0.268	-0.268	-2.52	1107	-0.02	200	
antimony	159	121	1	He	-0.225	-0.225	-3.72	260	-0.09	200	
Ba	115	137	1	He	5.199	5.199	1.57	25888	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-10.32	44	-0.01	40	
[Pb]	209	206	2	no gas	-0.022	-0.022	-127.41	5911	0.00	200	
[Pb]	209	207	2	no gas	-0.025	-0.025	-140.47	4818	0.00	200	
Pb	209	208	2	no gas	-0.025	-0.025	-64.43	22627	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1897150	1.36	1982866	95.68	70	120	
Sc	45	1	He	685671	1.96	767851	89.30	70	120	
Ge	72	1	He	294330	1.36	320058	91.96	70	125	
Ge	72	2	no gas	632600	0.19	673177	93.97	70	125	
Ge	72	3	H2	603597	6.89	821457	73.48	70	120	
Y	89	1	He	2516002	2.18	2786775	90.28	70	120	
In	115	1	He	2809300	0.51	3045232	92.25	70	120	
In	115	2	no gas	4506377	0.64	4564130	98.73	70	120	
In	115	3	H2	4737886	10.35	5826290	81.32	70	120	
Tb	159	1	He	4403035	4.06	4638687	94.92	70	120	
Tb	159	2	no gas	5662181	1.00	5623529	100.69	70	120	
Bi	209	2	no gas	3455998	1.33	3475006	99.45	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-2-D PDS^5
Data File Name	289SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:19:09-05:00
Sample Type	Sample
Dilution	1
Comment	439856_6
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	51.792	51.792	3.19	1484077	0.00	200	
Be	6	9	2	no gas	48.986	48.986	1.25	394916	0.01	200	
B	6	11	2	no gas	128.667	128.667	1.41	581572	0.02	400	
Na	72	23	1	He	20180.129	20180.129	0.81	77501974	0.03	50000	
Mg	72	24	1	He	15233.209	15233.209	1.15	34138782	0.04	50000	
Al	45	27	3	H2	518.740	518.740	34.20	5617735	0.01	50000	
Si	45	28	3	H2	2867.505	2867.505	33.30	16171985	0.02	2000	>LDR
K	72	39	1	He	5176.006	5176.006	0.39	17807096	0.03	50000	
Ca	72	44	1	He	27657.187	27657.187	0.84	4210164	0.66	25000	>LDR
Ti	72	49	1	He	52.704	52.704	1.37	32012	0.16	200	
V	72	51	1	He	50.834	50.834	0.15	781279	0.01	200	
Cr	72	52	1	He	49.739	49.739	0.11	812472	0.01	200	
Mn	72	55	1	He	676.433	676.433	0.57	9675772	0.01	2500	
Fe	72	56	3	H2	5593.807	5593.807	30.34	178114684	0.00	50000	
Co	72	59	1	He	49.832	49.832	0.32	1043400	0.00	200	
Ni	72	60	1	He	50.149	50.149	0.85	245700	0.02	200	
copper	72	63	1	He	49.546	49.546	0.96	621694	0.01	200	
Zn	72	66	1	He	50.663	50.663	1.66	130798	0.04	200	
arsenic	72	75	1	He	48.341	48.341	0.65	97816	0.05	200	
selenium	72	78	3	H2	57.298	57.298	29.59	50502	0.11	200	
Sr	72	88	1	He	157.831	157.831	0.32	3309073	0.00	500	
Mo	115	95	1	He	53.019	53.019	3.13	332740	0.02	200	
Ag	115	107	1	He	45.828	45.828	0.86	795906	0.01	200	
Cd	72	111	1	He	52.311	52.311	1.09	175304	0.03	200	
Sn	115	120	1	He	45.742	45.742	0.72	591022	0.01	200	
antimony	159	121	1	He	44.297	44.297	1.41	477781	0.01	200	
Ba	115	137	1	He	77.556	77.556	1.02	374335	0.02	1000	
Tl	159	205	2	no gas	10.449	10.449	0.84	403390	0.00	40	
[Pb]	209	206	2	no gas	53.584	53.584	0.86	680526	0.01	200	
[Pb]	209	207	2	no gas	53.580	53.580	1.02	593910	0.01	200	
Pb	209	208	2	no gas	53.000	53.000	2.13	2754920	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1877540	1.20	1982866	94.69	70	120	
Sc	45	1	He	683977	0.86	767851	89.08	70	120	
Ge	72	1	He	284292	0.47	320058	88.83	70	125	
Ge	72	2	no gas	607090	0.14	673177	90.18	70	125	
Ge	72	3	H2	683012	30.05	821457	83.15	70	120	
Y	89	1	He	2463040	0.55	2786775	88.38	70	120	
In	115	1	He	2732204	1.30	3045232	89.72	70	120	
In	115	2	no gas	4216892	0.62	4564130	92.39	70	120	
In	115	3	H2	5846564	37.32	5826290	100.35	70	120	
Tb	159	1	He	4370710	0.91	4638687	94.22	70	120	
Tb	159	2	no gas	5539489	1.68	5623529	98.51	70	120	
Bi	209	2	no gas	3240528	1.76	3475006	93.25	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-2-E MS^5
Data File Name	290SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:23:03-05:00
Sample Type	Sample
Dilution	1
Comment	439856_7
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	10.541	10.541	1.32	400113	0.00	200	
Be	6	9	2	no gas	9.452	9.452	1.70	75850	0.01	200	
B	6	11	2	no gas	48.386	48.386	3.38	229554	0.02	400	
Na	72	23	1	He	16159.093	16159.093	2.13	62658142	0.03	50000	
Mg	72	24	1	He	11173.706	11173.706	1.30	25280829	0.04	50000	
Al	45	27	3	H2	94.888	94.888	4.08	1167817	0.01	50000	
Si	45	28	3	H2	2499.897	2499.897	3.45	15776682	0.02	2000	>LDR
K	72	39	1	He	1124.637	1124.637	1.43	4188892	0.03	50000	
Ca	72	44	1	He	23528.589	23528.589	1.41	3616115	0.65	25000	>LDR
Ti	72	49	1	He	10.484	10.484	3.92	6542	0.16	200	
V	72	51	1	He	10.282	10.282	0.45	163074	0.01	200	
Cr	72	52	1	He	9.407	9.407	1.23	156693	0.01	200	
Mn	72	55	1	He	268.108	268.108	0.52	3873061	0.01	2500	
Fe	72	56	3	H2	976.648	976.648	1.93	35468656	0.00	50000	
Co	72	59	1	He	9.677	9.677	1.06	204837	0.00	200	
Ni	72	60	1	He	9.794	9.794	0.81	48550	0.02	200	
copper	72	63	1	He	9.779	9.779	0.37	124431	0.01	200	
Zn	72	66	1	He	10.000	10.000	2.61	26867	0.04	200	
arsenic	72	75	1	He	9.762	9.762	0.67	20363	0.05	200	
selenium	72	78	3	H2	10.249	10.249	1.01	10396	0.10	200	
Sr	72	88	1	He	113.224	113.224	0.42	2396547	0.00	500	
Mo	115	95	1	He	10.485	10.485	2.98	67532	0.02	200	
Ag	115	107	1	He	9.848	9.848	0.82	171936	0.01	200	
Cd	72	111	1	He	10.267	10.267	1.50	34774	0.03	200	
Sn	115	120	1	He	9.680	9.680	1.73	129023	0.01	200	
antimony	159	121	1	He	9.908	9.908	0.60	110700	0.01	200	
Ba	115	137	1	He	36.489	36.489	2.06	176701	0.02	1000	
Tl	159	205	2	no gas	1.979	1.979	1.81	77166	0.00	40	
[Pb]	209	206	2	no gas	10.227	10.227	0.64	137237	0.01	200	
[Pb]	209	207	2	no gas	10.208	10.208	1.57	119325	0.01	200	
Pb	209	208	2	no gas	9.872	9.872	0.33	541806	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1866950	2.30	1982866	94.15	70	120	
Sc	45	1	He	681445	0.55	767851	88.75	70	120	
Ge	72	1	He	286997	0.30	320058	89.67	70	125	
Ge	72	2	no gas	605495	0.93	673177	89.95	70	125	
Ge	72	3	H2	727501	0.87	821457	88.56	70	120	
Y	89	1	He	2464345	0.86	2786775	88.43	70	120	
In	115	1	He	2740807	0.95	3045232	90.00	70	120	
In	115	2	no gas	4263277	0.82	4564130	93.41	70	120	
In	115	3	H2	5961301	1.00	5826290	102.32	70	120	
Tb	159	1	He	4441416	0.98	4638687	95.75	70	120	
Tb	159	2	no gas	5585081	1.20	5623529	99.32	70	120	
Bi	209	2	no gas	3303919	0.76	3475006	95.08	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-2-F MSD^5
Data File Name	291SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:26:58-05:00
Sample Type	Sample
Dilution	1
Comment	439856_8
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	10.425	10.425	2.59	396739	0.00	200	
Be	6	9	2	no gas	9.655	9.655	2.25	77427	0.01	200	
B	6	11	2	no gas	48.334	48.334	2.57	229207	0.02	400	
Na	72	23	1	He	16485.439	16485.439	6.19	61333097	0.03	50000	
Mg	72	24	1	He	11590.259	11590.259	5.41	25167817	0.05	50000	
Al	45	27	3	H2	81.588	81.588	24.00	1165714	0.01	50000	
Si	45	28	3	H2	2144.784	2144.784	22.61	15703116	0.01	2000	>LDR
K	72	39	1	He	1170.383	1170.383	5.75	4169860	0.03	50000	
Ca	72	44	1	He	24356.082	24356.082	5.73	3592106	0.68	25000	>LDR
Ti	72	49	1	He	10.567	10.567	7.96	6322	0.17	200	
V	72	51	1	He	10.845	10.845	6.39	164790	0.01	200	
Cr	72	52	1	He	9.920	9.920	5.58	158481	0.01	200	
Mn	72	55	1	He	277.751	277.751	5.46	3850642	0.01	2500	
Fe	72	56	3	H2	848.337	848.337	18.28	34870305	0.00	50000	
Co	72	59	1	He	10.243	10.243	5.21	208098	0.00	200	
Ni	72	60	1	He	10.334	10.334	4.41	49185	0.02	200	
copper	72	63	1	He	10.213	10.213	5.89	124662	0.01	200	
Zn	72	66	1	He	9.820	9.820	4.17	25358	0.04	200	
arsenic	72	75	1	He	10.369	10.369	5.58	20728	0.05	200	
selenium	72	78	3	H2	8.758	8.758	17.47	10090	0.09	200	
Sr	72	88	1	He	119.365	119.365	5.80	2424407	0.00	500	
Mo	115	95	1	He	11.155	11.155	9.00	68364	0.02	200	
Ag	115	107	1	He	10.632	10.632	8.75	176878	0.01	200	
Cd	72	111	1	He	10.663	10.663	6.48	34647	0.03	200	
Sn	115	120	1	He	10.215	10.215	9.21	129530	0.01	200	
antimony	159	121	1	He	10.264	10.264	7.62	107407	0.01	200	
Ba	115	137	1	He	37.813	37.813	8.12	174589	0.02	1000	
Tl	159	205	2	no gas	2.026	2.026	0.70	78042	0.00	40	
[Pb]	209	206	2	no gas	10.424	10.424	2.08	136794	0.01	200	
[Pb]	209	207	2	no gas	10.417	10.417	1.18	119077	0.01	200	
Pb	209	208	2	no gas	10.061	10.061	1.03	539994	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1865431	1.17	1982866	94.08	70	120	
Sc	45	1	He	640143	8.59	767851	83.37	70	120	
Ge	72	1	He	275983	5.50	320058	86.23	70	125	
Ge	72	2	no gas	604007	1.25	673177	89.72	70	125	
Ge	72	3	H2	838748	16.17	821457	102.11	70	120	
Y	89	1	He	2338160	8.74	2786775	83.90	70	120	
In	115	1	He	2624926	8.40	3045232	86.20	70	120	
In	115	2	no gas	4315435	1.10	4564130	94.55	70	120	
In	115	3	H2	7282247	20.37	5826290	124.99	70	120	ISTD Failed
Tb	159	1	He	4180645	8.54	4638687	90.13	70	120	
Tb	159	2	no gas	5516272	0.44	5623529	98.09	70	120	
Bi	209	2	no gas	3233537	0.64	3475006	93.05	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-8-B^5
Data File Name	292SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:30:56-05:00
Sample Type	Sample
Dilution	1
Comment	439856_14
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.018	0.018	1370.53	125592	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-14.81	56	-0.01	200	
B	6	11	2	no gas	-0.460	-0.460	-35.85	17496	0.00	400	
Na	72	23	1	He	6.398	6.398	18.29	74141	0.01	50000	
Mg	72	24	1	He	2.121	2.121	26.60	10667	0.02	50000	
Al	45	27	3	H2	1.180	1.180	3.76	34997	0.00	50000	
Si	45	28	3	H2	3.220	3.220	9.04	86576	0.00	2000	
K	72	39	1	He	-0.889	-0.889	-179.95	361874	0.00	50000	
Ca	72	44	1	He	6.275	6.275	31.10	3337	0.19	25000	
Ti	72	49	1	He	-0.043	-0.043	-154.73	117	-0.04	200	
V	72	51	1	He	0.324	0.324	2.06	9528	0.00	200	
Cr	72	52	1	He	0.029	0.029	9.92	2440	0.00	200	
Mn	72	55	1	He	-0.023	-0.023	-67.42	2244	0.00	2500	
Fe	72	56	3	H2	-3.245	-3.245	-3.09	158864	0.00	50000	
Co	72	59	1	He	-0.009	-0.009	-13.51	164	-0.01	200	
Ni	72	60	1	He	-0.002	-0.002	-392.27	120	0.00	200	
copper	72	63	1	He	-0.011	-0.011	-29.57	549	0.00	200	
Zn	72	66	1	He	0.006	0.006	153.86	1023	0.00	200	
arsenic	72	75	1	He	0.018	0.018	76.84	570	0.00	200	
selenium	72	78	3	H2	-0.057	-0.057	-39.69	164	-0.03	200	
Sr	72	88	1	He	0.019	0.019	12.11	977	0.00	500	
Mo	115	95	1	He	-0.175	-0.175	-14.54	817	-0.02	200	
Ag	115	107	1	He	-0.012	-0.012	-12.29	257	0.00	200	
Cd	72	111	1	He	-0.008	-0.008	-36.61	20	-0.04	200	
Sn	115	120	1	He	-0.102	-0.102	-84.57	3292	0.00	200	
antimony	159	121	1	He	-0.054	-0.054	-57.98	2099	0.00	200	
Ba	115	137	1	He	0.000	0.000	-3010.15	89	0.00	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-32.84	109	0.00	40	
[Pb]	209	206	2	no gas	-0.019	-0.019	-85.55	5948	0.00	200	
[Pb]	209	207	2	no gas	-0.015	-0.015	-128.17	4934	0.00	200	
Pb	209	208	2	no gas	-0.018	-0.018	-32.38	22994	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1866729	2.21	1982866	94.14	70	120	
Sc	45	1	He	687385	0.63	767851	89.52	70	120	
Ge	72	1	He	289624	0.74	320058	90.49	70	125	
Ge	72	2	no gas	612345	0.47	673177	90.96	70	125	
Ge	72	3	H2	742696	1.11	821457	90.41	70	120	
Y	89	1	He	2520474	0.29	2786775	90.44	70	120	
In	115	1	He	2819455	1.59	3045232	92.59	70	120	
In	115	2	no gas	4363820	1.86	4564130	95.61	70	120	
In	115	3	H2	6202239	1.97	5826290	106.45	70	120	
Tb	159	1	He	4402973	1.63	4638687	94.92	70	120	
Tb	159	2	no gas	5547562	1.07	5623529	98.65	70	120	
Bi	209	2	no gas	3451998	0.22	3475006	99.34	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	294_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:38:52-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	46.975	46.975	6.67	1422536	0.00	50	
Be	6	9	2	no gas	46.790	46.790	0.71	384263	0.01	50	
B	6	11	2	no gas	92.749	92.749	6.28	440728	0.02	100	
Na	72	23	1	He	4819.887	4819.887	1.01	18740830	0.03	5000	
Mg	72	24	1	He	4871.348	4871.348	1.17	11032667	0.04	5000	
Al	45	27	3	H2	556.946	556.946	12.32	5676927	0.01	500	CCV Main CR1 Failed
K	72	39	1	He	4853.991	4853.991	1.10	16894100	0.03	5000	
Ca	72	44	1	He	4735.238	4735.238	1.27	730437	0.65	5000	
Ti	72	49	1	He	49.466	49.466	2.92	30327	0.16	50	
V	72	51	1	He	47.153	47.153	1.18	737421	0.01	50	
Cr	72	52	1	He	47.789	47.789	1.08	788805	0.01	50	
Mn	72	55	1	He	495.185	495.185	1.09	7155559	0.01	500	
Fe	72	56	3	H2	5439.706	5439.706	7.66	177988757	0.00	5000	
Co	72	59	1	He	47.648	47.648	1.19	1007707	0.00	50	
Ni	72	60	1	He	49.519	49.519	0.98	245129	0.02	50	
copper	72	63	1	He	48.163	48.163	1.40	610446	0.01	50	
dwCu63	72	63	2	no gas	45.756	45.756	7.92	889717	0.01	50	
Zn	72	66	1	He	49.494	49.494	0.40	129481	0.04	50	
arsenic	72	75	1	He	47.608	47.608	0.67	97326	0.05	50	
dwAs75	72	75	2	no gas	45.275	45.275	8.11	193138	0.02	50	
selenium	72	78	3	H2	54.261	54.261	3.94	50871	0.11	50	
Sr	72	88	1	He	50.390	50.390	1.28	1067539	0.00	50	
Mo	115	95	1	He	49.742	49.742	0.74	315591	0.02	50	
Ag	115	107	1	He	47.890	47.890	0.75	844008	0.01	50	
Cd	72	111	1	He	50.598	50.598	2.09	171277	0.03	50	
Sn	115	120	1	He	50.112	50.112	0.73	654311	0.01	50	
antimony	159	121	1	He	50.577	50.577	1.07	552168	0.01	50	
dwSb121	159	121	2	no gas	49.022	49.022	14.74	769784	0.01	50	
Ba	115	137	1	He	48.248	48.248	1.01	236388	0.02	50	
Tl	159	205	2	no gas	9.213	9.213	13.11	384063	0.00	10	
[Pb]	209	206	2	no gas	46.769	46.769	11.56	653409	0.01	50	
[Pb]	209	207	2	no gas	46.505	46.505	11.02	567355	0.01	50	
Pb	209	208	2	no gas	45.246	45.246	10.75	2589027	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1970618	5.25	1982866	99.38	70	120	
Sc	45	1	He	687856	1.39	767851	89.58	70	120	
Ge	72	1	He	287224	0.52	320058	89.74	70	125	
Ge	72	2	no gas	634336	6.50	673177	94.23	70	125	
Ge	72	3	H2	662610	6.60	821457	80.66	70	120	
Y	89	1	He	2491269	0.88	2786775	89.40	70	120	
In	115	1	He	2773306	1.06	3045232	91.07	70	120	
In	115	2	no gas	4645614	12.28	4564130	101.79	70	120	
In	115	3	H2	5157456	9.88	5826290	88.52	70	120	
Tb	159	1	He	4438952	1.63	4638687	95.69	70	120	
Tb	159	2	no gas	6048150	12.38	5623529	107.55	70	120	
Bi	209	2	no gas	3587257	9.30	3475006	103.23	60	120	

Sample Table

Sample Name	CCB
Data File Name	296_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:46:43-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.185	-0.185	-56.89	124447	0.00	0.5	
Be	6	9	2	no gas	-0.006	-0.006	-32.40	53	-0.01	0.5	
B	6	11	2	no gas	-0.882	-0.882	-33.46	16788	-0.01	5	
Na	72	23	1	He	-1.472	-1.472	-25.55	44043	0.00	100	
Mg	72	24	1	He	-1.037	-1.037	-12.19	3647	-0.03	50	
Al	45	27	3	H2	0.087	0.087	57.72	20441	0.00	50	
K	72	39	1	He	-2.404	-2.404	-22.43	349766	0.00	50	
Ca	72	44	1	He	-1.665	-1.665	-61.46	2087	-0.08	50	
Ti	72	49	1	He	-0.017	-0.017	-254.25	119	-0.01	0.5	
V	72	51	1	He	0.021	0.021	140.43	4506	0.00	0.5	
Cr	72	52	1	He	-0.005	-0.005	-61.66	1750	0.00	0.5	
Mn	72	55	1	He	-0.099	-0.099	-9.13	1193	-0.01	2	
Fe	72	56	3	H2	-4.822	-4.822	-1.35	88812	-0.01	25	
Co	72	59	1	He	-0.011	-0.011	-8.69	104	-0.01	0.5	
Ni	72	60	1	He	0.003	0.003	290.11	110	0.00	1.5	
copper	72	63	1	He	-0.014	-0.014	-33.34	479	0.00	0.5	
dwCu63	72	63	2	no gas	-0.007	-0.007	-54.17	753	0.00	0.5	
Zn	72	66	1	He	0.033	0.033	126.16	1000	0.00	4	
arsenic	72	75	1	He	-0.055	-0.055	-9.37	398	-0.01	0.25	
dwAs75	72	75	2	no gas	-0.139	-0.139	-122.84	261	-0.05	5	
selenium	72	78	3	H2	-0.093	-0.093	-22.46	125	-0.07	0.25	
dwSe82	72	82	2	no gas	-0.188	-0.188	-41.02	238	-0.08	5	
Sr	72	88	1	He	-0.011	-0.011	-12.47	293	0.00	0.5	
Mo	115	95	1	He	-0.217	-0.217	-19.79	650	-0.03	1	
Ag	115	107	1	He	-0.012	-0.012	-10.65	230	-0.01	0.05	
Cd	72	111	1	He	-0.008	-0.008	-21.53	3	-0.24	0.25	
Sn	115	120	1	He	-0.167	-0.167	-18.95	2397	-0.01	0.5	
antimony	159	121	1	He	-0.116	-0.116	-11.34	1426	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.239	-0.239	-2.63	3073	-0.01	5	
Ba	115	137	1	He	0.001	0.001	1323.02	107	0.00	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-20.98	76	0.00	0.1	
[Pb]	209	206	2	no gas	-0.019	-0.019	-152.64	5875	0.00	0.25	
[Pb]	209	207	2	no gas	-0.009	-0.009	-232.97	4821	0.00	0.25	
Pb	209	208	2	no gas	-0.018	-0.018	-95.55	22821	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1938932	2.01	1982866	97.78	70	120	
Sc	45	1	He	675675	0.61	767851	88.00	70	120	
Ge	72	1	He	284210	0.71	320058	88.80	70	125	
Ge	72	2	no gas	598598	0.22	673177	88.92	70	125	
Ge	72	3	H2	728866	0.67	821457	88.73	70	120	
Y	89	1	He	2450425	1.62	2786775	87.93	70	120	
In	115	1	He	2775502	2.31	3045232	91.14	70	120	
In	115	2	no gas	4344010	1.01	4564130	95.18	70	120	
In	115	3	H2	6008835	1.40	5826290	103.13	70	120	
Tb	159	1	He	4385854	0.77	4638687	94.55	70	120	
Tb	159	2	no gas	5491049	1.06	5623529	97.64	70	120	
Bi	209	2	no gas	3462698	1.45	3475006	99.65	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-3-B^5
Data File Name	297SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:50:40-05:00
Sample Type	Sample
Dilution	1
Comment	439856_9
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.032	1.032	6.12	173555	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-69.18	70	-0.01	200	
B	6	11	2	no gas	180.022	180.022	1.86	917982	0.02	400	
Na	72	23	1	He	563355.149	563355.149	2.17	2280631806	0.02	50000	>LDR
Mg	72	24	1	He	81709.426	81709.426	2.08	193109150	0.04	50000	>LDR
Al	45	27	3	H2	1.367	1.367	2.01	34584	0.00	50000	
Si	45	28	3	H2	1821.043	1821.043	0.91	11074466	0.02	2000	>LDR
K	72	39	1	He	4260.505	4260.505	2.89	15525895	0.03	50000	
Ca	72	44	1	He	58377.690	58377.690	2.50	9370802	0.62	25000	>LDR
Ti	72	49	1	He	2.004	2.004	1.96	1415	0.14	200	
V	72	51	1	He	0.842	0.842	3.94	18004	0.00	200	
Cr	72	52	1	He	0.037	0.037	62.67	2570	0.00	200	
Mn	72	55	1	He	239.510	239.510	1.28	3615299	0.01	2500	
Fe	72	56	3	H2	333.328	333.328	1.01	12103430	0.00	50000	
Co	72	59	1	He	0.454	0.454	1.39	10365	0.00	200	
Ni	72	60	1	He	0.788	0.788	4.53	4171	0.02	200	
copper	72	63	1	He	1.422	1.422	2.78	19492	0.01	200	
Zn	72	66	1	He	0.346	0.346	15.03	1900	0.02	200	
arsenic	72	75	1	He	0.324	0.324	3.31	1225	0.03	200	
selenium	72	78	3	H2	25.304	25.304	0.07	24995	0.10	200	
Sr	72	88	1	He	1155.724	1155.724	0.98	25551211	0.00	500	>LDR
Mo	115	95	1	He	33.460	33.460	2.16	207670	0.02	200	
Ag	115	107	1	He	0.001	0.001	664.92	452	0.00	200	
Cd	72	111	1	He	0.038	0.038	66.70	167	0.02	200	
Sn	115	120	1	He	-0.174	-0.174	-11.57	2237	-0.01	200	
antimony	159	121	1	He	-0.039	-0.039	-145.15	2169	0.00	200	
Ba	115	137	1	He	34.507	34.507	2.48	164087	0.02	1000	
Tl	159	205	2	no gas	0.001	0.001	25.30	216	0.00	40	
[Pb]	209	206	2	no gas	-0.032	-0.032	-64.32	4224	0.00	200	
[Pb]	209	207	2	no gas	0.012	0.012	102.12	3751	0.00	200	
Pb	209	208	2	no gas	-0.016	-0.016	-96.41	16978	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2137265	1.06	1982866	107.79	70	120	
Sc	45	1	He	761539	1.69	767851	99.18	70	120	
Ge	72	1	He	299850	1.02	320058	93.69	70	125	
Ge	72	2	no gas	644714	0.67	673177	95.77	70	125	
Ge	72	3	H2	717446	0.38	821457	87.34	70	120	
Y	89	1	He	2588233	1.38	2786775	92.88	70	120	
In	115	1	He	2691663	2.16	3045232	88.39	70	120	
In	115	2	no gas	3999582	0.34	4564130	87.63	70	120	
In	115	3	H2	5923277	0.93	5826290	101.66	70	120	
Tb	159	1	He	4234887	2.80	4638687	91.29	70	120	
Tb	159	2	no gas	5013760	0.26	5623529	89.16	70	120	
Bi	209	2	no gas	2566350	1.46	3475006	73.85	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-4-B^5
Data File Name	298SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:54:42-05:00
Sample Type	Sample
Dilution	1
Comment	439856_10
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.003	0.003	4861.18	127997	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-22.36	62	-0.01	200	
B	6	11	2	no gas	0.107	0.107	52.36	21013	0.00	400	
Na	72	23	1	He	136.535	136.535	18.74	607046	0.02	50000	
Mg	72	24	1	He	18.035	18.035	23.03	49084	0.04	50000	
Al	45	27	3	H2	1.156	1.156	6.02	34458	0.00	50000	
Si	45	28	3	H2	1.394	1.394	23.32	82934	0.00	2000	
K	72	39	1	He	3.381	3.381	29.15	390263	0.00	50000	
Ca	72	44	1	He	12.327	12.327	13.47	4454	0.28	25000	
Ti	72	49	1	He	-0.043	-0.043	-77.43	109	-0.04	200	
V	72	51	1	He	0.811	0.811	3.05	17520	0.00	200	
Cr	72	52	1	He	0.028	0.028	43.71	2407	0.00	200	
Mn	72	55	1	He	-0.002	-0.002	-620.49	2717	0.00	2500	
Fe	72	56	3	H2	-4.390	-4.390	-0.81	107246	0.00	50000	
Co	72	59	1	He	-0.010	-0.010	-13.25	123	-0.01	200	
Ni	72	60	1	He	0.003	0.003	83.18	117	0.00	200	
copper	72	63	1	He	0.005	0.005	33.45	759	0.00	200	
Zn	72	66	1	He	0.065	0.065	59.05	1143	0.01	200	
arsenic	72	75	1	He	0.087	0.087	17.63	723	0.01	200	
selenium	72	78	3	H2	-0.131	-0.131	-6.49	89	-0.15	200	
Sr	72	88	1	He	0.249	0.249	26.54	6065	0.00	500	
Mo	115	95	1	He	-0.116	-0.116	-42.58	1303	-0.01	200	
Ag	115	107	1	He	-0.011	-0.011	-15.93	250	0.00	200	
Cd	72	111	1	He	-0.005	-0.005	-62.33	13	-0.04	200	
Sn	115	120	1	He	-0.224	-0.224	-8.63	1677	-0.01	200	
antimony	159	121	1	He	-0.190	-0.190	-7.05	637	-0.03	200	
Ba	115	137	1	He	0.014	0.014	58.79	173	0.01	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-4.07	57	-0.01	40	
[Pb]	209	206	2	no gas	-0.044	-0.044	-26.90	5441	0.00	200	
[Pb]	209	207	2	no gas	-0.020	-0.020	-43.53	4604	0.00	200	
Pb	209	208	2	no gas	-0.035	-0.035	-12.46	21457	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1915915	1.24	1982866	96.62	70	120	
Sc	45	1	He	721238	1.31	767851	93.93	70	120	
Ge	72	1	He	300382	1.32	320058	93.85	70	125	
Ge	72	2	no gas	616180	0.35	673177	91.53	70	125	
Ge	72	3	H2	748826	0.59	821457	91.16	70	120	
Y	89	1	He	2607259	0.27	2786775	93.56	70	120	
In	115	1	He	2799216	1.96	3045232	91.92	70	120	
In	115	2	no gas	4352845	1.85	4564130	95.37	70	120	
In	115	3	H2	6157576	1.17	5826290	105.69	70	120	
Tb	159	1	He	4404252	1.74	4638687	94.95	70	120	
Tb	159	2	no gas	5508531	1.18	5623529	97.96	70	120	
Bi	209	2	no gas	3400850	2.12	3475006	97.87	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-5-B^5
Data File Name	299SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T10:58:40-05:00
Sample Type	Sample
Dilution	1
Comment	439856_11
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	56.341	56.341	2.75	1836545	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-43.32	64	-0.01	200	
B	6	11	2	no gas	355.941	355.941	2.48	1804219	0.02	400	
Na	72	23	1	He	795088.806	795088.806	0.99	3191656272	0.02	50000	>LDR
Mg	72	24	1	He	7563.367	7563.367	1.05	17729091	0.04	50000	
Al	45	27	3	H2	1.603	1.603	8.59	36670	0.00	50000	
Si	45	28	3	H2	2301.456	2301.456	0.69	13734483	0.02	2000	>LDR
K	72	39	1	He	143950.967	143950.967	0.71	507904019	0.03	50000	>LDR
Ca	72	44	1	He	31220.609	31220.609	1.22	4970910	0.63	25000	>LDR
Ti	72	49	1	He	3.472	3.472	7.48	2332	0.15	200	
V	72	51	1	He	0.428	0.428	7.20	11217	0.00	200	
Cr	72	52	1	He	0.060	0.060	25.94	2940	0.00	200	
Mn	72	55	1	He	220.953	220.953	1.39	3306919	0.01	2500	
Fe	72	56	3	H2	1135.151	1135.151	0.60	39916478	0.00	50000	
Co	72	59	1	He	0.165	0.165	2.42	3965	0.00	200	
Ni	72	60	1	He	1.040	1.040	7.34	5421	0.02	200	
copper	72	63	1	He	0.189	0.189	4.39	3171	0.01	200	
Zn	72	66	1	He	0.313	0.313	21.28	1797	0.02	200	
arsenic	72	75	1	He	0.417	0.417	4.89	1409	0.03	200	
selenium	72	78	3	H2	0.232	0.232	11.92	434	0.05	200	
Sr	72	88	1	He	477.899	477.899	1.74	10475977	0.00	500	>LDR
Mo	115	95	1	He	132.591	132.591	1.03	790413	0.02	200	
Ag	115	107	1	He	-0.007	-0.007	-19.41	297	0.00	200	
Cd	72	111	1	He	0.049	0.049	50.84	203	0.02	200	
Sn	115	120	1	He	-0.110	-0.110	-5.75	2950	0.00	200	
antimony	159	121	1	He	-0.152	-0.152	-13.54	946	-0.02	200	
Ba	115	137	1	He	9.051	9.051	0.22	41707	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-16.05	67	0.00	40	
[Pb]	209	206	2	no gas	0.017	0.017	211.25	4417	0.00	200	
[Pb]	209	207	2	no gas	0.044	0.044	88.83	3784	0.00	200	
Pb	209	208	2	no gas	0.003	0.003	1083.03	16651	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2150944	0.39	1982866	108.48	70	120	
Sc	45	1	He	775008	1.83	767851	100.93	70	120	
Ge	72	1	He	297338	1.84	320058	92.90	70	125	
Ge	72	2	no gas	653060	1.46	673177	97.01	70	125	
Ge	72	3	H2	705449	1.40	821457	85.88	70	120	
Y	89	1	He	2549914	0.37	2786775	91.50	70	120	
In	115	1	He	2603077	0.96	3045232	85.48	70	120	
In	115	2	no gas	3917565	1.36	4564130	85.83	70	120	
In	115	3	H2	5699056	0.12	5826290	97.82	70	120	
Tb	159	1	He	3992326	0.70	4638687	86.07	70	120	
Tb	159	2	no gas	4852433	0.55	5623529	86.29	70	120	
Bi	209	2	no gas	2407415	1.70	3475006	69.28	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-6-B^5
Data File Name	300SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T11:02:41-05:00
Sample Type	Sample
Dilution	1
Comment	439856_12
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	57.330	57.330	1.43	1898867	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-18.26	61	-0.01	200	
B	6	11	2	no gas	338.668	338.668	2.00	1747833	0.02	400	
Na	72	23	1	He	775897.234	775897.234	0.56	3121895207	0.02	50000	>LDR
Mg	72	24	1	He	7529.050	7529.050	1.33	17692622	0.04	50000	
Al	45	27	3	H2	0.998	0.998	7.29	27865	0.00	50000	
Si	45	28	3	H2	2268.755	2268.755	0.72	12679759	0.02	2000	>LDR
K	72	39	1	He	141167.317	141167.317	0.27	499270886	0.03	50000	>LDR
Ca	72	44	1	He	31275.576	31275.576	0.83	4991012	0.63	25000	>LDR
Ti	72	49	1	He	3.433	3.433	3.85	2312	0.15	200	
V	72	51	1	He	0.243	0.243	10.00	8289	0.00	200	
Cr	72	52	1	He	0.048	0.048	32.33	2734	0.00	200	
Mn	72	55	1	He	230.356	230.356	0.64	3456200	0.01	2500	
Fe	72	56	3	H2	1097.517	1097.517	0.07	35976989	0.00	50000	
Co	72	59	1	He	0.165	0.165	1.05	3967	0.00	200	
Ni	72	60	1	He	0.926	0.926	6.07	4851	0.02	200	
copper	72	63	1	He	0.156	0.156	2.91	2736	0.01	200	
Zn	72	66	1	He	0.148	0.148	32.72	1357	0.01	200	
arsenic	72	75	1	He	0.341	0.341	4.22	1254	0.03	200	
selenium	72	78	3	H2	0.225	0.225	1.99	398	0.06	200	
Sr	72	88	1	He	482.070	482.070	1.09	10593525	0.00	500	>LDR
Mo	115	95	1	He	129.057	129.057	1.51	754033	0.02	200	
Ag	115	107	1	He	-0.010	-0.010	-24.05	243	0.00	200	
Cd	72	111	1	He	0.038	0.038	11.47	167	0.02	200	
Sn	115	120	1	He	-0.226	-0.226	-4.82	1503	-0.02	200	
antimony	159	121	1	He	-0.174	-0.174	-9.35	727	-0.02	200	
Ba	115	137	1	He	9.195	9.195	1.55	41522	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-10.76	47	-0.01	40	
[Pb]	209	206	2	no gas	0.007	0.007	410.77	4344	0.00	200	
[Pb]	209	207	2	no gas	0.024	0.024	129.66	3634	0.00	200	
Pb	209	208	2	no gas	0.003	0.003	707.19	16708	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2188425	0.30	1982866	110.37	70	120	
Sc	45	1	He	771501	1.27	767851	100.48	70	120	
Ge	72	1	He	298029	0.84	320058	93.12	70	125	
Ge	72	2	no gas	606805	1.35	673177	90.14	70	125	
Ge	72	3	H2	657456	0.73	821457	80.04	70	120	
Y	89	1	He	2525773	0.97	2786775	90.63	70	120	
In	115	1	He	2551317	1.06	3045232	83.78	70	120	
In	115	2	no gas	3831100	2.47	4564130	83.94	70	120	
In	115	3	H2	5328199	1.74	5826290	91.45	70	120	
Tb	159	1	He	3953222	2.29	4638687	85.22	70	120	
Tb	159	2	no gas	4769868	1.09	5623529	84.82	70	120	
Bi	209	2	no gas	2418962	1.47	3475006	69.61	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-7-B^5
Data File Name	301SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T11:06:44-05:00
Sample Type	Sample
Dilution	1
Comment	439856_13
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.625	0.625	27.66	153807	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-23.73	66	-0.01	200	
B	6	11	2	no gas	76.602	76.602	1.83	384909	0.02	400	
Na	72	23	1	He	472248.803	472248.803	0.17	1842059226	0.03	50000	>LDR
Mg	72	24	1	He	79306.519	79306.519	0.63	180594191	0.04	50000	>LDR
Al	45	27	3	H2	1.217	1.217	17.16	30289	0.00	50000	
Si	45	28	3	H2	2540.314	2540.314	0.55	14207613	0.02	2000	>LDR
K	72	39	1	He	1317.311	1317.311	0.68	4876649	0.03	50000	
Ca	72	44	1	He	138049.051	138049.051	1.64	21346394	0.65	25000	>LDR
Ti	72	49	1	He	2.240	2.240	3.99	1508	0.15	200	
V	72	51	1	He	0.343	0.343	2.99	9593	0.00	200	
Cr	72	52	1	He	0.073	0.073	17.67	3060	0.00	200	
Mn	72	55	1	He	2179.706	2179.706	1.23	31678463	0.01	2500	
Fe	72	56	3	H2	1837.631	1837.631	0.91	59377586	0.00	50000	
Co	72	59	1	He	0.599	0.599	3.68	13084	0.00	200	
Ni	72	60	1	He	1.168	1.168	6.24	5908	0.02	200	
copper	72	63	1	He	0.027	0.027	23.92	1016	0.00	200	
Zn	72	66	1	He	0.255	0.255	19.43	1593	0.02	200	
arsenic	72	75	1	He	1.686	1.686	0.65	3966	0.04	200	
selenium	72	78	3	H2	-0.089	-0.089	-40.36	115	-0.08	200	
Sr	72	88	1	He	660.754	660.754	1.13	14075991	0.00	500	>LDR
Mo	115	95	1	He	0.717	0.717	23.72	6085	0.01	200	
Ag	115	107	1	He	-0.011	-0.011	-26.88	230	0.00	200	
Cd	72	111	1	He	0.001	0.001	1235.65	33	0.00	200	
Sn	115	120	1	He	-0.219	-0.219	-6.20	1600	-0.01	200	
antimony	159	121	1	He	-0.183	-0.183	-11.50	642	-0.03	200	
Ba	115	137	1	He	6.419	6.419	2.79	29214	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-13.81	48	-0.01	40	
[Pb]	209	206	2	no gas	-0.006	-0.006	-157.34	4534	0.00	200	
[Pb]	209	207	2	no gas	0.030	0.030	124.81	3954	0.00	200	
Pb	209	208	2	no gas	0.001	0.001	196.40	17872	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	2037568	1.90	1982866	102.76	70	120	
Sc	45	1	He	745373	0.54	767851	97.07	70	120	
Ge	72	1	He	288907	0.29	320058	90.27	70	125	
Ge	72	2	no gas	587636	0.93	673177	87.29	70	125	
Ge	72	3	H2	649837	1.28	821457	79.11	70	120	
Y	89	1	He	2495296	1.02	2786775	89.54	70	120	
In	115	1	He	2569168	1.95	3045232	84.37	70	120	
In	115	2	no gas	3808635	1.29	4564130	83.45	70	120	
In	115	3	H2	5291484	1.07	5826290	90.82	70	120	
Tb	159	1	He	3968324	0.77	4638687	85.55	70	120	
Tb	159	2	no gas	4942020	1.77	5623529	87.88	70	120	
Bi	209	2	no gas	2593300	0.96	3475006	74.63	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	305_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T11:22:38-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	48.519	48.519	2.02	1294014	0.00	50	
Be	6	9	2	no gas	44.977	44.977	1.61	337506	0.01	50	CCV Main CR1 Failed
B	6	11	2	no gas	94.570	94.570	2.77	406467	0.02	100	
Na	72	23	1	He	4675.272	4675.272	1.41	16035236	0.03	5000	
Mg	72	24	1	He	4681.206	4681.206	1.15	9304196	0.05	5000	
Al	45	27	3	H2	446.879	446.879	2.79	4558166	0.01	500	CCV Main CR1 Failed
K	72	39	1	He	4667.469	4667.469	0.44	14260156	0.03	5000	
Ca	72	44	1	He	4622.741	4622.741	0.38	625870	0.74	5000	
Ti	72	49	1	He	47.574	47.574	1.30	25591	0.19	50	
V	72	51	1	He	45.968	45.968	0.47	632777	0.01	50	
Cr	72	52	1	He	46.383	46.383	1.12	671904	0.01	50	
Mn	72	55	1	He	485.733	485.733	0.34	6160822	0.01	500	
Fe	72	56	3	H2	4827.409	4827.409	1.10	150720834	0.00	5000	
Co	72	59	1	He	47.291	47.291	0.67	877717	0.01	50	
Ni	72	60	1	He	48.302	48.302	1.57	209825	0.02	50	
copper	72	63	1	He	47.958	47.958	0.80	533459	0.01	50	
dwCu63	72	63	2	no gas	47.842	47.842	0.32	781667	0.01	50	
Zn	72	66	1	He	50.090	50.090	0.85	114971	0.04	50	
arsenic	72	75	1	He	47.496	47.496	0.70	85204	0.06	50	
dwAs75	72	75	2	no gas	47.658	47.658	1.99	171507	0.03	50	
selenium	72	78	3	H2	50.361	50.361	0.12	43339	0.12	50	
Sr	72	88	1	He	51.035	51.035	0.25	948923	0.01	50	
Mo	115	95	1	He	48.888	48.888	2.25	282831	0.02	50	
Ag	115	107	1	He	47.560	47.560	1.80	764272	0.01	50	
Cd	72	111	1	He	52.649	52.649	1.74	156398	0.03	50	
Sn	115	120	1	He	50.179	50.179	1.19	597187	0.01	50	
antimony	159	121	1	He	49.616	49.616	1.66	503238	0.01	50	
dwSb121	159	121	2	no gas	53.404	53.404	1.91	695495	0.01	50	
Ba	115	137	1	He	48.223	48.223	2.10	215424	0.02	50	
Tl	159	205	2	no gas	10.552	10.552	1.26	365347	0.00	10	
[Pb]	209	206	2	no gas	50.434	50.434	0.11	622215	0.01	50	
[Pb]	209	207	2	no gas	50.211	50.211	1.56	540582	0.01	50	
Pb	209	208	2	no gas	48.685	48.685	0.73	2458168	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1747988	1.35	1982866	88.15	70	120	
Sc	45	1	He	590636	0.57	767851	76.92	70	120	
Ge	72	1	He	252071	0.78	320058	78.76	70	125	
Ge	72	2	no gas	531213	1.09	673177	78.91	70	125	
Ge	72	3	H2	630059	1.02	821457	76.70	70	120	
Y	89	1	He	2232176	0.77	2786775	80.10	70	120	
In	115	1	He	2529259	1.80	3045232	83.06	70	120	
In	115	2	no gas	3840001	0.43	4564130	84.13	70	120	
In	115	3	H2	5270339	1.23	5826290	90.46	70	120	
Tb	159	1	He	4130374	0.93	4638687	89.04	70	120	
Tb	159	2	no gas	4969650	1.51	5623529	88.37	70	120	
Bi	209	2	no gas	3146512	0.87	3475006	90.55	60	120	

Sample Table

Sample Name	CCB
Data File Name	307_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\06May19.b
Acq Date Time	2019-05-07T11:30:28-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	017CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.066	0.066	183.57	108614	0.00	0.5	
Be	6	9	2	no gas	-0.008	-0.008	-38.80	52	-0.01	0.5	
B	6	11	2	no gas	-1.550	-1.550	-3.49	20365	-0.01	5	
Na	72	23	1	He	-3.225	-3.225	-6.90	73672	0.00	100	
Mg	72	24	1	He	-1.309	-1.309	-8.33	3334	-0.04	50	
Al	45	27	3	H2	-0.046	-0.046	-271.71	15627	0.00	50	
K	72	39	1	He	1.268	1.268	161.36	303508	0.00	50	
Ca	72	44	1	He	-0.617	-0.617	-173.64	1967	-0.03	50	
Ti	72	49	1	He	-0.087	-0.087	-46.74	96	-0.09	0.5	
V	72	51	1	He	0.028	0.028	37.01	3972	0.00	0.5	
Cr	72	52	1	He	-0.012	-0.012	-131.54	1553	0.00	0.5	
Mn	72	55	1	He	-0.130	-0.130	-17.81	1567	-0.01	2	
Fe	72	56	3	H2	-5.112	-5.112	-2.37	83192	-0.01	25	
Co	72	59	1	He	-0.017	-0.017	-5.91	87	-0.02	0.5	
Ni	72	60	1	He	0.001	0.001	571.36	133	0.00	1.5	
copper	72	63	1	He	-0.018	-0.018	-15.44	457	0.00	0.5	
dwCu63	72	63	2	no gas	-0.002	-0.002	-234.80	840	0.00	0.5	
Zn	72	66	1	He	0.065	0.065	83.99	820	0.01	4	
arsenic	72	75	1	He	-0.070	-0.070	-17.85	334	-0.02	0.25	
dwAs75	72	75	2	no gas	0.134	0.134	118.74	364	0.04	5	
selenium	72	78	3	H2	-0.112	-0.112	-6.79	92	-0.12	0.25	
dwSe82	72	82	2	no gas	-0.331	-0.331	-17.32	211	-0.16	5	
Sr	72	88	1	He	-0.013	-0.013	-21.72	290	0.00	0.5	
Mo	115	95	1	He	-0.216	-0.216	-14.37	610	-0.04	1	
Ag	115	107	1	He	-0.016	-0.016	-9.00	221	-0.01	0.05	
Cd	72	111	1	He	-0.008	-0.008	-50.14	7	-0.12	0.25	
Sn	115	120	1	He	-0.157	-0.157	-23.47	2340	-0.01	0.5	
antimony	159	121	1	He	-0.154	-0.154	-13.59	961	-0.02	0.5	
dwSb121	159	121	2	no gas	-0.280	-0.280	-4.64	2262	-0.01	5	
Ba	115	137	1	He	-0.007	-0.007	-82.55	56	-0.01	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-17.16	47	-0.01	0.1	
[Pb]	209	206	2	no gas	-0.017	-0.017	-191.39	5394	0.00	0.25	
[Pb]	209	207	2	no gas	0.010	0.010	206.24	4574	0.00	0.25	
Pb	209	208	2	no gas	-0.012	-0.012	-50.80	21187	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1761419	1.17	1982866	88.83	70	120	
Sc	45	1	He	590750	0.37	767851	76.94	70	120	
Ge	72	1	He	250878	0.38	320058	78.39	70	125	
Ge	72	2	no gas	518883	0.47	673177	77.08	70	125	
Ge	72	3	H2	628630	1.39	821457	76.53	70	120	
Y	89	1	He	2245992	0.26	2786775	80.59	70	120	
In	115	1	He	2560564	1.79	3045232	84.08	70	120	
In	115	2	no gas	3877224	0.14	4564130	84.95	70	120	
In	115	3	H2	5332974	0.74	5826290	91.53	70	120	
Tb	159	1	He	4128362	0.24	4638687	89.00	70	120	
Tb	159	2	no gas	4996875	1.36	5623529	88.86	70	120	
Bi	209	2	no gas	3168283	0.15	3475006	91.17	60	120	

PDF ✓ 1st AE
5/29/19

Sample							
Data File	Acq. Date-Time	Type	Level	Sample Name	Vial Number	Dilution	Comment
001QBLK.d	5/7/2019 13:15	FQBlk			4101	1	
002QBLK.d	5/7/2019 13:19	FQBlk			4102	1	
003QBLK.d	5/7/2019 13:23	FQBlk			4202	1	
004QBLK.d	5/7/2019 13:27	FQBlk			4201	1	
005CALB.d	5/7/2019 13:31	CalBlk	1	ICIS	4202	1	
006CALB.d	5/7/2019 13:35	CalBlk	1	ICIS	4201	1	
007CALS.d	5/7/2019 13:39	CalStd	13	ic13-4308522	3103	1	1:40000 ICPMS_calstd_00020
008CALS.d	5/7/2019 13:43	CalStd	2	ic2-4308522	3104	1	1:20000 ICPMS_calstd_00020
009CALS.d	5/7/2019 13:47	CalStd	4	ic4-4308522	3105	1	1:5000 ICPMS_calstd_00020
010CALS.d	5/7/2019 13:51	CalStd	5	ic5-4308522	3106	1	1:2000 ICPMS_calstd_00020
011CALS.d	5/7/2019 13:55	CalStd	7	ic7-4308522	3107	1	1:500 ICPMS_calstd_00020
012CALS.d	5/7/2019 13:59	CalStd	8	ic8-4308522	4207	1	1:200 ICPMS_calstd_00020
013CALS.d	5/7/2019 14:03	CalStd	9	ic9-4308522	3108	1	1:100 ICPMS_calstd_00020
014CALS.d	5/7/2019 14:07	CalStd	10	ic10-4308522	3109	1	1:50 ICPMS_calstd_00020
015CALS.d	5/7/2019 14:11	CalStd	15	ic15-4583048	3111	1	1:10 ICPMS Cal_MIN_00031
016QBLK.d	5/7/2019 14:15	FQBlk			4101	1	
017CALB.d	5/7/2019 14:19	FQBlk			4201	1	
018QBLK.d	5/7/2019 14:23	CalBlk	1	ICIS	4102	1	
019_ICV.d	5/7/2019 14:27	ICV		icv-4308555	3501	1	1:100 ICPMS_icv_s_00013
020QBLK.d	5/7/2019 14:31	FQBlk			4101	1	
021QBLK.d	5/7/2019 14:36	FQBlk			4201	1	
022New1.d	5/7/2019 14:40	CRI		cri-4428089	3507	1	1:100 ICPMS_RL_00034
023LICV.d	5/7/2019 14:44	LLICV	13	lloq-4308522	3103	1	readback CAL13
024_ICB.d	5/7/2019 14:48	ICB		ICB	4201	1	ICB
025ICSA.d	5/7/2019 14:52	ICSA		icsa-4211414	3404	1	1:500 ICPMS_int_A_00013
026ICSB.d	5/7/2019 14:56	ICSB		icsab-4211415	3405	1	1:500 intA+ICPMS_int_B_000014
027_QC1.d	5/7/2019 15:00	QC1	10	xlra-4308522	3109	1	readback 1:50 ICPMS_calstd_00020
028QBLK.d	5/7/2019 15:04	FQBlk			4101	1	
029_QC2.d	5/7/2019 15:08	QC2	15	xlra-4583048	3111	1	1:10 ICPMS_calMIN_00031 cal15
030QBLK.d	5/7/2019 15:12	FQBlk			4102	1	
031QBLK.d	5/7/2019 15:16	FQBlk			4101	1	
032QBLK.d	5/7/2019 15:20	FQBlk			4202	1	
033_CCV.d	5/7/2019 15:24	CCV		CCV-4308522	4105	1	1:200 ICPMS_calstd_00020
034QBLK.d	5/7/2019 15:28	FQBlk			4102	1	
035_CCB.d	5/7/2019 15:32	CCB		CCB	4201	1	CCB
036SMPL.d	5/7/2019 15:36	Sample		400-169314-C-1-B^25	2401	1	RA/DL
037SMPL.d	5/7/2019 15:40	Sample		400-169314-C-3-B^100	2402	1	RA/DL
038SMPL.d	5/7/2019 15:44	Sample		400-169314-C-4-B^5	2403	1	RA/DL
039SMPL.d	5/7/2019 15:48	Sample		400-169314-C-5-B^200	2404	1	RA/DL
040SMPL.d	5/7/2019 15:52	Sample		400-169314-C-6-B^200	2405	1	RA/DL
041SMPL.d	5/7/2019 15:56	Sample		400-169314-C-7-B^100	2406	1	RA/DL
042SMPL.d	5/7/2019 16:00	Sample		400-169349-E-1-A^5	2203	1	439856_15
043SMPL.d	5/7/2019 16:04	Sample		400-169349-E-2-A^5	2204	1	439856_16
044SMPL.d	5/7/2019 16:08	Sample		400-169349-E-3-A^5	2205	1	439856_17
045QBLK.d	5/7/2019 16:12	FQBlk			4101	1	
046QBLK.d	5/7/2019 16:16	FQBlk			4202	1	
047_CCV.d	5/7/2019 16:20	CCV		CCV-4308522	4105	1	1:200 ICPMS_calstd_00020
048QBLK.d	5/7/2019 16:24	FQBlk			4102	1	
049_CCB.d	5/7/2019 16:28	CCB		CCB	4201	1	CCB
050SMPL.d	5/7/2019 16:32	Sample		400-169349-E-3-B MS^5	2206	1	439856_18
051SMPL.d	5/7/2019 16:36	Sample		400-169349-E-3-C MSD^5	2207	1	439856_19
052SMPL.d	5/7/2019 16:40	Sample		400-169349-E-4-A^5	2208	1	439856_20

053SMPL.d	5/7/2019 16:44	Sample		400-169349-E-5-A^5	2209	1	439856_21
054SMPL.d	5/7/2019 16:48	Sample		400-169349-E-6-A^5	2210	1	439856_22
055SMPL.d	5/7/2019 16:52	Sample		400-169349-E-7-A^5	2211	1	439856_23
056SMPL.d	5/7/2019 16:56	Sample		400-169349-E-8-A^5	2212	1	439856_24
057SMPL.d	5/7/2019 17:00	Sample		400-169349-E-9-A^5	2301	1	439856_25
058SMPL.d	5/7/2019 17:04	Sample		400-169349-E-10-A^5	2302	1	439856_26
059QBLK.d	5/7/2019 17:08	FQBlk			4101	1	
060QBLK.d	5/7/2019 17:13	FQBlk			4202	1	
061_CCV.d	5/7/2019 17:17	CCV		CCV-4308522	4105	1	1:200 ICPMS_calstd_00020
062QBLK.d	5/7/2019 17:20	FQBlk			4102	1	
063_CCB.d	5/7/2019 17:25	CCB		CCB	4201	1	CCB
064SMPL.d	5/7/2019 17:29	Sample		MB 400-439857/1-A^5	1201	1	439857_1
065SMPL.d	5/7/2019 17:32	Sample		LCS 400-439857/2-A	1202	1	439857_2
066SMPL.d	5/7/2019 17:37	Sample		400-169296-E-1-B^5	1203	1	439857_3
067SMPL.d	5/7/2019 17:41	Sample		400-169296-E-2-B^5	1204	1	439857_4
068SMPL.d	5/7/2019 17:45	Sample		400-169296-K-3-B^5	1205	1	439857_5
069SMPL.d	5/7/2019 17:49	Sample		400-169296-K-4-B^5	1206	1	439857_6
070SMPL.d	5/7/2019 17:53	Sample		400-169296-E-5-B^5	1207	1	439857_7
071SMPL.d	5/7/2019 17:57	Sample		400-169296-E-6-D^5	1208	1	439857_8
072SMPL.d	5/7/2019 18:01	Sample		400-169296-E-6-D SD^25	1209	1	439857_9
073SMPL.d	5/7/2019 18:05	Sample		400-169296-E-6-D PDS^5	1210	1	439857_10
074QBLK.d	5/7/2019 18:09	FQBlk			4202	1	
075_CCV.d	5/7/2019 18:13	CCV		CCV-4308522	4105	1	1:200 ICPMS_calstd_00020
076QBLK.d	5/7/2019 18:17	FQBlk			4102	1	
077_CCB.d	5/7/2019 18:21	CCB		CCB	4201	1	CCB
078SMPL.d	5/7/2019 18:25	Sample		400-169296-E-6-E MS^5	1211	1	439857_11
079SMPL.d	5/7/2019 18:29	Sample		400-169296-E-6-F MSD^5	1212	1	439857_12
080SMPL.d	5/7/2019 18:33	Sample		400-169296-E-9-B^5	1301	1	439857_13
081SMPL.d	5/7/2019 18:37	Sample		400-169296-E-10-B^5	1302	1	439857_14
082SMPL.d	5/7/2019 18:41	Sample		400-169296-E-11-B^5	1303	1	439857_15
083SMPL.d	5/7/2019 18:45	Sample		400-169296-E-12-B^5	1304	1	439857_16
084SMPL.d	5/7/2019 18:49	Sample		400-169296-K-13-B^5	1305	1	439857_17
085SMPL.d	5/7/2019 18:53	Sample		400-169296-K-14-B^5	1306	1	439857_18
086SMPL.d	5/7/2019 18:57	Sample		400-169296-K-15-B^5	1307	1	439857_19
087SMPL.d	5/7/2019 19:01	Sample		400-169296-K-16-B^5	1308	1	439857_20
088QBLK.d	5/7/2019 19:05	FQBlk			4202	1	
089_CCV.d	5/7/2019 19:09	CCV		CCV-4308522	4105	1	1:200 ICPMS_calstd_00020
090QBLK.d	5/7/2019 19:13	FQBlk			4102	1	
091_CCB.d	5/7/2019 19:17	CCB		CCB	4201	1	CCB
092SMPL.d	5/7/2019 19:21	Sample		400-169296-K-17-B^5	1309	1	439857_21
093SMPL.d	5/7/2019 19:25	Sample		400-169296-E-18-B^5	1310	1	439857_22
094SMPL.d	5/7/2019 19:29	Sample		400-169296-E-19-B^5	1311	1	439857_23
095SMPL.d	5/7/2019 19:33	Sample		400-169296-E-20-B^5	1312	1	439857_24
096SMPL.d	5/7/2019 19:37	Sample		400-169296-E-22-B^5	1401	1	439857_25
097QBLK.d	5/7/2019 19:41	FQBlk			4202	1	
098_CCV.d	5/7/2019 19:45	CCV		CCV-4308522	4105	1	1:200 ICPMS_calstd_00020
099QBLK.d	5/7/2019 19:49	FQBlk			4102	1	
100_CCB.d	5/7/2019 19:53	CCB		CCB	4201	1	CCB
101QBLK.d	5/7/2019 19:57	FQBlk		rinse blank	1	1	5% HNO3 rinse
102QBLK.d	5/7/2019 20:01	FQBlk		rinse blank	4202	1	2%HNO3 1%HCl

Tune Report

Batch Folder C:\Agilent\ICPMH\1\DATA\07May19.b
Report Comment ICM_tune_W_00014 10.0ppb
Instrument Name G3281A JP11050866

[no gas]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Res. Ratio (Actual)	Res. Ratio (Required)	Res. Ratio (Flag)
7		87685				NaN	-	
59		104178				NaN	-	
115		162285				NaN	-	
89		168263				NaN	-	
140		164331				NaN	-	
205		114656				NaN	-	
9		23135				NaN	-	
208		83181				NaN	-	
24		68612				NaN	-	

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
7	0.62	5.00				
59	0.56	5.00				
115	0.33	5.00				
89	0.13	5.00				
140	0.85	5.00				
205	0.89	5.00				
9	0.56	5.00				
208	1.33	5.00				
24	0.74	5.00				

05/07/19

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	87978	87385	87393	88501	87170
59	103786	104967	103677	104631	103828
115	163051	161778	161788	162284	162522
89	168647	168160	168136	168267	168104
140	162581	164456	163557	166325	164737
205	113962	113453	114547	115977	115343
9	23242	22963	23229	23214	23027
208	81585	82670	83263	84277	84108
24	69159	68800	68713	68600	67786

Integration Time [sec] 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
7	23156.08	6.950	6.9 - 7.1		0.386	0.459	0.900	
59	26784.87	58.950	58.9 - 59.1		0.399	0.482	0.900	
115	45573.40	115.000	114.9 - 115.1		0.356	0.460	0.900	
89	45897.32	89.000	88.9 - 89.1		0.378	0.440	0.900	
140	48754.74	140.000	139.9 - 140.1		0.341	0.438	0.900	
205	31662.79	204.950	204.8 - 205.2		0.358	0.475	0.800	
9	6116.71	9.000	8.8 - 9.2		0.382	0.461	0.800	
208	23085.44	207.950	207.8 - 208.2		0.350	0.488	0.800	
24	17554.20	23.900	23.8 - 24.2		0.400	0.484	0.800	

05/07/19

X = 10 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 320.3 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.57 L/min	S/C Temp	2 °C
RF Matching	1.80 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.57 L/min
Smpl Depth	9.5 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

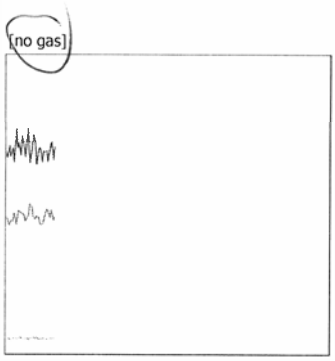
Lenses Parameters

Extract 1	0.0 V	Omega Lens	9.7 V	Deflect	10.0 V
Extract 2	-160.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-80 V	Cell Exit	-50 V		

Cell Parameters

OctP Bias	-8.0 V	He Flow	0.0 mL/min	Energy Discrimination	1.9 V
OctP RF	155 V	H2 Flow	0.0 mL/min		
Use Gas	false	3rd Gas Flow	0 %		

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
7	5000	2288	2290.1	4.02
89	1E+05	5024	4925.4	3.23
205	5000	3450	3416.8	4.42
70/140	200	3.060 %	2.774 %	10.16
115	1E+05	4907	4858.1	3.89
156/140	2	0.988 %	0.798 %	24.74

Integration Time [sec] 0.10

Tune Parameters

Plasma Parameters

Plasma Mode	HMI		Smpl Depth	9.5	mm	Nebulizer Pump	0.10	rps	Makeup/Dilution Gas		0.57
RF Power	1600	W	Carrier Gas	0.57	L/min	S/C Temp	2	°C	Plasma Gas		15.0
RF Matching	1.80	V	Option Gas	0.0	%	Gas Switch	Dilution Gas		Auxiliary Gas		0.9

Lenses Parameters

Extract 1	0.0	V	Omega Bias	-80	V	Cell Entrance	-30	V	Deflect	10.0	V
Extract 2	-160.0	V	Omega Lens	9.7	V	Cell Exit	-50	V	Plate Bias	-40	V

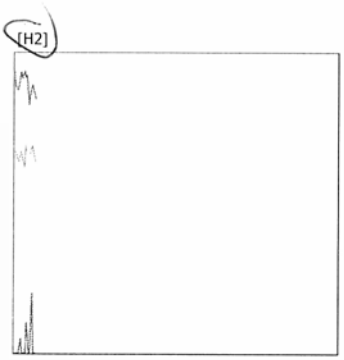
Cell Parameters

Use Gas	false		H2 Flow	0.0	mL/min	OctP Bias	-8.0	V	Energy Discrimination		1.9
He Flow	3.5	mL/min	3rd Gas Flow	0	%	OctP RF	155	V			

Meters

IF/BK Press	2.47E+2	Pa	Carrier Gas	0.57	L/min	Forward Power	1599	W
Analyzer Press	5.75E-5	Pa	Reflected Power	114	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
59	2000	1690	1792.0	4.11
89	10000	6304	6577.5	3.15
205	5000	3780	3568.7	4.40
70/140	2	1.706 %	1.684 %	9.93
78	20	0	0.5	232.05
75	20	0	5.0	77.26

Integration Time [sec] 0.10

Tune Parameters

Plasma Parameters

Plasma Mode	HMI		Smpl Depth	9.5	mm	Nebulizer Pump	0.10	rps	Makeup/Dilution Gas		0.57
RF Power	1600	W	Carrier Gas	0.57	L/min	S/C Temp	2	°C	Plasma Gas		15.0
RF Matching	1.80	V	Option Gas	0.0	%	Gas Switch	Dilution Gas		Auxiliary Gas		0.9

Lenses Parameters

Extract 1	0.0	V	Omega Bias	-80	V	Cell Entrance	-30	V	Deflect	0.0	V
Extract 2	-160.0	V	Omega Lens	9.7	V	Cell Exit	-60	V	Plate Bias	-60	V

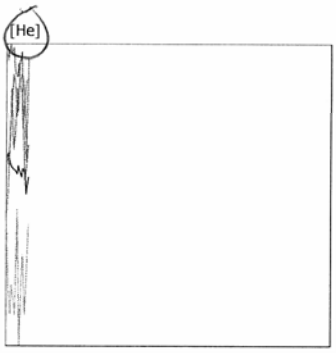
Cell Parameters

Use Gas	true		H2 Flow	3.6	mL/min	OctP Bias	-18.0	V	Energy Discrimination	1.9
He Flow	0.0	mL/min	3rd Gas Flow	0	%	OctP RF	150	V		

Meters

IF/BK Press	2.57E+2	Pa	Carrier Gas	0.57	L/min	Forward Power	1600	W
Analyzer Press	2.69E-4	Pa	Reflected Power	114	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
59	2000	1766	1847.6	6.46
205	2000	2583	2581.7	10.68
115	5000	3207	3270.1	6.66
107	20	5	3.4	61.39
51/59	5	3.341 %	3.665 %	18.41
156/140	1	0.485 %	0.503 %	26.38
63	100	92	131.7	14.32
88	100	37	39.4	20.88
89	5000	2798	2903.3	5.31
78	100	95	76.3	19.60
75	20	8	4.4	59.22
70/140	2	1.524 %	1.692 %	22.80

05/07/19

Integration Time [sec] 0.10

Tune Parameters

Plasma Parameters

Plasma Mode	HMI		Smpl Depth	9.5	mm	Nebulizer Pump	0.10	rps	Makeup/Dilution Gas		0.57
RF Power	1600	W	Carrier Gas	0.57	L/min	S/C Temp	2	°C	Plasma Gas		15.0
RF Matching	1.80	V	Option Gas	0.0	%	Gas Switch	Dilution Gas		Auxiliary Gas		0.9

Lenses Parameters

Extract 1	0.0	V	Omega Bias	-80	V	Cell Entrance	-40	V	Deflect	0.0	V
Extract 2	-160.0	V	Omega Lens	9.7	V	Cell Exit	-60	V	Plate Bias	-60	V

Cell Parameters

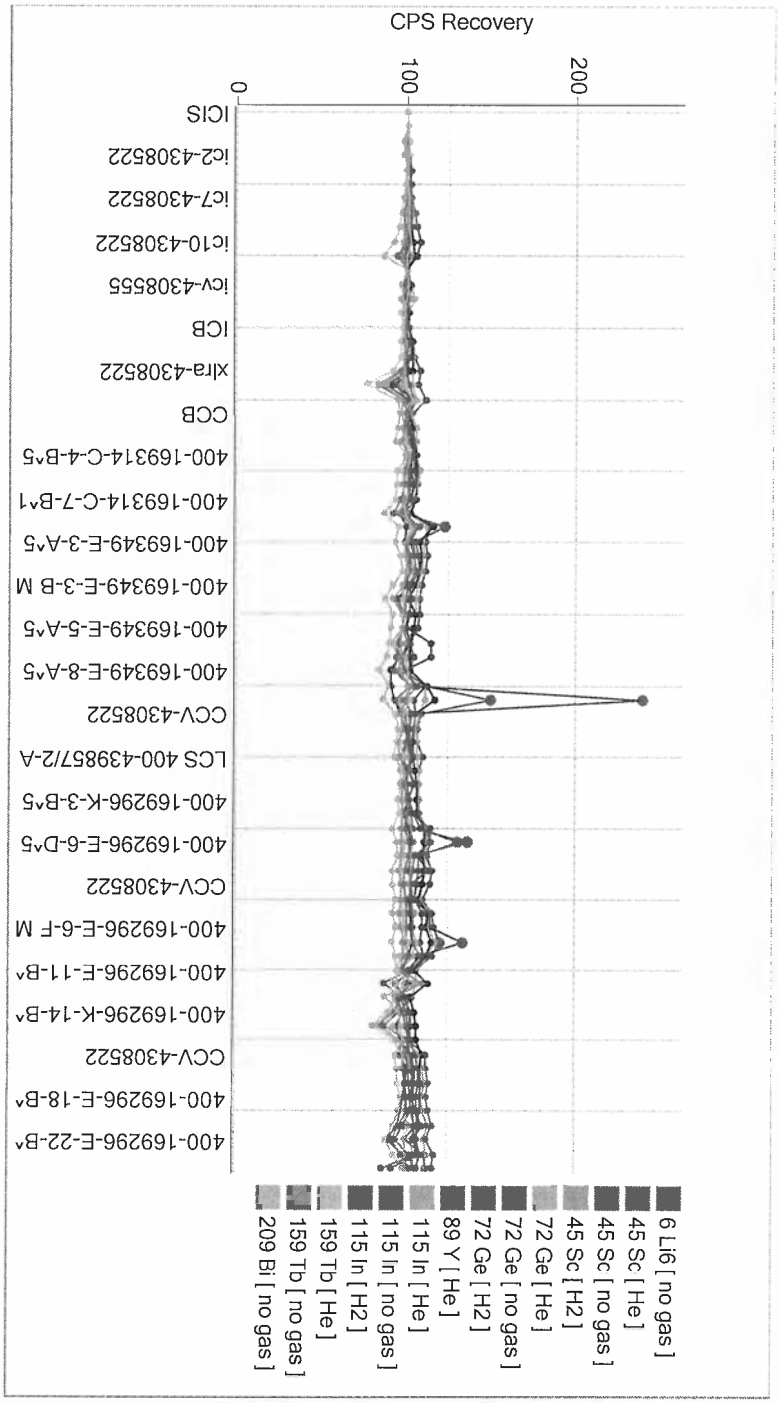
Use Gas	true		H2 Flow	0.0	mL/min	OctP Bias	-18.0	V	Energy Discrimination	1.9
He Flow	3.7	mL/min	3rd Gas Flow	0	%	OctP RF	90	V		

Meters

IF/BK Press	2.52E+2	Pa	Carrier Gas	0.57	L/min	Forward Power	1601	W
Analyzer Press	2.19E-4	Pa	Reflected Power	114	W			

Tune Step	Mass	Name	R	a	b (blank)	DL	BEC	Units
2	7	Lithium	0.999895287	0.013165508	0.065369354	0.126591875	4.965198104	ug/l
2	9	Be	0.999995454	0.003802395	3.41E-05	0.00228835	0.008964369	ug/l
2	11	B	0.999599026	0.001987569	0.013564388	1.180506596	6.824613789	ug/l
1	23	Na	0.999979247	0.012968494	0.20013612	0.076278539	15.43248711	ug/l
1	24	Mg	0.99995629	0.007581037	0.014184371	0.166223281	1.871033165	ug/l
3	27	Al	0.999755914	0.014411414	0.046490579	0.178686204	3.225955375	ug/l
3	28	Si	0.999869013	0.001616426	0.022930492	0.840975624	14.18592173	ug/l
1	39	K	0.999995191	0.011296189	1.379400038	1.967903303	122.1119844	ug/l
1	44	Ca	0.999689283	0.000509048	0.006766798	7.85529703	13.29303916	ug/l
1	49	Ti	0.999977131	0.00210341	0.000586473	0.155212674	0.27882006	ug/l
1	51	V	0.99999395	0.050432237	0.016715681	0.03921418	0.331448336	ug/l
1	52	Cr	0.999979262	0.053882697	0.007457253	0.018266289	0.138397924	ug/l
1	55	Mn	0.999971151	0.04778283	0.006631653	0.013844337	0.138787361	ug/l
3	56	Fe	0.999989846	0.046720935	0.245275819	0.072034349	5.249805435	ug/l
1	59	Co	0.999832601	0.069498449	0.000496215	0.003749876	0.007139943	ug/l
1	60	Ni	0.999932502	0.016234704	0.000392477	0.018881598	0.024175169	ug/l
1	63	copper	0.999964853	0.041769058	0.002242047	0.00600451	0.053677222	ug/l
2	63	dwCu63	0.99985916	0.029388577	0.001427131	0.006895544	0.048560744	ug/l
1	66	Zn	0.99998363	0.008522832	0.005309532	0.029283621	0.622977434	ug/l
1	75	arsenic	0.999999414	0.006581706	0.001573993	0.104340395	0.239146703	ug/l
2	75	dwAs75	0.999978075	0.006362221	-0.00136113	0.797988876	-0.213939503	ug/l
2	77	[Se]	0.984867111	5.38E-05	0.001856927	4.949234504	34.49314448	ug/l
3	78	selenium	0.99998443	0.001324658	0.000178755	0.045876464	0.134944464	ug/l
2	82	dwSe82	0.99988976	0.000497177	0.000374765	0.246473114	0.753785133	ug/l
1	88	Sr	0.999991659	0.073804957	0.001312791	0.00192132	0.017787305	ug/l
1	95	Mo	0.999946676	0.002279847	0.000229569	0.137370067	0.10069489	ug/l
1	107	Ag	0.999855074	0.005986298	0.000103554	0.011486207	0.017298474	ug/l
1	111	Cd	0.999934038	0.011370075	5.41E-05	0.012371364	0.004761739	ug/l
1	120	Sn	0.999668945	0.004855958	0.000983489	0.123271308	0.20253242	ug/l
1	121	antimony	0.999909772	0.002417213	0.00037594	0.058987335	0.155526125	ug/l
2	121	dwSb121	0.999975482	0.002767326	0.000717797	0.012510345	0.259382933	ug/l
1	137	Ba	0.99998872	0.001752336	4.50E-05	0.025047753	0.025658911	ug/l
2	205	Tl	0.999969428	0.006915559	0.000361282	0.003172197	0.052241898	ug/l
2	206	[Pb]	0.999983328	0.003953926	0.00171965	0.051104886	0.434922203	ug/l
2	207	[Pb]	0.999985661	0.003366335	0.001441936	0.105668379	0.428340097	ug/l
2	208	Pb	0.999777764	0.01577666	0.006576841	0.035671503	0.416871577	ug/l
2	6	Li6						ug/l
1	45	Sc						ug/l
2	45	Sc						ug/l
3	45	Sc						ug/l
1	72	Ge						ug/l
2	72	Ge						ug/l
3	72	Ge						ug/l
1	89	Y						ug/l
1	115	In						ug/l
2	115	In						ug/l
3	115	In						
1	159	Tb						ug/l
2	159	Tb						ug/l
2	209	Bi						ug/l

05/09/19


CPS Recovery
0
100
200
ICIS
iC2-4308522
iC7-4308522
iC10-4308522
iCV-4308555
ICB
xIra-4308522
CCB
400-169314-C-4-B^5
400-169314-C-7-B^1
400-169349-E-3-A^5
400-169349-E-3-B M
400-169349-E-5-A^5
400-169349-E-8-A^5
CCV-4308522
LCS 400-439857/2-A
400-169296-K-3-B^5
400-169296-E-6-D^5
CCV-4308522
400-169296-E-6-F M
400-169296-E-11-B^
400-169296-K-14-B^
CCV-4308522
400-169296-E-18-B^
400-169296-E-22-B^
6 Li6 [no gas]
45 Sc [He]
45 Sc [no gas]
45 Sc [H2]
72 Ge [He]
72 Ge [no gas]
72 Ge [H2]
89 Y [He]
115 In [He]
115 In [no gas]
115 In [H2]
159 Tb [He]
159 Tb [no gas]
209 Bi [no gas]

05/09/14

Sample Table

Sample Name	ICIS
Data File Name	005CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T13:31:21-05:00
Sample Type	CalBlk
Dilution	1
Comment	
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.084	-0.084	-184.61	104306	0.00	200	
Be	6	9	2	no gas	-0.002	-0.002	-88.31	23	212.03	200	
B	6	11	2	no gas	-0.039	-0.039	-491.10	7629	0.13	200	
Na	72	23	1	He	-0.493	-0.493	-66.19	42434	0.00	200	
Mg	72	24	1	He	-0.006	-0.006	-278.86	2050	0.06	200	
Al	72	27	3	H2	-1.745	-1.745	-1.51	11557	0.01	200	
Si	45	28	3	H2	-0.189	-0.189	-127.28	54875	0.00	200	
K	72	39	1	He	-1.288	-1.288	-168.59	315157	0.00	200	
Ca	72	44	1	He	-0.728	-0.728	-125.89	1370	0.55	200	
V	72	51	1	He	0.014	0.014	321.84	6915	0.14	200	
Cr	72	52	1	He	-0.014	-0.014	-148.75	1747	0.86	200	
Mn	72	55	1	He	0.000	0.000	-75827.55	940	2.01	200	
Fe	72	56	3	H2	0.032	0.032	124.19	20740	0.03	200	
Co	72	59	1	He	0.000	0.000	429.65	72	46.23	200	
Ni	72	60	1	He	-0.005	-0.005	-339.26	120	43.37	200	
copper	72	63	1	He	0.006	0.006	72.18	474	2.30	200	
dwCu63	72	63	2	no gas	0.003	0.003	218.53	740	1.91	200	
Zn	72	66	1	He	-0.153	-0.153	-50.94	987	1.79	200	
arsenic	72	75	1	He	-0.009	-0.009	-17.73	367	0.30	200	
[Se]	115	77	2	no gas	-0.101	-0.101	-1985.02	9740	0.03	200	
selenium	72	78	3	H2	-0.012	-0.012	-37.93	14	202.70	200	
dwSe82	72	82	2	no gas	0.040	0.040	171.29	159	7.55	200	
Sr	72	88	1	He	0.004	0.004	76.39	270	6.29	200	
Mo	115	95	1	He	0.005	0.005	130.22	127	23.60	200	
Ag	115	107	1	He	0.000	0.000	-1301.11	174	12.60	200	
Cd	72	111	1	He	0.005	0.005	173.21	13	1299.04	200	
antimony	159	121	1	He	0.001	0.001	412.45	260	3.23	200	
dwSb121	159	121	2	no gas	0.009	0.009	46.59	619	1.34	200	
Ba	115	137	1	He	0.003	0.003	148.82	58	61.00	200	
Tl	159	205	2	no gas	-0.051	-0.051	-0.85	53	49.39	200	
[Pb]	209	206	2	no gas	-0.034	-0.034	-24.09	5048	0.05	200	
[Pb]	209	207	2	no gas	0.012	0.012	155.51	4181	0.13	200	
Pb	209	208	2	no gas	-0.014	-0.014	-124.83	19459	0.02	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1662945	1.62	1662945	100.00	70	120	
Sc	45	1	He	575466	0.68	575466	100.00	70	120	
Ge	72	1	He	242973	1.28	242973	100.00	70	125	
Ge	72	2	no gas	509943	1.06	509943	100.00	70	125	
Ge	72	3	H2	606123	0.44	606123	100.00	70	120	
Y	89	1	He	2156230	1.70	2156230	100.00	70	120	
In	115	1	He	2447918	1.30	2447918	100.00	70	120	
In	115	2	no gas	3747572	0.12	3747572	100.00	70	120	
In	115	3	H2	5127566	2.49	5127566	100.00	70	120	
Tb	159	1	He	3981497	1.33	3981497	100.00	70	120	
Tb	159	2	no gas	4787658	0.45	4787658	100.00	70	120	
Bi	209	2	no gas	3026363	1.14	3026363	100.00	60	120	

Sample Report

Sample Table

Sample Name	ICIS
Data File Name	006CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T13:35:31-05:00
Sample Type	CalBlk
Dilution	1
Comment	
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.000	0.000	#DIV/0!	108191	0.00	200	
Be	6	9	2	no gas	0.000	0.000	#DIV/0!	38	26.98	200	
B	6	11	2	no gas	0.000	0.000	#DIV/0!	7902	0.04	200	
Na	72	23	1	He	0.000	0.000	#DIV/0!	43259	0.01	200	
Mg	72	24	1	He	0.000	0.000	#DIV/0!	2027	0.70	200	
Al	72	27	3	H2	-1.611	-1.611	-4.73	12801	0.05	200	
Si	45	28	3	H2	0.000	0.000	#DIV/0!	55678	0.01	200	
K	72	39	1	He	0.000	0.000	#DIV/0!	313451	0.00	200	
Ca	72	44	1	He	0.000	0.000	#DIV/0!	1437	0.55	200	
V	72	51	1	He	0.000	0.000	#DIV/0!	6626	0.06	200	
Cr	72	52	1	He	0.000	0.000	#DIV/0!	1900	0.06	200	
Mn	72	55	1	He	0.000	0.000	#DIV/0!	923	2.07	200	
Fe	72	56	3	H2	0.000	0.000	#DIV/0!	19919	0.02	200	
Co	72	59	1	He	0.000	0.000	#DIV/0!	66	51.64	200	
Ni	72	60	1	He	0.000	0.000	#DIV/0!	137	51.44	200	
copper	72	63	1	He	0.000	0.000	#DIV/0!	404	2.24	200	
dwCu63	72	63	2	no gas	0.000	0.000	#DIV/0!	697	1.91	200	
Zn	72	66	1	He	-0.202	-0.202	-25.80	870	1.39	200	
arsenic	72	75	1	He	0.000	0.000	#DIV/0!	375	1.98	200	
[Se]	115	77	2	no gas	0.000	0.000	#DIV/0!	9916	0.02	200	
selenium	72	78	3	H2	0.000	0.000	#DIV/0!	24	37.17	200	
dwSe82	72	82	2	no gas	0.000	0.000	#DIV/0!	149	6.66	200	
Sr	72	88	1	He	0.000	0.000	#DIV/0!	203	7.39	200	
Mo	115	95	1	He	0.000	0.000	#DIV/0!	97	32.69	200	
Ag	115	107	1	He	0.000	0.000	#DIV/0!	177	5.95	200	
antimony	159	121	1	He	0.000	0.000	#DIV/0!	247	12.44	200	
dwSb121	159	121	2	no gas	0.000	0.000	#DIV/0!	512	2.31	200	
Ba	115	137	1	He	0.000	0.000	#DIV/0!	44	185.87	200	
Tl	159	205	2	no gas	-0.051	-0.051	-0.44	52	25.62	200	
[Pb]	209	206	2	no gas	0.000	0.000	#DIV/0!	5474	0.07	200	
[Pb]	209	207	2	no gas	0.000	0.000	#DIV/0!	4071	0.05	200	
Pb	209	208	2	no gas	0.000	0.000	#DIV/0!	20203	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1694382	1.14	1694382	100.00	70	120	
Sc	45	1	He	562180	0.48	562180	100.00	70	120	
Ge	72	1	He	238942	0.41	238942	100.00	70	125	
Ge	72	2	no gas	511674	1.57	511674	100.00	70	125	
Ge	72	3	H2	609037	1.53	609037	100.00	70	120	
Y	89	1	He	2126964	0.55	2126964	100.00	70	120	
In	115	1	He	2438378	0.75	2438378	100.00	70	120	
In	115	2	no gas	3810242	1.49	3810242	100.00	70	120	
In	115	3	H2	5130871	1.81	5130871	100.00	70	120	
Tb	159	1	He	3865844	0.39	3865844	100.00	70	120	
Tb	159	2	no gas	4851331	1.21	4851331	100.00	70	120	
Bi	209	2	no gas	3035632	0.32	3035632	100.00	60	120	

Sample Report

Sample Table

Sample Name	ic13-4308522
Data File Name	007CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T13:39:32-05:00
Sample Type	CalStd
Dilution	1
Comment	1:40000 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.267	0.267	26.95	112998	0.00	1	
Be	6	9	2	no gas	0.233	0.233	5.34	1526	0.27	1	
B	6	11	2	no gas	-0.225	-0.225	-50.93	7049	0.06	1	
Na	72	23	1	He	24.146	24.146	2.48	118237	0.00	1	
Mg	72	24	1	He	24.886	24.886	1.74	47168	0.00	1	
Al	72	27	3	H2	1.611	1.611	6.34	41231	0.01	1	
Si	45	28	3	H2	-1.970	-1.970	-11.82	47810	0.00	1	
K	72	39	1	He	25.081	25.081	5.23	381641	0.00	1	
Ca	72	44	1	He	25.172	25.172	19.95	4504	0.30	1	
V	72	51	1	He	0.274	0.274	6.37	9936	0.02	1	
Cr	72	52	1	He	0.191	0.191	1.95	4361	0.02	1	
Mn	72	55	1	He	2.382	2.382	3.95	28152	0.01	1	
Fe	72	56	3	H2	23.761	23.761	1.37	698865	0.00	1	
Co	72	59	1	He	0.238	0.238	0.34	4022	0.01	1	
Ni	72	60	1	He	0.245	0.245	18.79	1087	1.52	1	
copper	72	63	1	He	0.244	0.244	7.86	2844	0.24	1	
dwCu63	72	63	2	no gas	0.235	0.235	7.26	4187	0.14	1	
Zn	72	66	1	He	-0.042	-0.042	-48.68	1197	0.29	1	
arsenic	72	75	1	He	0.235	0.235	9.38	746	0.63	1	
[Se]	115	77	2	no gas	3.865	3.865	33.95	10403	0.02	1	
selenium	72	78	3	H2	0.215	0.215	10.28	198	4.59	1	
dwSe82	72	82	2	no gas	0.366	0.366	27.13	240	4.18	1	
Sr	72	88	1	He	0.250	0.250	8.42	4621	0.18	1	
Mo	115	95	1	He	0.250	0.250	20.12	1480	1.17	1	
Ag	115	107	1	He	0.213	0.213	3.07	3271	0.13	1	
Cd	72	111	1	He	0.227	0.227	1.96	617	0.30	1	
antimony	159	121	1	He	0.213	0.213	10.70	2276	0.36	1	
dwSb121	159	121	2	no gas	0.224	0.224	7.06	3464	0.17	1	
Ba	115	137	1	He	0.244	0.244	19.29	1082	1.61	1	
Tl	159	205	2	no gas	-0.001	-0.001	-144.61	1667	0.20	1	
[Pb]	209	206	2	no gas	0.243	0.243	15.83	8352	0.09	1	
[Pb]	209	207	2	no gas	0.220	0.220	8.28	6281	0.06	1	
Pb	209	208	2	no gas	0.214	0.214	5.34	30282	0.01	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1677387	1.74	1694382	99.00	70	120	
Sc	45	1	He	564277	0.26	562180	100.37	70	120	
Ge	72	1	He	239248	0.10	238942	100.13	70	125	
Ge	72	2	no gas	507234	0.39	511674	99.13	70	125	
Ge	72	3	H2	611393	0.76	609037	100.39	70	120	
Y	89	1	He	2136090	1.14	2126964	100.43	70	120	
In	115	1	He	2428903	2.14	2438378	99.61	70	120	
In	115	2	no gas	3753002	0.29	3810242	98.50	70	120	
In	115	3	H2	5153945	1.56	5130871	100.45	70	120	
Tb	159	1	He	3921583	1.30	3865844	101.44	70	120	
Tb	159	2	no gas	4756550	1.09	4851331	98.05	70	120	
Bi	209	2	no gas	3017791	2.58	3035632	99.41	60	120	

Sample Table

Sample Name	ic2-4308522
Data File Name	008CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T13:43:31-05:00
Sample Type	CalStd
Dilution	1
Comment	1:20000 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.581	0.581	18.55	119093	0.00	1	
Be	6	9	2	no gas	0.477	0.477	13.05	3057	0.42	1	
B	6	11	2	no gas	0.257	0.257	21.01	8643	0.02	1	
Na	72	23	1	He	48.157	48.157	1.88	193127	0.00	1	
Mg	72	24	1	He	48.249	48.249	1.54	89728	0.00	1	
Al	72	27	3	H2	4.538	4.538	1.91	67635	0.00	1	
Si	45	28	3	H2	-1.760	-1.760	-13.37	49250	0.00	1	
K	72	39	1	He	49.185	49.185	7.69	447637	0.00	1	
Ca	72	44	1	He	48.737	48.737	2.96	7388	0.01	1	
V	72	51	1	He	0.494	0.494	4.25	12616	0.00	1	
Cr	72	52	1	He	0.438	0.438	10.14	7565	0.11	1	
Mn	72	55	1	He	4.783	4.783	1.78	55726	0.00	1	
Fe	72	56	3	H2	50.106	50.106	0.95	1464660	0.00	1	
Co	72	59	1	He	0.479	0.479	3.99	8036	0.03	1	
Ni	72	60	1	He	0.437	0.437	19.68	1834	0.90	1	
copper	72	63	1	He	0.486	0.486	5.53	5271	0.06	1	
dwCu63	72	63	2	no gas	0.452	0.452	4.33	7548	0.06	1	
Zn	72	66	1	He	0.222	0.222	29.57	1740	0.50	1	
arsenic	72	75	1	He	0.435	0.435	4.76	1063	0.24	1	
dwAs75	72	75	2	no gas	0.500	0.500	64.23	690	22.10	1	CalStd Main CR1 Failed
[Se]	115	77	2	no gas	1.457	1.457	223.64	10160	0.04	1	
selenium	72	78	3	H2	0.430	0.430	5.41	376	1.41	1	
dwSe82	72	82	2	no gas	0.585	0.585	11.36	300	2.01	1	
Sr	72	88	1	He	0.462	0.462	4.15	8376	0.07	1	
Mo	115	95	1	He	0.438	0.438	11.40	2524	0.41	1	
Ag	115	107	1	He	0.450	0.450	4.19	6716	0.05	1	
Cd	72	111	1	He	0.376	0.376	10.55	1027	1.10	1	
antimony	159	121	1	He	0.460	0.460	3.59	4621	0.06	1	
dwSb121	159	121	2	no gas	0.457	0.457	2.88	6668	0.04	1	
Ba	115	137	1	He	0.413	0.413	7.10	1801	0.35	1	
Tl	159	205	2	no gas	0.041	0.041	6.09	3138	0.09	1	
[Pb]	209	206	2	no gas	0.451	0.451	2.98	10951	0.03	1	
[Pb]	209	207	2	no gas	0.490	0.490	7.65	9133	0.04	1	
Pb	209	208	2	no gas	0.450	0.450	3.71	41980	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1665271	0.84	1694382	98.28	70	120	
Sc	45	1	He	568591	1.47	562180	101.14	70	120	
Ge	72	1	He	239763	1.75	238942	100.34	70	125	
Ge	72	2	no gas	515426	0.73	511674	100.73	70	125	
Ge	72	3	H2	616959	0.47	609037	101.30	70	120	
Y	89	1	He	2131311	1.25	2126964	100.20	70	120	
In	115	1	He	2428399	0.82	2438378	99.59	70	120	
In	115	2	no gas	3811854	1.76	3810242	100.04	70	120	
In	115	3	H2	5210404	0.70	5130871	101.55	70	120	
Tb	159	1	He	3922285	0.66	3865844	101.46	70	120	
Tb	159	2	no gas	4848991	0.28	4851331	99.95	70	120	
Bi	209	2	no gas	3053700	1.81	3035632	100.60	60	120	

Sample Report

Sample Table

Sample Name	ic4-4308522
Data File Name	009CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T13:47:40-05:00
Sample Type	CalStd
Dilution	1
Comment	1:5000 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.115	2.115	11.33	155972	0.00	1	
Be	6	9	2	no gas	2.081	2.081	4.14	13489	0.02	1	
B	6	11	2	no gas	3.690	3.690	6.06	20779	0.00	1	
Na	72	23	1	He	213.546	213.546	1.75	719580	0.00	1	
Mg	72	24	1	He	212.944	212.944	1.53	395787	0.00	1	
Al	72	27	3	H2	21.955	21.955	1.35	222298	0.00	1	
Si	45	28	3	H2	1.971	1.971	3.61	63244	0.00	1	
K	72	39	1	He	207.674	207.674	2.00	892165	0.00	1	
Ca	72	44	1	He	207.000	207.000	4.15	27163	0.01	1	
V	72	51	1	He	2.118	2.118	2.04	32777	0.00	1	
Cr	72	52	1	He	2.068	2.068	1.74	29116	0.00	1	
Mn	72	55	1	He	21.359	21.359	0.43	249865	0.00	1	
Fe	72	56	3	H2	213.484	213.484	0.78	6168325	0.00	1	
Co	72	59	1	He	2.071	2.071	1.44	35174	0.01	1	
Ni	72	60	1	He	2.224	2.224	4.26	8942	0.04	1	
copper	72	63	1	He	2.096	2.096	1.26	21767	0.01	1	
dwCu63	72	63	2	no gas	2.120	2.120	3.71	33254	0.01	1	
Zn	72	66	1	He	1.836	1.836	4.36	5124	0.06	1	
arsenic	72	75	1	He	1.971	1.971	3.41	3546	0.08	1	
dwAs75	72	75	2	no gas	2.118	2.118	26.64	6066	0.49	1	
[Se]	115	77	2	no gas	0.205	0.205	2306.38	9956	0.07	1	
selenium	72	78	3	H2	2.087	2.087	2.78	1730	0.20	1	
dwSe82	72	82	2	no gas	2.197	2.197	2.51	723	0.20	1	
Sr	72	88	1	He	2.058	2.058	1.98	37255	0.00	1	
Mo	115	95	1	He	1.978	1.978	1.10	11034	0.01	1	
Ag	115	107	1	He	1.965	1.965	2.62	28700	0.01	1	
Cd	72	111	1	He	2.236	2.236	4.38	6201	0.08	1	
antimony	159	121	1	He	2.055	2.055	0.73	19676	0.01	1	
dwSb121	159	121	2	no gas	2.031	2.031	1.05	27698	0.00	1	
Ba	115	137	1	He	1.967	1.967	0.67	8402	0.01	1	
Tl	159	205	2	no gas	0.386	0.386	2.00	14601	0.01	1	
[Pb]	209	206	2	no gas	1.970	1.970	3.59	28986	0.01	1	
[Pb]	209	207	2	no gas	2.013	2.013	0.43	24556	0.01	1	
Pb	209	208	2	no gas	1.969	1.969	0.75	114028	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1701184	3.23	1694382	100.40	70	120	
Sc	45	1	He	576806	0.27	562180	102.60	70	120	
Ge	72	1	He	243902	0.85	238942	102.08	70	125	
Ge	72	2	no gas	522306	1.15	511674	102.08	70	125	
Ge	72	3	H2	616346	0.79	609037	101.20	70	120	
Y	89	1	He	2122980	0.55	2126964	99.81	70	120	
In	115	1	He	2424355	0.23	2438378	99.42	70	120	
In	115	2	no gas	3813466	1.53	3810242	100.08	70	120	
In	115	3	H2	5155592	0.97	5130871	100.48	70	120	
Tb	159	1	He	3904688	0.67	3865844	101.00	70	120	
Tb	159	2	no gas	4822879	0.22	4851331	99.41	70	120	
Bi	209	2	no gas	3023583	1.64	3035632	99.60	60	120	

Sample Report

Sample Table

Sample Name	ic5-4308522
Data File Name	010CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T13:51:41-05:00
Sample Type	CalStd
Dilution	1
Comment	1:2000 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	5.064	5.064	3.44	221333	0.00	1	
Be	6	9	2	no gas	4.911	4.911	2.33	31677	0.00	1	
B	6	11	2	no gas	8.924	8.924	6.27	38861	0.01	1	
Na	72	23	1	He	492.353	492.353	0.85	1603726	0.00	1	
Mg	72	24	1	He	505.615	505.615	0.78	938256	0.00	1	
Al	72	27	3	H2	52.722	52.722	1.44	501654	0.00	1	
Si	45	28	3	H2	3.750	3.750	6.58	71269	0.00	1	
K	72	39	1	He	504.836	504.836	1.49	1713385	0.00	1	
Ca	72	44	1	He	485.336	485.336	0.68	61813	0.00	1	
V	72	51	1	He	4.793	4.793	1.42	65716	0.00	1	
Cr	72	52	1	He	4.926	4.926	1.11	66758	0.00	1	
Mn	72	55	1	He	50.877	50.877	1.10	594704	0.00	1	
Fe	72	56	3	H2	502.784	502.784	0.66	14675288	0.00	1	
Co	72	59	1	He	4.917	4.917	1.98	83535	0.00	1	
Ni	72	60	1	He	4.884	4.884	4.19	19507	0.02	1	
copper	72	63	1	He	4.974	4.974	2.16	51163	0.00	1	
dwCu63	72	63	2	no gas	4.949	4.949	0.80	77212	0.00	1	
Zn	72	66	1	He	4.900	4.900	3.32	11511	0.03	1	
arsenic	72	75	1	He	4.854	4.854	2.53	8186	0.02	1	
dwAs75	72	75	2	no gas	4.479	4.479	7.87	14023	0.06	1	
[Se]	115	77	2	no gas	0.938	0.938	257.69	10096	0.04	1	
selenium	72	78	3	H2	4.889	4.889	3.27	4066	0.05	1	
dwSe82	72	82	2	no gas	4.842	4.842	4.78	1421	0.38	1	
Sr	72	88	1	He	4.907	4.907	2.12	88653	0.00	1	
Mo	115	95	1	He	4.689	4.689	1.72	26069	0.01	1	
Ag	115	107	1	He	4.693	4.693	0.39	68387	0.00	1	
Cd	72	111	1	He	5.174	5.174	2.00	14370	0.02	1	
antimony	159	121	1	He	4.807	4.807	0.87	45580	0.00	1	
dwSb121	159	121	2	no gas	4.829	4.829	1.40	65311	0.00	1	
Ba	115	137	1	He	4.772	4.772	2.87	20348	0.01	1	
Tl	159	205	2	no gas	0.944	0.944	2.16	33296	0.00	1	
[Pb]	209	206	2	no gas	4.735	4.735	0.93	62063	0.00	1	
[Pb]	209	207	2	no gas	4.791	4.791	1.57	52865	0.00	1	
Pb	209	208	2	no gas	4.631	4.631	2.10	241092	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1694763	2.19	1694382	100.02	70	120	
Sc	45	1	He	572922	0.09	562180	101.91	70	120	
Ge	72	1	He	244240	0.67	238942	102.22	70	125	
Ge	72	2	no gas	525944	1.16	511674	102.79	70	125	
Ge	72	3	H2	623791	1.44	609037	102.42	70	120	
Y	89	1	He	2130210	0.64	2126964	100.15	70	120	
In	115	1	He	2427936	0.02	2438378	99.57	70	120	
In	115	2	no gas	3818110	1.34	3810242	100.21	70	120	
In	115	3	H2	5182731	0.69	5130871	101.01	70	120	
Tb	159	1	He	3894020	0.46	3865844	100.73	70	120	
Tb	159	2	no gas	4834175	0.86	4851331	99.65	70	120	
Bi	209	2	no gas	3024663	1.21	3035632	99.64	60	120	

Sample Table

Sample Name	ic7-4308522
Data File Name	011CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T13:55:41-05:00
Sample Type	CalStd
Dilution	1
Comment	1:500 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	21.434	21.434	0.74	585774	0.00	1	
Be	6	9	2	no gas	20.575	20.575	1.15	132301	0.00	1	
B	6	11	2	no gas	41.094	41.094	1.91	150212	0.00	1	
Na	72	23	1	He	1991.350	1991.350	0.99	6393928	0.00	1	
Mg	72	24	1	He	2012.395	2012.395	1.54	3753004	0.00	1	
Al	72	27	3	H2	218.097	218.097	1.90	2000955	0.00	1	
Si	45	28	3	H2	22.349	22.349	3.89	145208	0.00	1	
K	72	39	1	He	2032.651	2032.651	1.81	5968394	0.00	1	
Ca	72	44	1	He	2006.490	2006.490	1.42	252609	0.00	1	
V	72	51	1	He	20.208	20.208	0.68	256996	0.00	1	
Cr	72	52	1	He	20.039	20.039	1.96	267389	0.00	1	
Mn	72	55	1	He	209.636	209.636	0.42	2463874	0.00	1	
Fe	72	56	3	H2	2068.740	2068.740	0.49	60691686	0.00	1	
Co	72	59	1	He	20.334	20.334	0.33	347523	0.00	1	
Ni	72	60	1	He	21.256	21.256	2.19	84970	0.00	1	
copper	72	63	1	He	20.573	20.573	0.99	211698	0.00	1	
dwCu63	72	63	2	no gas	20.257	20.257	1.80	314288	0.00	1	
Zn	72	66	1	He	20.562	20.562	2.54	44400	0.00	1	
arsenic	72	75	1	He	19.913	19.913	1.42	32608	0.00	1	
dwAs75	72	75	2	no gas	19.765	19.765	0.97	65297	0.00	1	
[Se]	115	77	2	no gas	9.145	9.145	7.74	11534	0.02	1	
selenium	72	78	3	H2	20.529	20.529	0.19	17105	0.01	1	
dwSe82	72	82	2	no gas	20.555	20.555	4.76	5542	0.07	1	
Sr	72	88	1	He	20.241	20.241	0.85	367509	0.00	1	
Mo	115	95	1	He	19.790	19.790	0.62	109290	0.00	1	
Ag	115	107	1	He	19.388	19.388	1.42	280881	0.00	1	
Cd	72	111	1	He	21.198	21.198	1.83	59254	0.00	1	
antimony	159	121	1	He	20.322	20.322	1.16	192755	0.00	1	
dwSb121	159	121	2	no gas	20.143	20.143	2.10	272647	0.00	1	
Ba	115	137	1	He	19.842	19.842	1.70	84134	0.00	1	
Tl	159	205	2	no gas	4.126	4.126	0.78	140651	0.00	1	
[Pb]	209	206	2	no gas	20.209	20.209	0.70	243302	0.00	1	
[Pb]	209	207	2	no gas	20.151	20.151	2.21	206118	0.00	1	
Pb	209	208	2	no gas	19.858	19.858	1.18	952889	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1690676	0.98	1694382	99.78	70	120	
Sc	45	1	He	580902	0.77	562180	103.33	70	120	
Ge	72	1	He	245868	0.87	238942	102.90	70	125	
Ge	72	2	no gas	526768	1.36	511674	102.95	70	125	
Ge	72	3	H2	627608	1.39	609037	103.05	70	120	
Y	89	1	He	2129394	1.18	2126964	100.11	70	120	
In	115	1	He	2418774	1.63	2438378	99.20	70	120	
In	115	2	no gas	3841648	1.35	3810242	100.82	70	120	
In	115	3	H2	5245497	0.71	5130871	102.23	70	120	
Tb	159	1	He	3912106	0.45	3865844	101.20	70	120	
Tb	159	2	no gas	4868371	1.86	4851331	100.35	70	120	
Bi	209	2	no gas	2978573	0.42	3035632	98.12	60	120	

Sample Report

Sample Table

Sample Name	ic8-4308522
Data File Name	012CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T13:59:50-05:00
Sample Type	CalStd
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	50.295	50.295	0.43	1258261	0.00	1	
Be	6	9	2	no gas	50.094	50.094	1.12	329663	0.00	1	
B	6	11	2	no gas	98.454	98.454	2.76	357105	0.00	1	
Na	72	23	1	He	4928.537	4928.537	1.20	15836186	0.00	1	
Mg	72	24	1	He	4903.540	4903.540	1.04	9186359	0.00	1	
Al	72	27	3	H2	525.123	525.123	3.46	4746975	0.00	1	
Si	45	28	3	H2	57.044	57.044	3.74	285767	0.00	1	
K	72	39	1	He	4974.596	4974.596	1.05	14209588	0.00	1	
Ca	72	44	1	He	4906.857	4906.857	0.87	618641	0.00	1	
V	72	51	1	He	49.442	49.442	0.67	621921	0.00	1	
Cr	72	52	1	He	49.601	49.601	1.46	662209	0.00	1	
Mn	72	55	1	He	507.220	507.220	0.95	5988921	0.00	1	
Fe	72	56	3	H2	5067.950	5067.950	0.35	147651444	0.00	1	
Co	72	59	1	He	49.688	49.688	0.14	853244	0.00	1	
Ni	72	60	1	He	51.066	51.066	0.71	204946	0.00	1	
copper	72	63	1	He	49.960	49.960	1.00	516022	0.00	1	
dwCu63	72	63	2	no gas	49.806	49.806	0.62	773229	0.00	1	
Zn	72	66	1	He	50.292	50.292	2.00	107217	0.00	1	
arsenic	72	75	1	He	49.856	49.856	0.73	81457	0.00	1	
dwAs75	72	75	2	no gas	49.851	49.851	2.03	166490	0.00	1	
[Se]	115	77	2	no gas	43.012	43.012	10.62	16828	0.03	1	
selenium	72	78	3	H2	50.053	50.053	0.32	41389	0.00	1	
dwSe82	72	82	2	no gas	51.366	51.366	2.59	13648	0.02	1	
Sr	72	88	1	He	49.293	49.293	0.56	899038	0.00	1	
Mo	115	95	1	He	48.303	48.303	1.55	266298	0.00	1	
Ag	115	107	1	He	47.644	47.644	0.76	689287	0.00	1	
Cd	72	111	1	He	50.733	50.733	0.89	142519	0.00	1	
antimony	159	121	1	He	49.889	49.889	0.88	475980	0.00	1	
dwSb121	159	121	2	no gas	49.469	49.469	1.02	673737	0.00	1	
Ba	115	137	1	He	48.370	48.370	2.60	204804	0.00	1	
Tl	159	205	2	no gas	10.009	10.009	1.87	341110	0.00	1	
[Pb]	209	206	2	no gas	49.578	49.578	1.94	583024	0.00	1	
[Pb]	209	207	2	no gas	49.589	49.589	1.13	496282	0.00	1	
Pb	209	208	2	no gas	48.172	48.172	1.23	2259943	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1730668	1.31	1694382	102.14	70	120	
Sc	45	1	He	590598	0.65	562180	105.05	70	120	
Ge	72	1	He	247058	0.10	238942	103.40	70	125	
Ge	72	2	no gas	527777	0.80	511674	103.15	70	125	
Ge	72	3	H2	623407	1.17	609037	102.36	70	120	
Y	89	1	He	2145012	1.43	2126964	100.85	70	120	
In	115	1	He	2416184	1.20	2438378	99.09	70	120	
In	115	2	no gas	3756830	0.50	3810242	98.60	70	120	
In	115	3	H2	5153572	0.25	5130871	100.44	70	120	
Tb	159	1	He	3938115	0.93	3865844	101.87	70	120	
Tb	159	2	no gas	4903249	1.41	4851331	101.07	70	120	
Bi	209	2	no gas	2948110	0.67	3035632	97.12	60	120	

Sample Report

Sample Table

Sample Name	ic9-4308522
Data File Name	013CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T14:03:49-05:00
Sample Type	CalStd
Dilution	1
Comment	1:100 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	99.560	99.560	2.28	2381727	0.00	1	
Be	6	9	2	no gas	100.140	100.140	0.49	658822	0.00	1	
B	6	11	2	no gas	200.641	200.641	0.39	719212	0.00	1	
Na	72	23	1	He	9822.424	9822.424	0.54	31464650	0.00	1	
Mg	72	24	1	He	9745.278	9745.278	1.17	18224853	0.00	1	
Al	72	27	3	H2	1027.921	1027.921	4.79	9303062	0.00	1	
Si	45	28	3	H2	118.516	118.516	1.16	528630	0.00	1	
K	72	39	1	He	9992.514	9992.514	1.49	28168804	0.00	1	
Ca	72	44	1	He	9932.341	9932.341	1.34	1248695	0.00	1	
V	72	51	1	He	99.900	99.900	0.70	1247592	0.00	1	
Cr	72	52	1	He	101.080	101.080	1.78	1345217	0.00	1	
Mn	72	55	1	He	1016.765	1016.765	1.41	11984204	0.00	1	
Fe	72	56	3	H2	10099.700	10099.700	0.49	295439962	0.00	1	
Co	72	59	1	He	103.189	103.189	0.37	1768946	0.00	1	
Ni	72	60	1	He	101.447	101.447	1.21	406321	0.00	1	
copper	72	63	1	He	98.634	98.634	0.39	1016671	0.00	1	
dwCu63	72	63	2	no gas	102.931	102.931	1.62	1590858	0.00	1	
Zn	72	66	1	He	100.610	100.610	1.35	212808	0.00	1	
arsenic	72	75	1	He	100.109	100.109	0.93	162901	0.00	1	
dwAs75	72	75	2	no gas	100.997	100.997	0.75	337015	0.00	1	
[Se]	115	77	2	no gas	105.895	105.895	4.41	27224	0.01	1	
selenium	72	78	3	H2	100.852	100.852	0.61	83715	0.00	1	
dwSe82	72	82	2	no gas	102.040	102.040	2.21	26851	0.00	1	
Sr	72	88	1	He	101.498	101.498	1.26	1847874	0.00	1	
Mo	115	95	1	He	99.061	99.061	0.77	541947	0.00	1	
Ag	115	107	1	He	97.946	97.946	0.59	1406119	0.00	1	
Cd	72	111	1	He	101.637	101.637	0.20	285044	0.00	1	
antimony	159	121	1	He	100.511	100.511	1.10	954858	0.00	1	
dwSb121	159	121	2	no gas	100.245	100.245	0.28	1355601	0.00	1	
Ba	115	137	1	He	97.504	97.504	0.59	409735	0.00	1	
Tl	159	205	2	no gas	20.219	20.219	0.88	682688	0.00	1	
[Pb]	209	206	2	no gas	100.183	100.183	1.50	1159649	0.00	1	
[Pb]	209	207	2	no gas	100.186	100.186	0.93	987508	0.00	1	
Pb	209	208	2	no gas	100.962	100.962	0.81	4662586	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1730106	0.24	1694382	102.11	70	120	
Sc	45	1	He	599824	0.53	562180	106.70	70	120	
Ge	72	1	He	246652	0.41	238942	103.23	70	125	
Ge	72	2	no gas	525747	1.59	511674	102.75	70	125	
Ge	72	3	H2	626002	0.98	609037	102.79	70	120	
Y	89	1	He	2150048	1.30	2126964	101.09	70	120	
In	115	1	He	2397831	1.09	2438378	98.34	70	120	
In	115	2	no gas	3771130	1.06	3810242	98.97	70	120	
In	115	3	H2	5213432	0.36	5130871	101.61	70	120	
Tb	159	1	He	3922534	1.21	3865844	101.47	70	120	
Tb	159	2	no gas	4869972	0.27	4851331	100.38	70	120	
Bi	209	2	no gas	2915423	1.20	3035632	96.04	60	120	

Sample Report

Sample Table

Sample Name	ic10-4308522
Data File Name	014CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T14:07:44-05:00
Sample Type	CalStd
Dilution	1
Comment	1:50 ICPMS_calstd_00020
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	198.005	198.005	1.44	4620924	0.00	1	
Be	6	9	2	no gas	199.851	199.851	1.74	1312900	0.00	1	
B	6	11	2	no gas	403.438	403.438	1.95	1435850	0.00	1	
Na	72	23	1	He	19766.204	19766.204	0.58	63474296	0.00	1	
Mg	72	24	1	He	19663.545	19663.545	0.56	36888095	0.00	1	
Al	72	27	3	H2	1977.863	1977.863	4.85	17379722	0.00	1	
Si	45	28	3	H2	227.781	227.781	1.90	933119	0.00	1	
K	72	39	1	He	19868.612	19868.612	1.30	55871453	0.00	1	
Ca	72	44	1	He	19488.653	19488.653	2.13	2456137	0.00	1	
V	72	51	1	He	200.173	200.173	1.80	2500650	0.00	1	
Cr	72	52	1	He	199.557	199.557	1.83	2662231	0.00	1	
Mn	72	55	1	He	1989.847	1989.847	0.72	23527392	0.00	1	
Fe	72	56	3	H2	20176.302	20176.302	0.89	573729458	0.00	1	
Co	72	59	1	He	198.452	198.452	0.98	3412770	0.00	1	
Ni	72	60	1	He	198.885	198.885	0.97	799071	0.00	1	
copper	72	63	1	He	200.636	200.636	0.43	2074277	0.00	1	
dwCu63	72	63	2	no gas	198.558	198.558	1.40	3113951	0.00	1	
Zn	72	66	1	He	199.571	199.571	0.52	422169	0.00	1	
arsenic	72	75	1	He	199.994	199.994	0.93	326078	0.00	1	
dwAs75	72	75	2	no gas	199.574	199.574	0.48	676771	0.00	1	
[Se]	115	77	2	no gas	230.783	230.783	1.34	47839	0.00	1	
selenium	72	78	3	H2	199.510	199.510	1.01	160960	0.00	1	
dwSe82	72	82	2	no gas	198.587	198.587	0.85	52889	0.00	1	
Sr	72	88	1	He	200.905	200.905	0.75	3669106	0.00	1	
Mo	115	95	1	He	200.923	200.923	2.16	1092525	0.00	1	
Ag	115	107	1	He	201.685	201.685	2.76	2877716	0.00	1	
Cd	72	111	1	He	198.872	198.872	2.26	559459	0.00	1	
antimony	159	121	1	He	211.242	211.242	2.33	2030683	0.00	1	
dwSb121	159	121	2	no gas	211.939	211.939	0.92	2821591	0.00	1	
Ba	115	137	1	He	195.987	195.987	2.54	818573	0.00	1	
Tl	159	205	2	no gas	39.878	39.878	0.20	1324186	0.00	1	
[Pb]	209	206	2	no gas	212.649	212.649	0.03	2382542	0.00	1	
[Pb]	209	207	2	no gas	214.389	214.389	1.79	2046046	0.00	1	
Pb	209	208	2	no gas	206.910	206.910	0.35	9251264	0.00	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1727777	1.30	1694382	101.97	70	120	
Sc	45	1	He	611442	1.02	562180	108.76	70	120	
Ge	72	1	He	247440	0.92	238942	103.56	70	125	
Ge	72	2	no gas	533491	0.88	511674	104.26	70	125	
Ge	72	3	H2	608480	1.43	609037	99.91	70	120	
Y	89	1	He	2157157	0.78	2126964	101.42	70	120	
In	115	1	He	2384276	2.49	2438378	97.78	70	120	
In	115	2	no gas	3777079	0.72	3810242	99.13	70	120	
In	115	3	H2	5125259	0.90	5130871	99.89	70	120	
Tb	159	1	He	3970299	1.93	3865844	102.70	70	120	
Tb	159	2	no gas	4795363	0.57	4851331	98.85	70	120	
Bi	209	2	no gas	2828426	0.50	3035632	93.17	60	120	

Sample Report

Sample Table

Sample Name	ic15-4583048
Data File Name	015CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T14:11:46-05:00
Sample Type	CalStd
Dilution	1
Comment	1:10 ICPMS Cal_MIN_00031
ISTD Ref FileName	006CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.405	0.405	42.76	118971	0.00	1	
Be	6	9	2	no gas	0.041	0.041	17.60	309	5.35	1	
B	6	11	2	no gas	412.108	412.108	0.53	1459842	0.00	1	
Na	72	23	1	He	50091.673	50091.673	0.56	161666741	0.00	1	
Mg	72	24	1	He	50045.156	50045.156	0.68	94391455	0.00	1	
Al	72	27	3	H2	44929.949	44929.949	4.62	396749647	0.00	1	
Si	45	28	3	H2	1996.103	1996.103	4.18	7636614	0.00	1	
K	72	39	1	He	50055.208	50055.208	1.58	141022491	0.00	1	
Ca	72	44	1	He	25454.490	25454.490	1.12	3225458	0.00	1	
V	72	51	1	He	-0.215	-0.215	-10.96	4202	0.17	1	
Cr	72	52	1	He	0.245	0.245	13.97	5258	0.17	1	
Mn	72	55	1	He	2516.679	2516.679	0.41	29919326	0.00	1	
Fe	72	56	3	H2	49914.943	49914.943	0.85	1428394059	0.00	1	
Co	72	59	1	He	0.201	0.201	5.36	3543	0.15	1	
Ni	72	60	1	He	0.219	0.219	15.37	1027	1.31	1	
copper	72	63	1	He	0.386	0.386	4.66	4433	0.09	1	
dwCu63	72	63	2	no gas	1.005	1.005	0.67	16588	0.00	1	
Zn	72	66	1	He	1.110	1.110	6.38	3687	0.12	1	
arsenic	72	75	1	He	0.365	0.365	3.75	988	0.22	1	
dwAs75	72	75	2	no gas	0.461	0.461	51.26	578	24.13	1	CalStd Main CR1 Failed
[Se]	115	77	2	no gas	-3.569	-3.569	-31.10	8852	0.02	1	
selenium	72	78	3	H2	1.254	1.254	1.60	1042	0.19	1	
dwSe82	72	82	2	no gas	1.147	1.147	2.49	463	0.46	1	
Sr	72	88	1	He	500.401	500.401	0.72	9188513	0.00	1	
Mo	115	95	1	He	0.868	0.868	11.01	4774	0.23	1	
Ag	115	107	1	He	0.094	0.094	5.88	1495	0.32	1	
Cd	72	111	1	He	0.093	0.093	22.11	263	8.45	1	
antimony	159	121	1	He	1.160	1.160	13.02	11089	0.10	1	
dwSb121	159	121	2	no gas	1.799	1.799	2.90	23962	0.01	1	
Ba	115	137	1	He	1001.138	1001.138	1.09	4146055	0.00	1	
Tl	159	205	2	no gas	-0.030	-0.030	-3.06	707	0.49	1	
[Pb]	209	206	2	no gas	0.272	0.272	22.22	7589	0.10	1	
[Pb]	209	207	2	no gas	0.314	0.314	8.52	6321	0.03	1	
Pb	209	208	2	no gas	0.286	0.286	9.37	29459	0.01	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1719688	1.35	1694382	101.49	70	120	
Sc	45	1	He	595338	0.74	562180	105.90	70	120	
Ge	72	1	He	248785	0.22	238942	104.12	70	125	
Ge	72	2	no gas	537006	0.78	511674	104.95	70	125	
Ge	72	3	H2	612363	1.41	609037	100.55	70	120	
Y	89	1	He	2139863	0.33	2126964	100.61	70	120	
In	115	1	He	2363347	0.56	2438378	96.92	70	120	
In	115	2	no gas	3616475	0.36	3810242	94.91	70	120	
In	115	3	H2	5092096	0.94	5130871	99.24	70	120	
Tb	159	1	He	3864383	1.74	3865844	99.96	70	120	
Tb	159	2	no gas	4698554	0.91	4851331	96.85	70	120	
Bi	209	2	no gas	2637519	2.04	3035632	86.89	60	120	

Sample Report

Sample Table

Sample Name	ICIS
Data File Name	018QBLK.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T14:23:55-05:00
Sample Type	CalBlk
Dilution	1
Comment	
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.000	0.000	#DIV/0!	112925	0.00	200	
Be	6	9	2	no gas	0.000	0.000	#DIV/0!	59	14.68	200	
B	6	11	2	no gas	0.000	0.000	#DIV/0!	23423	0.02	200	
Na	72	23	1	He	0.000	0.000	#DIV/0!	49296	0.00	200	
Mg	72	24	1	He	0.000	0.000	#DIV/0!	3494	0.09	200	
Al	72	27	3	H2	-1.454	-1.454	-1.17	16107	0.01	200	
Si	45	28	3	H2	0.000	0.000	#DIV/0!	57332	0.00	200	
K	72	39	1	He	0.000	0.000	#DIV/0!	339762	0.00	200	
Ca	72	44	1	He	0.000	0.000	#DIV/0!	1667	1.18	200	
V	72	51	1	He	0.000	0.000	#DIV/0!	4117	0.09	200	
Cr	72	52	1	He	0.000	0.000	#DIV/0!	1837	0.24	200	
Mn	72	55	1	He	0.000	0.000	#DIV/0!	1633	0.21	200	
Fe	72	56	3	H2	0.000	0.000	#DIV/0!	154670	0.00	200	
Co	72	59	1	He	0.000	0.000	#DIV/0!	122	14.34	200	
Ni	72	60	1	He	0.000	0.000	#DIV/0!	97	26.93	200	
copper	72	63	1	He	0.000	0.000	#DIV/0!	552	0.67	200	
dwCu63	72	63	2	no gas	0.000	0.000	#DIV/0!	743	0.55	200	
Zn	72	66	1	He	-0.234	-0.234	-4.17	817	0.31	200	
arsenic	72	75	1	He	0.000	0.000	#DIV/0!	388	3.74	200	
[Se]	115	77	2	no gas	0.000	0.000	#DIV/0!	7125	0.05	200	
selenium	72	78	3	H2	0.000	0.000	#DIV/0!	113	9.46	200	
dwSe82	72	82	2	no gas	0.000	0.000	#DIV/0!	195	5.90	200	
Sr	72	88	1	He	0.000	0.000	#DIV/0!	323	1.10	200	
Mo	115	95	1	He	0.000	0.000	#DIV/0!	567	8.01	200	
Ag	115	107	1	He	0.000	0.000	#DIV/0!	256	8.58	200	
Cd	72	111	1	He	0.000	0.000	#DIV/0!	13	649.52	200	
antimony	159	121	1	He	0.000	0.000	#DIV/0!	1485	0.87	200	
dwSb121	159	121	2	no gas	0.000	0.000	#DIV/0!	3458	0.03	200	
Ba	115	137	1	He	0.000	0.000	#DIV/0!	111	29.74	200	
Tl	159	205	2	no gas	-0.050	-0.050	-2.11	72	67.27	200	
[Pb]	209	206	2	no gas	0.000	0.000	#DIV/0!	5128	0.08	200	
[Pb]	209	207	2	no gas	0.000	0.000	#DIV/0!	4301	0.20	200	
Pb	209	208	2	no gas	0.000	0.000	#DIV/0!	19612	0.02	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1727510	1.52	1727510	100.00	70	120	
Sc	45	1	He	588329	1.42	588329	100.00	70	120	
Ge	72	1	He	246312	0.05	246312	100.00	70	125	
Ge	72	2	no gas	520996	0.64	520996	100.00	70	125	
Ge	72	3	H2	630611	0.71	630611	100.00	70	120	
Y	89	1	He	2211673	0.74	2211673	100.00	70	120	
In	115	1	He	2468826	0.47	2468826	100.00	70	120	
In	115	2	no gas	3838510	1.31	3838510	100.00	70	120	
In	115	3	H2	5315224	1.54	5315224	100.00	70	120	
Tb	159	1	He	3947867	1.38	3947867	100.00	70	120	
Tb	159	2	no gas	4818054	0.71	4818054	100.00	70	120	
Bi	209	2	no gas	2981720	0.59	2981720	100.00	60	120	

Sample Report

Sample Table

Sample Name	icv-4308555
Data File Name	019_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T14:27:55-05:00
Sample Type	ICV
Dilution	1
Comment	1:100 ICPMS_icv_s_00013
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	79.370	79.370	2.95	1910152	0.00	80	
Be	6	9	2	no gas	38.945	38.945	0.78	254711	0.02	40	
B	6	11	2	no gas	73.390	73.390	1.82	294923	0.02	80	
Na	72	23	1	He	3828.762	3828.762	0.87	12588699	0.03	4000	
Mg	72	24	1	He	3876.329	3876.329	0.17	7421225	0.05	4000	
Al	72	27	3	H2	402.746	402.746	2.15	3743435	0.01	400	
K	72	39	1	He	3921.250	3921.250	0.34	11546405	0.03	4000	
Ca	72	44	1	He	3856.088	3856.088	0.21	497137	0.78	4000	
Ti	72	49	1	He	38.864	38.864	2.27	20875	0.19	40	
V	72	51	1	He	39.142	39.142	0.61	499438	0.01	40	
Cr	72	52	1	He	38.320	38.320	0.94	522669	0.01	40	
Mn	72	55	1	He	393.493	393.493	1.39	4746911	0.01	400	
Fe	72	56	3	H2	3932.645	3932.645	0.37	118238768	0.00	4000	
Co	72	59	1	He	39.176	39.176	0.93	687114	0.01	40	
Ni	72	60	1	He	40.394	40.394	0.88	165505	0.02	40	
copper	72	63	1	He	39.207	39.207	0.54	413980	0.01	40	
dwCu63	72	63	2	no gas	39.058	39.058	1.19	614709	0.01	40	
Zn	72	66	1	He	40.657	40.657	1.52	88313	0.05	40	
arsenic	72	75	1	He	39.598	39.598	0.71	66160	0.06	40	
dwAs75	72	75	2	no gas	40.251	40.251	0.70	136026	0.03	40	
selenium	72	78	3	H2	37.926	37.926	0.90	32471	0.12	40	
dwSe82	72	82	2	no gas	38.303	38.303	1.75	10429	0.37	40	
Sr	72	88	1	He	38.480	38.480	0.69	717111	0.01	40	
Mo	115	95	1	He	38.143	38.143	1.68	216287	0.02	40	
Ag	115	107	1	He	8.167	8.167	0.36	121196	0.01	8	
Cd	72	111	1	He	39.601	39.601	0.29	113641	0.03	40	
Sn	115	120	1	He	36.803	36.803	0.74	446130	0.01	40	
antimony	159	121	1	He	36.490	36.490	1.53	356498	0.01	40	
dwSb121	159	121	2	no gas	36.822	36.822	0.21	503388	0.01	40	
Ba	115	137	1	He	37.694	37.694	0.36	163434	0.02	40	
Tl	159	205	2	no gas	7.739	7.739	1.75	260075	0.00	8	
[Pb]	209	206	2	no gas	38.753	38.753	1.90	446848	0.01	40	
[Pb]	209	207	2	no gas	39.561	39.561	1.34	388353	0.01	40	
Pb	209	208	2	no gas	37.988	37.988	0.60	1748230	0.00	40	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1719256	0.50	1727510	99.52	70	120	
Sc	45	1	He	601851	0.21	588329	102.30	70	120	
Ge	72	1	He	252308	0.63	246312	102.43	70	125	
Ge	72	2	no gas	534794	0.86	520996	102.65	70	125	
Ge	72	3	H2	641201	0.96	630611	101.68	70	120	
Y	89	1	He	2182820	0.63	2211673	98.70	70	120	
In	115	1	He	2471546	0.78	2468826	100.11	70	120	
In	115	2	no gas	3816664	1.34	3838510	99.43	70	120	
In	115	3	H2	5302304	0.61	5315224	99.76	70	120	
Tb	159	1	He	4001543	1.62	3947867	101.36	70	120	
Tb	159	2	no gas	4858603	1.06	4818054	100.84	70	120	
Bi	209	2	no gas	2884649	0.84	2981720	96.74	60	120	

Sample Report

Sample Table

Sample Name	cri-4428089
Data File Name	022New1.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T14:40:11-05:00
Sample Type	CRI
Dilution	1
Comment	1:100 ICPMS_RL_00034
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.443	0.443	48.79	123505	0.00	0.5	
Be	6	9	2	no gas	0.240	0.240	0.88	1647	0.01	0.25	
B	6	11	2	no gas	3.777	3.777	11.19	32870	0.01	5	
Na	72	23	1	He	52.279	52.279	1.50	223992	0.02	50	
Mg	72	24	1	He	26.596	26.596	2.81	55048	0.05	25	
Al	72	27	3	H2	6.313	6.313	1.49	71994	0.01	5	
K	72	39	1	He	24.233	24.233	8.73	430039	0.01	25	
Ca	72	44	1	He	52.533	52.533	4.73	8666	0.61	50	
Ti	72	49	1	He	0.424	0.424	30.65	380	0.11	0.5	
V	72	51	1	He	0.534	0.534	3.50	10747	0.00	0.5	
Cr	72	52	1	He	0.508	0.508	9.21	8769	0.01	0.5	
Mn	72	55	1	He	2.608	2.608	1.22	33641	0.01	2.5	
Fe	72	56	3	H2	24.550	24.550	2.07	816835	0.00	25	
Co	72	59	1	He	0.509	0.509	1.26	9261	0.01	0.5	
Ni	72	60	1	He	0.487	0.487	16.12	2134	0.02	0.5	
copper	72	63	1	He	0.501	0.501	1.78	5911	0.01	0.5	
dwCu63	72	63	2	no gas	0.507	0.507	4.56	8692	0.01	0.5	
Zn	72	66	1	He	4.039	4.039	9.84	9736	0.04	4	
arsenic	72	75	1	He	0.240	0.240	8.84	772	0.03	0.25	
selenium	72	78	3	H2	0.172	0.172	17.26	257	0.07	0.25	
Sr	72	88	1	He	0.494	0.494	4.86	9596	0.01	0.5	
Mo	115	95	1	He	0.470	0.470	8.23	3347	0.01	0.5	
Ag	115	107	1	He	0.052	0.052	12.40	999	0.01	0.05	
Cd	72	111	1	He	0.285	0.285	14.55	857	0.03	0.25	
Sn	115	120	1	He	0.480	0.480	6.98	8136	0.01	0.5	
antimony	159	121	1	He	0.435	0.435	6.32	5220	0.01	0.5	
Ba	115	137	1	He	0.461	0.461	9.74	2096	0.02	0.5	
Tl	159	205	2	no gas	0.099	0.099	2.38	3300	0.00	0.1	
Pb	209	208	2	no gas	0.201	0.201	4.39	29372	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1726668	1.90	1727510	99.95	70	120	
Sc	45	1	He	614993	0.81	588329	104.53	70	120	
Ge	72	1	He	258866	1.07	246312	105.10	70	125	
Ge	72	2	no gas	532107	0.30	520996	102.13	70	125	
Ge	72	3	H2	632384	1.37	630611	100.28	70	120	
Y	89	1	He	2260759	0.79	2211673	102.22	70	120	
In	115	1	He	2533261	1.27	2468826	102.61	70	120	
In	115	2	no gas	3789862	0.67	3838510	98.73	70	120	
In	115	3	H2	5338631	1.39	5315224	100.44	70	120	
Tb	159	1	He	3976444	0.46	3947867	100.72	70	120	
Tb	159	2	no gas	4686925	1.24	4818054	97.28	70	120	
Bi	209	2	no gas	2944402	0.83	2981720	98.75	60	120	

Sample Report

Sample Table

Sample Name	lloq-4308522
Data File Name	023LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T14:44:11-05:00
Sample Type	LLICV
Dilution	1
Comment	readback CAL13
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1749334	1.68	1727510	101.26	70	120	
Sc	45	1	He	598335	0.57	588329	101.70	70	120	
Ge	72	1	He	250684	0.44	246312	101.78	70	125	
Ge	72	2	no gas	530866	1.10	520996	101.89	70	125	
Ge	72	3	H2	635973	0.37	630611	100.85	70	120	
Y	89	1	He	2190271	1.45	2211673	99.03	70	120	
In	115	1	He	2453816	0.46	2468826	99.39	70	120	
In	115	2	no gas	3766224	2.35	3838510	98.12	70	120	
In	115	3	H2	5345269	1.13	5315224	100.57	70	120	
Tb	159	1	He	3851205	0.96	3947867	97.55	70	120	
Tb	159	2	no gas	4809061	1.71	4818054	99.81	70	120	
Bi	209	2	no gas	2978033	2.05	2981720	99.88	60	120	

Sample Table

Sample Name	ICB
Data File Name	024_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T14:48:20-05:00
Sample Type	ICB
Dilution	1
Comment	ICB
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.037	0.037	43.85	113292	0.00	0.5	
Be	6	9	2	no gas	-0.004	-0.004	-0.94	43	-0.01	0.5	
B	6	11	2	no gas	-0.842	-0.842	-30.69	16882	0.00	5	
Na	72	23	1	He	-0.037	-0.037	-469.17	46690	0.00	100	
Mg	72	24	1	He	-0.103	-0.103	-100.74	2557	0.00	50	
Al	72	27	3	H2	-0.173	-0.173	-22.93	12995	0.00	50	
Si	45	28	3	H2	0.572	0.572	60.65	60212	0.00	10	
K	72	39	1	He	0.454	0.454	9.23	347944	0.00	50	
Ca	72	44	1	He	0.396	0.396	175.61	1730	0.02	50	
Ti	72	49	1	He	0.006	0.006	345.21	147	0.00	0.5	
V	72	51	1	He	0.047	0.047	75.64	4239	0.00	0.5	
Cr	72	52	1	He	0.014	0.014	82.43	1810	0.00	0.5	
Mn	72	55	1	He	-0.006	-0.006	-310.49	1257	0.00	2	
Fe	72	56	3	H2	-1.453	-1.453	-5.15	49147	0.00	25	
Co	72	59	1	He	-0.002	-0.002	-49.64	76	0.00	0.5	
Ni	72	60	1	He	0.016	0.016	93.45	150	0.01	1.5	
copper	72	63	1	He	0.003	0.003	222.54	507	0.00	0.5	
dwCu63	72	63	2	no gas	0.005	0.005	73.47	843	0.00	0.5	
Zn	72	66	1	He	0.114	0.114	47.40	1033	0.01	4	
arsenic	72	75	1	He	-0.002	-0.002	-1542.85	347	0.00	0.25	
dwAs75	72	75	2	no gas	-0.276	-0.276	-229.69	-539	0.05	5	
selenium	72	78	3	H2	-0.052	-0.052	-47.27	69	-0.08	0.25	
dwSe82	72	82	2	no gas	-0.049	-0.049	-187.67	171	-0.03	5	
Sr	72	88	1	He	0.008	0.008	79.36	300	0.00	0.5	
Mo	115	95	1	He	-0.060	-0.060	-10.12	273	-0.02	1	
Ag	115	107	1	He	0.001	0.001	230.71	221	0.00	0.05	
Cd	72	111	1	He	-0.002	-0.002	-148.06	10	-0.02	0.25	
Sn	115	120	1	He	-0.035	-0.035	-56.65	1720	0.00	0.5	
antimony	159	121	1	He	-0.043	-0.043	-28.47	606	-0.01	0.5	
dwSb121	159	121	2	no gas	-0.081	-0.081	-16.20	1365	-0.01	5	
Ba	115	137	1	He	0.009	0.009	171.57	82	0.01	0.5	
Tl	159	205	2	no gas	-0.001	-0.001	-73.22	41	0.00	0.1	
[Pb]	209	206	2	no gas	-0.008	-0.008	-416.64	4954	0.00	0.25	
[Pb]	209	207	2	no gas	-0.010	-0.010	-197.71	4164	0.00	0.25	
Pb	209	208	2	no gas	-0.015	-0.015	-140.07	19336	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1711208	0.57	1727510	99.06	70	120	
Sc	45	1	He	595708	0.63	588329	101.25	70	120	
Ge	72	1	He	249822	0.76	246312	101.43	70	125	
Ge	72	2	no gas	528059	0.31	520996	101.36	70	125	
Ge	72	3	H2	638162	1.18	630611	101.20	70	120	
Y	89	1	He	2206313	1.23	2211673	99.76	70	120	
In	115	1	He	2432333	2.12	2468826	98.52	70	120	
In	115	2	no gas	3853550	1.91	3838510	100.39	70	120	
In	115	3	H2	5299221	0.95	5315224	99.70	70	120	
Tb	159	1	He	3860671	1.03	3947867	97.79	70	120	
Tb	159	2	no gas	4789280	0.04	4818054	99.40	70	120	
Bi	209	2	no gas	2941503	0.69	2981720	98.65	60	120	

Sample Report

Sample Table

Sample Name	icsa-4211414
Data File Name	025ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T14:52:21-05:00
Sample Type	ICSA
Dilution	1
Comment	1:500 ICPMS_int_A_00013
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Na	72	23	1	He	5248.710	5248.710	1.38	17486543	0.03	5000	
Mg	72	24	1	He	2121.162	2121.162	0.88	4122597	0.05	2000	
Al	72	27	3	H2	2161.603	2161.603	3.45	20255715	0.01	2000	
K	72	39	1	He	2138.122	2138.122	1.34	6542909	0.03	2000	
Ca	72	44	1	He	6220.240	6220.240	0.97	812903	0.77	6000	
Ti	72	49	1	He	40.867	40.867	0.44	22171	0.18	40	
Fe	72	56	3	H2	5230.994	5230.994	0.47	158851011	0.00	5000	
Mo	115	95	1	He	40.381	40.381	0.41	228935	0.02	40	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1753511	1.67	1727510	101.51	70	120	
Sc	45	1	He	606935	0.45	588329	103.16	70	120	
Ge	72	1	He	256199	1.00	246312	104.01	70	125	
Ge	72	2	no gas	543507	0.66	520996	104.32	70	125	
Ge	72	3	H2	649574	1.22	630611	103.01	70	120	
Y	89	1	He	2190483	0.52	2211673	99.04	70	120	
In	115	1	He	2480023	0.09	2468826	100.45	70	120	
In	115	2	no gas	3754412	1.56	3838510	97.81	70	120	
In	115	3	H2	5308822	1.15	5315224	99.88	70	120	
Tb	159	1	He	3940116	1.70	3947867	99.80	70	120	
Tb	159	2	no gas	4779034	2.04	4818054	99.19	70	120	
Bi	209	2	no gas	2899143	0.66	2981720	97.23	60	120	

Sample Report

Sample Table

Sample Name	icsab-4211415
Data File Name	026ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T14:56:18-05:00
Sample Type	ICSB
Dilution	1
Comment	1:500 intA+ICPMS_int_B_000014
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Na	72	23	1	He	5168.425	5168.425	1.76	17347315	0.03	5000	
Mg	72	24	1	He	2109.603	2109.603	0.98	4130634	0.05	2000	
Al	72	27	3	H2	2152.148	2152.148	3.82	20091125	0.01	2000	
K	72	39	1	He	2128.037	2128.037	0.73	6562467	0.03	2000	
Ca	72	44	1	He	6205.755	6205.755	1.24	817072	0.76	6000	
Ti	72	49	1	He	41.811	41.811	1.45	22847	0.18	40	
V	72	51	1	He	41.551	41.551	0.30	544620	0.01	40	
Cr	72	52	1	He	41.105	41.105	0.85	573320	0.01	40	
Mn	72	55	1	He	43.820	43.820	0.55	541800	0.01	40	
Fe	72	56	3	H2	5298.060	5298.060	0.51	160276551	0.00	5000	
Co	72	59	1	He	42.312	42.312	0.56	759091	0.01	40	
Ni	72	60	1	He	42.609	42.609	0.57	178632	0.02	40	
copper	72	63	1	He	42.156	42.156	1.27	454954	0.01	40	
dwCu63	72	63	2	no gas	41.838	41.838	1.12	666046	0.01	40	
Zn	72	66	1	He	21.678	21.678	1.42	48504	0.04	20	
arsenic	72	75	1	He	21.731	21.731	0.51	37276	0.06	20	
dwAs75	72	75	2	no gas	21.690	21.690	1.28	75060	0.03	20	
selenium	72	78	3	H2	20.776	20.776	1.40	17923	0.12	20	
dwSe82	72	82	2	no gas	21.414	21.414	3.10	5949	0.36	20	
Mo	115	95	1	He	41.076	41.076	1.47	232845	0.02	40	
Ag	115	107	1	He	42.905	42.905	2.20	637074	0.01	40	
Cd	72	111	1	He	21.011	21.011	1.27	61679	0.03	20	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1733608	2.03	1727510	100.35	70	120	
Sc	45	1	He	615426	0.86	588329	104.61	70	120	
Ge	72	1	He	258102	0.42	246312	104.79	70	125	
Ge	72	2	no gas	541106	1.05	520996	103.86	70	125	
Ge	72	3	H2	647101	1.24	630611	102.62	70	120	
Y	89	1	He	2209340	0.41	2211673	99.89	70	120	
In	115	1	He	2480270	1.94	2468826	100.46	70	120	
In	115	2	no gas	3844685	0.21	3838510	100.16	70	120	
In	115	3	H2	5318755	0.14	5315224	100.07	70	120	
Tb	159	1	He	3877437	0.88	3947867	98.22	70	120	
Tb	159	2	no gas	4770768	0.76	4818054	99.02	70	120	
Bi	209	2	no gas	2900244	2.52	2981720	97.27	60	120	

Sample Report

Sample Table

Sample Name	xlra-4308522
Data File Name	027_QC1.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T15:00:25-05:00
Sample Type	QC1
Dilution	1
Comment	readback 1:50 ICPMS_calstd_00020
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1759461	2.45	1727510	101.85	70	120	
Sc	45	1	He	640770	1.33	588329	108.91	70	120	
Ge	72	1	He	257081	0.05	246312	104.37	70	125	
Ge	72	2	no gas	542622	0.69	520996	104.15	70	125	
Ge	72	3	H2	629961	1.24	630611	99.90	70	120	
Y	89	1	He	2232653	1.58	2211673	100.95	70	120	
In	115	1	He	2432107	0.78	2468826	98.51	70	120	
In	115	2	no gas	3733851	1.02	3838510	97.27	70	120	
In	115	3	H2	5239231	0.09	5315224	98.57	70	120	
Tb	159	1	He	3912288	1.92	3947867	99.10	70	120	
Tb	159	2	no gas	4745545	0.71	4818054	98.50	70	120	
Bi	209	2	no gas	2758295	1.06	2981720	92.51	60	120	

Sample Report

Sample Table

Sample Name	xlra-4583048
Data File Name	029_QC2.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T15:08:19-05:00
Sample Type	QC2
Dilution	1
Comment	1:10 ICPMS_calMIN_00031 cal15
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1524175	19.99	1727510	88.23	70	120	
Sc	45	1	He	631486	1.16	588329	107.34	70	120	
Ge	72	1	He	256577	2.33	246312	104.17	70	125	
Ge	72	2	no gas	479741	19.26	520996	92.08	70	125	
Ge	72	3	H2	614663	0.38	630611	97.47	70	120	
Y	89	1	He	2252761	1.57	2211673	101.86	70	120	
In	115	1	He	2408800	0.48	2468826	97.57	70	120	
In	115	2	no gas	3213305	24.49	3838510	83.71	70	120	
In	115	3	H2	5000171	1.32	5315224	94.07	70	120	
Tb	159	1	He	3902234	1.06	3947867	98.84	70	120	
Tb	159	2	no gas	4110625	25.25	4818054	85.32	70	120	
Bi	209	2	no gas	2287760	22.89	2981720	76.73	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	033_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T15:24:39-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	51.848	51.848	2.95	1320824	0.00	50	
Be	6	9	2	no gas	51.263	51.263	1.32	344025	0.01	50	
B	6	11	2	no gas	102.644	102.644	1.66	383839	0.03	100	
Na	72	23	1	He	4890.551	4890.551	1.47	16660224	0.03	5000	
Mg	72	24	1	He	4926.985	4926.985	2.53	9783875	0.05	5000	
Al	72	27	3	H2	514.264	514.264	3.38	4821667	0.01	500	
K	72	39	1	He	5016.539	5016.539	1.50	15202729	0.03	5000	
Ca	72	44	1	He	4882.867	4882.867	0.31	652542	0.75	5000	
Ti	72	49	1	He	49.215	49.215	1.50	27176	0.18	50	
V	72	51	1	He	49.117	49.117	0.90	654067	0.01	50	
Cr	72	52	1	He	49.093	49.093	1.04	694895	0.01	50	
Mn	72	55	1	He	500.362	500.362	0.88	6262951	0.01	500	
Fe	72	56	3	H2	5117.390	5117.390	1.15	155174861	0.00	5000	
Co	72	59	1	He	48.807	48.807	1.01	888420	0.01	50	
Ni	72	60	1	He	50.623	50.623	0.31	215364	0.02	50	
copper	72	63	1	He	48.615	48.615	0.65	532371	0.01	50	
dwCu63	72	63	2	no gas	49.955	49.955	0.62	801403	0.01	50	
Zn	72	66	1	He	49.392	49.392	0.28	111276	0.04	50	
arsenic	72	75	1	He	48.582	48.582	1.77	84126	0.06	50	
dwAs75	72	75	2	no gas	49.510	49.510	1.99	172586	0.03	50	
selenium	72	78	3	H2	50.587	50.587	0.21	43519	0.12	50	
Sr	72	88	1	He	48.609	48.609	0.45	939911	0.01	50	
Mo	115	95	1	He	46.803	46.803	4.77	276339	0.02	50	
Ag	115	107	1	He	46.374	46.374	4.32	718265	0.01	50	
Cd	72	111	1	He	49.479	49.479	1.14	147330	0.03	50	
Sn	115	120	1	He	45.448	45.448	5.89	572548	0.01	50	
antimony	159	121	1	He	48.662	48.662	5.48	481556	0.01	50	
dwSb121	159	121	2	no gas	51.499	51.499	1.92	675528	0.01	50	
Ba	115	137	1	He	45.838	45.838	4.46	207883	0.02	50	
Tl	159	205	2	no gas	10.196	10.196	1.20	333236	0.00	10	
[Pb]	209	206	2	no gas	50.406	50.406	1.12	566750	0.01	50	
[Pb]	209	207	2	no gas	50.049	50.049	1.39	479122	0.01	50	
Pb	209	208	2	no gas	49.218	49.218	0.18	2208036	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1764798	1.87	1727510	102.16	70	120	
Sc	45	1	He	654510	4.95	588329	111.25	70	120	
Ge	72	1	He	261894	1.00	246312	106.33	70	125	
Ge	72	2	no gas	545326	0.68	520996	104.67	70	125	
Ge	72	3	H2	648310	0.68	630611	102.81	70	120	
Y	89	1	He	2312351	4.17	2211673	104.55	70	120	
In	115	1	He	2589885	4.47	2468826	104.90	70	120	
In	115	2	no gas	3756326	1.49	3838510	97.86	70	120	
In	115	3	H2	5332692	0.83	5315224	100.33	70	120	
Tb	159	1	He	4093272	4.84	3947867	103.68	70	120	
Tb	159	2	no gas	4725842	1.90	4818054	98.09	70	120	
Bi	209	2	no gas	2819848	0.17	2981720	94.57	60	120	

Sample Report

Sample Table

Sample Name	CCB
Data File Name	035_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T15:32:29-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.045	0.045	180.15	113126	0.00	0.5	
Be	6	9	2	no gas	-0.008	-0.008	-33.21	73	-0.01	0.5	
B	6	11	2	no gas	-0.743	-0.743	-13.58	21546	0.00	5	
Na	72	23	1	He	-1.900	-1.900	-6.37	48678	0.00	100	
Mg	72	24	1	He	-1.634	-1.634	-3.40	2930	-0.06	50	
Al	72	27	3	H2	-0.224	-0.224	-8.06	13822	0.00	50	
K	72	39	1	He	-1.184	-1.184	-27.33	358989	0.00	50	
Ca	72	44	1	He	-1.005	-1.005	-61.96	1743	-0.06	50	
Ti	72	49	1	He	-0.082	-0.082	-44.98	119	-0.07	0.5	
V	72	51	1	He	0.029	0.029	81.56	3920	0.00	0.5	
Cr	72	52	1	He	-0.014	-0.014	-73.28	1840	0.00	0.5	
Mn	72	55	1	He	-0.159	-0.159	-13.89	1727	-0.01	2	
Fe	72	56	3	H2	-5.569	-5.569	-1.16	108131	-0.01	25	
Co	72	59	1	He	-0.016	-0.016	-11.76	144	-0.01	0.5	
Ni	72	60	1	He	-0.009	-0.009	-15.71	133	-0.01	1.5	
copper	72	63	1	He	-0.025	-0.025	-12.73	552	0.00	0.5	
dwCu63	72	63	2	no gas	-0.013	-0.013	-63.45	943	0.00	0.5	
Zn	72	66	1	He	-0.042	-0.042	-305.12	1117	0.00	4	
arsenic	72	75	1	He	-0.052	-0.052	-11.95	386	-0.01	0.25	
dwAs75	72	75	2	no gas	-0.178	-0.178	-194.59	282	-0.06	5	
selenium	72	78	3	H2	0.028	0.028	77.57	138	0.02	0.25	
dwSe82	72	82	2	no gas	-0.261	-0.261	-22.53	193	-0.14	5	
Sr	72	88	1	He	-0.018	-0.018	-14.26	267	-0.01	0.5	
Mo	115	95	1	He	-0.192	-0.192	-11.77	573	-0.03	1	
Ag	115	107	1	He	-0.020	-0.020	-9.25	203	-0.01	0.05	
Cd	72	111	1	He	-0.028	-0.028	-7.16	13	-0.21	0.25	
Sn	115	120	1	He	-0.004	-0.004	-613.97	2397	0.00	0.5	
antimony	159	121	1	He	-0.015	-0.015	-50.92	1299	0.00	0.5	
dwSb121	159	121	2	no gas	-0.015	-0.015	-119.86	3166	0.00	5	
Ba	115	137	1	He	-0.014	-0.014	-15.12	96	-0.01	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-21.47	77	0.00	0.1	
[Pb]	209	206	2	no gas	-0.029	-0.029	-98.06	4794	0.00	0.25	
[Pb]	209	207	2	no gas	-0.045	-0.045	-13.97	4061	0.00	0.25	
Pb	209	208	2	no gas	-0.020	-0.020	-49.12	18839	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1745541	1.45	1727510	101.04	70	120	
Sc	45	1	He	609706	0.53	588329	103.63	70	120	
Ge	72	1	He	253101	0.14	246312	102.76	70	125	
Ge	72	2	no gas	532198	0.84	520996	102.15	70	125	
Ge	72	3	H2	639398	1.33	630611	101.39	70	120	
Y	89	1	He	2224676	0.80	2211673	100.59	70	120	
In	115	1	He	2489331	2.93	2468826	100.83	70	120	
In	115	2	no gas	3852230	0.66	3838510	100.36	70	120	
In	115	3	H2	5409183	1.01	5315224	101.77	70	120	
Tb	159	1	He	3832906	0.96	3947867	97.09	70	120	
Tb	159	2	no gas	4680032	0.62	4818054	97.14	70	120	
Bi	209	2	no gas	2857927	1.25	2981720	95.85	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-1-B^25
Data File Name	036SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T15:36:37-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.071	0.071	318.80	113352	0.00	200	
Be	6	9	2	no gas	-0.005	-0.005	-50.77	97	0.00	200	
B	6	11	2	no gas	8.553	8.553	4.80	53657	0.02	400	
Na	72	23	1	He	9687.842	9687.842	0.58	32779621	0.03	50000	
Mg	72	24	1	He	1134.833	1134.833	1.28	2247042	0.05	50000	
Al	72	27	3	H2	6.814	6.814	7.11	79225	0.01	50000	
Si	45	28	3	H2	663.191	663.191	3.48	2740743	0.02	2000	
K	72	39	1	He	16.024	16.024	20.51	419999	0.00	50000	
Ca	72	44	1	He	2687.710	2687.710	0.98	358274	0.75	25000	
Ti	72	49	1	He	0.216	0.216	34.81	286	0.08	200	
V	72	51	1	He	0.276	0.276	11.39	7277	0.00	200	
Cr	72	52	1	He	-0.001	-0.001	-1678.90	2077	0.00	200	
Mn	72	55	1	He	1.338	1.338	4.28	20405	0.01	2500	
Fe	72	56	3	H2	2.639	2.639	5.24	355649	0.00	50000	
Co	72	59	1	He	-0.001	-0.001	-37.38	413	0.00	200	
Ni	72	60	1	He	-0.001	-0.001	-1755.59	173	0.00	200	
copper	72	63	1	He	0.008	0.008	77.14	926	0.00	200	
Zn	72	66	1	He	-0.067	-0.067	-234.15	1093	-0.01	200	
arsenic	72	75	1	He	-0.064	-0.064	-20.67	378	-0.02	200	
selenium	72	78	3	H2	0.084	0.084	37.38	187	0.04	200	
Sr	72	88	1	He	16.156	16.156	0.14	311173	0.01	500	
Mo	115	95	1	He	-0.179	-0.179	-27.07	643	-0.03	200	
Ag	115	107	1	He	-0.020	-0.020	-5.11	199	-0.01	200	
Cd	72	111	1	He	-0.028	-0.028	-13.85	13	-0.21	200	
Sn	115	120	1	He	-0.033	-0.033	-33.97	2040	0.00	200	
antimony	159	121	1	He	-0.069	-0.069	-20.23	821	-0.01	200	
Ba	115	137	1	He	0.786	0.786	5.84	3576	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-18.16	49	-0.01	40	
[Pb]	209	206	2	no gas	0.011	0.011	167.22	5221	0.00	200	
[Pb]	209	207	2	no gas	-0.047	-0.047	-81.68	4024	0.00	200	
Pb	209	208	2	no gas	-0.010	-0.010	-242.04	19235	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1740805	1.56	1727510	100.77	70	120	
Sc	45	1	He	609234	1.01	588329	103.55	70	120	
Ge	72	1	He	260451	0.69	246312	105.74	70	125	
Ge	72	2	no gas	544273	0.76	520996	104.47	70	125	
Ge	72	3	H2	643633	1.11	630611	102.07	70	120	
Y	89	1	He	2208322	0.78	2211673	99.85	70	120	
In	115	1	He	2485313	1.35	2468826	100.67	70	120	
In	115	2	no gas	3788331	1.40	3838510	98.69	70	120	
In	115	3	H2	5355263	0.72	5315224	100.75	70	120	
Tb	159	1	He	3945663	0.91	3947867	99.94	70	120	
Tb	159	2	no gas	4767243	1.55	4818054	98.95	70	120	
Bi	209	2	no gas	2845555	0.15	2981720	95.43	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-3-B^100
Data File Name	037SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T15:40:35-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.139	0.139	68.06	117946	0.00	200	
Be	6	9	2	no gas	-0.012	-0.012	-25.07	48	-0.03	200	
B	6	11	2	no gas	7.200	7.200	5.14	50247	0.01	400	
Na	72	23	1	He	26856.561	26856.561	1.11	90759219	0.03	50000	
Mg	72	24	1	He	3970.367	3970.367	1.79	7844862	0.05	50000	
Al	72	27	3	H2	-0.067	-0.067	-143.77	15794	0.00	50000	
Si	45	28	3	H2	137.095	137.095	4.12	623311	0.02	2000	
K	72	39	1	He	207.208	207.208	3.13	982376	0.02	50000	
Ca	72	44	1	He	2899.404	2899.404	1.98	386282	0.75	25000	
Ti	72	49	1	He	0.013	0.013	555.18	174	0.01	200	
V	72	51	1	He	0.189	0.189	11.04	6126	0.00	200	
Cr	72	52	1	He	0.005	0.005	19.49	2160	0.00	200	
Mn	72	55	1	He	11.875	11.875	0.94	151540	0.01	2500	
Fe	72	56	3	H2	10.166	10.166	3.30	598000	0.00	50000	
Co	72	59	1	He	0.002	0.002	197.57	480	0.00	200	
Ni	72	60	1	He	0.038	0.038	36.42	337	0.01	200	
copper	72	63	1	He	0.053	0.053	6.98	1417	0.00	200	
Zn	72	66	1	He	-0.147	-0.147	-7.26	917	-0.02	200	
arsenic	72	75	1	He	-0.054	-0.054	-9.97	395	-0.01	200	
selenium	72	78	3	H2	1.286	1.286	4.27	1244	0.10	200	
Sr	72	88	1	He	56.003	56.003	1.78	1076971	0.01	500	
Mo	115	95	1	He	1.350	1.350	5.33	9239	0.01	200	
Ag	115	107	1	He	-0.022	-0.022	-3.25	174	-0.01	200	
Cd	72	111	1	He	-0.033	-0.033	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.013	-0.013	-83.90	2274	0.00	200	
antimony	159	121	1	He	-0.071	-0.071	-21.04	803	-0.01	200	
Ba	115	137	1	He	1.653	1.653	0.57	7304	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-13.29	63	0.00	40	
[Pb]	209	206	2	no gas	-0.020	-0.020	-163.14	4791	0.00	200	
[Pb]	209	207	2	no gas	-0.043	-0.043	-39.07	3997	0.00	200	
Pb	209	208	2	no gas	-0.028	-0.028	-43.68	18112	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1786320	2.21	1727510	103.40	70	120	
Sc	45	1	He	615305	0.27	588329	104.59	70	120	
Ge	72	1	He	260438	0.83	246312	105.74	70	125	
Ge	72	2	no gas	548490	0.22	520996	105.28	70	125	
Ge	72	3	H2	661216	1.26	630611	104.85	70	120	
Y	89	1	He	2233617	0.95	2211673	100.99	70	120	
In	115	1	He	2468297	0.22	2468826	99.98	70	120	
In	115	2	no gas	3768410	1.50	3838510	98.17	70	120	
In	115	3	H2	5382387	0.28	5315224	101.26	70	120	
Tb	159	1	He	3923205	0.27	3947867	99.38	70	120	
Tb	159	2	no gas	4705811	1.09	4818054	97.67	70	120	
Bi	209	2	no gas	2797634	1.07	2981720	93.83	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-4-B^5
Data File Name	038SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T15:44:33-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.162	0.162	58.52	119072	0.00	200	
Be	6	9	2	no gas	-0.013	-0.013	-20.01	42	-0.03	200	
B	6	11	2	no gas	-2.420	-2.420	-19.11	16175	-0.01	400	
Na	72	23	1	He	6.968	6.968	19.91	80030	0.01	50000	
Mg	72	24	1	He	-0.665	-0.665	-23.63	4927	-0.01	50000	
Al	72	27	3	H2	0.699	0.699	10.40	23155	0.00	50000	
Si	45	28	3	H2	0.936	0.936	19.48	65176	0.00	2000	
K	72	39	1	He	2.331	2.331	40.43	379670	0.00	50000	
Ca	72	44	1	He	0.226	0.226	539.65	1957	0.01	25000	
Ti	72	49	1	He	-0.050	-0.050	-190.58	140	-0.04	200	
V	72	51	1	He	0.434	0.434	2.40	9344	0.00	200	
Cr	72	52	1	He	0.019	0.019	94.93	2364	0.00	200	
Mn	72	55	1	He	-0.134	-0.134	-11.16	2090	-0.01	2500	
Fe	72	56	3	H2	-6.880	-6.880	-0.96	71531	-0.01	50000	
Co	72	59	1	He	-0.018	-0.018	-8.38	117	-0.02	200	
Ni	72	60	1	He	-0.015	-0.015	-61.03	113	-0.01	200	
copper	72	63	1	He	-0.020	-0.020	-17.01	624	0.00	200	
Zn	72	66	1	He	-0.016	-0.016	-191.08	1207	0.00	200	
arsenic	72	75	1	He	-0.009	-0.009	-60.85	471	0.00	200	
selenium	72	78	3	H2	-0.070	-0.070	-4.86	57	-0.12	200	
Sr	72	88	1	He	0.006	0.006	161.15	737	0.00	500	
Mo	115	95	1	He	-0.235	-0.235	-3.00	330	-0.07	200	
Ag	115	107	1	He	-0.021	-0.021	-6.13	198	-0.01	200	
Cd	72	111	1	He	-0.031	-0.031	-6.19	3	-0.94	200	
Sn	115	120	1	He	-0.079	-0.079	-18.55	1517	-0.01	200	
antimony	159	121	1	He	-0.092	-0.092	-8.42	601	-0.02	200	
Ba	115	137	1	He	-0.014	-0.014	-37.61	96	-0.01	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-11.24	45	-0.01	40	
[Pb]	209	206	2	no gas	-0.006	-0.006	-66.91	5298	0.00	200	
[Pb]	209	207	2	no gas	-0.039	-0.039	-73.91	4324	0.00	200	
Pb	209	208	2	no gas	-0.028	-0.028	-90.23	19419	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1794866	0.92	1727510	103.90	70	120	
Sc	45	1	He	625596	1.58	588329	106.33	70	120	
Ge	72	1	He	260393	0.21	246312	105.72	70	125	
Ge	72	2	no gas	554398	1.03	520996	106.41	70	125	
Ge	72	3	H2	663142	1.44	630611	105.16	70	120	
Y	89	1	He	2263326	0.82	2211673	102.34	70	120	
In	115	1	He	2528232	0.20	2468826	102.41	70	120	
In	115	2	no gas	3914840	1.80	3838510	101.99	70	120	
In	115	3	H2	5597193	0.27	5315224	105.30	70	120	
Tb	159	1	He	3905416	1.55	3947867	98.92	70	120	
Tb	159	2	no gas	4873586	0.91	4818054	101.15	70	120	
Bi	209	2	no gas	3000662	1.70	2981720	100.64	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-5-B^200
Data File Name	039SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T15:48:41-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.583	1.583	6.94	151807	0.00	200	
Be	6	9	2	no gas	-0.012	-0.012	-10.02	49	-0.02	200	
B	6	11	2	no gas	6.579	6.579	12.33	48035	0.01	400	
Na	72	23	1	He	18207.115	18207.115	0.31	62826187	0.03	50000	
Mg	72	24	1	He	183.161	183.161	1.14	375501	0.05	50000	
Al	72	27	3	H2	-0.076	-0.076	-70.91	15784	0.00	50000	
Si	45	28	3	H2	88.017	88.017	1.32	423160	0.02	2000	
K	72	39	1	He	3433.934	3433.934	0.96	10692230	0.03	50000	
Ca	72	44	1	He	747.319	747.319	0.91	103095	0.72	25000	
Ti	72	49	1	He	-0.069	-0.069	-57.26	132	-0.05	200	
V	72	51	1	He	0.388	0.388	3.68	8919	0.00	200	
Cr	72	52	1	He	0.004	0.004	579.83	2187	0.00	200	
Mn	72	55	1	He	5.267	5.267	1.44	70739	0.01	2500	
Fe	72	56	3	H2	22.644	22.644	1.19	988098	0.00	50000	
Co	72	59	1	He	-0.014	-0.014	-5.01	181	-0.01	200	
Ni	72	60	1	He	0.012	0.012	69.78	233	0.01	200	
copper	72	63	1	He	-0.027	-0.027	-14.66	561	0.00	200	
Zn	72	66	1	He	-0.208	-0.208	-49.45	797	-0.03	200	
arsenic	72	75	1	He	-0.026	-0.026	-42.42	451	-0.01	200	
selenium	72	78	3	H2	-0.076	-0.076	-8.91	52	-0.15	200	
Sr	72	88	1	He	11.751	11.751	1.69	231191	0.01	500	
Mo	115	95	1	He	2.788	2.788	3.69	17683	0.02	200	
Ag	115	107	1	He	-0.024	-0.024	-1.62	152	-0.02	200	
Cd	72	111	1	He	-0.031	-0.031	-6.08	3	-0.94	200	
Sn	115	120	1	He	-0.080	-0.080	-15.95	1503	-0.01	200	
antimony	159	121	1	He	-0.108	-0.108	-6.08	446	-0.02	200	
Ba	115	137	1	He	0.200	0.200	22.13	1042	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-15.55	48	-0.01	40	
[Pb]	209	206	2	no gas	0.001	0.001	6400.34	5094	0.00	200	
[Pb]	209	207	2	no gas	-0.047	-0.047	-70.43	4024	0.00	200	
Pb	209	208	2	no gas	-0.021	-0.021	-49.62	18709	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1785156	0.95	1727510	103.34	70	120	
Sc	45	1	He	630639	0.33	588329	107.19	70	120	
Ge	72	1	He	265837	0.46	246312	107.93	70	125	
Ge	72	2	no gas	554216	1.07	520996	106.38	70	125	
Ge	72	3	H2	664369	1.14	630611	105.35	70	120	
Y	89	1	He	2261359	1.13	2211673	102.25	70	120	
In	115	1	He	2517660	1.97	2468826	101.98	70	120	
In	115	2	no gas	3820568	1.07	3838510	99.53	70	120	
In	115	3	H2	5388325	1.27	5315224	101.38	70	120	
Tb	159	1	He	3880332	0.46	3947867	98.29	70	120	
Tb	159	2	no gas	4847733	1.51	4818054	100.62	70	120	
Bi	209	2	no gas	2844782	1.19	2981720	95.41	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-6-B^200
Data File Name	040SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T15:52:40-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.613	1.613	8.56	154256	0.00	200	
Be	6	9	2	no gas	-0.010	-0.010	-19.98	63	-0.02	200	
B	6	11	2	no gas	6.054	6.054	2.57	46685	0.01	400	
Na	72	23	1	He	17792.765	17792.765	1.32	61287679	0.03	50000	
Mg	72	24	1	He	184.059	184.059	1.99	376609	0.05	50000	
Al	72	27	3	H2	-0.118	-0.118	-116.18	15427	0.00	50000	
Si	45	28	3	H2	83.124	83.124	3.30	412871	0.02	2000	
K	72	39	1	He	3425.333	3425.333	1.27	10647334	0.03	50000	
Ca	72	44	1	He	754.646	754.646	1.38	103900	0.73	25000	
Ti	72	49	1	He	-0.045	-0.045	-58.01	146	-0.03	200	
V	72	51	1	He	0.324	0.324	7.03	8050	0.00	200	
Cr	72	52	1	He	-0.009	-0.009	-133.66	2004	0.00	200	
Mn	72	55	1	He	5.690	5.690	1.80	75979	0.01	2500	
Fe	72	56	3	H2	21.304	21.304	0.53	949076	0.00	50000	
Co	72	59	1	He	-0.015	-0.015	-1.18	164	-0.01	200	
Ni	72	60	1	He	0.024	0.024	95.93	283	0.01	200	
copper	72	63	1	He	-0.024	-0.024	-5.25	594	0.00	200	
Zn	72	66	1	He	-0.186	-0.186	-19.98	847	-0.02	200	
arsenic	72	75	1	He	-0.016	-0.016	-52.36	468	0.00	200	
selenium	72	78	3	H2	-0.092	-0.092	-6.97	38	-0.24	200	
Sr	72	88	1	He	12.016	12.016	1.82	235992	0.01	500	
Mo	115	95	1	He	2.657	2.657	3.32	16818	0.02	200	
Ag	115	107	1	He	-0.022	-0.022	-9.62	179	-0.01	200	
Cd	72	111	1	He	-0.027	-0.027	-7.20	17	-0.16	200	
Sn	115	120	1	He	-0.081	-0.081	-13.49	1473	-0.01	200	
antimony	159	121	1	He	-0.106	-0.106	-6.68	464	-0.02	200	
Ba	115	137	1	He	0.183	0.183	23.82	956	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-11.84	43	-0.01	40	
[Pb]	209	206	2	no gas	-0.012	-0.012	-276.54	4908	0.00	200	
[Pb]	209	207	2	no gas	-0.023	-0.023	-99.97	4211	0.00	200	
Pb	209	208	2	no gas	0.001	0.001	1418.38	19496	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1805836	2.21	1727510	104.53	70	120	
Sc	45	1	He	633444	0.62	588329	107.67	70	120	
Ge	72	1	He	265370	0.89	246312	107.74	70	125	
Ge	72	2	no gas	555087	0.41	520996	106.54	70	125	
Ge	72	3	H2	666180	1.20	630611	105.64	70	120	
Y	89	1	He	2272519	1.16	2211673	102.75	70	120	
In	115	1	He	2502040	1.15	2468826	101.35	70	120	
In	115	2	no gas	3812080	1.00	3838510	99.31	70	120	
In	115	3	H2	5392592	0.81	5315224	101.46	70	120	
Tb	159	1	He	3866062	1.08	3947867	97.93	70	120	
Tb	159	2	no gas	4741599	1.04	4818054	98.41	70	120	
Bi	209	2	no gas	2815680	0.66	2981720	94.43	60	120	

Sample Report

Sample Table

Sample Name	400-169314-C-7-B^100
Data File Name	041SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T15:56:39-05:00
Sample Type	Sample
Dilution	1
Comment	RA/DL
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.236	0.236	10.17	118997	0.00	200	
Be	6	9	2	no gas	-0.012	-0.012	-5.23	51	-0.02	200	
B	6	11	2	no gas	0.738	0.738	74.01	27014	0.00	400	
Na	72	23	1	He	21716.510	21716.510	1.97	73927937	0.03	50000	
Mg	72	24	1	He	3836.730	3836.730	0.14	7636564	0.05	50000	
Al	72	27	3	H2	-0.012	-0.012	-960.51	16434	0.00	50000	
Si	45	28	3	H2	196.543	196.543	2.02	873007	0.02	2000	
K	72	39	1	He	62.692	62.692	3.19	561328	0.01	50000	
Ca	72	44	1	He	6752.608	6752.608	1.35	903596	0.75	25000	
Ti	72	49	1	He	0.012	0.012	859.87	176	0.01	200	
V	72	51	1	He	0.185	0.185	2.98	6124	0.00	200	
Cr	72	52	1	He	-0.009	-0.009	-24.18	1974	0.00	200	
Mn	72	55	1	He	112.070	112.070	2.39	1408360	0.01	2500	
Fe	72	56	3	H2	92.861	92.861	1.13	3177232	0.00	50000	
Co	72	59	1	He	0.015	0.015	12.34	719	0.00	200	
Ni	72	60	1	He	0.048	0.048	5.56	383	0.01	200	
copper	72	63	1	He	-0.032	-0.032	-21.46	498	-0.01	200	
Zn	72	66	1	He	-0.202	-0.202	-39.01	800	-0.03	200	
arsenic	72	75	1	He	0.033	0.033	55.67	548	0.01	200	
selenium	72	78	3	H2	-0.089	-0.089	-5.20	41	-0.22	200	
Sr	72	88	1	He	32.432	32.432	1.37	628496	0.01	500	
Mo	115	95	1	He	-0.211	-0.211	-3.64	460	-0.05	200	
Ag	115	107	1	He	-0.024	-0.024	-5.22	151	-0.02	200	
Cd	72	111	1	He	-0.028	-0.028	-27.26	13	-0.21	200	
Sn	115	120	1	He	-0.079	-0.079	-12.03	1483	-0.01	200	
antimony	159	121	1	He	-0.113	-0.113	-6.47	401	-0.03	200	
Ba	115	137	1	He	0.292	0.292	2.29	1422	0.02	1000	
Tl	159	205	2	no gas	-0.004	-0.004	-11.60	32	-0.01	40	
[Pb]	209	206	2	no gas	-0.027	-0.027	-36.92	4698	0.00	200	
[Pb]	209	207	2	no gas	-0.023	-0.023	-217.33	4167	0.00	200	
Pb	209	208	2	no gas	-0.006	-0.006	-270.89	19022	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1767641	1.21	1727510	102.32	70	120	
Sc	45	1	He	619975	0.34	588329	105.38	70	120	
Ge	72	1	He	262330	0.99	246312	106.50	70	125	
Ge	72	2	no gas	550657	0.60	520996	105.69	70	125	
Ge	72	3	H2	666374	0.52	630611	105.67	70	120	
Y	89	1	He	2246736	0.82	2211673	101.59	70	120	
In	115	1	He	2475121	0.12	2468826	100.25	70	120	
In	115	2	no gas	3745975	1.74	3838510	97.59	70	120	
In	115	3	H2	5488883	0.60	5315224	103.27	70	120	
Tb	159	1	He	3906154	2.17	3947867	98.94	70	120	
Tb	159	2	no gas	4768351	1.25	4818054	98.97	70	120	
Bi	209	2	no gas	2788689	1.17	2981720	93.53	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-1-A^5
Data File Name	042SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:00:44-05:00
Sample Type	Sample
Dilution	1
Comment	439856_15
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	38.016	38.016	1.98	933580	0.00	200	
Be	6	9	2	no gas	-0.004	-0.004	-36.73	98	0.00	200	
B	6	11	2	no gas	137.084	137.084	3.03	473127	0.03	400	
Na	72	23	1	He	141269.828	141269.828	1.42	457693873	0.03	50000	>LDR
Mg	72	24	1	He	36735.156	36735.156	1.10	69569811	0.05	50000	
Al	72	27	3	H2	8.139	8.139	3.65	88533	0.01	50000	
Si	45	28	3	H2	6764.213	6764.213	3.10	25942480	0.03	2000	>LDR
K	72	39	1	He	832.389	832.389	1.37	2706431	0.03	50000	
Ca	72	44	1	He	84282.117	84282.117	0.62	10719245	0.79	25000	>LDR
Ti	72	49	1	He	2.505	2.505	5.05	1477	0.17	200	
V	72	51	1	He	0.102	0.102	16.10	4789	0.00	200	
Cr	72	52	1	He	0.135	0.135	29.77	3824	0.00	200	
Mn	72	55	1	He	2284.804	2284.804	0.39	27274990	0.01	2500	>LDR
Fe	72	56	3	H2	12169.330	12169.330	0.61	354368981	0.00	50000	
Co	72	59	1	He	0.084	0.084	4.81	1883	0.00	200	
Ni	72	60	1	He	0.175	0.175	4.59	880	0.02	200	
copper	72	63	1	He	0.363	0.363	1.29	4592	0.01	200	
Zn	72	66	1	He	0.095	0.095	38.64	1393	0.01	200	
arsenic	72	75	1	He	1.331	1.331	1.39	2655	0.05	200	
selenium	72	78	3	H2	-0.032	-0.032	-37.38	85	-0.04	200	
Sr	72	88	1	He	370.117	370.117	0.93	6824368	0.01	500	
Mo	115	95	1	He	0.026	0.026	50.96	1730	0.00	200	
Ag	115	107	1	He	-0.021	-0.021	-12.89	188	-0.01	200	
Cd	72	111	1	He	-0.028	-0.028	-19.26	13	-0.21	200	
Sn	115	120	1	He	-0.099	-0.099	-8.03	1200	-0.01	200	
antimony	159	121	1	He	-0.099	-0.099	-6.63	538	-0.02	200	
Ba	115	137	1	He	11.937	11.937	1.59	49975	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-23.03	55	-0.01	40	
[Pb]	209	206	2	no gas	0.012	0.012	46.15	4788	0.00	200	
[Pb]	209	207	2	no gas	-0.028	-0.028	-140.97	3854	0.00	200	
Pb	209	208	2	no gas	0.026	0.026	73.15	19099	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1653123	1.55	1727510	95.69	70	120	
Sc	45	1	He	607797	1.07	588329	103.31	70	120	
Ge	72	1	He	249798	0.51	246312	101.42	70	125	
Ge	72	2	no gas	532615	0.39	520996	102.23	70	125	
Ge	72	3	H2	622787	0.63	630611	98.76	70	120	
Y	89	1	He	2203340	0.93	2211673	99.62	70	120	
In	115	1	He	2382220	1.35	2468826	96.49	70	120	
In	115	2	no gas	3573172	0.54	3838510	93.09	70	120	
In	115	3	H2	5236959	1.28	5315224	98.53	70	120	
Tb	159	1	He	3903783	0.11	3947867	98.88	70	120	
Tb	159	2	no gas	4644603	0.64	4818054	96.40	70	120	
Bi	209	2	no gas	2608000	2.12	2981720	87.47	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-2-A^5
Data File Name	043SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:04:40-05:00
Sample Type	Sample
Dilution	1
Comment	439856_16
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	3.575	3.575	1.30	193012	0.00	200	
Be	6	9	2	no gas	0.013	0.013	40.37	217	0.01	200	
B	6	11	2	no gas	60.152	60.152	1.52	231353	0.03	400	
Na	72	23	1	He	77992.155	77992.155	0.87	282249476	0.03	50000	>LDR
Mg	72	24	1	He	1494.637	1494.637	1.06	3167998	0.05	50000	
Al	72	27	3	H2	289.141	289.141	20.38	3256324	0.01	50000	
Si	45	28	3	H2	4922.692	4922.692	5.31	25445638	0.02	2000	>LDR
K	72	39	1	He	655.063	655.063	8.13	2464517	0.03	50000	
Ca	72	44	1	He	4939.633	4939.633	0.36	703618	0.70	25000	
Ti	72	49	1	He	7.317	7.317	5.06	4473	0.16	200	
V	72	51	1	He	0.877	0.877	11.14	16241	0.01	200	
Cr	72	52	1	He	0.381	0.381	3.51	7972	0.00	200	
Mn	72	55	1	He	47.343	47.343	1.03	635180	0.01	2500	
Fe	72	56	3	H2	1576.658	1576.658	6.75	57236964	0.00	50000	
Co	72	59	1	He	0.178	0.178	2.08	3929	0.00	200	
Ni	72	60	1	He	0.437	0.437	2.22	2167	0.02	200	
copper	72	63	1	He	0.327	0.327	6.48	4715	0.01	200	
Zn	72	66	1	He	1.023	1.023	6.76	3764	0.03	200	
arsenic	72	75	1	He	16.325	16.325	0.24	30501	0.05	200	
selenium	72	78	3	H2	-0.066	-0.066	-13.45	71	-0.09	200	
Sr	72	88	1	He	36.493	36.493	1.35	752134	0.00	500	
Mo	115	95	1	He	-0.010	-0.010	-559.27	1647	0.00	200	
Ag	115	107	1	He	-0.018	-0.018	-6.99	239	-0.01	200	
Cd	72	111	1	He	-0.016	-0.016	-76.12	53	-0.03	200	
Sn	115	120	1	He	-0.084	-0.084	-23.43	1480	-0.01	200	
antimony	159	121	1	He	-0.101	-0.101	-9.29	537	-0.02	200	
Ba	115	137	1	He	53.905	53.905	1.78	242591	0.02	1000	
Tl	159	205	2	no gas	0.001	0.001	63.14	205	0.00	40	
[Pb]	209	206	2	no gas	0.286	0.286	6.02	8396	0.00	200	
[Pb]	209	207	2	no gas	0.241	0.241	8.75	6852	0.00	200	
Pb	209	208	2	no gas	0.254	0.254	8.79	31370	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1734529	1.57	1727510	100.41	70	120	
Sc	45	1	He	673111	0.45	588329	114.41	70	120	
Ge	72	1	He	279005	0.53	246312	113.27	70	125	
Ge	72	2	no gas	605660	0.56	520996	116.25	70	125	
Ge	72	3	H2	774554	6.06	630611	122.83	70	120	ISTD Failed
Y	89	1	He	2363959	1.33	2211673	106.89	70	120	
In	115	1	He	2567156	2.14	2468826	103.98	70	120	
In	115	2	no gas	4143397	0.80	3838510	107.94	70	120	
In	115	3	H2	6526897	6.46	5315224	122.80	70	120	ISTD Failed
Tb	159	1	He	4083842	0.82	3947867	103.44	70	120	
Tb	159	2	no gas	5094121	0.42	4818054	105.73	70	120	
Bi	209	2	no gas	2873102	0.44	2981720	96.36	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-3-A^5
Data File Name	044SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:08:38-05:00
Sample Type	Sample
Dilution	1
Comment	439856_17
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	5.757	5.757	1.84	240171	0.00	200	
Be	6	9	2	no gas	-0.007	-0.007	-26.25	78	-0.01	200	
B	6	11	2	no gas	64.341	64.341	0.09	243082	0.03	400	
Na	72	23	1	He	88759.821	88759.821	0.53	312262709	0.03	50000	>LDR
Mg	72	24	1	He	3635.305	3635.305	0.75	7481219	0.05	50000	
Al	72	27	3	H2	23.198	23.198	3.29	241337	0.01	50000	
Si	45	28	3	H2	5738.307	5738.307	2.72	24313069	0.02	2000	>LDR
K	72	39	1	He	494.674	494.674	1.23	1903859	0.03	50000	
Ca	72	44	1	He	12947.527	12947.527	1.52	1789517	0.72	25000	
Ti	72	49	1	He	1.035	1.035	7.47	764	0.14	200	
V	72	51	1	He	0.231	0.231	7.66	6963	0.00	200	
Cr	72	52	1	He	0.086	0.086	15.16	3437	0.00	200	
Mn	72	55	1	He	179.019	179.019	1.38	2323921	0.01	2500	
Fe	72	56	3	H2	1441.236	1441.236	0.41	45534059	0.00	50000	
Co	72	59	1	He	0.026	0.026	20.60	940	0.00	200	
Ni	72	60	1	He	0.120	0.120	39.70	710	0.02	200	
copper	72	63	1	He	0.178	0.178	5.79	2886	0.01	200	
Zn	72	66	1	He	0.413	0.413	12.47	2250	0.02	200	
arsenic	72	75	1	He	10.762	10.762	1.21	19719	0.05	200	
selenium	72	78	3	H2	-0.068	-0.068	-5.05	60	-0.11	200	
Sr	72	88	1	He	76.077	76.077	0.55	1523535	0.00	500	
Mo	115	95	1	He	-0.183	-0.183	-5.31	623	-0.03	200	
Ag	115	107	1	He	-0.022	-0.022	-12.53	182	-0.01	200	
Cd	72	111	1	He	-0.022	-0.022	-37.02	33	-0.07	200	
Sn	115	120	1	He	-0.098	-0.098	-21.00	1270	-0.01	200	
antimony	159	121	1	He	-0.101	-0.101	-6.41	518	-0.02	200	
Ba	115	137	1	He	44.570	44.570	2.98	194994	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-29.71	67	0.00	40	
[Pb]	209	206	2	no gas	0.059	0.059	21.11	5655	0.00	200	
[Pb]	209	207	2	no gas	0.027	0.027	93.01	4658	0.00	200	
Pb	209	208	2	no gas	0.050	0.050	24.78	21557	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1715405	1.04	1727510	99.30	70	120	
Sc	45	1	He	660132	0.58	588329	112.20	70	120	
Ge	72	1	He	271235	0.97	246312	110.12	70	125	
Ge	72	2	no gas	564632	0.99	520996	108.38	70	125	
Ge	72	3	H2	671936	0.31	630611	106.55	70	120	
Y	89	1	He	2283702	1.02	2211673	103.26	70	120	
In	115	1	He	2495399	1.46	2468826	101.08	70	120	
In	115	2	no gas	3871401	0.30	3838510	100.86	70	120	
In	115	3	H2	5572044	0.95	5315224	104.83	70	120	
Tb	159	1	He	3915516	1.11	3947867	99.18	70	120	
Tb	159	2	no gas	4825837	0.90	4818054	100.16	70	120	
Bi	209	2	no gas	2796236	0.78	2981720	93.78	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	047_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:20:43-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	52.270	52.270	1.91	1330577	0.00	50	
Be	6	9	2	no gas	52.775	52.775	0.84	353794	0.01	50	
B	6	11	2	no gas	103.261	103.261	2.69	378341	0.03	100	
Na	72	23	1	He	5066.669	5066.669	1.39	17934355	0.03	5000	
Mg	72	24	1	He	5120.734	5120.734	0.31	10551455	0.05	5000	
Al	72	27	3	H2	526.755	526.755	1.65	5150812	0.01	500	
K	72	39	1	He	5148.647	5148.647	1.11	16207070	0.03	5000	
Ca	72	44	1	He	5038.864	5038.864	0.42	698917	0.72	5000	
Ti	72	49	1	He	50.554	50.554	1.44	28987	0.17	50	
V	72	51	1	He	50.156	50.156	0.77	693346	0.01	50	
Cr	72	52	1	He	50.286	50.286	0.31	738306	0.01	50	
Mn	72	55	1	He	515.779	515.779	0.65	6698423	0.01	500	
Fe	72	56	3	H2	5092.218	5092.218	1.08	161133681	0.00	5000	
Co	72	59	1	He	49.763	49.763	0.85	939876	0.01	50	
Ni	72	60	1	He	50.977	50.977	0.56	224955	0.02	50	
copper	72	63	1	He	49.439	49.439	0.39	561662	0.01	50	
dwCu63	72	63	2	no gas	49.893	49.893	1.43	834495	0.01	50	
Zn	72	66	1	He	50.286	50.286	0.58	117638	0.04	50	
arsenic	72	75	1	He	49.425	49.425	0.70	88814	0.06	50	
dwAs75	72	75	2	no gas	49.679	49.679	0.34	180100	0.03	50	
selenium	72	78	3	H2	50.169	50.169	0.79	45003	0.11	50	
Sr	72	88	1	He	49.073	49.073	1.00	984495	0.00	50	
Mo	115	95	1	He	48.965	48.965	2.17	282682	0.02	50	
Ag	115	107	1	He	48.606	48.606	0.70	736564	0.01	50	
Cd	72	111	1	He	49.112	49.112	1.17	151742	0.03	50	
Sn	115	120	1	He	47.902	47.902	1.19	590160	0.01	50	
antimony	159	121	1	He	52.823	52.823	1.49	501812	0.01	50	
dwSb121	159	121	2	no gas	51.286	51.286	1.75	698625	0.01	50	
Ba	115	137	1	He	47.766	47.766	0.41	211911	0.02	50	
Tl	159	205	2	no gas	9.928	9.928	1.45	337653	0.00	10	
[Pb]	209	206	2	no gas	50.077	50.077	0.29	579018	0.01	50	
[Pb]	209	207	2	no gas	49.401	49.401	0.30	486441	0.01	50	
Pb	209	208	2	no gas	48.243	48.243	0.62	2226009	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1762792	0.48	1727510	102.04	70	120	
Sc	45	1	He	664035	0.29	588329	112.87	70	120	
Ge	72	1	He	271730	0.16	246312	110.32	70	125	
Ge	72	2	no gas	568645	0.52	520996	109.15	70	125	
Ge	72	3	H2	676830	0.66	630611	107.33	70	120	
Y	89	1	He	2322829	1.59	2211673	105.03	70	120	
In	115	1	He	2530877	0.83	2468826	102.51	70	120	
In	115	2	no gas	3961820	1.62	3838510	103.21	70	120	
In	115	3	H2	5589013	2.00	5315224	105.15	70	120	
Tb	159	1	He	3928222	1.27	3947867	99.50	70	120	
Tb	159	2	no gas	4918075	2.09	4818054	102.08	70	120	
Bi	209	2	no gas	2899515	0.69	2981720	97.24	60	120	

Sample Table

Sample Name	CCB
Data File Name	049_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:28:42-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.150	-0.150	-18.30	116928	0.00	0.5	
Be	6	9	2	no gas	-0.005	-0.005	-23.50	51	-0.01	0.5	
B	6	11	2	no gas	-1.567	-1.567	-20.30	18997	-0.01	5	
Na	72	23	1	He	-1.773	-1.773	-20.54	63650	0.00	100	
Mg	72	24	1	He	-0.653	-0.653	-10.33	3097	-0.02	50	
Al	72	27	3	H2	-0.022	-0.022	-265.43	15106	0.00	50	
K	72	39	1	He	1.360	1.360	52.43	400527	0.00	50	
Ca	72	44	1	He	-0.917	-0.917	-97.45	1840	-0.05	50	
Ti	72	49	1	He	-0.054	-0.054	-93.80	143	-0.04	0.5	
V	72	51	1	He	0.048	0.048	9.61	4289	0.00	0.5	
Cr	72	52	1	He	0.009	0.009	79.24	2007	0.00	0.5	
Mn	72	55	1	He	-0.065	-0.065	-13.32	1580	0.00	2	
Fe	72	56	3	H2	-5.030	-5.030	-2.37	98587	-0.01	25	
Co	72	59	1	He	-0.007	-0.007	-13.69	109	-0.01	0.5	
Ni	72	60	1	He	-0.005	-0.005	-85.40	90	-0.01	1.5	
copper	72	63	1	He	-0.013	-0.013	-16.90	541	0.00	0.5	
dwCu63	72	63	2	no gas	-0.007	-0.007	-94.87	917	0.00	0.5	
Zn	72	66	1	He	0.143	0.143	28.71	1190	0.01	4	
arsenic	72	75	1	He	-0.056	-0.056	-40.30	395	-0.01	0.25	
dwAs75	72	75	2	no gas	-0.319	-0.319	-83.29	-1028	0.03	5	
selenium	72	78	3	H2	-0.027	-0.027	-24.73	98	-0.03	0.25	
dwSe82	72	82	2	no gas	-0.308	-0.308	-15.99	199	-0.15	5	
Sr	72	88	1	He	-0.009	-0.009	-13.86	297	0.00	0.5	
Mo	115	95	1	He	-0.203	-0.203	-7.69	577	-0.04	1	
Ag	115	107	1	He	-0.003	-0.003	-34.90	233	0.00	0.05	
Cd	72	111	1	He	-0.007	-0.007	-28.89	3	-0.20	0.25	
Sn	115	120	1	He	-0.049	-0.049	-29.72	1930	0.00	0.5	
antimony	159	121	1	He	-0.038	-0.038	-76.74	1134	0.00	0.5	
dwSb121	159	121	2	no gas	-0.060	-0.060	-8.47	2678	0.00	5	
Ba	115	137	1	He	-0.012	-0.012	-68.17	82	-0.01	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-10.46	43	-0.01	0.1	
[Pb]	209	206	2	no gas	-0.012	-0.012	-82.42	5214	0.00	0.25	
[Pb]	209	207	2	no gas	-0.075	-0.075	-17.89	3981	0.00	0.25	
Pb	209	208	2	no gas	-0.049	-0.049	-13.88	19179	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1781755	1.03	1727510	103.14	70	120	
Sc	45	1	He	657304	0.86	588329	111.72	70	120	
Ge	72	1	He	268615	0.42	246312	109.06	70	125	
Ge	72	2	no gas	563774	0.15	520996	108.21	70	125	
Ge	72	3	H2	684381	0.34	630611	108.53	70	120	
Y	89	1	He	2342139	1.04	2211673	105.90	70	120	
In	115	1	He	2581831	0.23	2468826	104.58	70	120	
In	115	2	no gas	3956878	0.49	3838510	103.08	70	120	
In	115	3	H2	5663515	1.89	5315224	106.55	70	120	
Tb	159	1	He	3992674	1.38	3947867	101.13	70	120	
Tb	159	2	no gas	4851419	1.22	4818054	100.69	70	120	
Bi	209	2	no gas	2927916	1.32	2981720	98.20	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-3-B MS^5
Data File Name	050SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:32:39-05:00
Sample Type	Sample
Dilution	1
Comment	439856_18
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	16.678	16.678	1.88	496267	0.00	200	
Be	6	9	2	no gas	10.852	10.852	1.31	71393	0.02	200	
B	6	11	2	no gas	83.053	83.053	0.72	309087	0.03	400	
Na	72	23	1	He	88591.256	88591.256	1.05	303735329	0.03	50000	>LDR
Mg	72	24	1	He	4655.862	4655.862	1.88	9333272	0.05	50000	
Al	72	27	3	H2	124.378	124.378	3.71	1170312	0.01	50000	
Si	45	28	3	H2	5553.013	5553.013	1.27	22858261	0.02	2000	>LDR
K	72	39	1	He	1551.837	1551.837	1.73	5023534	0.03	50000	
Ca	72	44	1	He	13715.309	13715.309	1.43	1847281	0.74	25000	
Ti	72	49	1	He	10.896	10.896	1.63	6229	0.17	200	
V	72	51	1	He	10.662	10.662	0.43	145703	0.01	200	
Cr	72	52	1	He	10.166	10.166	1.21	146629	0.01	200	
Mn	72	55	1	He	278.911	278.911	0.70	3525034	0.01	2500	
Fe	72	56	3	H2	2422.468	2422.468	0.96	73218097	0.00	50000	
Co	72	59	1	He	10.314	10.314	0.90	189705	0.01	200	
Ni	72	60	1	He	10.411	10.411	1.81	44791	0.02	200	
copper	72	63	1	He	10.223	10.223	0.58	113543	0.01	200	
Zn	72	66	1	He	10.744	10.744	4.61	25051	0.04	200	
arsenic	72	75	1	He	20.982	20.982	0.76	36989	0.06	200	
selenium	72	78	3	H2	9.883	9.883	1.68	8555	0.12	200	
Sr	72	88	1	He	87.130	87.130	0.64	1700200	0.01	500	
Mo	115	95	1	He	10.287	10.287	1.79	58698	0.02	200	
Ag	115	107	1	He	10.204	10.204	1.61	148792	0.01	200	
Cd	72	111	1	He	9.774	9.774	2.25	29398	0.03	200	
Sn	115	120	1	He	9.022	9.022	2.60	108903	0.01	200	
antimony	159	121	1	He	9.583	9.583	0.98	91213	0.01	200	
Ba	115	137	1	He	54.779	54.779	1.11	233543	0.02	1000	
Tl	159	205	2	no gas	1.948	1.948	1.16	64623	0.00	40	
[Pb]	209	206	2	no gas	10.237	10.237	1.47	116395	0.01	200	
[Pb]	209	207	2	no gas	10.116	10.116	2.19	98131	0.01	200	
Pb	209	208	2	no gas	9.917	9.917	2.29	450576	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1728113	0.43	1727510	100.03	70	120	
Sc	45	1	He	643045	0.52	588329	109.30	70	120	
Ge	72	1	He	264321	0.55	246312	107.31	70	125	
Ge	72	2	no gas	553359	0.71	520996	106.21	70	125	
Ge	72	3	H2	644740	0.71	630611	102.24	70	120	
Y	89	1	He	2248944	1.18	2211673	101.69	70	120	
In	115	1	He	2431895	1.74	2468826	98.50	70	120	
In	115	2	no gas	3801357	0.83	3838510	99.03	70	120	
In	115	3	H2	5380050	0.89	5315224	101.22	70	120	
Tb	159	1	He	3874661	0.62	3947867	98.15	70	120	
Tb	159	2	no gas	4788100	1.13	4818054	99.38	70	120	
Bi	209	2	no gas	2751658	1.15	2981720	92.28	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-3-C MSD^5
Data File Name	051SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:36:50-05:00
Sample Type	Sample
Dilution	1
Comment	439856_19
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	17.202	17.202	7.36	489012	0.00	200	
Be	6	9	2	no gas	11.313	11.313	4.95	71624	0.02	200	
B	6	11	2	no gas	88.876	88.876	5.37	316724	0.03	400	
Na	72	23	1	He	89830.608	89830.608	1.12	305029322	0.03	50000	>LDR
Mg	72	24	1	He	4679.641	4679.641	1.31	9291009	0.05	50000	
Al	72	27	3	H2	125.628	125.628	6.26	1186696	0.01	50000	
Si	45	28	3	H2	5772.568	5772.568	2.10	23589930	0.02	2000	>LDR
K	72	39	1	He	1569.964	1569.964	1.93	5029099	0.03	50000	
Ca	72	44	1	He	13828.435	13828.435	1.93	1844815	0.75	25000	
Ti	72	49	1	He	11.581	11.581	1.70	6547	0.18	200	
V	72	51	1	He	10.880	10.880	0.24	147179	0.01	200	
Cr	72	52	1	He	10.320	10.320	1.57	147390	0.01	200	
Mn	72	55	1	He	284.938	284.938	0.93	3566479	0.01	2500	
Fe	72	56	3	H2	2460.385	2460.385	0.72	74667467	0.00	50000	
Co	72	59	1	He	10.417	10.417	0.68	189749	0.01	200	
Ni	72	60	1	He	10.228	10.228	1.48	43578	0.02	200	
copper	72	63	1	He	10.311	10.311	0.70	113409	0.01	200	
Zn	72	66	1	He	10.894	10.894	3.65	25151	0.04	200	
arsenic	72	75	1	He	21.185	21.185	0.95	36982	0.06	200	
selenium	72	78	3	H2	10.022	10.022	1.74	8709	0.12	200	
Sr	72	88	1	He	88.521	88.521	0.60	1710793	0.01	500	
Mo	115	95	1	He	10.411	10.411	1.77	59453	0.02	200	
Ag	115	107	1	He	10.277	10.277	1.02	150026	0.01	200	
Cd	72	111	1	He	9.572	9.572	2.81	28513	0.03	200	
Sn	115	120	1	He	9.341	9.341	1.45	112808	0.01	200	
antimony	159	121	1	He	9.704	9.704	1.05	93325	0.01	200	
Ba	115	137	1	He	54.650	54.650	1.12	233267	0.02	1000	
Tl	159	205	2	no gas	2.112	2.112	8.90	65153	0.00	40	
[Pb]	209	206	2	no gas	10.901	10.901	8.62	117678	0.01	200	
[Pb]	209	207	2	no gas	10.899	10.899	9.05	100299	0.01	200	
Pb	209	208	2	no gas	10.596	10.596	8.13	457092	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1665609	4.41	1727510	96.42	70	120	
Sc	45	1	He	638722	0.66	588329	108.57	70	120	
Ge	72	1	He	261780	0.74	246312	106.28	70	125	
Ge	72	2	no gas	530887	4.84	520996	101.90	70	125	
Ge	72	3	H2	647434	1.20	630611	102.67	70	120	
Y	89	1	He	2290756	0.97	2211673	103.58	70	120	
In	115	1	He	2434387	0.80	2468826	98.61	70	120	
In	115	2	no gas	3540865	9.23	3838510	92.25	70	120	
In	115	3	H2	5323112	1.91	5315224	100.15	70	120	
Tb	159	1	He	3916172	1.48	3947867	99.20	70	120	
Tb	159	2	no gas	4473289	7.93	4818054	92.84	70	120	
Bi	209	2	no gas	2629599	7.23	2981720	88.19	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-4-A^5
Data File Name	052SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:40:45-05:00
Sample Type	Sample
Dilution	1
Comment	439856_20
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	4.671	4.671	3.52	219415	0.00	200	
Be	6	9	2	no gas	0.025	0.025	9.25	243	0.01	200	
B	6	11	2	no gas	68.308	68.308	2.98	254104	0.03	400	
Na	72	23	1	He	76338.492	76338.492	1.58	259047949	0.03	50000	>LDR
Mg	72	24	1	He	2319.268	2319.268	0.45	4604062	0.05	50000	
Al	72	27	3	H2	453.559	453.559	10.27	4254304	0.01	50000	
Si	45	28	3	H2	4717.650	4717.650	2.29	19231081	0.02	2000	>LDR
K	72	39	1	He	663.136	663.136	1.49	2345730	0.03	50000	
Ca	72	44	1	He	7235.953	7235.953	0.61	965535	0.75	25000	
Ti	72	49	1	He	10.538	10.538	20.47	5965	0.18	200	
V	72	51	1	He	1.343	1.343	2.32	21264	0.01	200	
Cr	72	52	1	He	0.486	0.486	5.38	8673	0.01	200	
Mn	72	55	1	He	135.302	135.302	1.05	1693711	0.01	2500	
Fe	72	56	3	H2	1370.516	1370.516	2.80	41777019	0.00	50000	
Co	72	59	1	He	0.249	0.249	3.16	4751	0.01	200	
Ni	72	60	1	He	0.563	0.563	5.82	2504	0.02	200	
copper	72	63	1	He	0.506	0.506	4.26	6192	0.01	200	
Zn	72	66	1	He	1.827	1.827	3.41	4914	0.04	200	
arsenic	72	75	1	He	18.574	18.574	1.29	32462	0.06	200	
selenium	72	78	3	H2	0.029	0.029	34.36	141	0.02	200	
Sr	72	88	1	He	48.935	48.935	0.58	945334	0.01	500	
Mo	115	95	1	He	0.364	0.364	3.14	3704	0.01	200	
Ag	115	107	1	He	0.000	0.000	-146.12	267	0.00	200	
Cd	72	111	1	He	0.009	0.009	64.29	50	0.02	200	
Sn	115	120	1	He	-0.019	-0.019	-195.30	2177	0.00	200	
antimony	159	121	1	He	-0.067	-0.067	-19.37	836	-0.01	200	
Ba	115	137	1	He	45.800	45.800	1.27	196134	0.02	1000	
Tl	159	205	2	no gas	0.006	0.006	26.28	305	0.00	40	
[Pb]	209	206	2	no gas	0.337	0.337	6.36	8759	0.00	200	
[Pb]	209	207	2	no gas	0.283	0.283	10.39	7105	0.00	200	
Pb	209	208	2	no gas	0.327	0.327	3.69	34550	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1699891	2.44	1727510	98.40	70	120	
Sc	45	1	He	640313	0.27	588329	108.84	70	120	
Ge	72	1	He	261614	0.62	246312	106.21	70	125	
Ge	72	2	no gas	552861	0.70	520996	106.12	70	125	
Ge	72	3	H2	648633	1.42	630611	102.86	70	120	
Y	89	1	He	2258954	0.49	2211673	102.14	70	120	
In	115	1	He	2442315	0.61	2468826	98.93	70	120	
In	115	2	no gas	3764260	1.54	3838510	98.07	70	120	
In	115	3	H2	5312287	1.34	5315224	99.94	70	120	
Tb	159	1	He	3889492	0.20	3947867	98.52	70	120	
Tb	159	2	no gas	4783052	0.43	4818054	99.27	70	120	
Bi	209	2	no gas	2771296	0.34	2981720	92.94	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-5-A^5
Data File Name	053SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:44:42-05:00
Sample Type	Sample
Dilution	1
Comment	439856_21
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	5.974	5.974	3.32	248036	0.00	200	
Be	6	9	2	no gas	0.030	0.030	39.41	279	0.01	200	
B	6	11	2	no gas	54.177	54.177	1.21	205981	0.03	400	
Na	72	23	1	He	105021.868	105021.868	0.76	352216208	0.03	50000	>LDR
Mg	72	24	1	He	4152.423	4152.423	0.27	8143729	0.05	50000	
Al	72	27	3	H2	587.568	587.568	1.38	5374343	0.01	50000	
Si	45	28	3	H2	7051.977	7051.977	4.53	28205550	0.03	2000	>LDR
K	72	39	1	He	1034.357	1034.357	0.33	3402675	0.03	50000	
Ca	72	44	1	He	17014.001	17014.001	1.49	2241210	0.76	25000	
Ti	72	49	1	He	20.020	20.020	19.15	11060	0.18	200	
V	72	51	1	He	1.835	1.835	4.10	27428	0.01	200	
Cr	72	52	1	He	0.746	0.746	2.48	12198	0.01	200	
Mn	72	55	1	He	299.981	299.981	0.90	3708465	0.01	2500	
Fe	72	56	3	H2	3057.348	3057.348	0.56	90653769	0.00	50000	
Co	72	59	1	He	0.339	0.339	1.53	6327	0.01	200	
Ni	72	60	1	He	0.956	0.956	6.29	4124	0.02	200	
copper	72	63	1	He	0.838	0.838	1.59	9705	0.01	200	
Zn	72	66	1	He	3.034	3.034	4.86	7515	0.04	200	
arsenic	72	75	1	He	5.229	5.229	1.35	9374	0.06	200	
selenium	72	78	3	H2	-0.014	-0.014	-210.72	101	-0.01	200	
Sr	72	88	1	He	95.354	95.354	1.25	1820118	0.01	500	
Mo	115	95	1	He	0.059	0.059	83.70	1990	0.00	200	
Ag	115	107	1	He	-0.003	-0.003	-34.13	219	0.00	200	
Cd	72	111	1	He	0.021	0.021	50.41	83	0.02	200	
Sn	115	120	1	He	-0.046	-0.046	-25.64	1847	0.00	200	
antimony	159	121	1	He	-0.071	-0.071	-24.30	790	-0.01	200	
Ba	115	137	1	He	80.493	80.493	2.31	342136	0.02	1000	
Tl	159	205	2	no gas	0.008	0.008	5.05	379	0.00	40	
[Pb]	209	206	2	no gas	0.589	0.589	15.75	11301	0.01	200	
[Pb]	209	207	2	no gas	0.522	0.522	12.67	9163	0.01	200	
Pb	209	208	2	no gas	0.539	0.539	9.45	43028	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1695875	0.41	1727510	98.17	70	120	
Sc	45	1	He	628350	1.01	588329	106.80	70	120	
Ge	72	1	He	258561	0.32	246312	104.97	70	125	
Ge	72	2	no gas	546315	0.68	520996	104.86	70	125	
Ge	72	3	H2	632965	0.87	630611	100.37	70	120	
Y	89	1	He	2220135	0.16	2211673	100.38	70	120	
In	115	1	He	2425050	1.18	2468826	98.23	70	120	
In	115	2	no gas	3756558	0.91	3838510	97.87	70	120	
In	115	3	H2	5202491	1.71	5315224	97.88	70	120	
Tb	159	1	He	3890392	0.23	3947867	98.54	70	120	
Tb	159	2	no gas	4758749	0.67	4818054	98.77	70	120	
Bi	209	2	no gas	2721881	2.30	2981720	91.29	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-6-A^5
Data File Name	054SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:48:49-05:00
Sample Type	Sample
Dilution	1
Comment	439856_22
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	20.635	20.635	2.07	564600	0.00	200	
Be	6	9	2	no gas	0.868	0.868	5.85	5570	0.02	200	
B	6	11	2	no gas	73.344	73.344	3.38	265480	0.03	400	
Na	72	23	1	He	79272.798	79272.798	4.30	255322830	0.03	50000	>LDR
Mg	72	24	1	He	16568.769	16568.769	5.45	31183191	0.05	50000	
Al	72	27	3	H2	10293.056	10293.056	10.34	96043412	0.01	50000	
Si	45	28	3	H2	16394.858	16394.858	7.86	69461844	0.02	2000	>LDR
K	72	39	1	He	3435.192	3435.192	4.95	9999723	0.03	50000	
Ca	72	44	1	He	54187.265	54187.265	4.46	6850263	0.79	25000	>LDR
Ti	72	49	1	He	167.456	167.456	4.40	87678	0.19	200	
V	72	51	1	He	28.917	28.917	3.17	365533	0.01	200	
Cr	72	52	1	He	17.532	17.532	2.35	236366	0.01	200	
Mn	72	55	1	He	1246.475	1246.475	3.91	14791154	0.01	2500	
Fe	72	56	3	H2	24549.740	24549.740	4.95	743380362	0.00	50000	
Co	72	59	1	He	10.875	10.875	3.45	187898	0.01	200	
Ni	72	60	1	He	28.059	28.059	4.31	113216	0.02	200	
copper	72	63	1	He	21.644	21.644	3.33	225128	0.01	200	
Zn	72	66	1	He	79.672	79.672	3.65	169411	0.05	200	
arsenic	72	75	1	He	17.641	17.641	4.88	29282	0.06	200	
selenium	72	78	3	H2	0.384	0.384	11.52	445	0.09	200	
Sr	72	88	1	He	167.849	167.849	2.75	3077108	0.01	500	
Mo	115	95	1	He	0.154	0.154	22.77	2360	0.01	200	
Ag	115	107	1	He	0.094	0.094	12.21	1523	0.01	200	
Cd	72	111	1	He	0.409	0.409	9.02	1177	0.03	200	
Sn	115	120	1	He	0.109	0.109	9.46	3434	0.00	200	
antimony	159	121	1	He	0.002	0.002	711.68	1413	0.00	200	
Ba	115	137	1	He	409.857	409.857	6.53	1625054	0.03	1000	
Tl	159	205	2	no gas	0.259	0.259	1.96	8560	0.00	40	
[Pb]	209	206	2	no gas	18.907	18.907	0.20	205112	0.01	200	
[Pb]	209	207	2	no gas	17.512	17.512	1.66	162180	0.01	200	
Pb	209	208	2	no gas	17.716	17.716	1.80	768053	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1664397	1.72	1727510	96.35	70	120	
Sc	45	1	He	606958	7.11	588329	103.17	70	120	
Ge	72	1	He	248494	3.05	246312	100.89	70	125	
Ge	72	2	no gas	536162	0.26	520996	102.91	70	125	
Ge	72	3	H2	648400	2.33	630611	102.82	70	120	
Y	89	1	He	2546235	5.23	2211673	115.13	70	120	
In	115	1	He	2267889	5.90	2468826	91.86	70	120	
In	115	2	no gas	3628725	1.35	3838510	94.53	70	120	
In	115	3	H2	5388955	3.35	5315224	101.39	70	120	
Tb	159	1	He	3716156	6.60	3947867	94.13	70	120	
Tb	159	2	no gas	4706046	0.50	4818054	97.68	70	120	
Bi	209	2	no gas	2678187	1.07	2981720	89.82	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-7-A^5
Data File Name	055SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:52:51-05:00
Sample Type	Sample
Dilution	1
Comment	439856_23
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	16.213	16.213	2.27	464133	0.00	200	
Be	6	9	2	no gas	0.594	0.594	3.35	3809	0.02	200	
B	6	11	2	no gas	75.817	75.817	0.85	271633	0.03	400	
Na	72	23	1	He	74940.616	74940.616	0.83	245277130	0.03	50000	>LDR
Mg	72	24	1	He	13084.746	13084.746	1.48	25031510	0.05	50000	
Al	72	27	3	H2	8364.669	8364.669	4.02	75124176	0.01	50000	
Si	45	28	3	H2	16857.685	16857.685	1.42	69333546	0.02	2000	>LDR
K	72	39	1	He	2812.889	2812.889	2.39	8389762	0.03	50000	
Ca	72	44	1	He	35980.886	35980.886	1.09	4623128	0.78	25000	>LDR
Ti	72	49	1	He	156.614	156.614	3.38	83280	0.19	200	
V	72	51	1	He	19.732	19.732	1.37	254489	0.01	200	
Cr	72	52	1	He	12.193	12.193	2.47	167513	0.01	200	
Mn	72	55	1	He	694.431	694.431	0.72	8374523	0.01	2500	
Fe	72	56	3	H2	17966.211	17966.211	0.32	523108432	0.00	50000	
Co	72	59	1	He	8.009	8.009	1.05	140650	0.01	200	
Ni	72	60	1	He	20.476	20.476	0.49	83983	0.02	200	
copper	72	63	1	He	13.908	13.908	1.46	147210	0.01	200	
Zn	72	66	1	He	54.260	54.260	1.99	117504	0.05	200	
arsenic	72	75	1	He	14.439	14.439	0.90	24443	0.06	200	
selenium	72	78	3	H2	0.291	0.291	13.44	351	0.08	200	
Sr	72	88	1	He	129.333	129.333	0.52	2408875	0.01	500	
Mo	115	95	1	He	-0.009	-0.009	-208.51	1580	0.00	200	
Ag	115	107	1	He	0.056	0.056	4.40	1064	0.01	200	
Cd	72	111	1	He	0.243	0.243	20.00	720	0.03	200	
Sn	115	120	1	He	0.059	0.059	45.84	3017	0.00	200	
antimony	159	121	1	He	-0.024	-0.024	-14.96	1248	0.00	200	
Ba	115	137	1	He	264.975	264.975	0.69	1103458	0.02	1000	
Tl	159	205	2	no gas	0.203	0.203	5.26	6745	0.00	40	
[Pb]	209	206	2	no gas	12.706	12.706	0.48	138820	0.01	200	
[Pb]	209	207	2	no gas	11.824	11.824	1.43	110416	0.01	200	
Pb	209	208	2	no gas	11.944	11.944	1.09	521872	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1651695	1.86	1727510	95.61	70	120	
Sc	45	1	He	621181	0.60	588329	105.58	70	120	
Ge	72	1	He	252318	0.64	246312	102.44	70	125	
Ge	72	2	no gas	536895	0.21	520996	103.05	70	125	
Ge	72	3	H2	622904	1.22	630611	98.78	70	120	
Y	89	1	He	2550773	0.93	2211673	115.33	70	120	
In	115	1	He	2376355	1.39	2468826	96.25	70	120	
In	115	2	no gas	3654826	2.22	3838510	95.21	70	120	
In	115	3	H2	5151527	0.45	5315224	96.92	70	120	
Tb	159	1	He	3926537	1.65	3947867	99.46	70	120	
Tb	159	2	no gas	4732256	1.59	4818054	98.22	70	120	
Bi	209	2	no gas	2666179	0.63	2981720	89.42	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-8-A^5
Data File Name	056SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T16:56:47-05:00
Sample Type	Sample
Dilution	1
Comment	439856_24
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	17.386	17.386	0.38	465811	0.00	200	
Be	6	9	2	no gas	0.211	0.211	2.05	1340	0.02	200	
B	6	11	2	no gas	93.253	93.253	1.28	312827	0.03	400	
Na	72	23	1	He	188236.507	188236.507	1.70	593907911	0.03	50000	>LDR
Mg	72	24	1	He	42397.439	42397.439	0.42	78199191	0.05	50000	
Al	72	27	3	H2	86.320	86.320	5.99	797828	0.01	50000	
Si	45	28	3	H2	5707.089	5707.089	2.05	22341246	0.03	2000	>LDR
K	72	39	1	He	2597.126	2597.126	1.12	7496074	0.03	50000	
Ca	72	44	1	He	130192.813	130192.813	1.07	16124246	0.81	25000	>LDR
Ti	72	49	1	He	6.590	6.590	8.38	3527	0.19	200	
V	72	51	1	He	0.250	0.250	7.44	6361	0.00	200	
Cr	72	52	1	He	0.161	0.161	29.62	3804	0.00	200	
Mn	72	55	1	He	1628.240	1628.240	1.93	18927868	0.01	2500	
Fe	72	56	3	H2	18065.004	18065.004	0.66	531923059	0.00	50000	
Co	72	59	1	He	0.924	0.924	3.33	15830	0.01	200	
Ni	72	60	1	He	0.469	0.469	9.58	1954	0.02	200	
copper	72	63	1	He	0.157	0.157	4.34	2216	0.01	200	
Zn	72	66	1	He	1.551	1.551	2.51	3997	0.04	200	
arsenic	72	75	1	He	7.002	7.002	1.60	11658	0.06	200	
selenium	72	78	3	H2	0.038	0.038	122.87	145	0.03	200	
Sr	72	88	1	He	632.579	632.579	1.74	11357448	0.01	500	>LDR
Mo	115	95	1	He	-0.190	-0.190	-1.61	603	-0.03	200	
Ag	115	107	1	He	-0.001	-0.001	-167.74	244	0.00	200	
Cd	72	111	1	He	-0.004	-0.004	-150.57	10	-0.04	200	
Sn	115	120	1	He	-0.071	-0.071	-16.75	1527	0.00	200	
antimony	159	121	1	He	-0.099	-0.099	-11.99	552	-0.02	200	
Ba	115	137	1	He	11.563	11.563	2.42	48462	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-43.68	72	0.00	40	
[Pb]	209	206	2	no gas	0.113	0.113	6.72	5788	0.00	200	
[Pb]	209	207	2	no gas	0.053	0.053	58.22	4544	0.00	200	
Pb	209	208	2	no gas	0.067	0.067	27.03	21257	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1571023	0.95	1727510	90.94	70	120	
Sc	45	1	He	602310	4.17	588329	102.38	70	120	
Ge	72	1	He	243292	1.37	246312	98.77	70	125	
Ge	72	2	no gas	536445	0.14	520996	102.97	70	125	
Ge	72	3	H2	629957	0.50	630611	99.90	70	120	
Y	89	1	He	2194925	2.36	2211673	99.24	70	120	
In	115	1	He	2386416	2.65	2468826	96.66	70	120	
In	115	2	no gas	3607791	0.51	3838510	93.99	70	120	
In	115	3	H2	5278933	0.41	5315224	99.32	70	120	
Tb	159	1	He	4000378	3.05	3947867	101.33	70	120	
Tb	159	2	no gas	4625920	0.64	4818054	96.01	70	120	
Bi	209	2	no gas	2541232	1.52	2981720	85.23	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-9-A^5
Data File Name	057SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:00:56-05:00
Sample Type	Sample
Dilution	1
Comment	439856_25
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	12.755	12.755	1.55	373000	0.00	200	
Be	6	9	2	no gas	0.000	0.000	6570.06	78	0.00	200	
B	6	11	2	no gas	123.422	123.422	1.03	410311	0.03	400	
Na	72	23	1	He	89747.539	89747.539	0.87	320241649	0.03	50000	>LDR
Mg	72	24	1	He	11831.981	11831.981	1.66	24678511	0.05	50000	
Al	72	27	3	H2	33.701	33.701	7.42	357154	0.01	50000	
Si	45	28	3	H2	7066.703	7066.703	1.03	31786025	0.02	2000	>LDR
K	72	39	1	He	1228.956	1228.956	1.74	4224810	0.03	50000	
Ca	72	44	1	He	34123.034	34123.034	1.75	4780182	0.71	25000	>LDR
Ti	72	49	1	He	1.155	1.155	4.31	847	0.14	200	
V	72	51	1	He	0.214	0.214	5.38	6695	0.00	200	
Cr	72	52	1	He	0.094	0.094	5.81	3314	0.00	200	
Mn	72	55	1	He	96.874	96.874	0.91	1275920	0.01	2500	
Fe	72	56	3	H2	1362.730	1362.730	0.90	45001176	0.00	50000	
Co	72	59	1	He	0.308	0.308	3.81	6119	0.01	200	
Ni	72	60	1	He	0.177	0.177	21.63	907	0.02	200	
copper	72	63	1	He	0.052	0.052	11.07	1301	0.00	200	
Zn	72	66	1	He	0.650	0.650	32.83	2407	0.03	200	
arsenic	72	75	1	He	2.095	2.095	1.96	4299	0.05	200	
selenium	72	78	3	H2	-0.039	-0.039	-60.23	89	-0.04	200	
Sr	72	88	1	He	209.780	209.780	2.18	4259318	0.00	500	
Mo	115	95	1	He	-0.196	-0.196	-4.48	600	-0.03	200	
Ag	115	107	1	He	-0.006	-0.006	-36.36	184	0.00	200	
Cd	72	111	1	He	-0.008	-0.008	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.098	-0.098	-10.96	1273	-0.01	200	
antimony	159	121	1	He	-0.006	-0.006	-315.49	1443	0.00	200	
Ba	115	137	1	He	143.619	143.619	2.15	630028	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-27.06	75	0.00	40	
[Pb]	209	206	2	no gas	0.326	0.326	13.34	8399	0.00	200	
[Pb]	209	207	2	no gas	0.290	0.290	6.37	6972	0.00	200	
Pb	209	208	2	no gas	0.277	0.277	7.63	31467	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1583658	0.37	1727510	91.67	70	120	
Sc	45	1	He	663970	0.48	588329	112.86	70	120	
Ge	72	1	He	275098	0.75	246312	111.69	70	125	
Ge	72	2	no gas	587418	0.69	520996	112.75	70	125	
Ge	72	3	H2	702612	1.42	630611	111.42	70	120	
Y	89	1	He	2336397	1.27	2211673	105.64	70	120	
In	115	1	He	2503616	2.07	2468826	101.41	70	120	
In	115	2	no gas	3955085	2.19	3838510	103.04	70	120	
In	115	3	H2	5696053	0.58	5315224	107.16	70	120	
Tb	159	1	He	3990943	1.09	3947867	101.09	70	120	
Tb	159	2	no gas	4938422	0.53	4818054	102.50	70	120	
Bi	209	2	no gas	2692325	0.06	2981720	90.29	60	120	

Sample Report

Sample Table

Sample Name	400-169349-E-10-A^5
Data File Name	058SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:04:54-05:00
Sample Type	Sample
Dilution	1
Comment	439856_26
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	123.460	123.460	1.83	2753448	0.00	200	
Be	6	9	2	no gas	6.901	6.901	3.63	42754	0.02	200	
B	6	11	2	no gas	79.745	79.745	1.88	280189	0.03	400	
Na	72	23	1	He	99177.227	99177.227	0.74	355885581	0.03	50000	>LDR
Mg	72	24	1	He	58467.238	58467.238	2.17	122617578	0.05	50000	>LDR
Al	72	27	3	H2	64681.834	64681.834	3.23	618978297	0.01	50000	>LDR
Si	45	28	3	H2	16438.015	16438.015	2.08	91045819	0.02	2000	>LDR
K	72	39	1	He	15237.441	15237.441	1.09	48025866	0.03	50000	
Ca	72	44	1	He	98680.854	98680.854	1.50	13897969	0.71	25000	>LDR
Ti	72	49	1	He	60.198	60.198	1.85	35210	0.17	200	
V	72	51	1	He	138.468	138.468	0.98	1935631	0.01	200	
Cr	72	52	1	He	110.564	110.564	1.47	1650169	0.01	200	
Mn	72	55	1	He	2654.529	2654.529	0.43	35092264	0.01	2500	>LDR
Fe	72	56	3	H2	146319.589	146319.589	0.24	4538628306	0.00	50000	>LDR
Co	72	59	1	He	78.891	78.891	0.48	1517006	0.01	200	
Ni	72	60	1	He	202.918	202.918	0.98	911439	0.02	200	>LDR
copper	72	63	1	He	251.318	251.318	0.42	2904717	0.01	200	>LDR
Zn	72	66	1	He	564.434	564.434	0.37	1331714	0.04	200	>LDR
arsenic	72	75	1	He	31.313	31.313	0.91	57522	0.05	200	
selenium	72	78	3	H2	7.015	7.015	0.81	6287	0.11	200	
Sr	72	88	1	He	414.588	414.588	0.36	8465495	0.00	500	
Mo	115	95	1	He	0.252	0.252	9.81	3000	0.01	200	
Ag	115	107	1	He	1.289	1.289	1.74	18616	0.01	200	
Cd	72	111	1	He	2.253	2.253	4.50	7108	0.03	200	
Sn	115	120	1	He	-0.058	-0.058	-10.50	1667	0.00	200	
antimony	159	121	1	He	-0.079	-0.079	-6.26	750	-0.01	200	
Ba	115	137	1	He	1562.845	1562.845	2.00	6516658	0.02	1000	>LDR
Tl	159	205	2	no gas	1.338	1.338	1.15	44762	0.00	40	
[Pb]	209	206	2	no gas	204.706	204.706	0.81	2103619	0.01	200	>LDR
[Pb]	209	207	2	no gas	188.998	188.998	1.72	1653966	0.01	200	>LDR
Pb	209	208	2	no gas	191.585	191.585	1.39	7856783	0.00	200	>LDR

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1626445	0.51	1727510	94.15	70	120	
Sc	45	1	He	883199	1.40	588329	150.12	70	120	ISTD Failed
Ge	72	1	He	276647	0.74	246312	112.32	70	125	
Ge	72	2	no gas	612731	0.68	520996	117.61	70	125	
Ge	72	3	H2	663869	1.04	630611	105.27	70	120	
Y	89	1	He	5291016	1.39	2211673	239.23	70	120	ISTD Failed
In	115	1	He	2379517	0.44	2468826	96.38	70	120	
In	115	2	no gas	3598815	0.93	3838510	93.76	70	120	
In	115	3	H2	5297514	0.96	5315224	99.67	70	120	
Tb	159	1	He	4045767	1.79	3947867	102.48	70	120	
Tb	159	2	no gas	4825426	0.51	4818054	100.15	70	120	
Bi	209	2	no gas	2593197	0.43	2981720	86.97	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	061_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:17:01-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	54.334	54.334	1.73	1310750	0.00	50	
Be	6	9	2	no gas	53.315	53.315	1.47	341782	0.02	50	
B	6	11	2	no gas	104.524	104.524	2.69	370084	0.03	100	
Na	72	23	1	He	5031.097	5031.097	0.60	17470639	0.03	5000	
Mg	72	24	1	He	5054.678	5054.678	1.36	10215869	0.05	5000	
Al	72	27	3	H2	512.936	512.936	2.62	4991117	0.01	500	
K	72	39	1	He	5200.204	5200.204	0.29	16029307	0.03	5000	
Ca	72	44	1	He	5004.105	5004.105	0.91	681014	0.73	5000	
Ti	72	49	1	He	50.084	50.084	1.61	28207	0.18	50	
V	72	51	1	He	50.677	50.677	0.53	685469	0.01	50	
Cr	72	52	1	He	49.911	49.911	0.97	718470	0.01	50	
Mn	72	55	1	He	517.529	517.529	1.62	6590383	0.01	500	
Fe	72	56	3	H2	5086.305	5086.305	0.70	160136968	0.00	5000	
Co	72	59	1	He	50.144	50.144	0.42	928576	0.01	50	
Ni	72	60	1	He	50.844	50.844	1.20	220061	0.02	50	
copper	72	63	1	He	49.911	49.911	0.05	556117	0.01	50	
dwCu63	72	63	2	no gas	49.934	49.934	0.12	816655	0.01	50	
Zn	72	66	1	He	50.001	50.001	1.65	114597	0.04	50	
arsenic	72	75	1	He	49.669	49.669	1.04	87458	0.06	50	
dwAs75	72	75	2	no gas	50.137	50.137	1.35	175439	0.03	50	
selenium	72	78	3	H2	50.045	50.045	1.28	44554	0.11	50	
Sr	72	88	1	He	49.263	49.263	1.56	969275	0.01	50	
Mo	115	95	1	He	49.820	49.820	0.93	283069	0.02	50	
Ag	115	107	1	He	49.048	49.048	0.21	731649	0.01	50	
Cd	72	111	1	He	49.149	49.149	0.88	148886	0.03	50	
Sn	115	120	1	He	47.683	47.683	0.24	578050	0.01	50	
antimony	159	121	1	He	51.964	51.964	0.44	492582	0.01	50	
dwSb121	159	121	2	no gas	51.913	51.913	1.02	672569	0.01	50	
Ba	115	137	1	He	48.234	48.234	1.35	210772	0.02	50	
Tl	159	205	2	no gas	10.161	10.161	0.34	328752	0.00	10	
[Pb]	209	206	2	no gas	49.902	49.902	2.17	554633	0.01	50	
[Pb]	209	207	2	no gas	49.947	49.947	1.83	472546	0.01	50	
Pb	209	208	2	no gas	48.443	48.443	1.91	2148657	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1685960	1.55	1727510	97.59	70	120	
Sc	45	1	He	647737	0.31	588329	110.10	70	120	
Ge	72	1	He	266416	0.40	246312	108.16	70	125	
Ge	72	2	no gas	555678	0.69	520996	106.66	70	125	
Ge	72	3	H2	671537	1.26	630611	106.49	70	120	
Y	89	1	He	2270442	1.10	2211673	102.66	70	120	
In	115	1	He	2491140	0.59	2468826	100.90	70	120	
In	115	2	no gas	3824240	0.40	3838510	99.63	70	120	
In	115	3	H2	5495628	0.39	5315224	103.39	70	120	
Tb	159	1	He	3919779	0.89	3947867	99.29	70	120	
Tb	159	2	no gas	4677932	0.89	4818054	97.09	70	120	
Bi	209	2	no gas	2788133	1.78	2981720	93.51	60	120	

Sample Table

Sample Name	CCB
Data File Name	063_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:25:00-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.033	-0.033	-219.78	114693	0.00	0.5	
Be	6	9	2	no gas	-0.012	-0.012	-22.61	51	-0.02	0.5	
B	6	11	2	no gas	-0.657	-0.657	-1.01	20432	0.00	5	
Na	72	23	1	He	-3.172	-3.172	-18.75	65885	0.00	100	
Mg	72	24	1	He	-1.964	-1.964	-6.84	3417	-0.06	50	
Al	72	27	3	H2	-0.239	-0.239	-22.27	15944	0.00	50	
K	72	39	1	He	-3.406	-3.406	-69.31	373341	0.00	50	
Ca	72	44	1	He	-3.602	-3.602	-81.71	1894	-0.19	50	
Ti	72	49	1	He	-0.057	-0.057	-177.96	177	-0.03	0.5	
V	72	51	1	He	0.005	0.005	235.06	3709	0.00	0.5	
Cr	72	52	1	He	0.060	0.060	20.71	2947	0.00	0.5	
Mn	72	55	1	He	-0.169	-0.169	-13.55	1720	-0.01	2	
Fe	72	56	3	H2	-6.645	-6.645	-1.71	170282	0.00	25	
Co	72	59	1	He	-0.018	-0.018	-7.87	132	-0.01	0.5	
Ni	72	60	1	He	-0.006	-0.006	-299.67	150	0.00	1.5	
copper	72	63	1	He	-0.025	-0.025	-19.85	653	0.00	0.5	
dwCu63	72	63	2	no gas	-0.014	-0.014	-71.79	923	0.00	0.5	
Zn	72	66	1	He	0.012	0.012	243.46	1033	0.00	4	
arsenic	72	75	1	He	-0.085	-0.085	-9.29	364	-0.02	0.25	
dwAs75	72	75	2	no gas	-0.167	-0.167	-280.41	-748	0.02	5	
selenium	72	78	3	H2	-0.027	-0.027	-49.56	95	-0.03	0.25	
dwSe82	72	82	2	no gas	-0.153	-0.153	-41.95	196	-0.08	5	
Sr	72	88	1	He	-0.019	-0.019	-14.11	327	-0.01	0.5	
Mo	115	95	1	He	-0.176	-0.176	-13.61	630	-0.03	1	
Ag	115	107	1	He	-0.012	-0.012	-10.63	229	-0.01	0.05	
Cd	72	111	1	He	-0.015	-0.015	-13.19	13	-0.11	0.25	
Sn	115	120	1	He	-0.025	-0.025	-55.13	2157	0.00	0.5	
antimony	159	121	1	He	-0.039	-0.039	-26.09	1088	0.00	0.5	
dwSb121	159	121	2	no gas	-0.074	-0.074	-6.27	2446	0.00	5	
Ba	115	137	1	He	-0.028	-0.028	-52.64	93	-0.03	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-19.17	75	0.00	0.1	
[Pb]	209	206	2	no gas	-0.035	-0.035	-96.24	4778	0.00	0.25	
[Pb]	209	207	2	no gas	-0.038	-0.038	-89.12	3994	0.00	0.25	
Pb	209	208	2	no gas	-0.039	-0.039	-16.38	18922	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1741164	0.42	1727510	100.79	70	120	
Sc	45	1	He	631647	1.90	588329	107.36	70	120	
Ge	72	1	He	261417	0.60	246312	106.13	70	125	
Ge	72	2	no gas	549419	0.21	520996	105.46	70	125	
Ge	72	3	H2	660277	1.73	630611	104.70	70	120	
Y	89	1	He	2284340	0.95	2211673	103.29	70	120	
In	115	1	He	2507097	0.48	2468826	101.55	70	120	
In	115	2	no gas	3884880	0.69	3838510	101.21	70	120	
In	115	3	H2	5435940	1.56	5315224	102.27	70	120	
Tb	159	1	He	3853154	0.69	3947867	97.60	70	120	
Tb	159	2	no gas	4764878	0.88	4818054	98.90	70	120	
Bi	209	2	no gas	2853247	1.87	2981720	95.69	60	120	

Sample Report

Sample Table

Sample Name	MB 400-439857/1-A^5
Data File Name	064SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:29:00-05:00
Sample Type	Sample
Dilution	1
Comment	439857_1
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.035	-0.035	-377.86	115789	0.00	200	
Be	6	9	2	no gas	-0.011	-0.011	-14.40	63	-0.02	200	
B	6	11	2	no gas	-1.438	-1.438	-16.72	17923	-0.01	400	
Na	72	23	1	He	-4.699	-4.699	-5.90	61092	-0.01	50000	
Mg	72	24	1	He	-2.781	-2.781	-2.40	1810	-0.15	50000	
Al	72	27	3	H2	0.185	0.185	245.99	19831	0.00	50000	
Si	45	28	3	H2	-6.221	-6.221	-11.90	119283	-0.01	2000	
K	72	39	1	He	-2.724	-2.724	-42.17	377803	0.00	50000	
Ca	72	44	1	He	-11.106	-11.106	-2.80	900	-1.23	25000	
Ti	72	49	1	He	0.003	0.003	843.80	211	0.00	200	
V	72	51	1	He	0.018	0.018	14.61	3907	0.00	200	
Cr	72	52	1	He	0.018	0.018	54.68	2377	0.00	200	
Mn	72	55	1	He	-0.213	-0.213	-4.48	1187	-0.02	2500	
Fe	72	56	3	H2	-8.318	-8.318	-1.25	117957	-0.01	50000	
Co	72	59	1	He	-0.021	-0.021	-7.37	84	-0.02	200	
Ni	72	60	1	He	-0.017	-0.017	-82.84	103	-0.02	200	
copper	72	63	1	He	-0.032	-0.032	-22.89	582	-0.01	200	
Zn	72	66	1	He	-0.133	-0.133	-7.86	713	-0.02	200	
arsenic	72	75	1	He	-0.110	-0.110	-6.78	322	-0.03	200	
selenium	72	78	3	H2	-0.072	-0.072	-10.58	55	-0.13	200	
Sr	72	88	1	He	-0.022	-0.022	-13.08	263	-0.01	500	
Mo	115	95	1	He	-0.240	-0.240	-5.95	263	-0.09	200	
Ag	115	107	1	He	-0.016	-0.016	-2.21	163	-0.01	200	
Cd	72	111	1	He	-0.012	-0.012	-54.68	20	-0.06	200	
Sn	115	120	1	He	-0.074	-0.074	-12.78	1557	0.00	200	
antimony	159	121	1	He	-0.081	-0.081	-8.26	687	-0.01	200	
Ba	115	137	1	He	-0.042	-0.042	-5.70	29	-0.15	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-20.50	49	0.00	40	
[Pb]	209	206	2	no gas	-0.011	-0.011	-123.36	5034	0.00	200	
[Pb]	209	207	2	no gas	-0.069	-0.069	-47.56	3674	0.00	200	
Pb	209	208	2	no gas	-0.046	-0.046	-52.97	18532	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1759376	2.05	1727510	101.84	70	120	
Sc	45	1	He	631927	0.51	588329	107.41	70	120	
Ge	72	1	He	263127	1.32	246312	106.83	70	125	
Ge	72	2	no gas	548767	1.32	520996	105.33	70	125	
Ge	72	3	H2	656307	0.66	630611	104.07	70	120	
Y	89	1	He	2248096	1.92	2211673	101.65	70	120	
In	115	1	He	2490460	1.53	2468826	100.88	70	120	
In	115	2	no gas	3872559	1.29	3838510	100.89	70	120	
In	115	3	H2	5465114	1.16	5315224	102.82	70	120	
Tb	159	1	He	3822373	0.44	3947867	96.82	70	120	
Tb	159	2	no gas	4619099	1.79	4818054	95.87	70	120	
Bi	209	2	no gas	2843368	2.35	2981720	95.36	60	120	

Sample Report

Sample Table

Sample Name	LCS 400-439857/2-A
Data File Name	065SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:32:57-05:00
Sample Type	Sample
Dilution	1
Comment	439857_2
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	55.043	55.043	1.31	1345823	0.00	200	
Be	6	9	2	no gas	53.602	53.602	0.37	346911	0.02	200	
B	6	11	2	no gas	105.360	105.360	2.03	378478	0.03	400	
Na	72	23	1	He	5125.175	5125.175	0.60	17720923	0.03	50000	
Mg	72	24	1	He	5138.771	5138.771	0.34	10347722	0.05	50000	
Al	72	27	3	H2	511.841	511.841	4.19	4901951	0.01	50000	
Si	45	28	3	H2	56.814	56.814	3.23	381832	0.01	2000	
K	72	39	1	He	5175.697	5175.697	1.06	15908369	0.03	50000	
Ca	72	44	1	He	5098.475	5098.475	1.24	691286	0.74	25000	
Ti	72	49	1	He	50.193	50.193	1.17	28233	0.18	200	
V	72	51	1	He	50.375	50.375	1.05	677970	0.01	200	
Cr	72	52	1	He	49.903	49.903	1.36	715783	0.01	200	
Mn	72	55	1	He	508.914	508.914	0.86	6458108	0.01	2500	
Fe	72	56	3	H2	5113.540	5113.540	1.26	158524124	0.00	50000	
Co	72	59	1	He	50.394	50.394	1.09	930007	0.01	200	
Ni	72	60	1	He	50.259	50.259	0.89	216740	0.02	200	
copper	72	63	1	He	50.148	50.148	0.80	556894	0.01	200	
Zn	72	66	1	He	50.507	50.507	0.80	115277	0.04	200	
arsenic	72	75	1	He	50.592	50.592	0.69	88897	0.06	200	
selenium	72	78	3	H2	49.787	49.787	0.07	43774	0.11	200	
Sr	72	88	1	He	49.291	49.291	1.45	966233	0.01	500	
Mo	115	95	1	He	48.770	48.770	1.17	282353	0.02	200	
Ag	115	107	1	He	49.849	49.849	1.09	753791	0.01	200	
Cd	72	111	1	He	48.944	48.944	1.34	147784	0.03	200	
Sn	115	120	1	He	44.800	44.800	1.09	551731	0.01	200	
antimony	159	121	1	He	48.048	48.048	0.47	455211	0.01	200	
Ba	115	137	1	He	47.364	47.364	1.19	209770	0.02	1000	
Tl	159	205	2	no gas	9.879	9.879	1.07	319133	0.00	40	
[Pb]	209	206	2	no gas	49.287	49.287	1.31	547192	0.01	200	
[Pb]	209	207	2	no gas	49.454	49.454	1.26	467386	0.01	200	
Pb	209	208	2	no gas	48.427	48.427	1.62	2145589	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1701480	0.69	1727510	98.49	70	120	
Sc	45	1	He	650509	1.01	588329	110.57	70	120	
Ge	72	1	He	265434	1.45	246312	107.76	70	125	
Ge	72	2	no gas	547632	1.69	520996	105.11	70	125	
Ge	72	3	H2	661937	0.79	630611	104.97	70	120	
Y	89	1	He	2277592	1.57	2211673	102.98	70	120	
In	115	1	He	2524954	1.80	2468826	102.27	70	120	
In	115	2	no gas	3756155	1.56	3838510	97.85	70	120	
In	115	3	H2	5524021	1.04	5315224	103.93	70	120	
Tb	159	1	He	3906767	1.07	3947867	98.96	70	120	
Tb	159	2	no gas	4670321	2.03	4818054	96.93	70	120	
Bi	209	2	no gas	2782212	1.07	2981720	93.31	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-1-B^5
Data File Name	066SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:37:05-05:00
Sample Type	Sample
Dilution	1
Comment	439857_3
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.113	1.113	16.13	142426	0.00	200	
Be	6	9	2	no gas	0.085	0.085	16.09	700	0.01	200	
B	6	11	2	no gas	1.358	1.358	20.20	27682	0.00	400	
Na	72	23	1	He	926.211	926.211	0.53	3271676	0.03	50000	
Mg	72	24	1	He	291.069	291.069	1.28	594114	0.05	50000	
Al	72	27	3	H2	2.480	2.480	6.22	40834	0.01	50000	
Si	45	28	3	H2	1561.057	1561.057	2.63	6470949	0.02	2000	
K	72	39	1	He	295.974	295.974	2.85	1279114	0.02	50000	
Ca	72	44	1	He	749.292	749.292	1.42	103826	0.72	25000	
Ti	72	49	1	He	0.013	0.013	505.13	219	0.01	200	
V	72	51	1	He	0.139	0.139	17.78	5566	0.00	200	
Cr	72	52	1	He	0.062	0.062	9.02	3027	0.00	200	
Mn	72	55	1	He	4.688	4.688	1.55	63467	0.01	2500	
Fe	72	56	3	H2	22.552	22.552	1.80	1045805	0.00	50000	
Co	72	59	1	He	0.186	0.186	7.05	3898	0.00	200	
Ni	72	60	1	He	0.739	0.739	9.89	3367	0.02	200	
copper	72	63	1	He	0.043	0.043	21.09	1420	0.00	200	
Zn	72	66	1	He	1.338	1.338	8.73	4057	0.03	200	
arsenic	72	75	1	He	0.015	0.015	215.33	544	0.00	200	
selenium	72	78	3	H2	0.234	0.234	8.39	315	0.07	200	
Sr	72	88	1	He	6.323	6.323	0.48	124785	0.01	500	
Mo	115	95	1	He	-0.047	-0.047	-163.10	1387	0.00	200	
Ag	115	107	1	He	0.004	0.004	123.20	482	0.00	200	
Cd	72	111	1	He	0.013	0.013	95.22	97	0.01	200	
Sn	115	120	1	He	0.154	0.154	38.87	4411	0.00	200	
antimony	159	121	1	He	0.005	0.005	416.07	1489	0.00	200	
Ba	115	137	1	He	8.888	8.888	1.90	39910	0.02	1000	
Tl	159	205	2	no gas	0.004	0.004	11.83	249	0.00	40	
[Pb]	209	206	2	no gas	0.026	0.026	118.35	5635	0.00	200	
[Pb]	209	207	2	no gas	0.005	0.005	408.80	4541	0.00	200	
Pb	209	208	2	no gas	0.001	0.001	1639.75	21360	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1759334	1.62	1727510	101.84	70	120	
Sc	45	1	He	636390	1.60	588329	108.17	70	120	
Ge	72	1	He	265896	0.99	246312	107.95	70	125	
Ge	72	2	no gas	555407	0.39	520996	106.60	70	125	
Ge	72	3	H2	644761	0.44	630611	102.24	70	120	
Y	89	1	He	2268872	0.70	2211673	102.59	70	120	
In	115	1	He	2548457	0.56	2468826	103.23	70	120	
In	115	2	no gas	3958460	1.89	3838510	103.12	70	120	
In	115	3	H2	5398425	0.37	5315224	101.57	70	120	
Tb	159	1	He	3840854	0.46	3947867	97.29	70	120	
Tb	159	2	no gas	4834965	1.83	4818054	100.35	70	120	
Bi	209	2	no gas	2939829	0.83	2981720	98.60	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-2-B^5
Data File Name	067SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:41:04-05:00
Sample Type	Sample
Dilution	1
Comment	439857_4
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.406	0.406	44.25	125894	0.00	200	
Be	6	9	2	no gas	0.052	0.052	19.93	480	0.01	200	
B	6	11	2	no gas	0.859	0.859	37.71	25913	0.00	400	
Na	72	23	1	He	9609.286	9609.286	1.35	33231381	0.03	50000	
Mg	72	24	1	He	740.358	740.358	1.81	1500635	0.05	50000	
Al	72	27	3	H2	69.508	69.508	4.37	679978	0.01	50000	
Si	45	28	3	H2	1165.906	1165.906	1.53	4895944	0.02	2000	
K	72	39	1	He	120.822	120.822	2.67	753300	0.02	50000	
Ca	72	44	1	He	134.737	134.737	4.55	20659	0.65	25000	
Ti	72	49	1	He	0.050	0.050	20.35	240	0.02	200	
V	72	51	1	He	0.151	0.151	12.56	5741	0.00	200	
Cr	72	52	1	He	0.446	0.446	6.27	8536	0.01	200	
Mn	72	55	1	He	1.548	1.548	5.11	23589	0.01	2500	
Fe	72	56	3	H2	-8.149	-8.149	-0.53	123967	-0.01	50000	
Co	72	59	1	He	0.479	0.479	3.30	9315	0.01	200	
Ni	72	60	1	He	0.472	0.472	15.68	2217	0.02	200	
copper	72	63	1	He	0.032	0.032	5.45	1308	0.00	200	
Zn	72	66	1	He	1.136	1.136	16.99	3597	0.03	200	
arsenic	72	75	1	He	-0.021	-0.021	-39.43	482	0.00	200	
selenium	72	78	3	H2	0.214	0.214	8.16	305	0.07	200	
Sr	72	88	1	He	5.613	5.613	0.37	110930	0.01	500	
Mo	115	95	1	He	-0.190	-0.190	-14.08	547	-0.03	200	
Ag	115	107	1	He	-0.013	-0.013	-21.50	216	-0.01	200	
Cd	72	111	1	He	-0.005	-0.005	-283.44	43	-0.01	200	
Sn	115	120	1	He	-0.025	-0.025	-78.27	2147	0.00	200	
antimony	159	121	1	He	-0.090	-0.090	-11.83	612	-0.01	200	
Ba	115	137	1	He	22.359	22.359	0.24	97780	0.02	1000	
Tl	159	205	2	no gas	0.001	0.001	151.45	156	0.00	40	
[Pb]	209	206	2	no gas	0.086	0.086	16.80	6211	0.00	200	
[Pb]	209	207	2	no gas	0.009	0.009	295.62	4484	0.00	200	
Pb	209	208	2	no gas	0.044	0.044	39.56	22894	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1757331	0.85	1727510	101.73	70	120	
Sc	45	1	He	635136	0.46	588329	107.96	70	120	
Ge	72	1	He	266055	0.76	246312	108.02	70	125	
Ge	72	2	no gas	556424	0.79	520996	106.80	70	125	
Ge	72	3	H2	660675	1.13	630611	104.77	70	120	
Y	89	1	He	2344755	1.65	2211673	106.02	70	120	
In	115	1	He	2490218	1.03	2468826	100.87	70	120	
In	115	2	no gas	3836636	1.12	3838510	99.95	70	120	
In	115	3	H2	5399351	1.15	5315224	101.58	70	120	
Tb	159	1	He	3864087	1.12	3947867	97.88	70	120	
Tb	159	2	no gas	4736644	0.85	4818054	98.31	70	120	
Bi	209	2	no gas	2883196	1.51	2981720	96.70	60	120	

Sample Report

Sample Table

Sample Name	400-169296-K-3-B^5
Data File Name	068SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:45:00-05:00
Sample Type	Sample
Dilution	1
Comment	439857_5
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.235	0.235	31.60	122649	0.00	200	
Be	6	9	2	no gas	0.033	0.033	15.05	354	0.01	200	
B	6	11	2	no gas	-0.438	-0.438	-56.77	21507	0.00	400	
Na	72	23	1	He	4905.281	4905.281	1.20	17089548	0.03	50000	
Mg	72	24	1	He	648.945	648.945	4.11	1322650	0.05	50000	
Al	72	27	3	H2	11.663	11.663	15.98	126990	0.01	50000	
Si	45	28	3	H2	968.203	968.203	2.16	4088850	0.02	2000	
K	72	39	1	He	109.806	109.806	2.87	723836	0.02	50000	
Ca	72	44	1	He	243.269	243.269	2.70	35547	0.68	25000	
Ti	72	49	1	He	-0.027	-0.027	-346.91	198	-0.01	200	
V	72	51	1	He	0.690	0.690	6.37	13033	0.01	200	
Cr	72	52	1	He	0.027	0.027	67.80	2544	0.00	200	
Mn	72	55	1	He	19.910	19.910	1.50	258301	0.01	2500	
Fe	72	56	3	H2	-1.403	-1.403	-19.14	326552	0.00	50000	
Co	72	59	1	He	0.375	0.375	0.39	7438	0.01	200	
Ni	72	60	1	He	0.449	0.449	5.42	2127	0.02	200	
copper	72	63	1	He	0.131	0.131	9.99	2419	0.01	200	
Zn	72	66	1	He	1.024	1.024	6.69	3364	0.03	200	
arsenic	72	75	1	He	-0.024	-0.024	-61.11	478	-0.01	200	
selenium	72	78	3	H2	-0.037	-0.037	-9.74	84	-0.04	200	
Sr	72	88	1	He	6.687	6.687	3.14	132659	0.01	500	
Mo	115	95	1	He	-0.233	-0.233	-11.87	307	-0.08	200	
Ag	115	107	1	He	-0.014	-0.014	-8.92	207	-0.01	200	
Cd	72	111	1	He	-0.016	-0.016	-20.46	10	-0.16	200	
Sn	115	120	1	He	-0.067	-0.067	-17.61	1677	0.00	200	
antimony	159	121	1	He	-0.108	-0.108	-15.08	448	-0.02	200	
Ba	115	137	1	He	32.169	32.169	1.02	143485	0.02	1000	
Tl	159	205	2	no gas	0.003	0.003	31.32	223	0.00	40	
[Pb]	209	206	2	no gas	-0.003	-0.003	-354.78	5168	0.00	200	
[Pb]	209	207	2	no gas	-0.012	-0.012	-171.11	4251	0.00	200	
Pb	209	208	2	no gas	-0.022	-0.022	-32.45	19769	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1767702	1.14	1727510	102.33	70	120	
Sc	45	1	He	634829	1.25	588329	107.90	70	120	
Ge	72	1	He	267421	1.52	246312	108.57	70	125	
Ge	72	2	no gas	558520	1.04	520996	107.20	70	125	
Ge	72	3	H2	649548	1.34	630611	103.00	70	120	
Y	89	1	He	2247045	2.38	2211673	101.60	70	120	
In	115	1	He	2541520	0.42	2468826	102.94	70	120	
In	115	2	no gas	3916043	0.28	3838510	102.02	70	120	
In	115	3	H2	5453287	1.52	5315224	102.60	70	120	
Tb	159	1	He	3918667	0.52	3947867	99.26	70	120	
Tb	159	2	no gas	4741703	1.67	4818054	98.42	70	120	
Bi	209	2	no gas	2863962	1.21	2981720	96.05	60	120	

Sample Report

Sample Table

Sample Name	400-169296-K-4-B^5
Data File Name	069SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:49:06-05:00
Sample Type	Sample
Dilution	1
Comment	439857_6
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.549	0.549	34.22	126713	0.00	200	
Be	6	9	2	no gas	0.037	0.037	31.64	374	0.01	200	
B	6	11	2	no gas	0.744	0.744	13.67	25024	0.00	400	
Na	72	23	1	He	617.556	617.556	0.48	2192527	0.03	50000	
Mg	72	24	1	He	297.562	297.562	1.25	603069	0.05	50000	
Al	72	27	3	H2	33.435	33.435	24.18	339072	0.01	50000	
Si	45	28	3	H2	987.402	987.402	1.88	4309978	0.02	2000	
K	72	39	1	He	158.967	158.967	1.40	861534	0.02	50000	
Ca	72	44	1	He	291.952	291.952	1.12	41646	0.70	25000	
Ti	72	49	1	He	0.076	0.076	54.14	252	0.03	200	
V	72	51	1	He	0.229	0.229	13.02	6726	0.00	200	
Cr	72	52	1	He	0.048	0.048	16.11	2810	0.00	200	
Mn	72	55	1	He	2.181	2.181	1.94	31400	0.01	2500	
Fe	72	56	3	H2	-4.333	-4.333	-7.83	243636	0.00	50000	
Co	72	59	1	He	0.128	0.128	8.31	2815	0.00	200	
Ni	72	60	1	He	0.438	0.438	12.56	2050	0.02	200	
copper	72	63	1	He	0.014	0.014	48.38	1100	0.00	200	
Zn	72	66	1	He	0.504	0.504	26.77	2150	0.02	200	
arsenic	72	75	1	He	-0.051	-0.051	-13.52	425	-0.01	200	
selenium	72	78	3	H2	-0.017	-0.017	-85.67	104	-0.02	200	
Sr	72	88	1	He	5.227	5.227	1.69	102570	0.01	500	
Mo	115	95	1	He	-0.230	-0.230	-4.46	320	-0.07	200	
Ag	115	107	1	He	-0.013	-0.013	-22.97	212	-0.01	200	
Cd	72	111	1	He	-0.015	-0.015	-26.30	13	-0.11	200	
Sn	115	120	1	He	-0.079	-0.079	-7.54	1507	-0.01	200	
antimony	159	121	1	He	-0.121	-0.121	-10.80	318	-0.04	200	
Ba	115	137	1	He	32.208	32.208	1.05	141482	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-36.91	81	0.00	40	
[Pb]	209	206	2	no gas	-0.009	-0.009	-286.25	5138	0.00	200	
[Pb]	209	207	2	no gas	-0.016	-0.016	-198.07	4254	0.00	200	
Pb	209	208	2	no gas	-0.007	-0.007	-295.60	20616	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1723599	1.30	1727510	99.77	70	120	
Sc	45	1	He	635724	0.43	588329	108.06	70	120	
Ge	72	1	He	264089	1.13	246312	107.22	70	125	
Ge	72	2	no gas	560414	0.61	520996	107.57	70	125	
Ge	72	3	H2	665892	1.29	630611	105.59	70	120	
Y	89	1	He	2295675	0.23	2211673	103.80	70	120	
In	115	1	He	2503138	0.95	2468826	101.39	70	120	
In	115	2	no gas	3918683	2.23	3838510	102.09	70	120	
In	115	3	H2	5521009	1.32	5315224	103.87	70	120	
Tb	159	1	He	3861617	1.40	3947867	97.82	70	120	
Tb	159	2	no gas	4781176	0.08	4818054	99.23	70	120	
Bi	209	2	no gas	2887893	0.70	2981720	96.85	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-5-B^5
Data File Name	070SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:53:03-05:00
Sample Type	Sample
Dilution	1
Comment	439857_7
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.387	0.387	37.94	126854	0.00	200	
Be	6	9	2	no gas	0.025	0.025	23.01	303	0.01	200	
B	6	11	2	no gas	2.434	2.434	15.14	31775	0.01	400	
Na	72	23	1	He	13780.430	13780.430	1.13	49653346	0.03	50000	
Mg	72	24	1	He	1600.279	1600.279	0.96	3372974	0.05	50000	
Al	72	27	3	H2	20.179	20.179	5.25	219289	0.01	50000	
Si	45	28	3	H2	861.350	861.350	2.48	3820761	0.02	2000	
K	72	39	1	He	1226.948	1226.948	2.04	4251463	0.03	50000	
Ca	72	44	1	He	965.488	965.488	1.34	138850	0.70	25000	
Ti	72	49	1	He	0.071	0.071	154.23	262	0.03	200	
V	72	51	1	He	0.627	0.627	4.01	12638	0.00	200	
Cr	72	52	1	He	0.101	0.101	11.26	3744	0.00	200	
Mn	72	55	1	He	491.893	491.893	1.12	6523894	0.01	2500	
Fe	72	56	3	H2	19711.237	19711.237	1.22	634494897	0.00	50000	
Co	72	59	1	He	4.028	4.028	1.22	78138	0.01	200	
Ni	72	60	1	He	0.111	0.111	30.03	683	0.02	200	
copper	72	63	1	He	-0.028	-0.028	-19.70	659	0.00	200	
Zn	72	66	1	He	0.446	0.446	13.83	2120	0.02	200	
arsenic	72	75	1	He	3.061	3.061	1.48	6129	0.05	200	
selenium	72	78	3	H2	0.097	0.097	20.21	211	0.05	200	
Sr	72	88	1	He	13.174	13.174	0.71	270476	0.00	500	
Mo	115	95	1	He	-0.247	-0.247	-4.24	227	-0.11	200	
Ag	115	107	1	He	-0.016	-0.016	-8.73	178	-0.01	200	
Cd	72	111	1	He	-0.019	-0.019	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.076	-0.076	-6.90	1587	0.00	200	
antimony	159	121	1	He	-0.098	-0.098	-11.08	542	-0.02	200	
Ba	115	137	1	He	29.562	29.562	1.72	133742	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-12.50	40	-0.01	40	
[Pb]	209	206	2	no gas	-0.015	-0.015	-182.78	4878	0.00	200	
[Pb]	209	207	2	no gas	-0.016	-0.016	-117.28	4087	0.00	200	
Pb	209	208	2	no gas	-0.025	-0.025	-41.63	19029	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1777022	0.74	1727510	102.87	70	120	
Sc	45	1	He	662741	0.63	588329	112.65	70	120	
Ge	72	1	He	277403	0.82	246312	112.62	70	125	
Ge	72	2	no gas	583731	0.55	520996	112.04	70	125	
Ge	72	3	H2	688556	1.05	630611	109.19	70	120	
Y	89	1	He	2546568	1.02	2211673	115.14	70	120	
In	115	1	He	2577836	1.08	2468826	104.42	70	120	
In	115	2	no gas	3856073	1.72	3838510	100.46	70	120	
In	115	3	H2	5567808	0.57	5315224	104.75	70	120	
Tb	159	1	He	3884850	1.48	3947867	98.40	70	120	
Tb	159	2	no gas	4709315	0.78	4818054	97.74	70	120	
Bi	209	2	no gas	2777504	0.99	2981720	93.15	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-6-D^5
Data File Name	071SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T17:57:02-05:00
Sample Type	Sample
Dilution	1
Comment	439857_8
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.291	0.291	4.28	126055	0.00	200	
Be	6	9	2	no gas	0.042	0.042	26.91	424	0.01	200	
B	6	11	2	no gas	0.379	0.379	65.60	24791	0.00	400	
Na	72	23	1	He	4189.609	4189.609	1.07	15208906	0.03	50000	
Mg	72	24	1	He	1477.717	1477.717	0.61	3126919	0.05	50000	
Al	72	27	3	H2	35.380	35.380	21.46	434389	0.01	50000	
Si	45	28	3	H2	365.446	365.446	26.56	2132947	0.02	2000	
K	72	39	1	He	400.963	400.963	1.23	1669511	0.02	50000	
Ca	72	44	1	He	819.932	819.932	0.34	118738	0.69	25000	
Ti	72	49	1	He	-0.049	-0.049	-88.52	193	-0.03	200	
V	72	51	1	He	0.536	0.536	2.31	11409	0.00	200	
Cr	72	52	1	He	0.028	0.028	30.09	2660	0.00	200	
Mn	72	55	1	He	316.943	316.943	0.54	4220742	0.01	2500	
Fe	72	56	3	H2	11617.977	11617.977	19.43	439569700	0.00	50000	
Co	72	59	1	He	4.240	4.240	0.84	82532	0.01	200	
Ni	72	60	1	He	0.516	0.516	4.18	2517	0.02	200	
copper	72	63	1	He	0.009	0.009	45.80	1092	0.00	200	
Zn	72	66	1	He	1.156	1.156	12.25	3814	0.03	200	
arsenic	72	75	1	He	3.419	3.419	2.03	6806	0.05	200	
selenium	72	78	3	H2	0.150	0.150	36.34	305	0.05	200	
Sr	72	88	1	He	11.770	11.770	0.68	242624	0.00	500	
Mo	115	95	1	He	-0.256	-0.256	-2.93	180	-0.14	200	
Ag	115	107	1	He	-0.016	-0.016	-7.11	178	-0.01	200	
Cd	72	111	1	He	-0.017	-0.017	-21.14	7	-0.26	200	
Sn	115	120	1	He	-0.091	-0.091	-6.74	1400	-0.01	200	
antimony	159	121	1	He	-0.036	-0.036	-50.42	1140	0.00	200	
Ba	115	137	1	He	19.924	19.924	0.80	90893	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-17.39	89	0.00	40	
[Pb]	209	206	2	no gas	0.007	0.007	306.80	5201	0.00	200	
[Pb]	209	207	2	no gas	-0.011	-0.011	-221.60	4201	0.00	200	
Pb	209	208	2	no gas	-0.013	-0.013	-158.10	19866	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1797519	0.89	1727510	104.05	70	120	
Sc	45	1	He	675098	1.09	588329	114.75	70	120	
Ge	72	1	He	278434	1.02	246312	113.04	70	125	
Ge	72	2	no gas	583677	1.02	520996	112.03	70	125	
Ge	72	3	H2	824333	14.41	630611	130.72	70	120	ISTD Failed
Y	89	1	He	2547497	0.80	2211673	115.18	70	120	
In	115	1	He	2597098	0.51	2468826	105.20	70	120	
In	115	2	no gas	3937169	2.68	3838510	102.57	70	120	
In	115	3	H2	7260749	18.94	5315224	136.60	70	120	ISTD Failed
Tb	159	1	He	3930998	1.05	3947867	99.57	70	120	
Tb	159	2	no gas	4740866	1.62	4818054	98.40	70	120	
Bi	209	2	no gas	2821305	1.12	2981720	94.62	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-6-D SD^25
Data File Name	072SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:01:07-05:00
Sample Type	Sample
Dilution	1
Comment	439857_9
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.207	0.207	43.29	124009	0.00	200	
Be	6	9	2	no gas	-0.002	-0.002	-199.86	122	0.00	200	
B	6	11	2	no gas	-2.453	-2.453	-8.97	14667	-0.02	400	
Na	72	23	1	He	837.535	837.535	1.59	3068101	0.03	50000	
Mg	72	24	1	He	305.112	305.112	0.89	643877	0.05	50000	
Al	72	27	3	H2	8.069	8.069	7.11	98267	0.01	50000	
Si	45	28	3	H2	78.437	78.437	3.15	483180	0.02	2000	
K	72	39	1	He	82.567	82.567	1.81	659933	0.01	50000	
Ca	72	44	1	He	157.301	157.301	1.30	24520	0.64	25000	
Ti	72	49	1	He	-0.119	-0.119	-42.38	150	-0.08	200	
V	72	51	1	He	0.032	0.032	19.15	4277	0.00	200	
Cr	72	52	1	He	0.007	0.007	250.92	2317	0.00	200	
Mn	72	55	1	He	63.203	63.203	1.21	834664	0.01	2500	
Fe	72	56	3	H2	2820.487	2820.487	1.28	90406929	0.00	50000	
Co	72	59	1	He	0.840	0.840	0.81	16547	0.01	200	
Ni	72	60	1	He	0.086	0.086	7.19	567	0.02	200	
copper	72	63	1	He	-0.022	-0.022	-10.79	731	0.00	200	
Zn	72	66	1	He	0.145	0.145	42.27	1397	0.01	200	
arsenic	72	75	1	He	0.580	0.580	5.87	1585	0.04	200	
selenium	72	78	3	H2	-0.058	-0.058	-19.64	70	-0.08	200	
Sr	72	88	1	He	2.403	2.403	3.33	49501	0.00	500	
Mo	115	95	1	He	-0.263	-0.263	-5.82	133	-0.20	200	
Ag	115	107	1	He	-0.016	-0.016	-1.66	176	-0.01	200	
Cd	72	111	1	He	-0.019	-0.019	0.00	0	#DIV/0!	200	
Sn	115	120	1	He	-0.084	-0.084	-21.31	1473	-0.01	200	
antimony	159	121	1	He	-0.109	-0.109	-0.95	437	-0.03	200	
Ba	115	137	1	He	3.949	3.949	4.34	17967	0.02	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-29.77	56	0.00	40	
[Pb]	209	206	2	no gas	-0.014	-0.014	-122.83	5031	0.00	200	
[Pb]	209	207	2	no gas	-0.029	-0.029	-136.27	4084	0.00	200	
Pb	209	208	2	no gas	-0.045	-0.045	-15.80	18719	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1796704	1.01	1727510	104.01	70	120	
Sc	45	1	He	662246	0.06	588329	112.56	70	120	
Ge	72	1	He	275044	0.23	246312	111.67	70	125	
Ge	72	2	no gas	577908	0.61	520996	110.92	70	125	
Ge	72	3	H2	683131	0.31	630611	108.33	70	120	
Y	89	1	He	2369638	1.01	2211673	107.14	70	120	
In	115	1	He	2565672	1.37	2468826	103.92	70	120	
In	115	2	no gas	3936519	0.94	3838510	102.55	70	120	
In	115	3	H2	5621421	0.43	5315224	105.76	70	120	
Tb	159	1	He	3922852	1.86	3947867	99.37	70	120	
Tb	159	2	no gas	4755333	0.98	4818054	98.70	70	120	
Bi	209	2	no gas	2861199	0.23	2981720	95.96	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-6-D PDS^5
Data File Name	073SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:05:06-05:00
Sample Type	Sample
Dilution	1
Comment	439857_10
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	55.313	55.313	2.57	1403056	0.00	200	
Be	6	9	2	no gas	53.892	53.892	1.83	362033	0.01	200	
B	6	11	2	no gas	108.498	108.498	2.63	403866	0.03	400	
Na	72	23	1	He	9254.005	9254.005	0.58	33599348	0.03	50000	
Mg	72	24	1	He	6597.621	6597.621	0.41	13976821	0.05	50000	
Al	72	27	3	H2	545.493	545.493	3.70	5378834	0.01	50000	
Si	45	28	3	H2	504.561	504.561	1.44	2318633	0.02	2000	
K	72	39	1	He	5735.005	5735.005	0.46	18502740	0.03	50000	
Ca	72	44	1	He	5946.100	5946.100	0.57	847869	0.70	25000	
Ti	72	49	1	He	50.739	50.739	0.66	30029	0.17	200	
V	72	51	1	He	51.637	51.637	0.33	731200	0.01	200	
Cr	72	52	1	He	50.052	50.052	0.31	755461	0.01	200	
Mn	72	55	1	He	827.096	827.096	0.65	11041849	0.01	2500	
Fe	72	56	3	H2	18869.224	18869.224	1.31	601316684	0.00	50000	
Co	72	59	1	He	54.544	54.544	0.59	1059184	0.01	200	
Ni	72	60	1	He	51.069	51.069	1.41	231746	0.02	200	
copper	72	63	1	He	49.955	49.955	0.38	583746	0.01	200	
Zn	72	66	1	He	51.061	51.061	1.86	122616	0.04	200	
arsenic	72	75	1	He	52.632	52.632	0.46	97292	0.05	200	
selenium	72	78	3	H2	49.487	49.487	0.59	44798	0.11	200	
Sr	72	88	1	He	60.755	60.755	0.24	1253071	0.00	500	
Mo	115	95	1	He	49.336	49.336	1.10	290846	0.02	200	
Ag	115	107	1	He	45.209	45.209	0.81	696194	0.01	200	
Cd	72	111	1	He	48.053	48.053	1.43	152657	0.03	200	
Sn	115	120	1	He	40.235	40.235	1.11	504824	0.01	200	
antimony	159	121	1	He	45.667	45.667	2.91	430309	0.01	200	
Ba	115	137	1	He	67.818	67.818	0.60	305748	0.02	1000	
Tl	159	205	2	no gas	9.911	9.911	1.55	321174	0.00	40	
[Pb]	209	206	2	no gas	49.450	49.450	0.18	546889	0.01	200	
[Pb]	209	207	2	no gas	49.457	49.457	1.02	465609	0.01	200	
Pb	209	208	2	no gas	48.264	48.264	0.75	2130299	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1766471	2.14	1727510	102.26	70	120	
Sc	45	1	He	683341	0.89	588329	116.15	70	120	
Ge	72	1	He	279283	0.45	246312	113.39	70	125	
Ge	72	2	no gas	584967	1.01	520996	112.28	70	125	
Ge	72	3	H2	681576	1.65	630611	108.08	70	120	
Y	89	1	He	2514303	1.12	2211673	113.68	70	120	
In	115	1	He	2570900	0.07	2468826	104.13	70	120	
In	115	2	no gas	3847712	0.94	3838510	100.24	70	120	
In	115	3	H2	5555397	1.38	5315224	104.52	70	120	
Tb	159	1	He	3886160	1.65	3947867	98.44	70	120	
Tb	159	2	no gas	4684711	0.97	4818054	97.23	70	120	
Bi	209	2	no gas	2771339	0.92	2981720	92.94	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	075_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:13:16-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	53.483	53.483	1.60	1379796	0.00	50	
Be	6	9	2	no gas	52.943	52.943	0.59	361059	0.01	50	
B	6	11	2	no gas	102.259	102.259	1.12	383318	0.03	100	
Na	72	23	1	He	5151.063	5151.063	0.85	18361505	0.03	5000	
Mg	72	24	1	He	5117.078	5117.078	0.46	10628231	0.05	5000	
Al	72	27	3	H2	513.242	513.242	1.35	5009545	0.01	500	
K	72	39	1	He	5340.046	5340.046	1.08	16936107	0.03	5000	
Ca	72	44	1	He	5124.012	5124.012	0.52	716448	0.72	5000	
Ti	72	49	1	He	51.483	51.483	1.89	29779	0.17	50	
V	72	51	1	He	51.399	51.399	1.52	712577	0.01	50	
Cr	72	52	1	He	50.888	50.888	1.27	752835	0.01	50	
Mn	72	55	1	He	519.278	519.278	0.59	6798835	0.01	500	
Fe	72	56	3	H2	5130.759	5130.759	1.02	162561391	0.00	5000	
Co	72	59	1	He	49.918	49.918	0.71	950233	0.01	50	
Ni	72	60	1	He	51.546	51.546	0.91	229265	0.02	50	
copper	72	63	1	He	49.517	49.517	0.42	567033	0.01	50	
dwCu63	72	63	2	no gas	49.974	49.974	0.80	844621	0.01	50	
Zn	72	66	1	He	50.229	50.229	0.32	118540	0.04	50	
arsenic	72	75	1	He	49.660	49.660	0.55	89967	0.06	50	
dwAs75	72	75	2	no gas	49.491	49.491	0.72	181522	0.03	50	
selenium	72	78	3	H2	50.232	50.232	1.21	45297	0.11	50	
Sr	72	88	1	He	49.278	49.278	0.60	996604	0.00	50	
Mo	115	95	1	He	49.148	49.148	1.89	286770	0.02	50	
Ag	115	107	1	He	48.234	48.234	0.82	735419	0.01	50	
Cd	72	111	1	He	48.227	48.227	1.25	150162	0.03	50	
Sn	115	120	1	He	47.308	47.308	0.73	587547	0.01	50	
antimony	159	121	1	He	52.810	52.810	2.01	500731	0.01	50	
dwSb121	159	121	2	no gas	52.147	52.147	0.67	692915	0.01	50	
Ba	115	137	1	He	47.864	47.864	1.76	213661	0.02	50	
Tl	159	205	2	no gas	9.812	9.812	1.36	321018	0.00	10	
[Pb]	209	206	2	no gas	50.031	50.031	0.71	551696	0.01	50	
[Pb]	209	207	2	no gas	49.471	49.471	1.89	464581	0.01	50	
Pb	209	208	2	no gas	48.688	48.688	0.86	2141797	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1792898	1.08	1727510	103.79	70	120	
Sc	45	1	He	676190	0.44	588329	114.93	70	120	
Ge	72	1	He	273753	0.78	246312	111.14	70	125	
Ge	72	2	no gas	574311	0.53	520996	110.23	70	125	
Ge	72	3	H2	675428	1.63	630611	107.11	70	120	
Y	89	1	He	2306905	1.64	2211673	104.31	70	120	
In	115	1	He	2545388	1.37	2468826	103.10	70	120	
In	115	2	no gas	3819958	1.08	3838510	99.52	70	120	
In	115	3	H2	5497905	1.86	5315224	103.44	70	120	
Tb	159	1	He	3882833	0.34	3947867	98.35	70	120	
Tb	159	2	no gas	4729450	1.02	4818054	98.16	70	120	
Bi	209	2	no gas	2764345	1.35	2981720	92.71	60	120	

Sample Table

Sample Name	CCB
Data File Name	077_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:21:04-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.072	-0.072	-108.12	118268	0.00	0.5	
Be	6	9	2	no gas	-0.010	-0.010	-30.63	72	-0.01	0.5	
B	6	11	2	no gas	-1.433	-1.433	-20.89	17689	-0.01	5	
Na	72	23	1	He	-2.873	-2.873	-4.68	56589	-0.01	100	
Mg	72	24	1	He	-2.309	-2.309	-4.15	2997	-0.08	50	
Al	72	27	3	H2	-0.155	-0.155	-69.73	13875	0.00	50	
K	72	39	1	He	-1.166	-1.166	-7.67	412977	0.00	50	
Ca	72	44	1	He	-1.910	-1.910	-38.61	2104	-0.09	50	
Ti	72	49	1	He	-0.058	-0.058	-115.47	136	-0.04	0.5	
V	72	51	1	He	-0.026	-0.026	-51.16	3477	0.00	0.5	
Cr	72	52	1	He	0.059	0.059	9.75	3134	0.00	0.5	
Mn	72	55	1	He	-0.221	-0.221	-2.60	1497	-0.01	2	
Fe	72	56	3	H2	-5.848	-5.848	-0.97	126592	0.00	25	
Co	72	59	1	He	-0.024	-0.024	-3.21	138	-0.02	0.5	
Ni	72	60	1	He	-0.019	-0.019	-34.28	143	-0.01	1.5	
copper	72	63	1	He	-0.023	-0.023	-10.23	591	0.00	0.5	
dwCu63	72	63	2	no gas	0.015	0.015	87.93	1027	0.00	0.5	
Zn	72	66	1	He	-0.051	-0.051	-89.87	970	-0.01	4	
arsenic	72	75	1	He	-0.086	-0.086	-34.77	390	-0.02	0.25	
dwAs75	72	75	2	no gas	-0.310	-0.310	-99.96	-274	0.11	5	
selenium	72	78	3	H2	0.008	0.008	303.64	127	0.01	0.25	
dwSe82	72	82	2	no gas	-0.270	-0.270	-11.65	211	-0.13	5	
Sr	72	88	1	He	-0.022	-0.022	-9.95	270	-0.01	0.5	
Mo	115	95	1	He	-0.190	-0.190	-13.38	757	-0.03	1	
Ag	115	107	1	He	-0.022	-0.022	-4.59	217	-0.01	0.05	
Cd	72	111	1	He	-0.018	-0.018	-21.40	13	-0.13	0.25	
Sn	115	120	1	He	-0.011	-0.011	-146.94	2380	0.00	0.5	
antimony	159	121	1	He	0.019	0.019	202.88	1638	0.00	0.5	
dwSb121	159	121	2	no gas	0.034	0.034	89.15	3826	0.00	5	
Ba	115	137	1	He	-0.033	-0.033	-13.71	53	-0.06	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-8.74	59	0.00	0.1	
[Pb]	209	206	2	no gas	0.006	0.006	127.78	4961	0.00	0.25	
[Pb]	209	207	2	no gas	-0.009	-0.009	-600.85	4051	0.00	0.25	
Pb	209	208	2	no gas	-0.017	-0.017	-75.64	18875	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1779004	1.96	1727510	102.98	70	120	
Sc	45	1	He	654399	0.67	588329	111.23	70	120	
Ge	72	1	He	268498	0.85	246312	109.01	70	125	
Ge	72	2	no gas	565697	0.55	520996	108.58	70	125	
Ge	72	3	H2	671624	0.53	630611	106.50	70	120	
Y	89	1	He	2328493	0.74	2211673	105.28	70	120	
In	115	1	He	2556005	0.30	2468826	103.53	70	120	
In	115	2	no gas	3887801	2.10	3838510	101.28	70	120	
In	115	3	H2	5523639	0.65	5315224	103.92	70	120	
Tb	159	1	He	3886612	1.90	3947867	98.45	70	120	
Tb	159	2	no gas	4715689	1.37	4818054	97.88	70	120	
Bi	209	2	no gas	2842888	2.05	2981720	95.34	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-6-E MS^5
Data File Name	078SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:25:12-05:00
Sample Type	Sample
Dilution	1
Comment	439857_11
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	11.665	11.665	1.11	394814	0.00	200	
Be	6	9	2	no gas	10.965	10.965	1.16	74624	0.01	200	
B	6	11	2	no gas	23.003	23.003	1.91	104540	0.02	400	
Na	72	23	1	He	5318.943	5318.943	1.09	19558609	0.03	50000	
Mg	72	24	1	He	2530.335	2530.335	1.24	5427773	0.05	50000	
Al	72	27	3	H2	152.116	152.116	2.81	1539799	0.01	50000	
Si	45	28	3	H2	478.870	478.870	3.11	2144110	0.02	2000	
K	72	39	1	He	1460.091	1460.091	0.82	5098410	0.03	50000	
Ca	72	44	1	He	1864.885	1864.885	0.94	270712	0.69	25000	
Ti	72	49	1	He	10.459	10.459	2.90	6393	0.16	200	
V	72	51	1	He	10.997	10.997	0.68	160724	0.01	200	
Cr	72	52	1	He	10.383	10.383	1.78	160460	0.01	200	
Mn	72	55	1	He	420.781	420.781	0.40	5685319	0.01	2500	
Fe	72	56	3	H2	15100.054	15100.054	0.76	490693726	0.00	50000	
Co	72	59	1	He	14.675	14.675	0.55	288762	0.01	200	
Ni	72	60	1	He	11.035	11.035	1.05	50849	0.02	200	
copper	72	63	1	He	10.306	10.306	0.69	122519	0.01	200	
Zn	72	66	1	He	11.434	11.434	2.43	28676	0.04	200	
arsenic	72	75	1	He	13.729	13.729	1.05	26100	0.05	200	
selenium	72	78	3	H2	6.951	6.951	1.02	6524	0.11	200	
Sr	72	88	1	He	21.765	21.765	1.00	454581	0.00	500	
Mo	115	95	1	He	9.687	9.687	2.76	59775	0.02	200	
Ag	115	107	1	He	10.193	10.193	0.42	160462	0.01	200	
Cd	72	111	1	He	9.926	9.926	1.73	31959	0.03	200	
Sn	115	120	1	He	9.182	9.182	1.87	119393	0.01	200	
antimony	159	121	1	He	10.203	10.203	0.77	98592	0.01	200	
Ba	115	137	1	He	29.549	29.549	2.10	135863	0.02	1000	
Tl	159	205	2	no gas	1.996	1.996	0.58	65093	0.00	40	
[Pb]	209	206	2	no gas	10.324	10.324	0.49	116959	0.01	200	
[Pb]	209	207	2	no gas	10.234	10.234	2.56	98701	0.01	200	
Pb	209	208	2	no gas	10.057	10.057	0.48	455230	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1786430	0.68	1727510	103.41	70	120	
Sc	45	1	He	685607	0.62	588329	116.53	70	120	
Ge	72	1	He	282536	0.53	246312	114.71	70	125	
Ge	72	2	no gas	592869	0.33	520996	113.80	70	125	
Ge	72	3	H2	695087	0.41	630611	110.22	70	120	
Y	89	1	He	2542147	1.70	2211673	114.94	70	120	
In	115	1	He	2620323	1.15	2468826	106.14	70	120	
In	115	2	no gas	3917681	0.59	3838510	102.06	70	120	
In	115	3	H2	5587427	0.93	5315224	105.12	70	120	
Tb	159	1	He	3937584	0.53	3947867	99.74	70	120	
Tb	159	2	no gas	4705208	0.50	4818054	97.66	70	120	
Bi	209	2	no gas	2749363	0.91	2981720	92.21	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-6-F MSD^5
Data File Name	079SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:29:10-05:00
Sample Type	Sample
Dilution	1
Comment	439857_12
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	11.864	11.864	3.39	403002	0.00	200	
Be	6	9	2	no gas	10.840	10.840	2.47	74422	0.01	200	
B	6	11	2	no gas	22.332	22.332	2.36	103066	0.02	400	
Na	72	23	1	He	5291.615	5291.615	1.47	19362171	0.03	50000	
Mg	72	24	1	He	2553.910	2553.910	1.79	5450974	0.05	50000	
Al	72	27	3	H2	149.388	149.388	3.04	1514002	0.01	50000	
Si	45	28	3	H2	470.597	470.597	3.78	2148042	0.02	2000	
K	72	39	1	He	1498.168	1498.168	0.81	5194201	0.03	50000	
Ca	72	44	1	He	1892.776	1892.776	1.07	273368	0.69	25000	
Ti	72	49	1	He	10.604	10.604	3.33	6447	0.16	200	
V	72	51	1	He	10.965	10.965	0.90	159493	0.01	200	
Cr	72	52	1	He	10.147	10.147	0.76	156104	0.01	200	
Mn	72	55	1	He	425.893	425.893	1.14	5725830	0.01	2500	
Fe	72	56	3	H2	15170.035	15170.035	1.03	493457779	0.00	50000	
Co	72	59	1	He	14.696	14.696	0.84	287760	0.01	200	
Ni	72	60	1	He	11.056	11.056	1.04	50703	0.02	200	
copper	72	63	1	He	10.388	10.388	0.77	122881	0.01	200	
Zn	72	66	1	He	11.294	11.294	2.58	28202	0.04	200	
arsenic	72	75	1	He	13.957	13.957	0.33	26397	0.05	200	
selenium	72	78	3	H2	7.060	7.060	2.26	6632	0.11	200	
Sr	72	88	1	He	21.914	21.914	1.86	455432	0.00	500	
Mo	115	95	1	He	9.999	9.999	2.80	61263	0.02	200	
Ag	115	107	1	He	10.272	10.272	0.70	160695	0.01	200	
Cd	72	111	1	He	9.850	9.850	2.25	31555	0.03	200	
Sn	115	120	1	He	9.436	9.436	2.51	121877	0.01	200	
antimony	159	121	1	He	10.250	10.250	0.84	98997	0.01	200	
Ba	115	137	1	He	29.880	29.880	0.90	136550	0.02	1000	
Tl	159	205	2	no gas	1.978	1.978	1.81	64729	0.00	40	
[Pb]	209	206	2	no gas	9.798	9.798	0.95	113950	0.01	200	
[Pb]	209	207	2	no gas	10.049	10.049	2.06	99388	0.01	200	
Pb	209	208	2	no gas	9.720	9.720	1.36	451383	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1802346	0.85	1727510	104.33	70	120	
Sc	45	1	He	687807	0.79	588329	116.91	70	120	
Ge	72	1	He	281167	1.31	246312	114.15	70	125	
Ge	72	2	no gas	586599	0.43	520996	112.59	70	125	
Ge	72	3	H2	695709	1.46	630611	110.32	70	120	
Y	89	1	He	2558868	1.03	2211673	115.70	70	120	
In	115	1	He	2603953	0.41	2468826	105.47	70	120	
In	115	2	no gas	3914014	0.99	3838510	101.97	70	120	
In	115	3	H2	5605721	0.88	5315224	105.47	70	120	
Tb	159	1	He	3935947	0.87	3947867	99.70	70	120	
Tb	159	2	no gas	4721064	1.19	4818054	97.99	70	120	
Bi	209	2	no gas	2816615	1.64	2981720	94.46	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-9-B^5
Data File Name	080SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:33:07-05:00
Sample Type	Sample
Dilution	1
Comment	439857_13
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.117	0.117	44.87	124708	0.00	200	
Be	6	9	2	no gas	0.022	0.022	36.54	293	0.01	200	
B	6	11	2	no gas	5.211	5.211	3.93	41860	0.01	400	
Na	72	23	1	He	2627.429	2627.429	2.31	9993321	0.03	50000	
Mg	72	24	1	He	2996.420	2996.420	2.57	6622184	0.05	50000	
Al	72	27	3	H2	25.305	25.305	6.09	267851	0.01	50000	
Si	45	28	3	H2	562.155	562.155	1.42	2496717	0.02	2000	
K	72	39	1	He	2782.843	2782.843	2.48	9606770	0.03	50000	
Ca	72	44	1	He	1603.243	1603.243	1.01	240235	0.67	25000	
Ti	72	49	1	He	0.028	0.028	409.95	199	0.01	200	
V	72	51	1	He	0.336	0.336	5.79	9084	0.00	200	
Cr	72	52	1	He	0.196	0.196	17.17	5541	0.00	200	
Mn	72	55	1	He	577.927	577.927	2.83	8044636	0.01	2500	
Fe	72	56	3	H2	46800.171	46800.171	1.48	1511316404	0.00	50000	>LDR
Co	72	59	1	He	6.450	6.450	2.27	131151	0.00	200	
Ni	72	60	1	He	0.625	0.625	6.67	3204	0.02	200	
copper	72	63	1	He	-0.010	-0.010	-26.42	794	0.00	200	
Zn	72	66	1	He	1.548	1.548	1.99	5021	0.03	200	
arsenic	72	75	1	He	10.215	10.215	2.22	20165	0.05	200	
selenium	72	78	3	H2	0.393	0.393	6.06	484	0.08	200	
Sr	72	88	1	He	23.774	23.774	3.19	511600	0.00	500	
Mo	115	95	1	He	-0.181	-0.181	-29.33	843	-0.02	200	
Ag	115	107	1	He	-0.020	-0.020	-8.43	267	-0.01	200	
Cd	72	111	1	He	-0.014	-0.014	-12.57	27	-0.05	200	
Sn	115	120	1	He	-0.010	-0.010	-196.06	2484	0.00	200	
antimony	159	121	1	He	0.049	0.049	16.54	1996	0.00	200	
Ba	115	137	1	He	93.503	93.503	3.97	434116	0.02	1000	
Tl	159	205	2	no gas	0.000	0.000	450.04	151	0.00	40	
[Pb]	209	206	2	no gas	-0.003	-0.003	-785.96	4744	0.00	200	
[Pb]	209	207	2	no gas	-0.020	-0.020	-80.82	3851	0.00	200	
Pb	209	208	2	no gas	-0.014	-0.014	-108.08	18572	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1807874	0.62	1727510	104.65	70	120	
Sc	45	1	He	708575	2.83	588329	120.44	70	120	ISTD Failed
Ge	72	1	He	291257	2.12	246312	118.25	70	125	
Ge	72	2	no gas	606372	1.05	520996	116.39	70	125	
Ge	72	3	H2	691006	0.63	630611	109.58	70	120	
Y	89	1	He	2979742	3.18	2211673	134.73	70	120	ISTD Failed
In	115	1	He	2650978	3.91	2468826	107.38	70	120	
In	115	2	no gas	3886230	1.04	3838510	101.24	70	120	
In	115	3	H2	5560358	0.97	5315224	104.61	70	120	
Tb	159	1	He	4035214	2.42	3947867	102.21	70	120	
Tb	159	2	no gas	4782569	0.47	4818054	99.26	70	120	
Bi	209	2	no gas	2775431	1.06	2981720	93.08	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-10-B^5
Data File Name	081SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:37:18-05:00
Sample Type	Sample
Dilution	1
Comment	439857_14
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.401	0.401	31.64	129135	0.00	200	
Be	6	9	2	no gas	0.022	0.022	11.92	288	0.01	200	
B	6	11	2	no gas	3.525	3.525	9.16	35173	0.01	400	
Na	72	23	1	He	1746.063	1746.063	1.22	6369015	0.03	50000	
Mg	72	24	1	He	435.456	435.456	0.59	926451	0.05	50000	
Al	72	27	3	H2	85.411	85.411	5.74	878898	0.01	50000	
Si	45	28	3	H2	876.116	876.116	7.76	3955150	0.02	2000	
K	72	39	1	He	1226.952	1226.952	0.17	4287720	0.03	50000	
Ca	72	44	1	He	541.023	541.023	1.81	79073	0.68	25000	
Ti	72	49	1	He	-0.106	-0.106	-27.22	112	-0.09	200	
V	72	51	1	He	2.412	2.412	1.44	37814	0.01	200	
Cr	72	52	1	He	0.161	0.161	8.15	4774	0.00	200	
Mn	72	55	1	He	122.905	122.905	0.41	1638424	0.01	2500	
Fe	72	56	3	H2	22088.444	22088.444	4.75	723823483	0.00	50000	
Co	72	59	1	He	0.357	0.357	1.52	7503	0.00	200	
Ni	72	60	1	He	1.513	1.513	8.32	7068	0.02	200	
copper	72	63	1	He	0.097	0.097	3.72	2006	0.00	200	
Zn	72	66	1	He	3.014	3.014	8.00	8272	0.04	200	
arsenic	72	75	1	He	1.872	1.872	2.69	3991	0.05	200	
selenium	72	78	3	H2	0.062	0.062	52.34	183	0.03	200	
Sr	72	88	1	He	3.343	3.343	0.98	69371	0.00	500	
Mo	115	95	1	He	-0.212	-0.212	-3.34	640	-0.03	200	
Ag	115	107	1	He	-0.023	-0.023	-15.81	212	-0.01	200	
Cd	72	111	1	He	-0.017	-0.017	-28.81	17	-0.10	200	
Sn	115	120	1	He	-0.048	-0.048	-31.91	1940	0.00	200	
antimony	159	121	1	He	-0.025	-0.025	-39.39	1225	0.00	200	
Ba	115	137	1	He	19.399	19.399	1.83	88388	0.02	1000	
Tl	159	205	2	no gas	0.003	0.003	37.55	236	0.00	40	
[Pb]	209	206	2	no gas	0.118	0.118	26.87	6181	0.00	200	
[Pb]	209	207	2	no gas	0.066	0.066	27.07	4748	0.00	200	
Pb	209	208	2	no gas	0.084	0.084	10.53	23288	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1776036	0.19	1727510	102.81	70	120	
Sc	45	1	He	681392	0.20	588329	115.82	70	120	
Ge	72	1	He	278222	0.12	246312	112.96	70	125	
Ge	72	2	no gas	586706	1.14	520996	112.61	70	125	
Ge	72	3	H2	701719	2.93	630611	111.28	70	120	
Y	89	1	He	2397853	0.45	2211673	108.42	70	120	
In	115	1	He	2594564	1.38	2468826	105.09	70	120	
In	115	2	no gas	3944195	1.45	3838510	102.75	70	120	
In	115	3	H2	5802611	6.32	5315224	109.17	70	120	
Tb	159	1	He	3894582	1.15	3947867	98.65	70	120	
Tb	159	2	no gas	4761728	1.49	4818054	98.83	70	120	
Bi	209	2	no gas	2826848	2.09	2981720	94.81	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-11-B^5
Data File Name	082SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:41:17-05:00
Sample Type	Sample
Dilution	1
Comment	439857_15
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.401	0.401	26.27	123634	0.00	200	
Be	6	9	2	no gas	0.059	0.059	10.02	513	0.01	200	
B	6	11	2	no gas	-0.013	-0.013	-1149.96	21713	0.00	400	
Na	72	23	1	He	9650.263	9650.263	1.28	33058550	0.03	50000	
Mg	72	24	1	He	752.865	752.865	1.05	1512241	0.05	50000	
Al	72	27	3	H2	69.868	69.868	2.95	684509	0.01	50000	
Si	45	28	3	H2	1176.723	1176.723	3.46	4913580	0.02	2000	
K	72	39	1	He	119.050	119.050	3.18	763462	0.02	50000	
Ca	72	44	1	He	133.526	133.526	4.34	20238	0.66	25000	
Ti	72	49	1	He	-0.055	-0.055	-110.56	134	-0.04	200	
V	72	51	1	He	-0.028	-0.028	-7.11	3390	0.00	200	
Cr	72	52	1	He	0.453	0.453	9.24	8666	0.01	200	
Mn	72	55	1	He	1.440	1.440	1.68	22391	0.01	2500	
Fe	72	56	3	H2	18.625	18.625	1.75	885278	0.00	50000	
Co	72	59	1	He	0.484	0.484	2.29	9432	0.01	200	
Ni	72	60	1	He	0.502	0.502	12.00	2370	0.02	200	
copper	72	63	1	He	0.044	0.044	18.28	1312	0.00	200	
Zn	72	66	1	He	1.203	1.203	19.21	3767	0.03	200	
arsenic	72	75	1	He	-0.070	-0.070	-37.42	412	-0.02	200	
selenium	72	78	3	H2	0.149	0.149	4.89	250	0.06	200	
Sr	72	88	1	He	5.654	5.654	0.74	110706	0.01	500	
Mo	115	95	1	He	-0.282	-0.282	-2.08	213	-0.13	200	
Ag	115	107	1	He	-0.024	-0.024	-2.99	183	-0.01	200	
Cd	72	111	1	He	-0.006	-0.006	-186.37	47	-0.01	200	
Sn	115	120	1	He	-0.055	-0.055	-17.74	1764	0.00	200	
antimony	159	121	1	He	-0.098	-0.098	-10.54	524	-0.02	200	
Ba	115	137	1	He	22.497	22.497	1.49	97320	0.02	1000	
Tl	159	205	2	no gas	0.001	0.001	183.18	176	0.00	40	
[Pb]	209	206	2	no gas	0.088	0.088	9.23	5935	0.00	200	
[Pb]	209	207	2	no gas	0.072	0.072	11.19	4868	0.00	200	
Pb	209	208	2	no gas	0.073	0.073	39.14	23119	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1700198	0.21	1727510	98.42	70	120	
Sc	45	1	He	631123	0.72	588329	107.27	70	120	
Ge	72	1	He	263645	1.05	246312	107.04	70	125	
Ge	72	2	no gas	555953	0.45	520996	106.71	70	125	
Ge	72	3	H2	664689	0.97	630611	105.40	70	120	
Y	89	1	He	2309967	1.22	2211673	104.44	70	120	
In	115	1	He	2463976	1.34	2468826	99.80	70	120	
In	115	2	no gas	3833226	0.43	3838510	99.86	70	120	
In	115	3	H2	5451237	1.19	5315224	102.56	70	120	
Tb	159	1	He	3796910	1.83	3947867	96.18	70	120	
Tb	159	2	no gas	4726154	0.70	4818054	98.09	70	120	
Bi	209	2	no gas	2868842	0.55	2981720	96.21	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-12-B^5
Data File Name	083SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:45:16-05:00
Sample Type	Sample
Dilution	1
Comment	439857_16
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	1.154	1.154	17.23	148886	0.00	200	
Be	6	9	2	no gas	0.067	0.067	20.15	594	0.01	200	
B	6	11	2	no gas	-0.912	-0.912	-32.36	19765	0.00	400	
Na	72	23	1	He	854.926	854.926	1.61	3002659	0.03	50000	
Mg	72	24	1	He	244.950	244.950	1.90	499487	0.05	50000	
Al	72	27	3	H2	0.972	0.972	27.66	22060	0.00	50000	
Si	45	28	3	H2	1857.382	1857.382	12.37	6602482	0.03	2000	>LDR
K	72	39	1	He	216.319	216.319	0.92	1058224	0.02	50000	
Ca	72	44	1	He	949.913	949.913	1.87	130425	0.73	25000	
Ti	72	49	1	He	-0.033	-0.033	-115.13	148	-0.02	200	
V	72	51	1	He	0.034	0.034	26.92	4242	0.00	200	
Cr	72	52	1	He	0.014	0.014	119.04	2437	0.00	200	
Mn	72	55	1	He	2.535	2.535	0.64	36366	0.01	2500	
Fe	72	56	3	H2	3.457	3.457	30.81	373093	0.00	50000	
Co	72	59	1	He	0.174	0.174	0.70	3780	0.00	200	
Ni	72	60	1	He	0.295	0.295	21.88	1490	0.02	200	
copper	72	63	1	He	0.046	0.046	6.74	1340	0.00	200	
Zn	72	66	1	He	1.145	1.145	9.90	3657	0.03	200	
arsenic	72	75	1	He	-0.115	-0.115	-10.15	334	-0.03	200	
selenium	72	78	3	H2	-0.083	-0.083	-24.55	41	-0.20	200	
Sr	72	88	1	He	5.693	5.693	2.16	111995	0.01	500	
Mo	115	95	1	He	-0.285	-0.285	-5.23	200	-0.14	200	
Ag	115	107	1	He	-0.024	-0.024	-8.35	186	-0.01	200	
Cd	72	111	1	He	-0.003	-0.003	-155.83	57	-0.01	200	
Sn	115	120	1	He	-0.071	-0.071	-14.76	1577	0.00	200	
antimony	159	121	1	He	-0.100	-0.100	-4.47	508	-0.02	200	
Ba	115	137	1	He	6.606	6.606	2.06	28813	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-76.78	135	0.00	40	
[Pb]	209	206	2	no gas	-0.002	-0.002	-2450.11	5388	0.00	200	
[Pb]	209	207	2	no gas	-0.020	-0.020	-133.28	4384	0.00	200	
Pb	209	208	2	no gas	-0.015	-0.015	-214.05	21043	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1804760	8.82	1727510	104.47	70	120	
Sc	45	1	He	632168	1.31	588329	107.45	70	120	
Ge	72	1	He	264900	0.37	246312	107.55	70	125	
Ge	72	2	no gas	592007	10.18	520996	113.63	70	125	
Ge	72	3	H2	600974	7.32	630611	95.30	70	120	
Y	89	1	He	2244346	2.09	2211673	101.48	70	120	
In	115	1	He	2472896	1.58	2468826	100.16	70	120	
In	115	2	no gas	4269201	16.64	3838510	111.22	70	120	
In	115	3	H2	4680253	8.80	5315224	88.05	70	120	
Tb	159	1	He	3802530	0.45	3947867	96.32	70	120	
Tb	159	2	no gas	5315658	17.27	4818054	110.33	70	120	
Bi	209	2	no gas	3172990	14.71	2981720	106.41	60	120	

Sample Report

Sample Table

Sample Name	400-169296-K-13-B^5
Data File Name	084SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:49:21-05:00
Sample Type	Sample
Dilution	1
Comment	439857_17
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.155	0.155	52.89	115009	0.00	200	
Be	6	9	2	no gas	-0.006	-0.006	-91.03	90	-0.01	200	
B	6	11	2	no gas	0.613	0.613	47.20	23209	0.00	400	
Na	72	23	1	He	128575.169	128575.169	0.93	429365194	0.03	50000	>LDR
Mg	72	24	1	He	656.366	656.366	2.73	1288511	0.05	50000	
Al	72	27	3	H2	11.870	11.870	29.46	122789	0.01	50000	
Si	45	28	3	H2	589.446	589.446	3.51	2376659	0.02	2000	
K	72	39	1	He	393.292	393.292	0.71	1543233	0.03	50000	
Ca	72	44	1	He	662.887	662.887	1.31	89143	0.74	25000	
Ti	72	49	1	He	1.725	1.725	6.97	1096	0.16	200	
V	72	51	1	He	1.262	1.262	1.00	20067	0.01	200	
Cr	72	52	1	He	0.578	0.578	9.09	10203	0.01	200	
Mn	72	55	1	He	79.060	79.060	0.39	976766	0.01	2500	
Fe	72	56	3	H2	1992.468	1992.468	0.90	59159371	0.00	50000	
Co	72	59	1	He	0.066	0.066	2.28	1739	0.00	200	
Ni	72	60	1	He	1.871	1.871	4.76	8035	0.02	200	
copper	72	63	1	He	-0.008	-0.008	-75.42	718	0.00	200	
Zn	72	66	1	He	0.057	0.057	250.69	1167	0.00	200	
arsenic	72	75	1	He	3.684	3.684	1.17	6764	0.05	200	
selenium	72	78	3	H2	0.010	0.010	244.46	122	0.01	200	
Sr	72	88	1	He	5.008	5.008	1.91	95842	0.01	500	
Mo	115	95	1	He	-0.006	-0.006	-287.27	1677	0.00	200	
Ag	115	107	1	He	-0.023	-0.023	-12.56	189	-0.01	200	
Cd	72	111	1	He	-0.016	-0.016	-31.88	17	-0.10	200	
Sn	115	120	1	He	-0.045	-0.045	-41.62	1794	0.00	200	
antimony	159	121	1	He	-0.086	-0.086	-11.79	630	-0.01	200	
Ba	115	137	1	He	2.146	2.146	5.16	9009	0.02	1000	
Tl	159	205	2	no gas	-0.003	-0.003	-25.97	44	-0.01	40	
[Pb]	209	206	2	no gas	0.010	0.010	38.77	4654	0.00	200	
[Pb]	209	207	2	no gas	-0.002	-0.002	-1028.13	3824	0.00	200	
Pb	209	208	2	no gas	-0.006	-0.006	-385.92	18008	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1655728	0.86	1727510	95.84	70	120	
Sc	45	1	He	619307	0.54	588329	105.27	70	120	
Ge	72	1	He	257460	0.41	246312	104.53	70	125	
Ge	72	2	no gas	540256	0.80	520996	103.70	70	125	
Ge	72	3	H2	632365	0.84	630611	100.28	70	120	
Y	89	1	He	2206913	1.38	2211673	99.78	70	120	
In	115	1	He	2346871	1.70	2468826	95.06	70	120	
In	115	2	no gas	3639594	0.45	3838510	94.82	70	120	
In	115	3	H2	5229691	0.86	5315224	98.39	70	120	
Tb	159	1	He	3743110	0.71	3947867	94.81	70	120	
Tb	159	2	no gas	4561135	1.08	4818054	94.67	70	120	
Bi	209	2	no gas	2641156	0.48	2981720	88.58	60	120	

Sample Report

Sample Table

Sample Name	400-169296-K-14-B^5
Data File Name	085SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:53:20-05:00
Sample Type	Sample
Dilution	1
Comment	439857_18
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.404	0.404	31.37	124815	0.00	200	
Be	6	9	2	no gas	0.018	0.018	34.07	249	0.01	200	
B	6	11	2	no gas	-0.493	-0.493	-62.84	20272	0.00	400	
Na	72	23	1	He	752.777	752.777	10.02	2453462	0.03	50000	
Mg	72	24	1	He	520.519	520.519	8.71	974671	0.05	50000	
Al	72	27	3	H2	241.737	241.737	6.17	2286779	0.01	50000	
Si	45	28	3	H2	1473.820	1473.820	6.94	6154733	0.02	2000	
K	72	39	1	He	118.534	118.534	15.64	709197	0.02	50000	
Ca	72	44	1	He	289.311	289.311	10.80	38246	0.76	25000	
Ti	72	49	1	He	4.463	4.463	43.91	2419	0.18	200	
V	72	51	1	He	1.094	1.094	12.30	17021	0.01	200	
Cr	72	52	1	He	0.662	0.662	9.60	10837	0.01	200	
Mn	72	55	1	He	10.325	10.325	8.95	124941	0.01	2500	
Fe	72	56	3	H2	637.081	637.081	0.79	19708102	0.00	50000	
Co	72	59	1	He	0.255	0.255	7.19	4888	0.01	200	
Ni	72	60	1	He	0.261	0.261	15.05	1243	0.02	200	
copper	72	63	1	He	0.137	0.137	19.18	2167	0.01	200	
Zn	72	66	1	He	0.973	0.973	32.18	3010	0.03	200	
arsenic	72	75	1	He	0.209	0.209	6.03	835	0.02	200	
selenium	72	78	3	H2	-0.087	-0.087	-8.39	41	-0.21	200	
Sr	72	88	1	He	6.070	6.070	9.15	110479	0.01	500	
Mo	115	95	1	He	-0.263	-0.263	-6.92	297	-0.09	200	
Ag	115	107	1	He	-0.023	-0.023	-4.75	186	-0.01	200	
Cd	72	111	1	He	-0.015	-0.015	-28.06	20	-0.07	200	
Sn	115	120	1	He	-0.059	-0.059	-11.16	1593	0.00	200	
antimony	159	121	1	He	-0.108	-0.108	-5.88	410	-0.03	200	
Ba	115	137	1	He	18.410	18.410	11.38	73153	0.03	1000	
Tl	159	205	2	no gas	0.001	0.001	122.30	168	0.00	40	
[Pb]	209	206	2	no gas	0.172	0.172	18.64	6958	0.00	200	
[Pb]	209	207	2	no gas	0.134	0.134	25.59	5521	0.00	200	
Pb	209	208	2	no gas	0.146	0.146	13.56	26674	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1715682	0.72	1727510	99.32	70	120	
Sc	45	1	He	574053	9.65	588329	97.57	70	120	
Ge	72	1	He	246204	6.97	246312	99.96	70	125	
Ge	72	2	no gas	550272	0.36	520996	105.62	70	125	
Ge	72	3	H2	652009	0.72	630611	103.39	70	120	
Y	89	1	He	2073972	9.89	2211673	93.77	70	120	
In	115	1	He	2281539	11.32	2468826	92.41	70	120	
In	115	2	no gas	3825993	0.77	3838510	99.67	70	120	
In	115	3	H2	5385238	1.25	5315224	101.32	70	120	
Tb	159	1	He	3569899	9.35	3947867	90.43	70	120	
Tb	159	2	no gas	4701055	2.52	4818054	97.57	70	120	
Bi	209	2	no gas	2895790	0.53	2981720	97.12	60	120	

Sample Report

Sample Table

Sample Name	400-169296-K-15-B^5
Data File Name	086SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T18:57:16-05:00
Sample Type	Sample
Dilution	1
Comment	439857_19
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.873	0.873	14.85	130303	0.00	200	
Be	6	9	2	no gas	0.015	0.015	33.73	221	0.01	200	
B	6	11	2	no gas	1.037	1.037	37.51	24530	0.00	400	
Na	72	23	1	He	814.053	814.053	14.75	2464088	0.03	50000	
Mg	72	24	1	He	200.563	200.563	13.95	353500	0.06	50000	
Al	72	27	3	H2	12.497	12.497	1.82	132593	0.01	50000	
Si	45	28	3	H2	1994.763	1994.763	2.10	8254683	0.02	2000	>LDR
K	72	39	1	He	220.455	220.455	20.21	923127	0.02	50000	
Ca	72	44	1	He	1743.158	1743.158	14.15	204442	0.85	25000	
Ti	72	49	1	He	0.301	0.301	24.75	289	0.10	200	
V	72	51	1	He	0.398	0.398	32.02	7805	0.01	200	
Cr	72	52	1	He	0.117	0.117	46.55	3357	0.00	200	
Mn	72	55	1	He	19.493	19.493	13.77	216249	0.01	2500	
Fe	72	56	3	H2	901.968	901.968	0.46	27826717	0.00	50000	
Co	72	59	1	He	0.258	0.258	15.97	4584	0.01	200	
Ni	72	60	1	He	2.181	2.181	13.31	8275	0.03	200	
copper	72	63	1	He	0.017	0.017	124.85	872	0.00	200	
Zn	72	66	1	He	1.363	1.363	11.98	3587	0.04	200	
arsenic	72	75	1	He	0.253	0.253	24.30	845	0.03	200	
selenium	72	78	3	H2	-0.098	-0.098	-5.09	32	-0.31	200	
Sr	72	88	1	He	3.671	3.671	13.87	62423	0.01	500	
Mo	115	95	1	He	-0.192	-0.192	-3.94	603	-0.03	200	
Ag	115	107	1	He	-0.021	-0.021	-7.91	191	-0.01	200	
Cd	72	111	1	He	-0.018	-0.018	-43.36	10	-0.18	200	
Sn	115	120	1	He	-0.043	-0.043	-81.41	1583	0.00	200	
antimony	159	121	1	He	-0.099	-0.099	-15.04	427	-0.02	200	
Ba	115	137	1	He	4.261	4.261	15.37	15438	0.03	1000	
Tl	159	205	2	no gas	-0.002	-0.002	-16.22	65	0.00	40	
[Pb]	209	206	2	no gas	0.085	0.085	35.63	6005	0.00	200	
[Pb]	209	207	2	no gas	0.056	0.056	76.57	4798	0.00	200	
Pb	209	208	2	no gas	0.053	0.053	10.99	22594	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1651204	0.85	1727510	95.58	70	120	
Sc	45	1	He	520437	14.10	588329	88.46	70	120	
Ge	72	1	He	230668	11.82	246312	93.65	70	125	
Ge	72	2	no gas	556893	0.78	520996	106.89	70	125	
Ge	72	3	H2	653170	0.71	630611	103.58	70	120	
Y	89	1	He	1876533	14.07	2211673	84.85	70	120	
In	115	1	He	2076313	14.55	2468826	84.10	70	120	
In	115	2	no gas	3914366	0.72	3838510	101.98	70	120	
In	115	3	H2	5434892	0.90	5315224	102.25	70	120	
Tb	159	1	He	3217767	16.15	3947867	81.51	70	120	
Tb	159	2	no gas	4759575	1.53	4818054	98.79	70	120	
Bi	209	2	no gas	2917372	0.61	2981720	97.84	60	120	

Sample Report

Sample Table

Sample Name	400-169296-K-16-B^5
Data File Name	087SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T19:01:22-05:00
Sample Type	Sample
Dilution	1
Comment	439857_20
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.168	0.168	81.17	118134	0.00	200	
Be	6	9	2	no gas	0.002	0.002	299.81	143	0.00	200	
B	6	11	2	no gas	-0.981	-0.981	-43.26	18397	-0.01	400	
Na	72	23	1	He	874.601	874.601	24.44	2779996	0.03	50000	
Mg	72	24	1	He	279.174	279.174	24.78	514058	0.05	50000	
Al	72	27	3	H2	17.275	17.275	8.89	178153	0.01	50000	
Si	45	28	3	H2	893.970	893.970	2.21	3770128	0.02	2000	
K	72	39	1	He	197.473	197.473	40.84	906803	0.02	50000	
Ca	72	44	1	He	35.114	35.114	39.15	6378	0.55	25000	
Ti	72	49	1	He	0.103	0.103	67.77	206	0.05	200	
V	72	51	1	He	0.466	0.466	40.58	9046	0.01	200	
Cr	72	52	1	He	0.178	0.178	48.78	4321	0.00	200	
Mn	72	55	1	He	0.383	0.383	41.72	8279	0.00	2500	
Fe	72	56	3	H2	2.104	2.104	11.27	367051	0.00	50000	
Co	72	59	1	He	0.133	0.133	35.46	2720	0.00	200	
Ni	72	60	1	He	0.106	0.106	25.37	623	0.02	200	
copper	72	63	1	He	0.004	0.004	551.15	789	0.00	200	
Zn	72	66	1	He	0.261	0.261	28.95	1533	0.02	200	
arsenic	72	75	1	He	0.016	0.016	400.55	513	0.00	200	
selenium	72	78	3	H2	-0.081	-0.081	-10.18	47	-0.17	200	
Sr	72	88	1	He	2.040	2.040	23.55	36774	0.01	500	
Mo	115	95	1	He	-0.290	-0.290	-7.28	153	-0.19	200	
Ag	115	107	1	He	-0.026	-0.026	-15.74	138	-0.02	200	
Cd	72	111	1	He	-0.015	-0.015	-45.42	17	-0.09	200	
Sn	115	120	1	He	-0.049	-0.049	-130.57	1657	0.00	200	
antimony	159	121	1	He	-0.119	-0.119	-10.91	313	-0.04	200	
Ba	115	137	1	He	13.578	13.578	29.26	54203	0.03	1000	
Tl	159	205	2	no gas	0.000	0.000	-512.19	137	0.00	40	
[Pb]	209	206	2	no gas	0.017	0.017	171.53	5288	0.00	200	
[Pb]	209	207	2	no gas	-0.014	-0.014	-196.57	4164	0.00	200	
Pb	209	208	2	no gas	-0.006	-0.006	-156.11	20170	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1695991	0.63	1727510	98.18	70	120	
Sc	45	1	He	607598	25.93	588329	103.28	70	120	
Ge	72	1	He	248022	20.73	246312	100.69	70	125	
Ge	72	2	no gas	556148	0.09	520996	106.75	70	125	
Ge	72	3	H2	655405	0.79	630611	103.93	70	120	
Y	89	1	He	2158974	27.23	2211673	97.62	70	120	
In	115	1	He	2389817	25.78	2468826	96.80	70	120	
In	115	2	no gas	3939556	1.61	3838510	102.63	70	120	
In	115	3	H2	5439753	0.33	5315224	102.34	70	120	
Tb	159	1	He	3721479	26.78	3947867	94.27	70	120	
Tb	159	2	no gas	4778665	0.87	4818054	99.18	70	120	
Bi	209	2	no gas	2958210	0.98	2981720	99.21	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	089_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T19:09:20-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	54.789	54.789	1.80	1336496	0.00	50	
Be	6	9	2	no gas	54.229	54.229	2.60	349170	0.02	50	
B	6	11	2	no gas	107.843	107.843	3.29	374727	0.03	100	
Na	72	23	1	He	5182.541	5182.541	0.84	18250207	0.03	5000	
Mg	72	24	1	He	5146.599	5146.599	0.55	10558185	0.05	5000	
Al	72	27	3	H2	516.119	516.119	3.53	5066136	0.01	500	
K	72	39	1	He	5292.225	5292.225	0.56	16569022	0.03	5000	
Ca	72	44	1	He	5128.799	5128.799	1.00	708256	0.72	5000	
Ti	72	49	1	He	51.374	51.374	1.47	29346	0.18	50	
V	72	51	1	He	50.722	50.722	0.96	699874	0.01	50	
Cr	72	52	1	He	50.210	50.210	0.94	733975	0.01	50	
Mn	72	55	1	He	520.709	520.709	1.48	6732075	0.01	500	
Fe	72	56	3	H2	5066.016	5066.016	0.86	160858211	0.00	5000	
Co	72	59	1	He	49.868	49.868	0.05	937764	0.01	50	
Ni	72	60	1	He	50.911	50.911	1.01	223731	0.02	50	
copper	72	63	1	He	49.531	49.531	0.92	560197	0.01	50	
dwCu63	72	63	2	no gas	49.872	49.872	0.83	843293	0.01	50	
Zn	72	66	1	He	50.163	50.163	1.89	116923	0.04	50	
arsenic	72	75	1	He	49.419	49.419	0.70	88468	0.06	50	
dwAs75	72	75	2	no gas	50.020	50.020	1.50	182439	0.03	50	
selenium	72	78	3	H2	50.458	50.458	1.05	45434	0.11	50	
Sr	72	88	1	He	49.064	49.064	1.37	979923	0.01	50	
Mo	115	95	1	He	48.911	48.911	2.12	281639	0.02	50	
Ag	115	107	1	He	48.483	48.483	1.70	732936	0.01	50	
Cd	72	111	1	He	49.614	49.614	0.71	152616	0.03	50	
Sn	115	120	1	He	47.758	47.758	1.05	587104	0.01	50	
antimony	159	121	1	He	52.872	52.872	1.10	500446	0.01	50	
dwSb121	159	121	2	no gas	52.000	52.000	0.82	694311	0.01	50	
Ba	115	137	1	He	47.950	47.950	1.37	212257	0.02	50	
Tl	159	205	2	no gas	9.839	9.839	0.97	328012	0.00	10	
[Pb]	209	206	2	no gas	49.111	49.111	2.45	556425	0.01	50	
[Pb]	209	207	2	no gas	49.509	49.509	1.64	477253	0.01	50	
Pb	209	208	2	no gas	48.277	48.277	1.56	2182188	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1693683	1.77	1727510	98.04	70	120	
Sc	45	1	He	666475	0.39	588329	113.28	70	120	
Ge	72	1	He	270544	0.69	246312	109.84	70	125	
Ge	72	2	no gas	574801	1.21	520996	110.33	70	125	
Ge	72	3	H2	679243	1.34	630611	107.71	70	120	
Y	89	1	He	2313443	1.21	2211673	104.60	70	120	
In	115	1	He	2525321	2.07	2468826	102.29	70	120	
In	115	2	no gas	3919786	1.18	3838510	102.12	70	120	
In	115	3	H2	5531365	0.46	5315224	104.07	70	120	
Tb	159	1	He	3913609	1.42	3947867	99.13	70	120	
Tb	159	2	no gas	4820285	1.05	4818054	100.05	70	120	
Bi	209	2	no gas	2839908	0.86	2981720	95.24	60	120	

Sample Table

Sample Name	CCB
Data File Name	091_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T19:17:15-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.100	-0.100	-278.47	116424	0.00	0.5	
Be	6	9	2	no gas	-0.005	-0.005	-38.48	67	-0.01	0.5	
B	6	11	2	no gas	-0.745	-0.745	-49.14	15174	0.00	5	
Na	72	23	1	He	-2.497	-2.497	-3.42	61123	0.00	100	
Mg	72	24	1	He	-2.063	-2.063	-4.93	2780	-0.07	50	
Al	72	27	3	H2	-0.009	-0.009	-852.71	14529	0.00	50	
K	72	39	1	He	-3.473	-3.473	-29.81	406035	0.00	50	
Ca	72	44	1	He	-2.598	-2.598	-68.70	2100	-0.12	50	
Ti	72	49	1	He	-0.015	-0.015	-396.38	138	-0.01	0.5	
V	72	51	1	He	0.003	0.003	488.35	3239	0.00	0.5	
Cr	72	52	1	He	0.051	0.051	38.29	2907	0.00	0.5	
Mn	72	55	1	He	-0.164	-0.164	-8.47	1453	-0.01	2	
Fe	72	56	3	H2	-4.854	-4.854	-1.63	105113	0.00	25	
Co	72	59	1	He	-0.016	-0.016	-4.78	138	-0.01	0.5	
Ni	72	60	1	He	0.004	0.004	70.90	157	0.00	1.5	
copper	72	63	1	He	-0.014	-0.014	-34.99	566	0.00	0.5	
dwCu63	72	63	2	no gas	-0.004	-0.004	-81.49	837	0.00	0.5	
Zn	72	66	1	He	0.060	0.060	8.12	1160	0.01	4	
arsenic	72	75	1	He	-0.070	-0.070	-27.12	354	-0.02	0.25	
dwAs75	72	75	2	no gas	0.033	0.033	349.96	409	0.01	5	
selenium	72	78	3	H2	-0.010	-0.010	-92.92	114	-0.01	0.25	
dwSe82	72	82	2	no gas	-0.250	-0.250	-26.83	200	-0.13	5	
Sr	72	88	1	He	-0.013	-0.013	-24.49	337	0.00	0.5	
Mo	115	95	1	He	-0.158	-0.158	-14.34	717	-0.02	1	
Ag	115	107	1	He	-0.017	-0.017	-4.74	192	-0.01	0.05	
Cd	72	111	1	He	-0.020	-0.020	-9.48	13	-0.15	0.25	
Sn	115	120	1	He	-0.013	-0.013	-251.12	2350	0.00	0.5	
antimony	159	121	1	He	-0.037	-0.037	-49.74	1129	0.00	0.5	
dwSb121	159	121	2	no gas	-0.062	-0.062	-24.21	2610	0.00	5	
Ba	115	137	1	He	-0.024	-0.024	-35.19	44	-0.05	0.5	
Tl	159	205	2	no gas	-0.002	-0.002	-17.36	45	0.00	0.1	
[Pb]	209	206	2	no gas	-0.042	-0.042	-56.50	4898	0.00	0.25	
[Pb]	209	207	2	no gas	-0.002	-0.002	-825.73	4057	0.00	0.25	
Pb	209	208	2	no gas	-0.016	-0.016	-96.59	18819	0.00	0.25	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1749595	1.87	1727510	101.28	70	120	
Sc	45	1	He	662664	0.24	588329	112.63	70	120	
Ge	72	1	He	271855	0.53	246312	110.37	70	125	
Ge	72	2	no gas	572864	0.33	520996	109.96	70	125	
Ge	72	3	H2	685063	0.69	630611	108.63	70	120	
Y	89	1	He	2348058	1.78	2211673	106.17	70	120	
In	115	1	He	2558857	0.99	2468826	103.65	70	120	
In	115	2	no gas	3932706	1.66	3838510	102.45	70	120	
In	115	3	H2	5611231	1.45	5315224	105.57	70	120	
Tb	159	1	He	3945752	1.50	3947867	99.95	70	120	
Tb	159	2	no gas	4779392	1.16	4818054	99.20	70	120	
Bi	209	2	no gas	2868778	0.88	2981720	96.21	60	120	

Sample Report

Sample Table

Sample Name	400-169296-K-17-B^5
Data File Name	092SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T19:21:13-05:00
Sample Type	Sample
Dilution	1
Comment	439857_21
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.435	0.435	29.86	128065	0.00	200	
Be	6	9	2	no gas	0.022	0.022	38.96	241	0.01	200	
B	6	11	2	no gas	0.597	0.597	40.36	19732	0.00	400	
Na	72	23	1	He	839.657	839.657	0.70	3084436	0.03	50000	
Mg	72	24	1	He	228.979	228.979	1.21	487504	0.05	50000	
Al	72	27	3	H2	246.301	246.301	7.26	2451396	0.01	50000	
Si	45	28	3	H2	1055.161	1055.161	2.23	4647940	0.02	2000	
K	72	39	1	He	84.318	84.318	2.45	687724	0.01	50000	
Ca	72	44	1	He	71.338	71.338	1.95	12555	0.57	25000	
Ti	72	49	1	He	8.231	8.231	27.48	4935	0.17	200	
V	72	51	1	He	0.566	0.566	5.48	11149	0.01	200	
Cr	72	52	1	He	0.472	0.472	7.65	9233	0.01	200	
Mn	72	55	1	He	2.101	2.101	4.58	31427	0.01	2500	
Fe	72	56	3	H2	185.425	185.425	0.98	6207459	0.00	50000	
Co	72	59	1	He	0.134	0.134	3.43	3019	0.00	200	
Ni	72	60	1	He	0.170	0.170	14.39	907	0.02	200	
copper	72	63	1	He	0.180	0.180	4.97	2818	0.01	200	
Zn	72	66	1	He	1.278	1.278	4.55	4054	0.03	200	
arsenic	72	75	1	He	0.006	0.006	354.21	499	0.00	200	
selenium	72	78	3	H2	-0.053	-0.053	-21.90	74	-0.07	200	
Sr	72	88	1	He	3.126	3.126	7.27	64455	0.00	500	
Mo	115	95	1	He	-0.205	-0.205	-9.09	447	-0.05	200	
Ag	115	107	1	He	-0.016	-0.016	-3.76	202	-0.01	200	
Cd	72	111	1	He	-0.019	-0.019	-48.74	17	-0.11	200	
Sn	115	120	1	He	-0.013	-0.013	-33.62	2370	0.00	200	
antimony	159	121	1	He	-0.070	-0.070	-20.66	820	-0.01	200	
Ba	115	137	1	He	9.252	9.252	3.21	41961	0.02	1000	
Tl	159	205	2	no gas	0.001	0.001	169.33	141	0.00	40	
[Pb]	209	206	2	no gas	0.136	0.136	16.28	6928	0.00	200	
[Pb]	209	207	2	no gas	0.133	0.133	5.60	5371	0.00	200	
Pb	209	208	2	no gas	0.135	0.135	19.86	25686	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1739989	3.10	1727510	100.72	70	120	
Sc	45	1	He	670017	1.01	588329	113.88	70	120	
Ge	72	1	He	276734	0.97	246312	112.35	70	125	
Ge	72	2	no gas	571955	0.30	520996	109.78	70	125	
Ge	72	3	H2	686393	0.68	630611	108.85	70	120	
Y	89	1	He	2359845	1.55	2211673	106.70	70	120	
In	115	1	He	2579418	1.30	2468826	104.48	70	120	
In	115	2	no gas	3964439	2.16	3838510	103.28	70	120	
In	115	3	H2	5607283	0.73	5315224	105.49	70	120	
Tb	159	1	He	3951049	0.59	3947867	100.08	70	120	
Tb	159	2	no gas	4852682	1.92	4818054	100.72	70	120	
Bi	209	2	no gas	2873069	1.18	2981720	96.36	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-18-B^5
Data File Name	093SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T19:25:19-05:00
Sample Type	Sample
Dilution	1
Comment	439857_22
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.389	0.389	45.08	125103	0.00	200	
Be	6	9	2	no gas	0.019	0.019	34.77	218	0.01	200	
B	6	11	2	no gas	0.110	0.110	102.51	17789	0.00	400	
Na	72	23	1	He	776.842	776.842	2.51	2818429	0.03	50000	
Mg	72	24	1	He	208.695	208.695	0.83	438645	0.05	50000	
Al	72	27	3	H2	17.898	17.898	2.58	189469	0.01	50000	
Si	45	28	3	H2	984.848	984.848	0.60	4317676	0.02	2000	
K	72	39	1	He	199.608	199.608	2.59	1033166	0.02	50000	
Ca	72	44	1	He	116.295	116.295	2.22	18620	0.62	25000	
Ti	72	49	1	He	0.058	0.058	133.52	180	0.03	200	
V	72	51	1	He	0.199	0.199	9.11	5951	0.00	200	
Cr	72	52	1	He	0.040	0.040	17.95	2767	0.00	200	
Mn	72	55	1	He	2.294	2.294	2.23	33491	0.01	2500	
Fe	72	56	3	H2	-3.873	-3.873	-3.57	135190	0.00	50000	
Co	72	59	1	He	0.145	0.145	4.13	3199	0.00	200	
Ni	72	60	1	He	0.115	0.115	15.16	650	0.02	200	
copper	72	63	1	He	0.016	0.016	42.15	908	0.00	200	
Zn	72	66	1	He	0.272	0.272	21.70	1657	0.02	200	
arsenic	72	75	1	He	-0.024	-0.024	-108.60	436	-0.01	200	
selenium	72	78	3	H2	-0.085	-0.085	-5.52	45	-0.19	200	
Sr	72	88	1	He	2.785	2.785	2.97	56671	0.00	500	
Mo	115	95	1	He	-0.242	-0.242	-4.17	230	-0.11	200	
Ag	115	107	1	He	-0.018	-0.018	-5.84	166	-0.01	200	
Cd	72	111	1	He	-0.023	-0.023	-8.24	3	-0.68	200	
Sn	115	120	1	He	-0.062	-0.062	-35.11	1753	0.00	200	
antimony	159	121	1	He	-0.099	-0.099	-14.33	544	-0.02	200	
Ba	115	137	1	He	9.683	9.683	1.35	43621	0.02	1000	
Tl	159	205	2	no gas	0.002	0.002	57.30	172	0.00	40	
[Pb]	209	206	2	no gas	-0.037	-0.037	-49.08	5034	0.00	200	
[Pb]	209	207	2	no gas	0.011	0.011	305.26	4257	0.00	200	
Pb	209	208	2	no gas	-0.012	-0.012	-29.74	19322	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1713680	1.21	1727510	99.20	70	120	
Sc	45	1	He	665974	0.43	588329	113.20	70	120	
Ge	72	1	He	272809	1.21	246312	110.76	70	125	
Ge	72	2	no gas	569289	1.29	520996	109.27	70	125	
Ge	72	3	H2	678444	1.32	630611	107.59	70	120	
Y	89	1	He	2331469	2.05	2211673	105.42	70	120	
In	115	1	He	2562096	1.42	2468826	103.78	70	120	
In	115	2	no gas	3989498	1.36	3838510	103.93	70	120	
In	115	3	H2	5621990	1.15	5315224	105.77	70	120	
Tb	159	1	He	3997093	0.29	3947867	101.25	70	120	
Tb	159	2	no gas	4910516	2.11	4818054	101.92	70	120	
Bi	209	2	no gas	2915348	1.00	2981720	97.77	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-19-B^5
Data File Name	094SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T19:29:16-05:00
Sample Type	Sample
Dilution	1
Comment	439857_23
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.223	0.223	62.90	120301	0.00	200	
Be	6	9	2	no gas	0.007	0.007	31.77	140	0.01	200	
B	6	11	2	no gas	0.031	0.031	741.71	17362	0.00	400	
Na	72	23	1	He	503.923	503.923	0.61	1859886	0.03	50000	
Mg	72	24	1	He	214.460	214.460	1.44	452247	0.05	50000	
Al	72	27	3	H2	59.315	59.315	2.46	595634	0.01	50000	
Si	45	28	3	H2	632.296	632.296	0.96	2776042	0.02	2000	
K	72	39	1	He	60.741	60.741	0.70	607615	0.01	50000	
Ca	72	44	1	He	124.938	124.938	4.37	19891	0.63	25000	
Ti	72	49	1	He	0.907	0.907	66.95	671	0.14	200	
V	72	51	1	He	0.286	0.286	11.05	7180	0.00	200	
Cr	72	52	1	He	0.087	0.087	39.45	3471	0.00	200	
Mn	72	55	1	He	0.899	0.899	4.54	15367	0.01	2500	
Fe	72	56	3	H2	8.568	8.568	2.16	530659	0.00	50000	
Co	72	59	1	He	0.061	0.061	3.28	1616	0.00	200	
Ni	72	60	1	He	0.054	0.054	15.54	383	0.01	200	
copper	72	63	1	He	0.077	0.077	5.13	1602	0.00	200	
Zn	72	66	1	He	0.137	0.137	48.78	1347	0.01	200	
arsenic	72	75	1	He	-0.014	-0.014	-36.73	457	0.00	200	
selenium	72	78	3	H2	-0.025	-0.025	-29.71	99	-0.02	200	
Sr	72	88	1	He	2.118	2.118	4.11	43399	0.00	500	
Mo	115	95	1	He	-0.221	-0.221	-1.11	350	-0.06	200	
Ag	115	107	1	He	-0.017	-0.017	-6.54	189	-0.01	200	
Cd	72	111	1	He	-0.019	-0.019	-36.02	17	-0.11	200	
Sn	115	120	1	He	-0.059	-0.059	-43.61	1790	0.00	200	
antimony	159	121	1	He	-0.100	-0.100	-7.88	529	-0.02	200	
Ba	115	137	1	He	6.226	6.226	3.93	28123	0.02	1000	
Tl	159	205	2	no gas	-0.001	-0.001	-39.57	75	0.00	40	
[Pb]	209	206	2	no gas	0.023	0.023	32.14	5705	0.00	200	
[Pb]	209	207	2	no gas	0.074	0.074	21.09	4854	0.00	200	
Pb	209	208	2	no gas	0.062	0.062	22.32	22624	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1697828	1.27	1727510	98.28	70	120	
Sc	45	1	He	668071	1.07	588329	113.55	70	120	
Ge	72	1	He	273829	0.84	246312	111.17	70	125	
Ge	72	2	no gas	571974	0.42	520996	109.78	70	125	
Ge	72	3	H2	679859	1.05	630611	107.81	70	120	
Y	89	1	He	2338452	0.48	2211673	105.73	70	120	
In	115	1	He	2563980	1.77	2468826	103.85	70	120	
In	115	2	no gas	3967416	1.14	3838510	103.36	70	120	
In	115	3	H2	5582697	1.67	5315224	105.03	70	120	
Tb	159	1	He	3947358	2.54	3947867	99.99	70	120	
Tb	159	2	no gas	4903238	1.72	4818054	101.77	70	120	
Bi	209	2	no gas	2902970	1.17	2981720	97.36	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-20-B^5
Data File Name	095SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T19:33:12-05:00
Sample Type	Sample
Dilution	1
Comment	439857_24
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	2.217	2.217	11.38	160913	0.00	200	
Be	6	9	2	no gas	0.110	0.110	16.34	788	0.01	200	
B	6	11	2	no gas	-0.126	-0.126	-133.55	16421	0.00	400	
Na	72	23	1	He	4354.918	4354.918	0.50	15907427	0.03	50000	
Mg	72	24	1	He	625.757	625.757	1.60	1337581	0.05	50000	
Al	72	27	3	H2	460.935	460.935	1.93	4561258	0.01	50000	
Si	45	28	3	H2	2410.519	2410.519	1.40	10448198	0.02	2000	>LDR
K	72	39	1	He	90.858	90.858	1.87	717540	0.01	50000	
Ca	72	44	1	He	874.484	874.484	1.84	127342	0.69	25000	
Ti	72	49	1	He	0.091	0.091	7.07	204	0.04	200	
V	72	51	1	He	0.344	0.344	8.06	8164	0.00	200	
Cr	72	52	1	He	0.155	0.155	27.13	4581	0.00	200	
Mn	72	55	1	He	20.887	20.887	1.66	283503	0.01	2500	
Fe	72	56	3	H2	-3.502	-3.502	-8.11	148209	0.00	50000	
Co	72	59	1	He	1.154	1.154	3.15	22938	0.01	200	
Ni	72	60	1	He	3.184	3.184	4.70	14633	0.02	200	
copper	72	63	1	He	0.614	0.614	0.96	7937	0.01	200	
Zn	72	66	1	He	3.404	3.404	4.91	9189	0.04	200	
arsenic	72	75	1	He	0.100	0.100	11.37	678	0.01	200	
selenium	72	78	3	H2	0.040	0.040	53.59	158	0.03	200	
Sr	72	88	1	He	7.302	7.302	1.33	151722	0.00	500	
Mo	115	95	1	He	-0.242	-0.242	-8.29	233	-0.10	200	
Ag	115	107	1	He	-0.019	-0.019	-6.80	166	-0.01	200	
Cd	72	111	1	He	0.026	0.026	106.03	160	0.02	200	
Sn	115	120	1	He	-0.072	-0.072	-34.38	1677	0.00	200	
antimony	159	121	1	He	-0.112	-0.112	-5.42	429	-0.03	200	
Ba	115	137	1	He	6.663	6.663	2.14	30901	0.02	1000	
Tl	159	205	2	no gas	0.001	0.001	111.91	149	0.00	40	
[Pb]	209	206	2	no gas	0.284	0.284	17.84	8416	0.00	200	
[Pb]	209	207	2	no gas	0.292	0.292	2.82	6755	0.00	200	
Pb	209	208	2	no gas	0.291	0.291	3.08	32028	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1658259	3.56	1727510	95.99	70	120	
Sc	45	1	He	683514	1.61	588329	116.18	70	120	
Ge	72	1	He	280396	1.13	246312	113.84	70	125	
Ge	72	2	no gas	558783	3.30	520996	107.25	70	125	
Ge	72	3	H2	684438	0.62	630611	108.54	70	120	
Y	89	1	He	2442526	2.46	2211673	110.44	70	120	
In	115	1	He	2634240	2.19	2468826	106.70	70	120	
In	115	2	no gas	3806006	2.73	3838510	99.15	70	120	
In	115	3	H2	5623406	2.03	5315224	105.80	70	120	
Tb	159	1	He	4040475	1.56	3947867	102.35	70	120	
Tb	159	2	no gas	4674324	3.71	4818054	97.02	70	120	
Bi	209	2	no gas	2809791	1.98	2981720	94.23	60	120	

Sample Report

Sample Table

Sample Name	400-169296-E-22-B^5
Data File Name	096SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T19:37:18-05:00
Sample Type	Sample
Dilution	1
Comment	439857_25
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	0.283	0.283	10.47	111872	0.00	200	
Be	6	9	2	no gas	0.023	0.023	35.17	221	0.01	200	
B	6	11	2	no gas	0.249	0.249	339.97	16422	0.00	400	
Na	72	23	1	He	782.586	782.586	1.29	2853912	0.03	50000	
Mg	72	24	1	He	208.060	208.060	0.53	439689	0.05	50000	
Al	72	27	3	H2	18.795	18.795	5.02	198480	0.01	50000	
Si	45	28	3	H2	991.557	991.557	0.65	4388328	0.02	2000	
K	72	39	1	He	197.863	197.863	1.16	1033361	0.02	50000	
Ca	72	44	1	He	112.565	112.565	2.35	18196	0.62	25000	
Ti	72	49	1	He	0.084	0.084	67.97	197	0.04	200	
V	72	51	1	He	0.429	0.429	4.81	9164	0.00	200	
Cr	72	52	1	He	0.053	0.053	38.80	2964	0.00	200	
Mn	72	55	1	He	2.223	2.223	3.00	32746	0.01	2500	
Fe	72	56	3	H2	-4.899	-4.899	-1.57	102770	0.00	50000	
Co	72	59	1	He	0.145	0.145	5.83	3214	0.00	200	
Ni	72	60	1	He	0.132	0.132	21.91	730	0.02	200	
copper	72	63	1	He	0.017	0.017	32.12	927	0.00	200	
Zn	72	66	1	He	0.264	0.264	35.51	1647	0.02	200	
arsenic	72	75	1	He	0.040	0.040	62.24	554	0.01	200	
selenium	72	78	3	H2	-0.097	-0.097	-7.84	34	-0.29	200	
Sr	72	88	1	He	2.704	2.704	2.59	55324	0.00	500	
Mo	115	95	1	He	-0.255	-0.255	-1.47	153	-0.17	200	
Ag	115	107	1	He	-0.019	-0.019	-8.88	158	-0.01	200	
Cd	72	111	1	He	-0.019	-0.019	-26.34	17	-0.11	200	
Sn	115	120	1	He	-0.080	-0.080	-23.98	1540	-0.01	200	
antimony	159	121	1	He	-0.117	-0.117	-5.01	373	-0.03	200	
Ba	115	137	1	He	9.467	9.467	1.36	43073	0.02	1000	
Tl	159	205	2	no gas	0.003	0.003	47.95	181	0.00	40	
[Pb]	209	206	2	no gas	-0.007	-0.007	-203.60	4891	0.00	200	
[Pb]	209	207	2	no gas	0.001	0.001	1250.45	3774	0.00	200	
Pb	209	208	2	no gas	-0.001	-0.001	-1796.50	18008	0.00	200	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1561014	12.20	1727510	90.36	70	120	
Sc	45	1	He	666196	1.32	588329	113.24	70	120	
Ge	72	1	He	274265	0.86	246312	111.35	70	125	
Ge	72	2	no gas	525535	14.32	520996	100.87	70	125	
Ge	72	3	H2	679324	0.92	630611	107.72	70	120	
Y	89	1	He	2348186	1.44	2211673	106.17	70	120	
In	115	1	He	2587457	1.00	2468826	104.81	70	120	
In	115	2	no gas	3643589	23.13	3838510	94.92	70	120	
In	115	3	H2	5646460	0.51	5315224	106.23	70	120	
Tb	159	1	He	3971625	1.50	3947867	100.60	70	120	
Tb	159	2	no gas	4436488	21.25	4818054	92.08	70	120	
Bi	209	2	no gas	2655473	18.83	2981720	89.06	60	120	

Sample Report

Sample Table

Sample Name	CCV-4308522
Data File Name	098_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T19:45:15-05:00
Sample Type	CCV
Dilution	1
Comment	1:200 ICPMS_calstd_00020
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	54.111	54.111	1.15	1336529	0.00	50	
Be	6	9	2	no gas	54.674	54.674	1.10	355784	0.02	50	
B	6	11	2	no gas	107.628	107.628	0.50	377960	0.03	100	
Na	72	23	1	He	5194.626	5194.626	1.54	18835843	0.03	5000	
Mg	72	24	1	He	5174.818	5174.818	1.17	10936282	0.05	5000	
Al	72	27	3	H2	517.343	517.343	1.29	5153346	0.01	500	
K	72	39	1	He	5310.053	5310.053	0.78	17129965	0.03	5000	
Ca	72	44	1	He	5121.581	5121.581	1.28	728671	0.70	5000	
Ti	72	49	1	He	51.698	51.698	0.84	30452	0.17	50	
V	72	51	1	He	50.844	50.844	0.83	722457	0.01	50	
Cr	72	52	1	He	50.343	50.343	0.85	758377	0.01	50	
Mn	72	55	1	He	518.238	518.238	1.62	6902321	0.01	500	
Fe	72	56	3	H2	5042.419	5042.419	0.30	162445358	0.00	5000	
Co	72	59	1	He	49.691	49.691	0.80	962575	0.01	50	
Ni	72	60	1	He	50.665	50.665	1.01	229326	0.02	50	
copper	72	63	1	He	49.325	49.325	0.65	574787	0.01	50	
dwCu63	72	63	2	no gas	49.999	49.999	0.80	855091	0.01	50	
Zn	72	66	1	He	50.167	50.167	0.72	120388	0.04	50	
arsenic	72	75	1	He	49.698	49.698	1.14	91626	0.05	50	
dwAs75	72	75	2	no gas	50.542	50.542	1.64	185928	0.03	50	
selenium	72	78	3	H2	50.158	50.158	0.55	45835	0.11	50	
Sr	72	88	1	He	49.034	49.034	0.58	1009061	0.00	50	
Mo	115	95	1	He	48.744	48.744	0.73	288323	0.02	50	
Ag	115	107	1	He	48.457	48.457	1.38	752239	0.01	50	
Cd	72	111	1	He	48.860	48.860	1.05	154848	0.03	50	
Sn	115	120	1	He	47.306	47.306	1.33	597282	0.01	50	
antimony	159	121	1	He	52.963	52.963	0.96	509966	0.01	50	
dwSb121	159	121	2	no gas	53.264	53.264	0.88	700401	0.01	50	
Ba	115	137	1	He	47.762	47.762	0.18	217072	0.02	50	
Tl	159	205	2	no gas	9.913	9.913	1.28	325427	0.00	10	
[Pb]	209	206	2	no gas	50.091	50.091	1.48	559343	0.01	50	
[Pb]	209	207	2	no gas	50.441	50.441	1.37	479551	0.01	50	
Pb	209	208	2	no gas	49.035	49.035	1.80	2184009	0.00	50	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1711247	1.09	1727510	99.06	70	120	
Sc	45	1	He	692312	1.03	588329	117.67	70	120	
Ge	72	1	He	278725	1.37	246312	113.16	70	125	
Ge	72	2	no gas	581354	0.44	520996	111.59	70	125	
Ge	72	3	H2	689346	1.24	630611	109.31	70	120	
Y	89	1	He	2413950	1.80	2211673	109.15	70	120	
In	115	1	He	2592756	0.59	2468826	105.02	70	120	
In	115	2	no gas	3950930	1.66	3838510	102.93	70	120	
In	115	3	H2	5677276	0.93	5315224	106.81	70	120	
Tb	159	1	He	3980925	0.37	3947867	100.84	70	120	
Tb	159	2	no gas	4746724	0.76	4818054	98.52	70	120	
Bi	209	2	no gas	2800215	1.72	2981720	93.91	60	120	

Sample Report

Sample Table

Sample Name	CCB
Data File Name	100_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\07May19.b
Acq Date Time	2019-05-07T19:53:12-05:00
Sample Type	CCB
Dilution	1
Comment	CCB
ISTD Ref FileName	018QBLK.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	ISTD Mass	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Lithium	6	7	2	no gas	-0.148	-0.148	-54.10	117472	0.00	0.5	
Be	6	9	2	no gas	-0.004	-0.004	-4.89	86	0.00	0.5	
B	6	11	2	no gas	-0.733	-0.733	-29.21	14380	-0.01	5	
Na	72	23	1	He	-1.286	-1.286	-31.75	58347	0.00	100	
Mg	72	24	1	He	-1.042	-1.042	-3.31	3000	-0.03	50	
Al	72	27	3	H2	0.128	0.128	157.49	15070	0.00	50	
K	72	39	1	He	-2.102	-2.102	-35.77	414842	0.00	50	
Ca	72	44	1	He	-2.337	-2.337	-53.59	2144	-0.11	50	
Ti	72	49	1	He	-0.064	-0.064	-77.77	128	-0.05	0.5	
V	72	51	1	He	-0.014	-0.014	-180.59	3599	0.00	0.5	
Cr	72	52	1	He	0.063	0.063	13.91	3014	0.00	0.5	
Mn	72	55	1	He	-0.103	-0.103	-13.89	1347	-0.01	2	
Fe	72	56	3	H2	-4.266	-4.266	-3.34	87719	0.00	25	
Co	72	59	1	He	-0.011	-0.011	-22.60	120	-0.01	0.5	
Ni	72	60	1	He	-0.008	-0.008	-91.70	147	-0.01	1.5	
copper	72	63	1	He	-0.014	-0.014	-24.78	496	0.00	0.5	
dwCu63	72	63	2	no gas	-0.008	-0.008	-38.80	867	0.00	0.5	
Zn	72	66	1	He	0.053	0.053	70.00	1040	0.01	4	
arsenic	72	75	1	He	-0.091	-0.091	-6.44	381	-0.02	0.25	
dwAs75	72	75	2	no gas	-0.542	-0.542	-18.24	-1524	0.04	5	
selenium	72	78	3	H2	0.015	0.015	58.25	116	0.01	0.25	
dwSe82	72	82	2	no gas	-0.382	-0.382	-2.90	196	-0.19	5	
Sr	72	88	1	He	-0.012	-0.012	-23.50	313	0.00	0.5	
Mo	115	95	1	He	-0.172	-0.172	-16.46	667	-0.03	1	
Ag	115	107	1	He	-0.010	-0.010	-26.20	216	0.00	0.05	
Cd	72	111	1	He	-0.006	-0.006	-28.38	3	-0.19	0.25	
Sn	115	120	1	He	-0.016	-0.016	-86.02	2377	0.00	0.5	
antimony	159	121	1	He	-0.043	-0.043	-32.51	1076	0.00	0.5	
dwSb121	159	121	2	no gas	-0.075	-0.075	-4.27	2572	0.00	5	
Ba	115	137	1	He	-0.002	-0.002	-89.51	89	0.00	0.5	
Tl	159	205	2	no gas	-0.003	-0.003	-14.47	31	-0.01	0.1	
[Pb]	209	206	2	no gas	-0.029	-0.029	-47.95	5081	0.00	0.25	
[Pb]	209	207	2	no gas	-0.041	-0.041	-48.37	4191	0.00	0.25	
Pb	209	208	2	no gas	-0.010	-0.010	-42.49	19656	0.00	0.25	

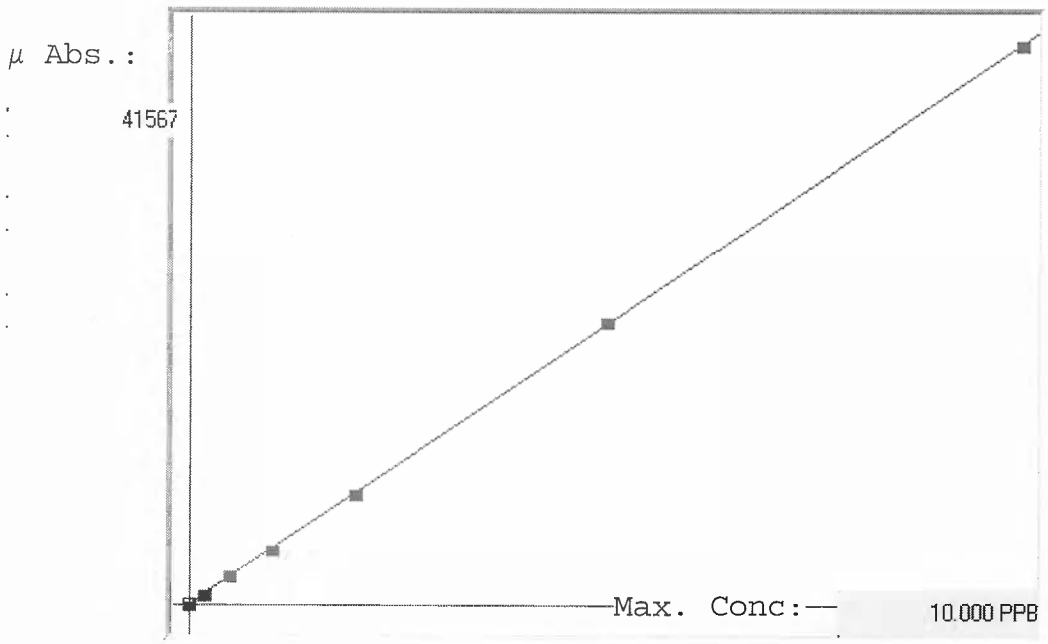
QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li6	6	2	no gas	1774947	1.20	1727510	102.75	70	120	
Sc	45	1	He	685457	0.21	588329	116.51	70	120	
Ge	72	1	He	275978	0.97	246312	112.04	70	125	
Ge	72	2	no gas	588460	1.82	520996	112.95	70	125	
Ge	72	3	H2	582858	6.10	630611	92.43	70	120	
Y	89	1	He	2381521	1.38	2211673	107.68	70	120	
In	115	1	He	2627853	0.54	2468826	106.44	70	120	
In	115	2	no gas	4076577	2.38	3838510	106.20	70	120	
In	115	3	H2	4637106	6.55	5315224	87.24	70	120	
Tb	159	1	He	3965600	1.28	3947867	100.45	70	120	
Tb	159	2	no gas	5027688	3.43	4818054	104.35	70	120	
Bi	209	2	no gas	2971755	2.13	2981720	99.67	60	120	

245.1/7470A WATERS

AD- 439973

Linear



A= 0.0000e+000

B= 2.4031e-004

C= -1.0541e-002

Rho= 0.9999659

Accept=Accepted

Accepted Date=

05/07/19 12:05

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4
CUP5-0.0PPB-CAL1-ICB-CCB	0.000	0.009	0.009	83	0.000	83			
CUP2-0.2PPB-CAL2-CRA	0.200	0.196	-0.004	861	0.0 %	861			
CUP3-0.5PPB-CAL3	0.500	0.508	0.008	2159	0.0 %	2159			
CUP4-1.0PPB-CAL4	1.000	0.983	-0.017	4136	0.0 %	4136			
CUP10-2.0PPB-CAL5	2.000	1.966	-0.034	8224	0.0 %	8224			
CUP6-5.0PPB-CAL6	5.000	5.058	0.058	21093	0.0 %	21093			
CUP7-10.0PPB-CAL7	10.000	9.978	-0.022	41567	0.0 %	41567			

05/07/19
AD-439973

245.1/7470A WATERS - HW050719

Type	Sample ID	Extended ID	Conc.	µ Abs.	Units
S	CUP5-0.0PPB-CAL1-ICB-CCB - 1		-	83	PPB
S	CUP2-0.2PPB-CAL2-CRA - 1		-	861	PPB
S	CUP3-0.5PPB-CAL3 - 1		-	2159	PPB
S	CUP4-1.0PPB-CAL4 - 1		-	4136	PPB
S	CUP10-2.0PPB-CAL5 - 1		-	8224	PPB
S	CUP6-5.0PPB-CAL6 - 1		-	21093	PPB
S	CUP7-10.0PPB-CAL7 - 1		-	41567	PPB
C	ICV - 1		99.3% 5.9581	24837	PPB
C	CRA - 1		75.2% 0.1505	670	PPB
C	LRC - 1		99.6% 9.9571	41478	PPB
C	ICB - 1		-0.0250	-60	PPB
U	MB 400-439749/14-A - 1		0.0032	57	PPB
U	LCS 400-439749/15-A - 1		1.1057	4645	PPB
U	400-169314-C-1-A - 1		-0.0264	-66	PPB
U	400-169314-C-2-A - 1		-0.0259	-64	PPB
U	400-169314-C-2-A SD@5 - 1		0.0094	83	PPB
U	400-169314-C-2-B MS - 1		1.8908	7912	PPB
U	400-169314-C-2-C MSD - 1		1.8581	7776	PPB
U	400-169314-C-3-A - 1		-0.0790	-285	PPB
U	400-169314-C-4-A - 1		0.0053	66	PPB
U	400-169314-C-5-A - 1		0.0214	133	PPB
C	CCV - 1 – RR for 245.1		(H)110.1% 6.6064	27535	PPB
C	CCB - 1		-0.0310	-85	PPB
U	400-169314-C-6-A - 1 – stopped		-0.0105	0	PPB
C	CCV - 1		105.2% 6.3099	26301	PPB
U	400-169314-C-6-A - 1		-0.0348	-101	PPB
U	400-169314-C-7-A - 1		0.0096	84	PPB
U	400-169314-C-8-A - 1		0.0111	90	PPB
U	400-169351-B-1-A - 1		0.0863	403	PPB
U	400-169555-A-1-B - 1		0.0257	151	PPB
U	440-240160-G-1-B - 1		0.0611	298	PPB
U	400-169373-A-1-B - 1		0.0330	181	PPB
U	400-169505-M-2-D - 1		0.0149	106	PPB
U	400-169507-H-21-A - 1		0.0594	291	PPB
U	400-169507-H-22-A - 1		0.0327	180	PPB
C	CCV - 1		102.3% 6.1392	25591	PPB
C	CCB - 1		-0.0536	-179	PPB
U	400-169507-H-23-A - 1		-0.0016	37	PPB
U	400-169507-H-24-A - 1		0.0267	155	PPB
U	400-169507-H-25-A - 1		-0.0151	-19	PPB
U	400-169507-H-26-A - 1		-0.0012	39	PPB
U	400-169507-H-27-A - 1		0.0291	165	PPB
U	MB 400-439744/14-A - 1		0.0058	68	PPB
U	LCS 400-439744/15-A - 1		1.0831	4551	PPB
U	400-169296-E-1-A - 1		-0.0399	-122	PPB
U	400-169296-E-2-A - 1		0.1127	513	PPB
U	400-169296-K-3-A - 1		0.0457	234	PPB
C	CCV - 1		109.2% 6.5523	27310	PPB
C	CCB - 1		-0.0425	-133	PPB
U	400-169296-K-4-A - 1		0.0015	50	PPB
U	400-169296-E-5-A - 1		0.0875	408	PPB
U	400-169296-E-6-A - 1		0.0777	367	PPB
U	400-169296-E-6-A SD@5 - 1		0.0003	45	PPB
U	400-169296-E-6-B MS - 1		2.0782	8692	PPB
U	400-169296-E-6-C MSD - 1		2.0345	8510	PPB
U	400-169296-E-9-A - 1		0.0375	200	PPB
U	400-169296-E-10-A - 1		0.0106	88	PPB
U	400-169296-E-11-A - 1		0.0947	438	PPB
U	400-169296-E-12-A - 1		0.0108	89	PPB
C	CCV - 1		100.8% 6.0506	25222	PPB
C	CCB - 1		-0.0108	-1	PPB
U	400-169296-K-13-A - 1		-0.0488	-159	PPB
U	400-169296-K-14-A - 1		0.0786	371	PPB
U	400-169296-K-15-A - 1		-0.0091	6	PPB
U	400-169296-K-16-A - 1		0.0000	44	PPB
U	400-169296-K-17-A - 1		0.0128	97	PPB
U	400-169296-E-18-A - 1		0.0217	134	PPB

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Type	Sample ID	Extended ID	Conc.	µ Abs.	Units
U	400-169296-E-19-A - 1		0.0582	286	PPB
U	400-169296-E-20-A - 1		0.0983	453	PPB
U	400-169296-E-22-A - 1		0.0664	320	PPB
U	400-169553-A-1-C - 1		-0.0202	-40	PPB
C	CCV - 1		108.3% 6.4980	27084	PPB
C	CCB - 1		-0.0187	-34	PPB

5/07/19

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG No.:

Project: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID	Lab Sample ID
AES-MW1-042319	400-169314-1
AES-MW2-042319	400-169314-2
AES-MW3-042319	400-169314-3
AES-FB-042319	400-169314-4
AES-MW4-042419	400-169314-5
AES-MW4-DUP-042419	400-169314-6
AES-MW5-042419	400-169314-7
AES-FB-042419	400-169314-8

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW1-042319 Lab Sample ID: 400-169314-1

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/23/2019 10:10

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	410	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	410	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	900	10	6.8	mg/L			1	SM 2540C
16887-00-6	Chloride	160	40	28	mg/L			20	SM 4500 Cl- E
16984-48-8	Fluoride	0.75	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	170	25	7.0	mg/L			5	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW2-042319 Lab Sample ID: 400-169314-2

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/23/2019 11:55

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	600	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	600	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	660	10	6.8	mg/L			1	SM 2540C
16887-00-6	Chloride	72	4.0	2.8	mg/L			2	SM 4500 Cl- E
16984-48-8	Fluoride	0.68	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	6.6	5.0	1.4	mg/L			1	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW3-042319 Lab Sample ID: 400-169314-3

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/23/2019 15:10

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	530	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	530	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	10000	130	85	mg/L			1	SM 2540C
16887-00-6	Chloride	4200	200	140	mg/L			100	SM 4500 Cl- E
16984-48-8	Fluoride	1.6	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	2200	500	140	mg/L			100	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-FB-042319 Lab Sample ID: 400-169314-4

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/23/2019 15:32

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	3.4	5.0	3.4	mg/L	U		1	SM 2540C
16887-00-6	Chloride	1.4	2.0	1.4	mg/L	U		1	SM 4500 Cl- E
16984-48-8	Fluoride	0.032	0.10	0.032	mg/L	U		1	SM 4500 F C
14808-79-8	Sulfate	1.4	5.0	1.4	mg/L	U		1	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW4-042419 Lab Sample ID: 400-169314-5

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/24/2019 10:25

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	940	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	940	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	12000	130	85	mg/L			1	SM 2540C
16887-00-6	Chloride	3500	160	110	mg/L			80	SM 4500 Cl- E
16984-48-8	Fluoride	0.94	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	3300	500	140	mg/L			100	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW4-DUP-042419 Lab Sample ID: 400-169314-6

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/24/2019 10:42

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	900	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	900	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	11000	250	170	mg/L			1	SM 2540C
16887-00-6	Chloride	3600	160	110	mg/L			80	SM 4500 Cl- E
16984-48-8	Fluoride	0.96	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	3200	500	140	mg/L			100	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW5-042419 Lab Sample ID: 400-169314-7

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/24/2019 12:37

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	490	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	490	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	9300	130	85	mg/L			1	SM 2540C
16887-00-6	Chloride	3700	160	110	mg/L			80	SM 4500 Cl- E
16984-48-8	Fluoride	0.43	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	2300	500	140	mg/L			100	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-FB-042419 Lab Sample ID: 400-169314-8

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG ID.:

Matrix: Water Date Sampled: 04/24/2019 12:56

Reporting Basis: WET Date Received: 04/25/2019 09:08

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	3.4	5.0	3.4	mg/L	U		1	SM 2540C
16887-00-6	Chloride	1.4	2.0	1.4	mg/L	U		1	SM 4500 Cl- E
16984-48-8	Fluoride	0.032	0.10	0.032	mg/L	U		1	SM 4500 F C
14808-79-8	Sulfate	1.4	5.0	1.4	mg/L	U		1	SM 4500 SO4 E

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Analyst: BAB Batch Start Date: 04/30/2019

Reporting Units: mg/L Analytical Batch No.: 439069

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
6	CCV	11:32	Alkalinity, Total	101	100	101	90-110		ALK-CCV-W_00067
			Bicarbonate Alkalinity as CaCO3	21.6	106	20			ALK-CCV-W_00067
			Carbonate Alkalinity as CaCO3	79.2	106	75			ALK-CCV-W_00067
17	CCV	12:53	Alkalinity, Total	101	100	101	90-110		ALK-CCV-W_00067
			Bicarbonate Alkalinity as CaCO3	37.2	106	35			ALK-CCV-W_00067
			Carbonate Alkalinity as CaCO3	64.0	106	60			ALK-CCV-W_00067
18	CCB	12:55	Alkalinity, Total	0.98				U	
			Bicarbonate Alkalinity as CaCO3	0.98				U	
			Carbonate Alkalinity as CaCO3	0.98				U	
1	CCV	13:57	Alkalinity, Total	103	100	103	90-110		ALK-CCV-W_00067
			Bicarbonate Alkalinity as CaCO3	38.8	106	37			ALK-CCV-W_00067
			Carbonate Alkalinity as CaCO3	64.1	106	60			ALK-CCV-W_00067
2	CCB	14:00	Alkalinity, Total	0.98				U	
			Bicarbonate Alkalinity as CaCO3	0.98				U	
			Carbonate Alkalinity as CaCO3	0.98				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Analyst: CLB Batch Start Date: 04/29/2019

Reporting Units: mg/L Analytical Batch No.: 438846

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
14	CCV	10:36	Total Dissolved Solids	244	293	83	78-122		GTDS-LCS-W_00095
26	CCV	10:36	Total Dissolved Solids	274	293	94	78-122		GTDS-LCS-W_00095

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Analyst: CLB Batch Start Date: 04/30/2019

Reporting Units: mg/L Analytical Batch No.: 439058

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
14	CCV	13:01	Total Dissolved Solids	248	293	85	78-122		GTDS-LCS-W_00095
26	CCV	13:01	Total Dissolved Solids	322	293	110	78-122		GTDS-LCS-W_00095

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Analyst: RRC Batch Start Date: 05/06/2019

Reporting Units: mg/L Analytical Batch No.: 439825

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	13:33	Chloride	35.2	35.0	100	90-110		CL-CCV-35ppm_00031
2	CCB	13:33	Chloride	0.60				U	
4	ICV	13:33	Chloride	30.9	30.0	103	90-110		CL-ICV-W_00054
5	ICB	13:33	Chloride	0.60				U	
13	CCV	13:36	Chloride	35.0	35.0	100	90-110		CL-CCV-35ppm_00031
14	CCB	13:36	Chloride	0.60				U	
25	CCV	13:43	Chloride	35.0	35.0	100	90-110		CL-CCV-35ppm_00031
26	CCB	13:43	Chloride	0.60				U	
36	CCV	13:43	Chloride	34.9	35.0	100	90-110		CL-CCV-35ppm_00031
37	CCB	13:43	Chloride	0.60				U	
38	CCV	14:20	Chloride	34.9	35.0	100	90-110		CL-CCV-35ppm_00031
39	CCB	14:20	Chloride	0.60				U	
50	CCV	14:30	Chloride	34.8	35.0	100	90-110		CL-CCV-35ppm_00031
51	CCB	14:30	Chloride	0.60				U	
56	CCV	14:49	Chloride	35.2	35.0	101	90-110		CL-CCV-35ppm_00031
57	CCB	14:49	Chloride	0.60				U	
59	CCV	14:50	Chloride	35.3	35.0	101	90-110		CL-CCV-35ppm_00031
60	CCB	14:50	Chloride	0.60				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Analyst: RRC Batch Start Date: 05/07/2019

Reporting Units: mg/L Analytical Batch No.: 439988

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	10:37	Chloride	35.0	35.0	100	90-110		CL-CCV-35ppm_00031
2	CCB	10:37	Chloride	0.60				U	
4	ICV	10:37	Chloride	30.8	30.0	103	90-110		CL-ICV-W_00054
5	ICB	10:38	Chloride	0.60				U	
13	CCV	10:40	Chloride	35.1	35.0	100	90-110		CL-CCV-35ppm_00031
14	CCB	10:40	Chloride	0.60				U	
25	CCV	10:47	Chloride	35.0	35.0	100	90-110		CL-CCV-35ppm_00031
26	CCB	10:47	Chloride	0.60				U	
38	CCV	13:33	Chloride	35.4	35.0	101	90-110		CL-CCV-35ppm_00031
39	CCB	13:33	Chloride	0.60				U	
46	CCV	13:35	Chloride	35.9	35.0	103	90-110		CL-CCV-35ppm_00031
47	CCB	13:35	Chloride	0.60				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Analyst: BAB Batch Start Date: 05/01/2019

Reporting Units: mg/L Analytical Batch No.: 439193

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
5	CCV	10:57	Fluoride	4.73	5.00	95	90-110		FL-CCV-S_00007
6	CCVL	11:00	Fluoride	0.490	0.500	98	50-150		FL-CCV-S_00007
10	CCV	11:33	Fluoride	4.73	5.00	95	90-110		FL-CCV-S_00007
2	CCB	11:37	Fluoride	0.032				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Analyst: RRC Batch Start Date: 05/06/2019

Reporting Units: mg/L Analytical Batch No.: 439767

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	09:00	Sulfate	14.8	15.0	99	90-110		SO4-CCV-W_00032
2	CCB	09:00	Sulfate	1.4				U	
4	ICV	09:00	Sulfate	14.3	15.0	96	90-110		SO4-ICV-W_00062
5	ICB	09:00	Sulfate	1.4				U	
13	CCV	09:07	Sulfate	15.0	15.0	100	90-110		SO4-CCV-W_00032
14	CCB	09:07	Sulfate	1.4				U	
25	CCV	09:12	Sulfate	14.8	15.0	99	90-110		SO4-CCV-W_00032
26	CCB	09:12	Sulfate	1.4				U	
36	CCV	09:13	Sulfate	14.3	15.0	95	90-110		SO4-CCV-W_00032
37	CCB	09:13	Sulfate	1.4				U	
50	CCV	09:53	Sulfate	14.4	15.0	96	90-110		SO4-CCV-W_00032
51	CCB	09:53	Sulfate	1.4				U	
56	CCV	09:54	Sulfate	14.6	15.0	97	90-110		SO4-CCV-W_00032
57	CCB	09:54	Sulfate	1.4				U	
58	CCV	10:20	Sulfate	14.9	15.0	99	90-110		SO4-CCV-W_00032
59	CCB	10:20	Sulfate	1.4				U	
64	CCV	10:21	Sulfate	14.6	15.0	97	90-110		SO4-CCV-W_00032
65	CCB	10:21	Sulfate	1.4				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Analyst: RRC Batch Start Date: 05/06/2019

Reporting Units: mg/L Analytical Batch No.: 439789

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	10:59	Sulfate	14.6	15.0	97	90-110		SO4-CCV-W_00032
2	CCB	10:59	Sulfate	1.4				U	
4	ICV	10:59	Sulfate	14.4	15.0	96	90-110		SO4-ICV-W_00062
5	ICB	10:59	Sulfate	1.4				U	
13	CCV	11:05	Sulfate	14.8	15.0	99	90-110		SO4-CCV-W_00032
14	CCB	11:05	Sulfate	1.4				U	
25	CCV	11:10	Sulfate	14.7	15.0	98	90-110		SO4-CCV-W_00032
26	CCB	11:10	Sulfate	1.4				U	
36	CCV	11:30	Sulfate	14.4	15.0	96	90-110		SO4-CCV-W_00032
37	CCB	11:30	Sulfate	1.4				U	
40	CCV	11:35	Sulfate	14.4	15.0	96	90-110		SO4-CCV-W_00032
41	CCB	11:35	Sulfate	1.4				U	
52	CCV	12:55	Sulfate	14.6	15.0	97	90-110		SO4-CCV-W_00032
53	CCB	12:55	Sulfate	1.4				U	
57	CCV	12:56	Sulfate	14.9	15.0	99	90-110		SO4-CCV-W_00032
58	CCB	12:56	Sulfate	1.4				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 439069 Date: 04/30/2019 11:16							
SM 2320B	MB 400-439069/4	Alkalinity, Total	0.98	U	mg/L	1.0	1
SM 2320B	MB 400-439069/4	Bicarbonate Alkalinity as CaCO3	0.98	U	mg/L	1.0	1
SM 2320B	MB 400-439069/4	Carbonate Alkalinity as CaCO3	0.98	U	mg/L	1.0	1
Batch ID: 438846 Date: 04/29/2019 10:36							
SM 2540C	MB 400-438846/1	Total Dissolved Solids	3.4	U	mg/L	5.0	1
Batch ID: 439058 Date: 04/30/2019 13:01							
SM 2540C	MB 400-439058/1	Total Dissolved Solids	3.4	U	mg/L	5.0	1
Batch ID: 439825 Date: 05/06/2019 13:33							
SM 4500 Cl- E	MB 400-439825/6	Chloride	1.4	U	mg/L	2.0	1
Batch ID: 439988 Date: 05/07/2019 10:38							
SM 4500 Cl- E	MB 400-439988/6	Chloride	1.4	U	mg/L	2.0	1
Batch ID: 439193 Date: 05/01/2019 10:52							
SM 4500 F C	MB 400-439193/3	Fluoride	0.032	U	mg/L	0.10	1
Batch ID: 439767 Date: 05/06/2019 09:01							
SM 4500 SO4 E	MB 400-439767/6	Sulfate	1.4	U	mg/L	5.0	1
Batch ID: 439789 Date: 05/06/2019 10:59							
SM 4500 SO4 E	MB 400-439789/6	Sulfate	1.4	U	mg/L	5.0	1

5-IN
MATRIX SPIKE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 439825 Date: 05/06/2019 14:23											
SM 4500 Cl- E	400-169314-2	Chloride	72		mg/L						
SM 4500 Cl- E MS	400-169314-2	Chloride	77.5		mg/L	10.0	56	73-120			4
Batch ID: 439193 Date: 05/01/2019 11:08											
SM 4500 F C	400-169314-2	Fluoride	0.68		mg/L						
SM 4500 F C MS	400-169314-2	Fluoride	1.68		mg/L	1.00	100	75-125			
Batch ID: 439767 Date: 05/06/2019 09:07											
SM 4500 SO4 E	400-169314-2	Sulfate	6.6		mg/L						
SM 4500 SO4 E MS	400-169314-2	Sulfate	16.8		mg/L	10.0	102	77-128			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

5-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 439825 Date: 05/06/2019 14:23											
SM 4500 Cl- E	400-169314-2 MSD	Chloride	78.5		mg/L	10.0	66	73-120	1	8	4
Batch ID: 439193 Date: 05/01/2019 11:10											
SM 4500 F C	400-169314-2 MSD	Fluoride	1.68		mg/L	1.00	100	75-125	0	4	
Batch ID: 439767 Date: 05/06/2019 09:07											
SM 4500 SO4 E	400-169314-2 MSD	Sulfate	16.4		mg/L	10.0	98	77-128	2	5	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

6-IN
DUPLICATE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Matrix: Water

Method	Client Sample ID	Lab Sample ID	Analyte	Result	Unit	RPD	RPD Limit	Qual
Batch ID: 439069 Date: 04/30/2019 11:50								
SM 2320B	AES-MW2-042319	400-169314-2	Alkalinity, Total	600	mg/L			
SM 2320B	AES-MW2-042319	400-169314-2 DU	Alkalinity, Total	604	mg/L	0.2	20	
SM 2320B	AES-MW2-042319	400-169314-2	Bicarbonate Alkalinity as CaCO3	600	mg/L			
SM 2320B	AES-MW2-042319	400-169314-2 DU	Bicarbonate Alkalinity as CaCO3	604	mg/L	0.2	20	
SM 2320B	AES-MW2-042319	400-169314-2	Carbonate Alkalinity as CaCO3	0.98	mg/L			U
SM 2320B	AES-MW2-042319	400-169314-2 DU	Carbonate Alkalinity as CaCO3	0.98	mg/L	NC	20	U
Batch ID: 439069 Date: 04/30/2019 13:18								
SM 2320B	AES-MW4-042419	400-169314-5	Alkalinity, Total	940	mg/L			
SM 2320B	AES-MW4-042419	400-169314-5 DU	Alkalinity, Total	943	mg/L	0.3	20	
SM 2320B	AES-MW4-042419	400-169314-5	Bicarbonate Alkalinity as CaCO3	940	mg/L			
SM 2320B	AES-MW4-042419	400-169314-5 DU	Bicarbonate Alkalinity as CaCO3	943	mg/L	0.3	20	
SM 2320B	AES-MW4-042419	400-169314-5	Carbonate Alkalinity as CaCO3	0.98	mg/L			U
SM 2320B	AES-MW4-042419	400-169314-5 DU	Carbonate Alkalinity as CaCO3	0.98	mg/L	NC	20	U

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

7A-IN
LAB CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 439069	Date: 04/30/2019 11:24										
						LCS Source: ALK-ICV-W_00083					
SM 2320B	LCS 400-439069/5	Alkalinity, Total	101		mg/L	100	101	80-120			
Batch ID: 438846	Date: 04/29/2019 10:36										
						LCS Source: GTDS-LCS-W_00095					
SM 2540C	LCS 400-438846/2	Total Dissolved Solids	262		mg/L	293	89	78-122			
Batch ID: 439058	Date: 04/30/2019 13:01										
						LCS Source: GTDS-LCS-W_00095					
SM 2540C	LCS 400-439058/2	Total Dissolved Solids	240		mg/L	293	82	78-122			
Batch ID: 439825	Date: 05/06/2019 13:33										
						LCS Source: CL-ICV-W_00054					
SM 4500 Cl- E	LCS 400-439825/7	Chloride	31.2		mg/L	30.0	104	90-110			
Batch ID: 439988	Date: 05/07/2019 10:38										
						LCS Source: CL-ICV-W_00054					
SM 4500 Cl- E	LCS 400-439988/7	Chloride	31.2		mg/L	30.0	104	90-110			
Batch ID: 439193	Date: 05/01/2019 10:55										
						LCS Source: FL-LCS-S_00013					
SM 4500 F C	LCS 400-439193/4	Fluoride	3.68		mg/L	4.00	92	90-110			
Batch ID: 439767	Date: 05/06/2019 09:01										
						LCS Source: SO4-ICV-W_00062					
SM 4500 SO4 E	LCS 400-439767/7	Sulfate	14.3		mg/L	15.0	95	90-110			
Batch ID: 439789	Date: 05/06/2019 10:59										
						LCS Source: SO4-ICV-W_00062					
SM 4500 SO4 E	LCS 400-439789/7	Sulfate	14.3		mg/L	15.0	95	90-110			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

7A-IN
METHOD REPORTING LIMIT CHECK
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 439825	Date: 05/06/2019 13:33										
						LCS Source: CL-CCVL-2ppm_00028					
SM 4500 Cl- E	MRL 400-439825/3	Chloride	1.38	J	mg/L	2.00	69	50-150			
Batch ID: 439988	Date: 05/07/2019 10:37										
						LCS Source: CL-CCVL-2ppm_00028					
SM 4500 Cl- E	MRL 400-439988/3	Chloride	1.57	J	mg/L	2.00	79	50-150			
Batch ID: 439767	Date: 05/06/2019 09:00										
						LCS Source: SO4-CCVL-W_00037					
SM 4500 SO4 E	MRL 400-439767/3	Sulfate	4.46	J	mg/L	5.00	89	50-150			
Batch ID: 439789	Date: 05/06/2019 10:59										
						LCS Source: SO4-CCVL-W_00037					
SM 4500 SO4 E	MRL 400-439789/3	Sulfate	4.56	J	mg/L	5.00	91	50-150			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 2320B MDL Date: 09/23/2011 09:10

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Alkalinity, Total		1	0.98
Bicarbonate Alkalinity as CaCO3		1	0.98
Carbonate Alkalinity as CaCO3		1	0.98

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 2320B XMDL Date: 09/23/2011 09:11

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Alkalinity, Total		1	0.98
Bicarbonate Alkalinity as CaCO3		1	0.98
Carbonate Alkalinity as CaCO3		1	0.98

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: Balance 1

Method: SM 2540C MDL Date: 04/09/2012 08:46

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Total Dissolved Solids		5	5

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: Balance 1

Method: SM 2540C XMDL Date: 04/09/2012 08:46

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Total Dissolved Solids		5	3.4

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 Cl- E MDL Date: 08/22/2018 14:09

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Chloride		2	1.4

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 Cl- E XMDL Date: 10/31/2012 11:00

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Chloride		2	0.6

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 4500 F C MDL Date: 03/03/2015 14:05

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Fluoride		0.1	0.032

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 4500 F C XMDL Date: 04/22/2015 09:30

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Fluoride		0.1	0.032

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 SO4 E MDL Date: 11/03/2010 15:08

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Sulfate		5	1.4

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-169314-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 SO4 E XMDL Date: 11/03/2010 15:09

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Sulfate		5	1.4

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: AUTOTITRATOR Analysis Method: SM 2320B

Start Date: 04/30/2019 11:13 End Date: 04/30/2019 14:00

Lab Sample Id	D/F	Type	Time	Analytes																												
				Alk	BALKCC	CarAlk																										
ZZZZZZ			11:13																													
MB 400-439069/4	1	T	11:16	X	X	X																										
LCS 400-439069/5	1	T	11:24	X	X	X																										
CCV 400-439069/6	1		11:32	X	X	X																										
400-169314-2	1	T	11:41	X	X	X																										
400-169314-2 DU	1	T	11:50	X	X	X																										
ZZZZZZ			11:56																													
ZZZZZZ			12:02																													
ZZZZZZ			12:07																													
ZZZZZZ			12:15																													
ZZZZZZ			12:23																													
ZZZZZZ			12:29																													
400-169314-1	1	T	12:37	X	X	X																										
400-169314-3	1	T	12:45	X	X	X																										
CCV 400-439069/17	1		12:53	X	X	X																										
CCB 400-439069/18	1		12:55	X	X	X																										
400-169314-5	1	T	13:06	X	X	X																										
400-169314-5 DU	1	T	13:18	X	X	X																										
400-169314-6	1	T	13:30	X	X	X																										
400-169314-7	1	T	13:38	X	X	X																										
400-169314-4	1	T	13:44	X	X	X																										
400-169314-8	1	T	13:49	X	X	X																										
CCV 400-439069/1	1		13:57	X	X	X																										
CCB 400-439069/2	1		14:00	X	X	X																										

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: Balance 1 Analysis Method: SM 2540C

Start Date: 04/29/2019 10:36 End Date: 04/29/2019 10:36

Lab Sample Id	D/F	Type	Time	Analytes																								
				TDS																								
MB 400-438846/1	1	T	10:36	X																								
LCS 400-438846/2	1	T	10:36	X																								
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
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ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
CCV 400-438846/14	1		10:36	X																								
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
400-169314-2	1	T	10:36	X																								
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
ZZZZZZ			10:36																									
CCV 400-438846/26	1		10:36	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: Balance 1 Analysis Method: SM 2540C

Start Date: 04/30/2019 13:01 End Date: 04/30/2019 13:01

Lab Sample Id	D/F	Type	Time	Analytes																								
				TDS																								
MB 400-439058/1	1	T	13:01	X																								
LCS 400-439058/2	1	T	13:01	X																								
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
400-169314-6	1	T	13:01	X																								
400-169314-5	1	T	13:01	X																								
400-169314-3	1	T	13:01	X																								
400-169314-7	1	T	13:01	X																								
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
CCV 400-439058/14	1		13:01	X																								
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
400-169314-1	1	T	13:01	X																								
400-169314-8	1	T	13:01	X																								
400-169314-4	1	T	13:01	X																								
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
ZZZZZZ			13:01																									
CCV 400-439058/26	1		13:01	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 05/06/2019 13:33 End Date: 05/06/2019 14:50

Lab Sample Id	D/F	Type	Time	Analytes																								
				CL-																								
CCV 400-439825/1	1		13:33	X																								
CCB 400-439825/2	1		13:33	X																								
MRL 400-439825/3	1	T	13:33	X																								
ICV 400-439825/4	1		13:33	X																								
ICB 400-439825/5	1		13:33	X																								
MB 400-439825/6	1	T	13:33	X																								
LCS 400-439825/7	1	T	13:33	X																								
ZZZZZZ			13:33																									
ZZZZZZ			13:33																									
ZZZZZZ			13:33																									
ZZZZZZ			13:33																									
ZZZZZZ			13:33																									
CCV 400-439825/13	1		13:36	X																								
CCB 400-439825/14	1		13:36	X																								
ZZZZZZ			13:36																									
ZZZZZZ			13:36																									
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ZZZZZZ			13:36																									
ZZZZZZ			13:36																									
CCV 400-439825/25	1		13:43	X																								
CCB 400-439825/26	1		13:43	X																								
ZZZZZZ			13:43																									
ZZZZZZ			13:43																									
ZZZZZZ			13:43																									
400-169314-4	1	T	13:43	X																								
ZZZZZZ			13:43																									
ZZZZZZ			13:43																									
ZZZZZZ			13:43																									
ZZZZZZ			13:43																									
ZZZZZZ			13:43																									
CCV 400-439825/36	1		13:43	X																								
CCB 400-439825/37	1		13:43	X																								
CCV 400-439825/38	1		14:20	X																								
CCB 400-439825/39	1		14:20	X																								
ZZZZZZ			14:20																									
ZZZZZZ			14:20																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 05/06/2019 13:33 End Date: 05/06/2019 14:50

Lab Sample Id	D/F	Type	Time	Analytes																								
				CL-																								
ZZZZZZ			14:20																									
400-169314-2	2	T	14:20	X																								
400-169314-2 MS	2	T	14:23	X																								
400-169314-2 MSD	2	T	14:23	X																								
ZZZZZZ			14:23																									
400-169314-1	20	T	14:23	X																								
ZZZZZZ			14:23																									
ZZZZZZ			14:23																									
CCV 400-439825/50	1		14:30	X																								
CCB 400-439825/51	1		14:30	X																								
ZZZZZZ			14:30																									
ZZZZZZ			14:30																									
CCV 400-439825/54			14:30																									
CCB 400-439825/55			14:30																									
CCV 400-439825/56	1		14:49	X																								
CCB 400-439825/57	1		14:49	X																								
400-169314-3	100	T	14:49	X																								
CCV 400-439825/59	1		14:50	X																								
CCB 400-439825/60	1		14:50	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 05/07/2019 10:37 End Date: 05/07/2019 13:49

Lab Sample Id	D/F	Type	Time	Analytes																								
				Cl-																								
CCV 400-439988/1	1		10:37	X																								
CCB 400-439988/2	1		10:37	X																								
MRL 400-439988/3	1	T	10:37	X																								
ICV 400-439988/4	1		10:37	X																								
ICB 400-439988/5	1		10:38	X																								
MB 400-439988/6	1	T	10:38	X																								
LCS 400-439988/7	1	T	10:38	X																								
ZZZZZZ			10:38																									
ZZZZZZ			10:38																									
ZZZZZZ			10:38																									
ZZZZZZ			10:38																									
ZZZZZZ			10:38																									
CCV 400-439988/13	1		10:40	X																								
CCB 400-439988/14	1		10:40	X																								
ZZZZZZ			10:41																									
ZZZZZZ			10:41																									
ZZZZZZ			10:41																									
ZZZZZZ			10:41																									
ZZZZZZ			10:41																									
ZZZZZZ			10:41																									
400-169314-8	1	T	10:41	X																								
ZZZZZZ			10:41																									
ZZZZZZ			10:41																									
ZZZZZZ			10:41																									
CCV 400-439988/25	1		10:47	X																								
CCB 400-439988/26	1		10:47	X																								
ZZZZZZ			10:48																									
ZZZZZZ			10:48																									
ZZZZZZ			10:48																									
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ZZZZZZ			10:48																									
CCV 400-439988/36			10:48																									
CCB 400-439988/37			10:48																									
CCV 400-439988/38	1		13:33	X																								
CCB 400-439988/39	1		13:33	X																								
ZZZZZZ			13:33																									
400-169314-5	80	T	13:33	X																								

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 05/07/2019 10:37 End Date: 05/07/2019 13:49

Lab Sample Id	D/F	Type	Time	Analytes																								
				CL-																								
400-169314-6	80	T	13:33	X																								
400-169314-7	80	T	13:33	X																								
ZZZZZZ			13:35																									
ZZZZZZ			13:35																									
CCV 400-439988/46	1		13:35	X																								
CCB 400-439988/47	1		13:35	X																								
CCV 400-439988/48			13:48																									
CCB 400-439988/49			13:48																									
ZZZZZZ			13:48																									
ZZZZZZ			13:48																									
CCV 400-439988/52			13:49																									
CCB 400-439988/53			13:49																									

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: AUTOTITRATOR Analysis Method: SM 4500 F C

Start Date: 05/01/2019 10:52 End Date: 05/01/2019 11:37

Lab Sample Id	D/F	Type	Time	Analytes																								
				F																								
MB 400-439193/3	1	T	10:52	X																								
LCS 400-439193/4	1	T	10:55	X																								
CCV 400-439193/5	1		10:57	X																								
CCVL 400-439193/6	1		11:00	X																								
ZZZZZZ			11:04																									
400-169314-2	1	T	11:06	X																								
400-169314-2 MS	1	T	11:08	X																								
400-169314-2 MSD	1	T	11:10	X																								
400-169314-1	1	T	11:12	X																								
400-169314-3	1	T	11:15	X																								
400-169314-5	1	T	11:17	X																								
400-169314-6	1	T	11:20	X																								
400-169314-7	1	T	11:23	X																								
400-169314-4	1	T	11:27	X																								
400-169314-8	1	T	11:31	X																								
CCV 400-439193/10	1		11:33	X																								
CCB 400-439193/2	1		11:37	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 05/06/2019 09:00 End Date: 05/06/2019 10:21

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
CCV 400-439767/1	1		09:00	X																								
CCB 400-439767/2	1		09:00	X																								
MRL 400-439767/3	1	T	09:00	X																								
ICV 400-439767/4	1		09:00	X																								
ICB 400-439767/5	1		09:00	X																								
MB 400-439767/6	1	T	09:01	X																								
LCS 400-439767/7	1	T	09:01	X																								
ZZZZZZ			09:01																									
ZZZZZZ			09:01																									
ZZZZZZ			09:01																									
ZZZZZZ			09:01																									
ZZZZZZ			09:01																									
CCV 400-439767/13	1		09:07	X																								
CCB 400-439767/14	1		09:07	X																								
ZZZZZZ			09:07																									
ZZZZZZ			09:07																									
ZZZZZZ			09:07																									
ZZZZZZ			09:07																									
ZZZZZZ			09:07																									
ZZZZZZ			09:07																									
ZZZZZZ			09:07																									
400-169314-2	1	T	09:07	X																								
400-169314-2 MS	1	T	09:07	X																								
400-169314-2 MSD	1	T	09:07	X																								
CCV 400-439767/25	1		09:12	X																								
CCB 400-439767/26	1		09:12	X																								
ZZZZZZ			09:12																									
ZZZZZZ			09:12																									
ZZZZZZ			09:12																									
ZZZZZZ			09:12																									
ZZZZZZ			09:12																									
400-169314-4	1	T	09:12	X																								
ZZZZZZ			09:12																									
ZZZZZZ			09:12																									
ZZZZZZ			09:12																									
CCV 400-439767/36	1		09:13	X																								
CCB 400-439767/37	1		09:13	X																								
CCV 400-439767/38			09:44																									
CCB 400-439767/39			09:44																									
ZZZZZZ			09:44																									
ZZZZZZ			09:44																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 05/06/2019 09:00 End Date: 05/06/2019 10:21

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
ZZZZZZ			09:44																									
ZZZZZZ			09:44																									
CCV 400-439767/44			09:49																									
CCB 400-439767/45			09:49																									
ZZZZZZ			09:49																									
ZZZZZZ			09:49																									
ZZZZZZ			09:49																									
ZZZZZZ			09:49																									
CCV 400-439767/50	1		09:53	X																								
CCB 400-439767/51	1		09:53	X																								
400-169314-1	5	T	09:53	X																								
ZZZZZZ			09:53																									
ZZZZZZ			09:53																									
ZZZZZZ			09:53																									
CCV 400-439767/56	1		09:54	X																								
CCB 400-439767/57	1		09:54	X																								
CCV 400-439767/58	1		10:20	X																								
CCB 400-439767/59	1		10:20	X																								
ZZZZZZ			10:20																									
ZZZZZZ			10:20																									
400-169314-3	100	T	10:20	X																								
ZZZZZZ			10:20																									
CCV 400-439767/64	1		10:21	X																								
CCB 400-439767/65	1		10:21	X																								

Prep Types:
T = Total/NA

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 05/06/2019 10:59 End Date: 05/06/2019 12:56

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
CCV 400-439789/1	1		10:59	X																								
CCB 400-439789/2	1		10:59	X																								
MRL 400-439789/3	1	T	10:59	X																								
ICV 400-439789/4	1		10:59	X																								
ICB 400-439789/5	1		10:59	X																								
MB 400-439789/6	1	T	10:59	X																								
LCS 400-439789/7	1	T	10:59	X																								
ZZZZZZ			10:59																									
ZZZZZZ			10:59																									
ZZZZZZ			10:59																									
ZZZZZZ			10:59																									
ZZZZZZ			10:59																									
CCV 400-439789/13	1		11:05	X																								
CCB 400-439789/14	1		11:05	X																								
ZZZZZZ			11:05																									
ZZZZZZ			11:05																									
ZZZZZZ			11:05																									
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ZZZZZZ			11:05																									
ZZZZZZ			11:05																									
CCV 400-439789/25	1		11:10	X																								
CCB 400-439789/26	1		11:10	X																								
ZZZZZZ			11:10																									
ZZZZZZ			11:10																									
ZZZZZZ			11:10																									
ZZZZZZ			11:10																									
ZZZZZZ			11:10																									
ZZZZZZ			11:10																									
ZZZZZZ			11:10																									
CCV 400-439789/34			11:11																									
CCB 400-439789/35			11:11																									
CCV 400-439789/36	1		11:30	X																								
CCB 400-439789/37	1		11:30	X																								
400-169314-8	1	T	11:30	X																								
ZZZZZZ			11:30																									
CCV 400-439789/40	1		11:35	X																								
CCB 400-439789/41	1		11:35	X																								

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-169314-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 05/06/2019 10:59 End Date: 05/06/2019 12:56

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
ZZZZZZ			11:35																									
ZZZZZZ			11:35																									
ZZZZZZ			11:35																									
ZZZZZZ			11:35																									
CCV 400-439789/46			11:38																									
CCB 400-439789/47			11:38																									
ZZZZZZ			11:38																									
ZZZZZZ			11:38																									
CCV 400-439789/50			11:40																									
CCB 400-439789/51			11:40																									
CCV 400-439789/52	1		12:55	X																								
CCB 400-439789/53	1		12:55	X																								
400-169314-5	100	T	12:55	X																								
400-169314-6	100	T	12:55	X																								
400-169314-7	100	T	12:55	X																								
CCV 400-439789/57	1		12:56	X																								
CCB 400-439789/58	1		12:56	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439069 Batch Start Date: 04/30/19 11:13 Batch Analyst: Brooks, Barbara A

Batch Method: SM 2320B Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	CalcMsg	FinalAmount	ALK-CCV-W 00067	ALK-ICV-W 00083		
CCV 400-439069/1		SM 2320B		InitialAmount is blank	25 mL	25 mL			
CCB 400-439069/2		SM 2320B		InitialAmount is blank	25 mL				
MB 400-439069/4		SM 2320B		InitialAmount is blank	25 mL				
LCS 400-439069/5		SM 2320B		InitialAmount is blank	25 mL		25 mL		
CCV 400-439069/6		SM 2320B		InitialAmount is blank	25 mL	25 mL			
400-169314-A-2	AES-MW2-042319	SM 2320B	T	InitialAmount is blank	25 mL				
400-169314-A-2 DU	AES-MW2-042319	SM 2320B	T	InitialAmount is blank	25 mL				
400-169314-A-1	AES-MW1-042319	SM 2320B	T	InitialAmount is blank	25 mL				
400-169314-A-3	AES-MW3-042319	SM 2320B	T	InitialAmount is blank	25 mL				
CCV 400-439069/17		SM 2320B		InitialAmount is blank	25 mL	25 mL			
CCB 400-439069/18		SM 2320B		InitialAmount is blank	25 mL				
400-169314-A-5	AES-MW4-042419	SM 2320B	T	InitialAmount is blank	25 mL				
400-169314-A-5 DU	AES-MW4-042419	SM 2320B	T	InitialAmount is blank	25 mL				
400-169314-A-6	AES-MW4-DUP-042419	SM 2320B	T	InitialAmount is blank	25 mL				
400-169314-A-7	AES-MW5-042419	SM 2320B	T	InitialAmount is blank	25 mL				
400-169314-A-4	AES-FB-042319	SM 2320B	T	InitialAmount is blank	25 mL				
400-169314-A-8	AES-FB-042419	SM 2320B	T	InitialAmount is blank	25 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439069 Batch Start Date: 04/30/19 11:13 Batch Analyst: Brooks, Barbara A

Batch Method: SM 2320B Batch End Date:

Batch Notes	
Acid ID	3751787 fisher
pH Buffer 1 ID	4407041
pH Buffer 2 ID	4562107
pH Buffer 3 ID	4453529
pH Buffer 4 ID	4085344
pH Buffer 5 ID	4326727
Probe ID	VWYI-1925
Normality of First Titrant	0.0213470 N
Titrant Standardization Date	09/14/2018

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 438846 Batch Start Date: 04/29/19 10:36 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 05/01/19 09:33

Lab Sample ID	Client Sample ID	Method Chain	Basis	Conductivity	CrucibleID	InitialAmount	TareWeight	Weight1	Weight2
MB 400-438846/1		SM 2540C			93	50 mL	54.8337 g	54.8335 g	54.8336 g
LCS 400-438846/2		SM 2540C			8	50 mL	69.4778 g	69.4905 g	69.4909 g
CCV 400-438846/14		SM 2540C			32	50 mL	53.1422 g	53.1540 g	53.1544 g
400-169314-A-2	AES-MW2-042319	SM 2540C	T	1007 umhos/cm	185	25 mL	66.5600 g	66.5766 g	66.5765 g
CCV 400-438846/26		SM 2540C			915	50 mL	67.2935 g	67.3074 g	67.3072 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Weight3	Weight4	WeightOne%Diff	WeightTwo%Diff	Weight4OK	Residue
MB 400-438846/1		SM 2540C		0 g	0 g	Pass	N/A	N/A	-0.0002 g
LCS 400-438846/2		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0127 g
CCV 400-438846/14		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0118 g
400-169314-A-2	AES-MW2-042319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0166 g
CCV 400-438846/26		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0139 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Residue2	Residue3	Residue4	FinalAmount	CalcMsg	GTDS-LCS-W 00095
MB 400-438846/1		SM 2540C		-0.0001 g	N/A g	N/A g	50 mL	OK	
LCS 400-438846/2		SM 2540C		0.0131 g	N/A g	N/A g	50 mL	OK	50 mL
CCV 400-438846/14		SM 2540C		0.0122 g	N/A g	N/A g	50 mL	OK	50 mL
400-169314-A-2	AES-MW2-042319	SM 2540C	T	0.0165 g	N/A g	N/A g	50 mL	OK	
CCV 400-438846/26		SM 2540C		0.0137 g	N/A g	N/A g	50 mL	OK	50 mL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 438846 Batch Start Date: 04/29/19 10:36 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 05/01/19 09:33

Batch Notes	
Balance ID	denver
Conductivity Meter ID	10k100742
Date/Time - In - CW (WT2)	04/30/2019 14:14
Date/Time - Out - CW (WT2)	04/30/2019 15:15
Temperature - Start - CW (WT2) - Correct	180.0 Celsius
Temperature - End - CW (WT2) - Correct	180.0 Celsius
Temperature - Start-CW(WT2) -Uncorrected	181.0 Celsius
Temperature - End-CW(WT2) -Uncorrected	181.0 Celsius
Filter ID	16901431
Nominal Amount Used	50 mL
Oven ID	IN028
Thermometer ID	191880792
Weight(WT1) Start Date/Time	04/29/2019 11:30
Weight(WT1) Date/Time Out	04/30/2019 12:03
Weight(WT1) Start Temp	98.0 Celsius
Weight(WT1) Temp Out	180.0 Celsius
Uncorrected Weight(WT1) Start Temp	99.0 Celsius
Uncorrected Weight(WT1) Temp Out	181.0 Celsius

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439058 Batch Start Date: 04/30/19 13:01 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 05/01/19 16:09

Lab Sample ID	Client Sample ID	Method Chain	Basis	Conductivity	CrucibleID	InitialAmount	TareWeight	Weight1	Weight2
MB 400-439058/1		SM 2540C			90	50 mL	70.4581 g	70.4580 g	70.4580 g
LCS 400-439058/2		SM 2540C			872	50 mL	66.3250 g	66.3366 g	66.3370 g
400-169314-A-6	AES-MW4-DUP-042419	SM 2540C	T	17780 umhos/cm	19	1 mL	64.3043 g	64.3151 g	64.3153 g
400-169314-A-5	AES-MW4-042419	SM 2540C	T	13780 umhos/cm	400	2 mL	62.7020 g	62.7257 g	62.7256 g
400-169314-A-3	AES-MW3-042319	SM 2540C	T	13930 umhos/cm	s2	2 mL	62.0572 g	62.0773 g	62.0773 g
400-169314-A-7	AES-MW5-042419	SM 2540C	T	11480 umhos/cm	96	2 mL	66.9376 g	66.9564 g	66.9562 g
CCV 400-439058/14		SM 2540C			616	50 mL	62.3690 g	62.3813 g	62.3814 g
400-169314-A-1	AES-MW1-042319	SM 2540C	T	1398 umhos/cm	16	25 mL	54.1103 g	54.1331 g	54.1329 g
400-169314-A-8	AES-FB-042419	SM 2540C	T	1.44 umhos/cm	612	50 mL	57.0979 g	57.0978 g	57.0978 g
400-169314-A-4	AES-FB-042319	SM 2540C	T	1.88 umhos/cm	424	50 mL	68.6671 g	68.6671 g	68.6671 g
CCV 400-439058/26		SM 2540C			900	50 mL	57.7096 g	57.7257 g	57.7257 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Weight3	Weight4	WeightOne%Diff	WeightTwo%Diff	Weight4OK	Residue
MB 400-439058/1		SM 2540C		0 g	0 g	Pass	N/A	N/A	-0.0001 g
LCS 400-439058/2		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0116 g
400-169314-A-6	AES-MW4-DUP-042419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0108 g
400-169314-A-5	AES-MW4-042419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0237 g
400-169314-A-3	AES-MW3-042319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0201 g
400-169314-A-7	AES-MW5-042419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0188 g
CCV 400-439058/14		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0123 g
400-169314-A-1	AES-MW1-042319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0228 g
400-169314-A-8	AES-FB-042419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	-0.0001 g
400-169314-A-4	AES-FB-042319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0 g
CCV 400-439058/26		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0161 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Residue2	Residue3	Residue4	FinalAmount	CalcMsg	GTDS-LCS-W 00095

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439058 Batch Start Date: 04/30/19 13:01 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 05/01/19 16:09

Lab Sample ID	Client Sample ID	Method Chain	Basis	Residue2	Residue3	Residue4	FinalAmount	CalcMsg	GTDS-LCS-W 00095
MB 400-439058/1		SM 2540C		-0.0001 g	N/A g	N/A g	50 mL	OK	
LCS 400-439058/2		SM 2540C		0.012 g	N/A g	N/A g	50 mL	OK	50 mL
400-169314-A-6	AES-MW4-DUP-042419	SM 2540C	T	0.011 g	N/A g	N/A g	50 mL	OK	
400-169314-A-5	AES-MW4-042419	SM 2540C	T	0.0236 g	N/A g	N/A g	50 mL	OK	
400-169314-A-3	AES-MW3-042319	SM 2540C	T	0.0201 g	N/A g	N/A g	50 mL	OK	
400-169314-A-7	AES-MW5-042419	SM 2540C	T	0.0186 g	N/A g	N/A g	50 mL	OK	
CCV 400-439058/14		SM 2540C		0.0124 g	N/A g	N/A g	50 mL	OK	50 mL
400-169314-A-1	AES-MW1-042319	SM 2540C	T	0.0226 g	N/A g	N/A g	50 mL	OK	
400-169314-A-8	AES-FB-042419	SM 2540C	T	-0.0001 g	N/A g	N/A g	50 mL	OK	
400-169314-A-4	AES-FB-042319	SM 2540C	T	0 g	N/A g	N/A g	50 mL	OK	
CCV 400-439058/26		SM 2540C		0.0161 g	N/A g	N/A g	50 mL	OK	50 mL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439058 Batch Start Date: 04/30/19 13:01 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 05/01/19 16:09

Batch Notes	
Balance ID	denver
Conductivity Meter ID	10k100742
Date/Time - In - CW (WT2)	05/01/2019 12:49
Date/Time - Out - CW (WT2)	05/01/2019 13:53
Temperature - Start - CW (WT2) - Correct	180.0 Celsius
Temperature - End - CW (WT2) - Correct	180.0 Celsius
Temperature - Start-CW(WT2) -Uncorrected	181.0 Celsius
Temperature - End-CW(WT2) -Uncorrected	181.0 Celsius
Filter ID	16901431
Nominal Amount Used	50 mL
Oven ID	IN028
Thermometer ID	191880792
Weight(WT1) Start Date/Time	04/30/2019 14:27
Weight(WT1) Date/Time Out	05/01/2019 10:10
Weight(WT1) Start Temp	98.0 Celsius
Weight(WT1) Temp Out	180.0 Celsius
Uncorrected Weight(WT1) Start Temp	99.0 Celsius
Uncorrected Weight(WT1) Temp Out	181.0 Celsius

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439825 Batch Start Date: 05/06/19 13:33 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 Cl- E Batch End Date: 05/06/19 15:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CL-CCV-35ppm 00031	CL-CCV-S 00017	CL-CCVL-2ppm 00028	CL-ICV-W 00054
CCV 400-439825/1		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439825/2		SM 4500 Cl- E		10 mL	10 mL				
MRL 400-439825/3		SM 4500 Cl- E		10 mL	10 mL			10 mL	
ICV 400-439825/4		SM 4500 Cl- E		10 mL	10 mL				10 mL
ICB 400-439825/5		SM 4500 Cl- E		10 mL	10 mL				
MB 400-439825/6		SM 4500 Cl- E		10 mL	10 mL				
LCS 400-439825/7		SM 4500 Cl- E		10 mL	10 mL				10 mL
CCV 400-439825/13		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439825/14		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-439825/25		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439825/26		SM 4500 Cl- E		10 mL	10 mL				
400-169314-A-4	AES-FB-042319	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-439825/36		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439825/37		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-439825/38		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439825/39		SM 4500 Cl- E		10 mL	10 mL				
400-169314-A-2	AES-MW2-042319	SM 4500 Cl- E	T	10 mL	10 mL				
400-169314-A-2 MS	AES-MW2-042319	SM 4500 Cl- E	T	10 mL	10 mL		0.05 mL		
400-169314-A-2 MSD	AES-MW2-042319	SM 4500 Cl- E	T	10 mL	10 mL		0.05 mL		
400-169314-A-1	AES-MW1-042319	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-439825/50		SM 4500 Cl- E		10 mL	10 mL	10 mL			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439825 Batch Start Date: 05/06/19 13:33 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 Cl- E Batch End Date: 05/06/19 15:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CL-CCV-35ppm 00031	CL-CCV-S 00017	CL-CCVL-2ppm 00028	CL-ICV-W 00054
CCB 400-439825/51		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-439825/56		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439825/57		SM 4500 Cl- E		10 mL	10 mL				
400-169314-A-3	AES-MW3-042319	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-439825/59		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439825/60		SM 4500 Cl- E		10 mL	10 mL				

Batch Notes	

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439988 Batch Start Date: 05/07/19 10:37 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 Cl- E Batch End Date: 05/07/19 14:19

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CL-CCV-35ppm 00031	CL-CCVL-2ppm 00028	CL-ICV-W 00054	
CCV 400-439988/1		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439988/2		SM 4500 Cl- E		10 mL	10 mL				
MRL 400-439988/3		SM 4500 Cl- E		10 mL	10 mL		10 mL		
ICV 400-439988/4		SM 4500 Cl- E		10 mL	10 mL			10 mL	
ICB 400-439988/5		SM 4500 Cl- E		10 mL	10 mL				
MB 400-439988/6		SM 4500 Cl- E		10 mL	10 mL				
LCS 400-439988/7		SM 4500 Cl- E		10 mL	10 mL			10 mL	
CCV 400-439988/13		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439988/14		SM 4500 Cl- E		10 mL	10 mL				
400-169314-A-8	AES-FB-042419	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-439988/25		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439988/26		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-439988/38		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439988/39		SM 4500 Cl- E		10 mL	10 mL				
400-169314-A-5	AES-MW4-042419	SM 4500 Cl- E	T	10 mL	10 mL				
400-169314-A-6	AES-MW4-DUP-042419	SM 4500 Cl- E	T	10 mL	10 mL				
400-169314-A-7	AES-MW5-042419	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-439988/46		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-439988/47		SM 4500 Cl- E		10 mL	10 mL				

Batch Notes	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439988 Batch Start Date: 05/07/19 10:37 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 Cl- E Batch End Date: 05/07/19 14:19

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439193 Batch Start Date: 05/01/19 10:52 Batch Analyst: Brooks, Barbara A

Batch Method: SM 4500 F C Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	FL-CCV-S 00007	FL-LCS-S 00013	TISAB 00022		
400-169314-A-2 MS	AES-MW2-042319	SM 4500 F C	T	10 mL	0.1 mL		10 mL		
CCB 400-439193/2		SM 4500 F C					10 mL		
MB 400-439193/3		SM 4500 F C					10 mL		
LCS 400-439193/4		SM 4500 F C		100 mL		4 mL	10 mL		
CCV 400-439193/5		SM 4500 F C		100 mL	5 mL		10 mL		
CCVL 400-439193/6		SM 4500 F C		100 mL	0.5 mL		10 mL		
400-169314-A-2	AES-MW2-042319	SM 4500 F C	T				10 mL		
400-169314-A-2 MSD	AES-MW2-042319	SM 4500 F C	T	10 mL	0.1 mL		10 mL		
CCV 400-439193/10		SM 4500 F C		100 mL	5 mL		10 mL		
400-169314-A-1	AES-MW1-042319	SM 4500 F C	T				10 mL		
400-169314-A-3	AES-MW3-042319	SM 4500 F C	T				10 mL		
400-169314-A-5	AES-MW4-042419	SM 4500 F C	T				10 mL		
400-169314-A-6	AES-MW4-DUP-042419	SM 4500 F C	T				10 mL		
400-169314-A-7	AES-MW5-042419	SM 4500 F C	T				10 mL		
400-169314-A-4	AES-FB-042319	SM 4500 F C	T				10 mL		
400-169314-A-8	AES-FB-042419	SM 4500 F C	T				10 mL		

Batch Notes	
Probe ID	27502-19

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439767 Batch Start Date: 05/06/19 09:00 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date: 05/06/19 10:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-C-S 00016	SO4-CCV-W 00032	SO4-CCVL-W 00037	SO4-ICV-W 00062
CCV 400-439767/1		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-439767/2		SM 4500 SO4 E		10 mL	10 mL				
MRL 400-439767/3		SM 4500 SO4 E		10 mL	10 mL			10 mL	
ICV 400-439767/4		SM 4500 SO4 E		10 mL	10 mL				10 mL
ICB 400-439767/5		SM 4500 SO4 E		10 mL	10 mL				
MB 400-439767/6		SM 4500 SO4 E		10 mL	10 mL				
LCS 400-439767/7		SM 4500 SO4 E		10 mL	10 mL				10 mL
CCV 400-439767/13		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-439767/14		SM 4500 SO4 E		10 mL	10 mL				
400-169314-A-2	AES-MW2-042319	SM 4500 SO4 E	T	10 mL	10 mL				
400-169314-A-2 MS	AES-MW2-042319	SM 4500 SO4 E	T	10 mL	10 mL	0.1 mL			
400-169314-A-2 MSD	AES-MW2-042319	SM 4500 SO4 E	T	10 mL	10 mL	0.1 mL			
CCV 400-439767/25		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-439767/26		SM 4500 SO4 E		10 mL	10 mL				
400-169314-A-4	AES-FB-042319	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-439767/36		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-439767/37		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-439767/50		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-439767/51		SM 4500 SO4 E		10 mL	10 mL				
400-169314-A-1	AES-MW1-042319	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-439767/56		SM 4500 SO4 E		10 mL	10 mL		10 mL		

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439767 Batch Start Date: 05/06/19 09:00 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date: 05/06/19 10:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-C-S 00016	SO4-CCV-W 00032	SO4-CCVL-W 00037	SO4-ICV-W 00062
CCB 400-439767/57		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-439767/58		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-439767/59		SM 4500 SO4 E		10 mL	10 mL				
400-169314-A-3	AES-MW3-042319	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-439767/64		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-439767/65		SM 4500 SO4 E		10 mL	10 mL				

Batch Notes	

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439789 Batch Start Date: 05/06/19 10:59 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date: 05/06/19 12:58

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-W 00032	SO4-CCVL-W 00037	SO4-ICV-W 00062	
CCV 400-439789/1		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-439789/2		SM 4500 SO4 E		10 mL	10 mL				
MRL 400-439789/3		SM 4500 SO4 E		10 mL	10 mL		10 mL		
ICV 400-439789/4		SM 4500 SO4 E		10 mL	10 mL			10 mL	
ICB 400-439789/5		SM 4500 SO4 E		10 mL	10 mL				
MB 400-439789/6		SM 4500 SO4 E		10 mL	10 mL				
LCS 400-439789/7		SM 4500 SO4 E		10 mL	10 mL			10 mL	
CCV 400-439789/13		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-439789/14		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-439789/25		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-439789/26		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-439789/36		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-439789/37		SM 4500 SO4 E		10 mL	10 mL				
400-169314-A-8	AES-FB-042419	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-439789/40		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-439789/41		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-439789/52		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-439789/53		SM 4500 SO4 E		10 mL	10 mL				
400-169314-A-5	AES-MW4-042419	SM 4500 SO4 E	T	10 mL	10 mL				
400-169314-A-6	AES-MW4-DUP-042419	SM 4500 SO4 E	T	10 mL	10 mL				
400-169314-A-7	AES-MW5-042419	SM 4500 SO4 E	T	10 mL	10 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-169314-1

SDG No.:

Batch Number: 439789 Batch Start Date: 05/06/19 10:59 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date: 05/06/19 12:58

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-W 00032	SO4-CCVL-W 00037	SO4-ICV-W 00062	
CCV 400-439789/57		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-439789/58		SM 4500 SO4 E		10 mL	10 mL				

Batch Notes	

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

439069

Report Date: 04/30/2019 : 7:45

PC-TitratION PLUS
Calibration Report

Calibration Record # 2256

1st BAB 4-30-19

Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	04/30/2019
Channel	1	Time	7:45 AM
Probe Type	pH	Temperature	293.35 K 20.20 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-58.038	CorrCoeff	1.0000
Intercept	12.574	Equation: Y = (-58.038) X + (12.574)	

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-58.038	-65.00	-53.00
Intercept	12.574	-100.00	100.00
Correlation Coefficient	1.0000	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	187.62
	7.01	10.13
	10.03	-162.35

PC-TitratION PLUS by Man-Tech Associates, Inc.
CALRPRTLive1.SRW
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TestAmerica-Pensacola

ALKALINITY METHOD EPA 310.1/ SM2320B
FLUORIDE METHOD EPA 340.2, SW846-9056/ SM4500-F-C
pH METHOD EPA 150.1, SW846-9040C, SW846-9045D

Run Number 8801 **Order Number** 20190430-2 N H2S04 -1.00000

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
04/30/2019	9:09 AM	PH9 LOT126024	25.00	8.97	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	.00	-1.000
04/30/2019	9:02 AM	PH 4 LOT 131596	25.00	3.99	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-203.45	-1.000
04/30/2019	9:04 AM	PH7 LOT 132908	25.00	7.05	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-.18	-1.000
04/30/2019	9:06 AM	PH10 LOT130972	25.00	10.01	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	.00	-1.000
04/30/2019	9:07 AM	PH5 LOT 126312	25.00	5.06	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-17.35	-1.000

Copyright Hinterland Software Ltd.

Analyst Signature: _____

TestAmerica-Pensacola

ALKALINITY METHOD EPA 310.1/ SM2320B
FLUORIDE METHOD EPA 340.2, SW846-9056/ SM4500-F-C
pH METHOD EPA 150.1, SW846-9040C, SW846-9045D

Run Number 8802 **Order Number** 20190430-3 N H2S04 0.02135

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
04/30/2019	1:57 PM	ccv	25.00	10.04	0.751	2.409	2.478	102.84	.00	64.09	38.75	32.05	.01	-1.000
04/30/2019	2:00 PM	ccb	25.00	4.14	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
04/30/2019	11:13 AM	ALK-WASH	25.00	8.66	0.014	0.334	0.392	11.82	.00	1.22	10.59	.61	.05	-1.000
04/30/2019	11:16 AM	MB	25.00	4.01	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
04/30/2019	11:24 AM	LCS	25.00	9.99	0.765	2.372	2.425	101.26	.00	65.33	35.92	32.67	.01	-1.000
04/30/2019	11:32 AM	CCV	25.00	10.19	0.927	2.359	2.414	100.70	.00	79.16	21.55	39.58	.00	-1.000
04/30/2019	11:41 AM	400-169314-A-2	25.00	7.27	0.000	14.108	14.282	602.32	.00	.00	602.32	.00	64.89	-1.000
04/30/2019	11:50 AM	400-169314-A-2-du	25.00	7.50	0.000	14.137	14.304	603.57	.00	.00	603.57	.00	38.39	-1.000
04/30/2019	11:56 AM	400-169202-A-10	25.00	7.48	0.000	1.897	1.963	81.00	.00	.00	81.00	.00	5.38	-1.000
04/30/2019	12:02 PM	400-169202-A-11	25.00	7.34	0.000	2.262	2.330	96.59	.00	.00	96.59	.00	8.91	-1.000
04/30/2019	12:07 PM	400-169202-A-12	25.00	7.50	0.000	2.082	2.149	88.88	.00	.00	88.88	.00	5.66	-1.000
04/30/2019	12:15 PM	400-169183-C-4	25.00	9.74	0.822	1.267	1.322	54.08	16.08	38.00	.00	35.08	.00	-1.000
04/30/2019	12:23 PM	400-169183-C-7	25.00	9.77	0.944	1.197	1.247	51.09	29.51	21.58	.00	40.30	.00	-1.000
04/30/2019	12:29 PM	169337-b1	25.00	7.63	0.000	3.740	3.861	159.68	.00	.00	159.68	.00	7.42	-1.000
04/30/2019	12:37 PM	169314-a1	25.00	7.98	0.000	9.701	9.831	414.19	.00	.00	414.19	.00	8.76	-1.000
04/30/2019	12:45 PM	169314-a3	25.00	7.72	0.000	12.475	12.733	532.60	.00	.00	532.60	.00	20.19	-1.000
04/30/2019	12:53 PM	ccv	25.00	10.19	0.750	2.369	2.438	101.15	.00	64.00	37.15	32.00	.00	-1.000
04/30/2019	12:55 PM	ccb	25.00	4.05	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
04/30/2019	1:06 PM	169314-a5	25.00	8.02	0.000	22.003	22.322	939.41	.00	.00	939.41	.00	18.11	-1.000
04/30/2019	1:18 PM	169314-a5-du	25.00	8.02	0.000	22.080	22.388	942.68	.00	.00	942.68	.00	17.89	-1.000
04/30/2019	1:30 PM	169314-a6	25.00	8.10	0.000	21.182	21.488	904.32	.00	.00	904.32	.00	14.48	-1.000
04/30/2019	1:38 PM	169314-a7	25.00	7.64	0.000	11.473	11.653	489.85	.00	.00	489.85	.00	22.51	-1.000
04/30/2019	1:44 PM	169314-a4	25.00	5.54	0.000	0.058	0.115	.05	.00	.00	.05	.00	.30	-1.000

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Analyst Signature: _____

Run Number 8802 **Order Number** 20190430-3 N H2S04 0.02135

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
04/30/2019	1:49 PM	169314-a8	25.00	5.43	0.000	0.053	0.108	-.07	.00	.00	-.07	.00	-.51	-1.000

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Analyst Signature: _____

ICAL Batch 437175

Chloride 325.2 / SM 4500Cl E (21st ed.) / SM 4500Cl E-1997/ SM 4500Cl E-2011/ 9251

Calibration results Aquakem 7.2.AQ2 Page: 1

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

2nd lcv RRC 5.6.19

4/15/2019 14:41

Test CHLORIDE

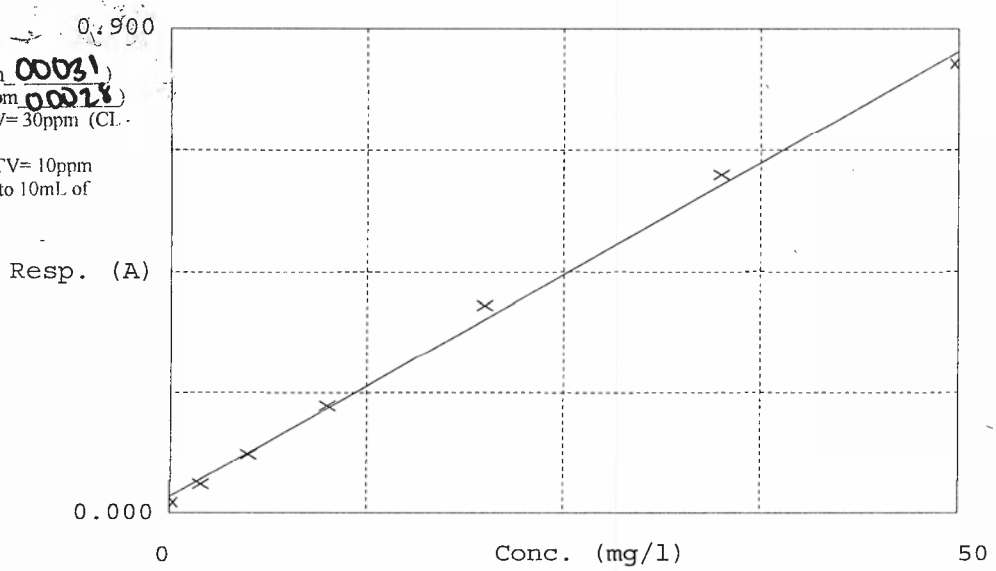
NCM: 274354, 274355, 244356

DATE	ICV	ICB	CCV-FIRST	CCV-LAST
5.6.19	103	ND	100	101
BATCH	**LCS**	**MS%R**	**MSD%R**	**RPD**
439825	104	95	96	0
		56	66	1

Correlation Coefficient must be ≥0.995 in order to pass

Accepted	- -
Resp. = A * Conc. ^ 2 + B * Conc. + C	
A =	0
B =	0.017
C =	0.031
Coeff. of det.	0.997018
Errors	QC rule violated

CL CCVH: TV=50ppm (CL -CCV-35ppm_00031)
CL CCVL: TV= 2.0ppm (CL –CCVL-2ppm_00028)
CL ICV: *9251 EVERY 10 SAMPLES TV= 30ppm (CL - ICV-W-00054)
MS/MSD: *9251 EVERY 10 SAMPLES TV= 10ppm (0.1mL CL-CCV-S-00017 spiked into 10mL of sample)



	Calibrator	Response	Calc. con.	Conc.	Errors
1	CL-0	0.019	-0.70857	0.00000	
2	CL-2	0.054	1.42170	2.00000	
3	CL-5	0.110	4.79818	5.00000	
4	CL-10	0.201	10.25135	10.00000	
5	CL-20	0.387	21.53132	20.00000	
6	CL-35	0.628	36.08505	35.00000	
7	CL-50	0.836	48.62099	50.00000	
8	CCV-CL(control)	0.618	35.43562	35.00000	
9	ICB-CL(control)	0.025	-0.37828	0.00000	
10	ICV-CL(control)	0.542	30.87552	30.00000	

CL: AQ LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	73-120%
RPD	8
R.L.	2.0mg/L

CL: NAq LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	75-125%
RPD	20
R.L.	40mg/kg

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

5/6/2019 15:30

Test: CHLORIDE

Sample Id	Result	Dil. 1 +	Response	Errors
CCV-CL	35.1628	0.0	0.613	
CCB-CL	-0.7667	0.0	0.018	Test limit low
mrl cl	1.3783	0.0	0.054	
icv cl	30.8732	0.0	0.542	
icb cl	-0.5334	0.0	0.022	Test limit low
mb cl	-0.5104	0.0	0.022	Test limit low
lcs cl	31.2422	0.0	0.548	
400-169216-H-7	21.6451	0.0	0.389	
169216-h-7 ms	31.1298	0.0	0.546	
169216-h-7 msd	31.1960	0.0	0.547	
400-169216-H-8	5.7603	0.0	0.126	
400-169216-H-11	7.1236	0.0	0.149	
CCV-CL	34.9805	0.0	0.610	
CCB-CL	-0.7049	0.0	0.019	Test limit low
400-169216-H-12	5.7236	0.0	0.126	
400-169216-H-13	5.3137	0.0	0.119	
400-169216-H-16	11.7075	0.0	0.225	
400-169216-H-17	40.3574	0.0	0.699	
169185-c-1	53.2113	0.0	0.912	
400-169434-B-1	210.3825	0.0	3.514	Init abs.
400-169434-B-2	233.2316	0.0	3.892	Init abs.
400-169314-A-2	65.0063	0.0	1.107	
169314-a-2 ms	69.4296	0.0	1.180	
169314-a-2 msd	68.7721	0.0	1.169	
CCV-CL	34.9626	0.0	0.610	
CCB-CL	-0.7548	0.0	0.018	Test limit low
400-169434-B-3	334.8169	0.0	5.574	Init abs.
400-169314-A-1	103.4268	0.0	1.743	Init abs.
400-169314-A-3	582.5986	0.0	9.676	Abs. high, Init abs.
400-169314-A-4	-0.2514	0.0	0.027	Test limit low
400-169261-D-1	55.7732	0.0	0.954	
400-169261-D-2	87.8280	0.0	1.485	
400-169261-D-3	44.3944	0.0	0.766	
400-169261-D-4	55.0202	0.0	0.942	
400-169296-H-3	16.3586	0.0	0.302	
CCV-CL	34.9421	0.0	0.609	
CCB-CL	-1.0120	0.0	0.014	Test limit low, Rule 1 vi
CCV-CL	34.9270	0.0	0.609	
CCB-CL	-0.8516	0.0	0.017	Test limit low
169185-c-1	57.6176	1.0	0.508	
400-169434-B-1	593.2030	29.0	0.358	
400-169434-B-2	689.7830	29.0	0.412	
400-169314-A-2	71.9022	1.0	0.626	
169314-a-2 ms	77.5356	1.0	0.673	
169314-a-2 msd	78.5103	1.0	0.681	
400-169434-B-3	1025.4434	29.0	0.597	Test limit high
400-169314-A-1	155.7094	19.0	0.160	
400-169314-A-3	3736.8865	59.0	1.062	Test limit high
400-169261-D-1	60.9647	1.0	0.536	
CCV-CL	34.8459	0.0	0.608	
CCB-CL	-0.8818	0.0	0.016	Test limit low
400-169261-D-2	121.0921	4.0	0.432	
400-169261-D-4	59.7953	1.0	0.526	
CCV-CL	35.2814	0.0	0.615	
CCB-CL	-0.9538	0.0	0.015	Test limit low

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

5/6/2019 15:30

Test: CHLORIDE

Sample Id	Result	Dil. 1 +	Response	Errors
CCV-CL	35.1992	0.0	0.614	
CCB-CL	-0.6144	0.0	0.021	Test limit low
400-169314-A-3	4194.9766	99.0	0.725	Test limit high
CCV-CL	35.2642	0.0	0.615	
CCB-CL	-0.9813	0.0	0.015	Test limit low

N	42
Mean	312.5197
SD	855.48431
CV%	273.74

TestAmerica [Pensacola]

TestAmeri

Colorimetric Data Review Checklist

LIMS Batch Number:	Filename:		Instrument ID (circle one): Konelab-III
Analyst/1st Reviewer:	Method (circle): 376.4, 365.2		QC Type (circle): Standard
Matrix (circle): Drinking Water Non-potable Water Solid Leachate			Circle One: Total Soluble

Reviewer Items	NA	Yes	No	2nd Rev	If No, why is data reportable?
1. Number of Points: 1st order: 3 standards 2nd order: 5 standards		X			
2. Linearity and Intercept: r ≥ 0.995 |y-intercept| < RL or < ½ RL (special projects)		X			
3. ICV, second source: run before samples 90-110% recovery		X			
4. CCV: 10% frequency & closing 90-110% recovery		X			If no, list details:
5. Cadmium Column Efficiency Check (365.2 & 4500NO3-E): 85-115% NO2 recovery		X			If no, list details:
6. ICB/CCB: run before samples, 10% frequency, & closing Result < RL Result < ½ RL (DoD or special project)		X			If no, list details:
7. Samples with results > [illegible]		X			Comments:
8. On-instrument response of diluted samples in [illegible]		X			Comments:
9. Method Blank: one per preparation batch Result < RL Result < ½ RL (DoD or special project) *If no, list blank ID & explain:*		X			☐ No analyte > RL in associated samples ☐ Sample results >10x blank ☐ Insufficient sample for reanalysis
10. LCS: one per preparation batch 90-110% recovery *If no, list LCS ID & explain:*		X			☐ Insufficient sample for reanalysis ☐ LCS %R > QC limits & samples < RL
11. MS/MSD or MS/Dup frequency: A pair per 10 samples (routine) A pair per batch (4500-x) Laboratory derived limits (routine) 90-110% recovery (drinking water) *If no, list QC ID & explain:*		X			☐ Insufficient sample

TestAmerica [Pensacola]

Review Items	Yes	No	2nd Rev	If No, why is data reportable?
12. Raw Data				
a. Unused data is clearly identified	X			
b. All crossed out data is initialed and dated	X			
c. Out of control QC is clearly identified	X			
d. Any data that has a qualifier tick is commented on with appropriate action taken	X			
e. The first page of the run includes the filename, instrument, and analyst initials/signature	X			
13. Run Log				
a. Unused data is clearly identified	X			
b. All crossed out data is initialed and dated	X			
c. Analyst initials/signature provided	X			
14. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct	X			
b. Method and matrix are correct	X			
c. Date and time match raw data	X			
d. Dilutions are correct	X			
e. Correct suffix designated (where applicable)	X			
15. TALS Worksheet Tab is complete and correct	X			
16. TALS Reagent Tab is complete and correct	X			
17. TALS QC Links Tab is correct	X			
18. TALS Sample Results Tab				
a. All unused data are marked Rejected or Accepted	X			
b. All reported analytes are marked [illegible]	X			
19. TALS Batch Information Screen [illegible]	X			
20. TALS Status set to [illegible]	X			
21. Were all job/project [illegible]				
22. Results for samples and QC correct on final report?				
23. Are all necessary scanned documents in TALS?				
24. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?				

2nd Reviewer: _____ Review Date: _____

Comments: _____

Corp Form [illegible]

ICAL Batch 437175

Chloride 325.2 / SM 4500Cl E (21st ed.) / SM 4500Cl E-1997/ SM 4500Cl E-2011/ 9251

Calibration results Aquakem 7.2.AQ2 Page: 1

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

1st Lev RRC 5.7.19

4/15/2019 14:41

Test CHLORIDE

Accepted - -

Resp. = A * Conc. ^ 2 + B * Conc. + C
A = 0
B = 0.017
C = 0.031

Coeff. of det. 0.997018

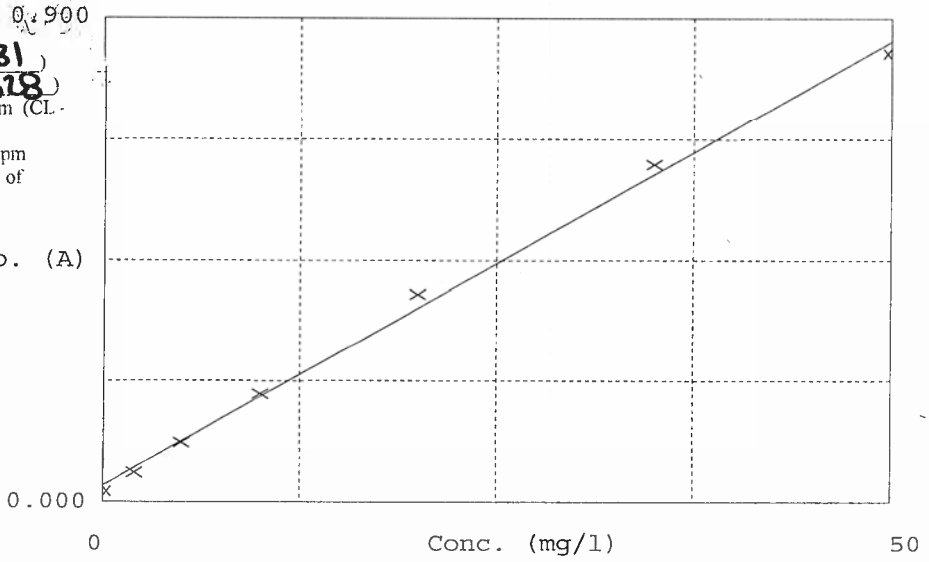
Errors QC rule violated

NCM

DATE	ICV	ICB	CCV-FIRST	CCV-LAST
5.7.19	103	ND	100	102
BATCH	**LCS**	**MS%R**	**MSD%R**	**RPD**
439988	104	114	116	1
		111	146	23

Correlation Coefficient must be ≥0.995 in order to pass

CL CCVH: TV=50ppm (CL -CCV-35ppm 00031)
CL CCVL: TV= 2.0ppm (CL -CCVL-2ppm 00028)
CL ICV: *9251 EVERY 10 SAMPLES TV= 30ppm (CL -ICV-W-00054)
MS/MSD: *9251 EVERY 10 SAMPLES TV= 10ppm (0.1mL CL-CCV-S-00017 spiked into 10mL of sample)



	Calibrator	Response	Calc. con.	Conc.	Errors
1	CL-0	0.019	-0.70857	0.00000	
2	CL-2	0.054	1.42170	2.00000	
3	CL-5	0.110	4.79818	5.00000	
4	CL-10	0.201	10.25135	10.00000	
5	CL-20	0.387	21.53132	20.00000	
6	CL-35	0.628	36.08505	35.00000	
7	CL-50	0.836	48.62099	50.00000	
8	CCV-CL(control)	0.618	35.43562	35.00000	
9	ICB-CL(control)	0.025	-0.37828	0.00000	Tes
10	ICV-CL(control)	0.542	30.87552	30.00000	

CL: AQ LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	73-120%
RPD	8
R.L.	2.0mg/L

CL: NAq LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	75-125%
RPD	20
R.L.	40mg/kg

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

5/7/2019 14:19

Test: CHLORIDE

X=Rejected RNC

Sample Id	Result	Dil. 1 +	Response	Errors
CCV-CL	34.9702	0.0	0.610	
CCB-CL	-0.5904	0.0	0.021	Test limit low
mrl cl	1.5713	0.0	0.057	
icv cl	30.8432	0.0	0.541	
icb cl	-0.4827	0.0	0.023	Test limit low
mb cl	-0.2947	0.0	0.026	Test limit low
lcs cl	31.1757	0.0	0.547	
400-169296-H-4	6.3242	0.0	0.136	
169296-h-4 ms	17.7358	0.0	0.324	
169296-h-4 msd	17.8838	0.0	0.327	
X 00-169296-H-13	53.5198	0.0	0.917	
400-169296-H-14	11.0967	0.0	0.215	
CCV-CL	35.0596	0.0	0.611	
CCB-CL	-0.6331	0.0	0.020	Test limit low
400-169296-H-15	4.6585	0.0	0.108	
400-169296-H-16	7.7423	0.0	0.159	
400-169296-H-17	7.0806	0.0	0.148	
X 00-169314-A-5	582.9601	0.0	9.682	Abs. high, Init abs.
X 00-169314-A-6	583.0765	0.0	9.684	Abs. high, Init abs.
X 00-169314-A-7	583.2432	0.0	9.687	Abs. high, Init abs.
400-169314-A-8	-0.0764	0.0	0.030	Test limit low
400-169468-D-1	2.6874	0.0	0.075	
1469468-d-1 ms	13.7855	0.0	0.259	
169468-d-1 msd	17.3256	0.0	0.318	
CCV-CL	34.9634	0.0	0.610	
CCB-CL	-0.6388	0.0	0.020	Test limit low
X 00-169470-A-2	239.1864	0.0	3.991	Init abs.
400-169545-F-2	14.4233	0.0	0.270	
400-169545-F-3	14.9711	0.0	0.279	
400-169545-F-5	13.3616	0.0	0.252	
400-169545-F-6	15.3480	0.0	0.285	
X 00-169532-A-1	227.9996	0.0	3.806	Init abs.
400-169589-A-1	1.7281	0.0	0.059	
400-169589-A-2	9.5105	0.0	0.188	
400-169468-G-2	21.3312	0.0	0.384	
CCV-CL	35.1959	0.0	0.614	
CCB-CL	-0.6694	0.0	0.020	Test limit low
CCV-CL	35.3827	0.0	0.617	
CCB-CL	-2.2268	0.0	-0.006	Test limit low, Rule 1 vi
400-169296-H-13	56.2669	1.0	0.497	
400-169314-A-5	3539.9258	79.0	0.763	Test limit high
400-169314-A-6	3601.2915	79.0	0.776	Test limit high
400-169314-A-7	3669.7781	79.0	0.790	Test limit high
X 00-169470-A-2	744.8457	9.0	1.264	
X 00-169532-A-1	697.1307	9.0	1.185	
CCV-CL	35.8752	0.0	0.625	
CCB-CL	-1.2689	0.0	0.010	Test limit low, Rule 1 vi
CCV-CL	35.4630	0.0	0.618	
CCB-CL	-1.0388	0.0	0.014	Test limit low, Rule 1 vi
400-169470-A-2	897.9886	29.0	0.526	
400-169532-A-1	822.8184	29.0	0.485	
CCV-CL	35.8057	0.0	0.624	
CCB-CL	-1.0836	0.0	0.013	Test limit low, Rule 1 vi

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

5/7/2019 14:19

Test: CHLORIDE

Sample Id	Result	Dil. 1 +	Response	Ô„

N	37
Mean	447.5611
SD	989.11163
CV%	221.00

TestAmerica [Pensacola]

TestAmeri

Colorimetric Data Review Checklist

LIMS Batch Number:	Filename:	
Analyst/1st Reviewer:	Method (circle): 375.4, 325.2	Instrument ID (circle one): Konelab-M
Matrix (circle): Drinking Water Non-potable Water Solid Leachate		QC Type (circle): Standard
		Circle One: Total Soluble

Review Items	NA	Yes	No	2nd Rev	If No, why is data reportable?
1. Number of Points: 1st order: 3 standards 2nd order: 6 standards		X			
2. Linearity and Intercept: r ≥ 0.995 |x-intercept| < RL or < ½ RL (special projects)		X			
3. ICV, second source: run before samples 90-110% recovery		X			
4. CCV: 10% frequency & closing 90-110% recovery		X			If no, list details:
5. Cadmium Column Efficiency Check (353.2 & 4500NO3-E): 85-115% NO2 recovery		X			If no, list details:
6. ICB/CCB: run before samples, 10% frequency, & closing Result < RL Result < ½ RL (DoD or special project)		X			If no, list details:
7. Samples with results > linear range		X			Comments:
8. On-instrument response of diluted sample is >[illegible] on-instrument response		X			Comments:
9. Method Blank: one per preparation batch Result < RL Result < ½ RL (DoD or special project) *If no, list blank ID & explain:*		X			☐ No analyte > RL in associated samples ☐ Sample results >10x blank ☐ Insufficient sample for reanalysis
10. LCS: one per preparation batch 90-110% recovery *If no, list LCS ID & explain:*		X			☐ Insufficient sample for reanalysis ☐ LCS %R > QC limits & samples < RL
11. MS/MSD or MS/Dup frequency: A pair per 10 samples (routine) A pair per batch (4500-x) Laboratory derived limits (routine) 90-110% recovery (drinking water) *If no, list QC ID & explain:*		X			☐ Insufficient sample

Corp Form No. CA-Q-WI-[illegible]

TestAmerica [Pensacola]

Review Items	Yes	No	2nd Rev	If No, why is data reportable?
12. Raw Data				
a. Unused data is clearly identified	X			
b. All crossed out data is initialed and dated	X			
c. Out of control QC is clearly identified	X			
d. Any data that has a qualifier tick is commented on with appropriate action taken	X			
e. The first page of the run includes the filename, instrument, and analyst initials/signature	X			
13. Run Log				
a. Unused data is clearly identified	X			
b. All crossed out data is initialed and dated	X			
c. Analyst initials/signature provided	X			
14. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct	X			
b. Method and matrix are correct	X			
c. Date and time match raw data	X			
d. Dilutions are correct	X			
e. Correct suffix designated (where applicable)	X			
15. TALS Worksheet Tab is complete and correct	X			
16. TALS Reagent Tab is complete and correct	X			
17. TALS QC Links Tab is correct	X			
18. TALS Sample Results Tab				
a. All unused data are marked Rejected or Accepted	X			
b. All reported analytes are marked [illegible]	X			
19. TALS Batch Information Screen [illegible]	X			
20. TALS Status set to [illegible]	X			
21. Were all job/project [illegible]				
22. Results for samples and QC correct on final report?				
23. Are all necessary scanned documents in TALS?				
24. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?				

2nd Reviewer: _____ Review Date: _____

Comments: _____

Corp Form [illegible]

Report Date: 05/01/2019 : 11:38 AM

439193
1st BAB
5-1-19

TestAmerica-Pensacola

ALKALINITY METHOD EPA 310.1/ SM2320B
FLUORIDE METHOD EPA 340.2, SW846-9056/ SM4500-F-C
pH METHOD EPA 150.1, SW846-9040C, SW846-9045D

Run Number 8805 **Order Number** 20190501-3 N H2S04 -1.00000

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
05/01/2019	11:08 AM	400-169314-A-2-ms	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.678
05/01/2019	11:37 AM	ccb	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.012
05/01/2019	10:52 AM	MB	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.011
05/01/2019	10:55 AM	LCS	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	3.683
05/01/2019	10:57 AM	CCV	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	4.725
05/01/2019	11:00 AM	CCVL	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.492
05/01/2019	11:04 AM	mdls	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.104
05/01/2019	11:06 AM	400-169314-A-2	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.682
05/01/2019	11:10 AM	400-169314-A-2-msd	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.678
05/01/2019	11:33 AM	ccv	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	4.725
05/01/2019	11:12 AM	169314-a1	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.750
05/01/2019	11:15 AM	169314-a3	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.585
05/01/2019	11:17 AM	169314-a5	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.944
05/01/2019	11:20 AM	169314-a6	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.962
05/01/2019	11:23 AM	169314-a7	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.430
05/01/2019	11:27 AM	169314-a4	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.012
05/01/2019	11:31 AM	169314-a8	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.010

Copyright Hinterland Software Ltd.

Analyst Signature: _____

ICAL 437134

Calibration results Aquakem 7.2.AQ2 Page: 1

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

1st Lev RRC 5.6.19

4/15/2019 12:58

Test SULFATE

Accepted - -

Resp. = A * Conc. ^ 2 + B * Conc. + C
A = 0
B = 0.008
C = 0.001

Coeff. of det. 0.998402

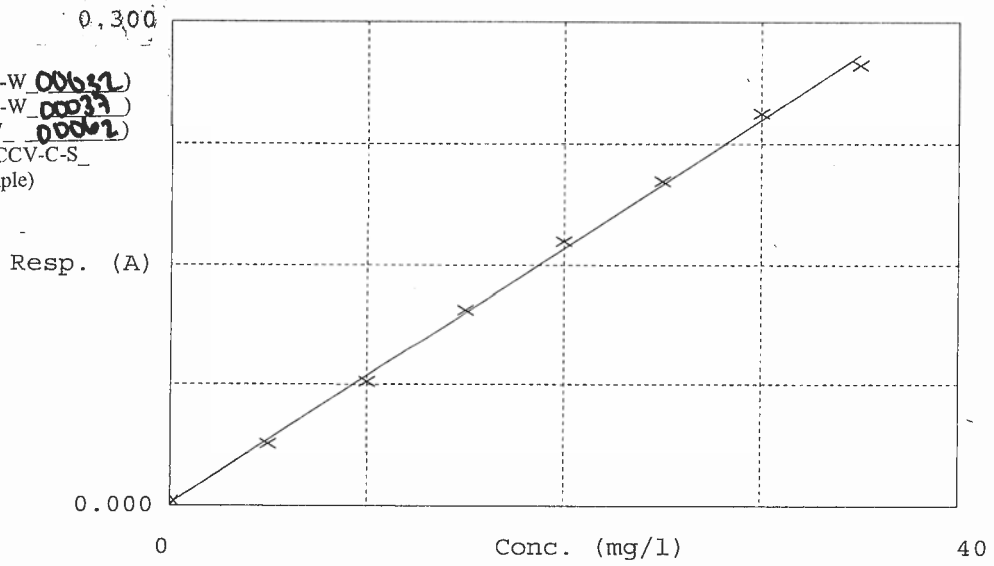
Errors

NCM: 274258, 274259, 274260

DATE	ICV	ICB	CCV-FIRST	CCV-LAST
5.6.19	96	ND	99	97
BATCH	LCS	MS%R	MSD%R	RPD
439767	95	98	102	2
		-19	-7	0

Correlation Coefficient must be ≥0.995 in order to pass

SO4 CCVH: TV=15ppm (SO4 -CCV-W_00632)
SO4 CCVL: TV= 5ppm (SO4-CCVL-W_00039)
SO4 ICV: TV= 15ppm (SO4 -ICV-W_ 00062)
MS/MSD: TV= 10ppm (0.1mL SO4-CCV-C-S_ 00016 spiked into 10mL of sample)



	Calibrator	Response	Calc. con.	Conc.	Errors
1	S0	0.003	0.16727	0.00000	
2	S1	0.038	4.64664	5.00000	
3	S2	0.077	9.50040	10.00000	
4	S3	0.122	15.20380	15.00000	
5	S4	0.165	20.54909	20.00000	
6	S5	0.202	25.25197	25.00000	
7	S6	0.244	30.48083	30.00000	
8	S7	0.273	34.20000	35.00000	
9	CCV-SO4 (control	0.121	15.04203	15.00000	
10	ICB-SO4 (control	0.003	0.16014	0.00000	
11	ICV-SO4 (control	0.120	14.89030	15.00000	

SO4: AQ LIMIT

ICV/LCS/CCV	90-110%
CCVL AT RL (5ppm)	50-150%
MS/MSD%R	70-128%
RPD	5
R.L.	5.0mg/L

SO4: NAq LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	59-146%
RPD	20
R.L.	100mg/kg

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

5/6/2019 10:30

Test: SULFATE

Sample Id	Result	Dil. 1 +	Response	Errors
CCV-SO4	14.8145	0.0	0.119	
CCB-SO4	-0.0145	0.0	0.001	
mrl so4	4.4627	0.0	0.037	
icv so4	14.3285	0.0	0.115	
icb so4	-0.0356	0.0	0.001	
mb so4	-0.0342	0.0	0.001	
lcs so4	14.2820	0.0	0.115	
169193-f-2	116.2990	0.0	0.925	Test limit high
169193-f-2 ms	112.9996	0.0	0.899	Test limit high
169193-f-2 msd	118.8836	0.0	0.946	Test limit high
400-168681-O-5	57.5707	0.0	0.459	Test limit high
400-169113-V-1	10.8864	0.0	0.088	
CCV-SO4	14.9912	0.0	0.121	
CCB-SO4	-0.0230	0.0	0.001	
400-169113-U-4	-0.6419	0.0	-0.004	
400-169113-V-5	90.8115	0.0	0.723	Test limit high
400-169113-U-6	25.1056	0.0	0.201	
400-169154-U-1	25.3730	0.0	0.203	
400-169154-V-5	-0.2675	0.0	-0.001	
400-169193-F-1	20.4447	0.0	0.164	
400-169193-E-3	76.0959	0.0	0.606	Test limit high
400-169314-A-2	6.6279	0.0	0.054	
169314-a-2 ms	16.8410	0.0	0.135	
169314-a-2 msd	16.4369	0.0	0.132	
CCV-SO4	14.8089	0.0	0.119	
CCB-SO4	0.0485	0.0	0.002	
400-169205-B-3	176.4649	0.0	1.403	Test limit high
169185-c-1	35.2189	0.0	0.281	Test limit high
500-162656-B-1	22.1327	0.0	0.177	
400-169314-A-1	93.8637	0.0	0.747	Test limit high
400-169314-A-3	190.5570	0.0	1.515	Test limit high
400-169314-A-4	0.7968	0.0	0.008	
480-152450-D-1	-1.2119	0.0	-0.008	
400-169193-F-4	217.3398	0.0	1.727	Test limit high
400-169193-F-5	76.0005	0.0	0.605	Test limit high
CCV-SO4	14.3096	0.0	0.115	
CCB-SO4	0.0966	0.0	0.002	
CCV-SO4	14.5862	0.0	0.117	
CCB-SO4	0.1818	0.0	0.003	
169193-f-2	242.4686	29.0	0.066	Test limit high
169193-f-2 ms	240.6054	29.0	0.065	Test limit high
169193-f-2 msd	241.7309	29.0	0.065	Test limit high
400-168681-O-5	75.3175	4.0	0.121	Test limit high
CCV-SO4	14.5581	0.0	0.117	
CCB-SO4	0.0868	0.0	0.002	
400-169113-V-5	146.1059	4.0	0.234	Test limit high
400-169193-E-3	110.1505	4.0	0.176	Test limit high
400-169205-B-3	1363.4423	29.0	0.362	Test limit high
169185-c-1	35.2841	1.0	0.142	Test limit high
CCV-SO4	14.3959	0.0	0.116	
CCB-SO4	0.0281	0.0	0.002	
400-169314-A-1	168.7210	4.0	0.269	Test limit high
400-169314-A-3	1666.9131	29.0	0.443	Test limit high
400-169314-A-4	3.7838	29.0	0.002	
400-169193-F-5	118.2565	4.0	0.189	Test limit high

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

5/6/2019 10:30

Test: SULFATE

Sample Id	Result	Dil.	1 +	Response	Errors
CCV-SO4	14.5898	0.0		0.117	
CCB-SO4	0.0417	0.0		0.002	
CCV-SO4	14.9218	0.0		0.120	
CCB-SO4	0.1637	0.0		0.003	
400-169113-V-5	146.0063	19.0		0.059	Test limit high
400-169205-B-3	1651.0422	99.0		0.133	Test limit high
400-169314-A-3	2170.0684	99.0		0.174	Test limit high
400-169193-F-4	874.0255	59.0		0.117	Test limit high
CCV-SO4	14.5913	0.0		0.117	
CCB-SO4	0.2579	0.0		0.004	

N	45
Mean	239.8123
SD	493.58624
CV%	205.82

TestAmerica [Pensacola]

TestAmeri

Colorimetric Data Review Checklist

LIMS Batch Number:	Filename:	Instrument ID (circle one): Konelab-M
Analyst/1st Reviewer:	Method (circle): 375.4, 325.2	QC Type (circle): Standard
Matrix (circle): Drinking Water Non-potable Water Solid Leachate		Circle One: Total Soluble

Review Items	NA	Yes	No	2nd Rev	If No, why is data reportable?
1. Number of Points: 1st order: 3 standards 2nd order: 6 standards		X			
2. Linearity and Intercept: r ≥ 0.995 |x-intercept| < RL or < ½ RL (special projects)		X			
3. ICV, second source: run before samples 90-110% recovery		X			
4. CCV: 10% frequency & closing 90-110% recovery		X			If no, list details:
5. Cadmium Column Efficiency Check (353.2 & 4500NO3-E): 85-115% NO2 recovery		X			If no, list details:
6. ICB/CCB: run before samples, 10% frequency, & closing Result < RL Result < ½ RL (DoD or special project)		X			If no, list details:
7. Samples with results > [illegible]		X			Comments:
8. On-instrument response of [illegible]		X			Comments:
9. Method Blank: one per preparation batch Result < RL Result < ½ RL (DoD or special project) *If no, list blank ID & explain:*		X			☐ No analyte > RL in associated samples ☐ Sample results >10x blank ☐ Insufficient sample for reanalysis
10. LCS: one per preparation batch 90-110% recovery *If no, list LCS ID & explain:*		X			☐ Insufficient sample for reanalysis ☐ LCS %R > QC limits & samples < RL
11. MS/MSD or MS/Dup frequency: A pair per 10 samples (routine) A pair per batch (4500-x) Laboratory derived limits (routine) 90-110% recovery (drinking water) *If no, list QC ID & explain:*		X			☐ Insufficient sample

Corp Form No. CA-Q-WI-058, Rev 0 dated [illegible]

TestAmerica [Pensacola]

Review Items	Yes	No	2nd Rev	If No, why is data reportable?
12. Raw Data				
a. Unused data is clearly identified	X			
b. All crossed out data is initialed and dated	X			
c. Out of control QC is clearly identified	X			
d. Any data that has a qualifier flag is commented on with appropriate action taken	X			
e. The first page of the run includes the filename, instrument, and analyst initials/signature	X			
13. Run Log				
a. Unused data is clearly identified	X			
b. All crossed out data is initialed and dated	X			
c. Analyst initials/signature provided	X			
14. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct	X			
b. Method and matrix are correct	X			
c. Date and time match raw data	X			
d. Dilutions are correct	X			
e. Correct suffix designated (where applicable)	X			
15. TALS Worksheet Tab is complete and correct	X			
16. TALS Reagent Tab is complete and correct	X			
17. TALS QC Links Tab is correct	X			
18. TALS Sample Results Tab				
a. All unused data are marked, initialed and dated	X			
b. All reported analytes are [illegible]	X			
19. TALS Batch Information [illegible]	X			
20. TALS [illegible]	X			
21. Were all [illegible]				
22. Results for samples and QC [illegible]				
23. Are all necessary [illegible]				
24. NCMs reviewed for appropriateness, correct relevance to batches, Grammar/typographical errors?				

2nd Reviewer: _____ Review Date: _____

Comments: _____

ICAL 437134

Calibration results Aquakem 7.2.AQ2 Page: 1

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

1st lev RRC 5.6.19

4/15/2019 12:58

Test SULFATE

Accepted - -

Resp. = A * Conc. ^ 2 + B * Conc. + C
A = 0
B = 0.008
C = 0.001

Coeff. of det. 0.998402

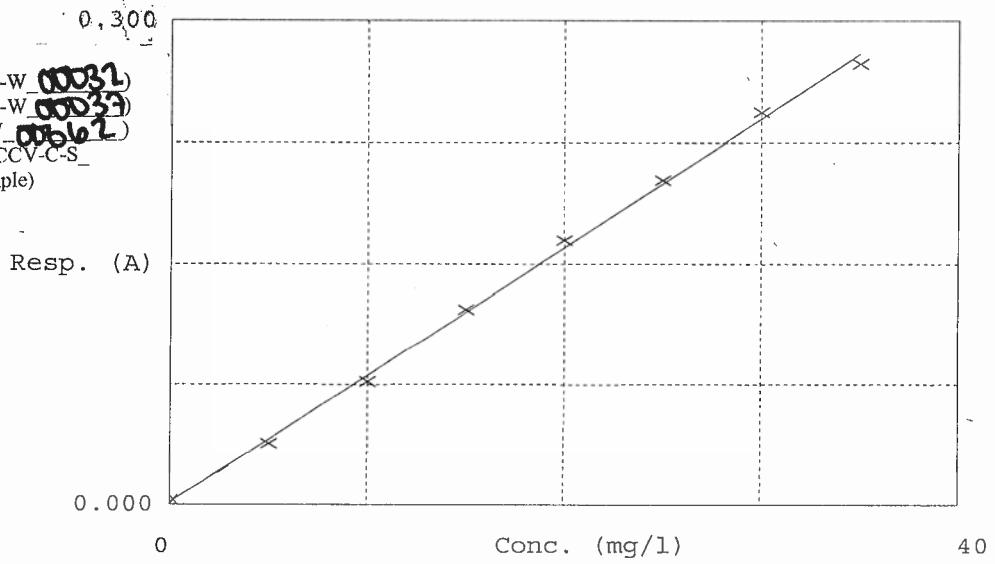
Errors

NCM: 274302 & 274303

DATE	ICV	ICB	CCV-FIRST	CCV-LAST
5.06.19	96	ND	97	99
BATCH	**LCS**	**MS%R**	**MSD%R**	**RPD**
439789	95	102	103	1
		72	72	0

Correlation Coefficient must be ≥0.995 in order to pass

SO4 CCVH: TV=15ppm (SO4 -CCV-W_00032)
SO4 CCVL: TV= 5ppm (SO4-CCVL-W_00037)
SO4 ICV: TV= 15ppm (SO4 -ICV-W_00062)
MS/MSD: TV= 10ppm (0.1mL SO4-CCV-C-S_00616 spiked into 10mL of sample)



	Calibrator	Response	Calc. con.	Conc.	Errors
1	S0	0.003	0.16727	0.00000	
2	S1	0.038	4.64664	5.00000	
3	S2	0.077	9.50040	10.00000	
4	S3	0.122	15.20380	15.00000	
5	S4	0.165	20.54909	20.00000	
6	S5	0.202	25.25197	25.00000	
7	S6	0.244	30.48083	30.00000	
8	S7	0.273	34.20000	35.00000	
9	CCV-SO4 (control	0.121	15.04203	15.00000	
10	ICB-SO4 (control	0.003	0.16014	0.00000	
11	ICV-SO4 (control	0.120	14.89030	15.00000	

SO4: AQ LIMIT

ICV/LCS/CCV	90-110%
CCVL AT RL (5ppm)	50-150%
MS/MSD%R	70-128%
RPD	5
R.L.	5.0mg/L

SO4: NAq LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	59-146%
RPD	20
R.L.	100mg/kg

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

5/6/2019 12:58

Test: SULFATE

Sample Id	Result	Dil.	1 +	Response		Errors
CCV-SO4	14.5680	0.0		0.117		
CCB-SO4	0.0878	0.0		0.002		
mrl so4	4.5564	0.0		0.038		
icv so4	14.3720	0.0		0.116		
icb so4	0.0489	0.0		0.002		
mb so4	0.0957	0.0		0.002		
lcs so4	14.3087	0.0		0.115		
480-152450-D-2	-0.3793	0.0		-0.002		
152450-d-2 ms	10.2048	0.0		0.083		
152450-d-2 msd	10.2709	0.0		0.083		
480-152450-D-3	38.3383	0.0		0.306		Test limit high
480-152450-D-4	-0.2411	0.0		-0.000		
CCV-SO4	14.7831	0.0		0.119		
CCB-SO4	0.0358	0.0		0.002		
480-152450-L-5	-0.0384	0.0		0.001		
480-152450-D-6	21.3163	0.0		0.171		
480-152450-D-7	5.7405	0.0		0.047		
480-152450-D-8	-0.4424	0.0		-0.002		
480-152450-D-11	0.1054	0.0		0.002		
480-152450-D-12	8.3060	0.0		0.067		
480-152450-L-13	8.3071	0.0		0.067		
500-162719-B-1	27.1501	0.0		0.217		
167219-b-1 ms	34.3362	0.0		0.274		
167219-b-1 msd	34.3922	0.0		0.275		
CCV-SO4	14.7007	0.0		0.118		
CCB-SO4	0.0240	0.0		0.002		
480-152450-D-14	42.9496	0.0		0.343		Test limit high
480-152450-D-15	6.6975	0.0		0.055		
480-152450-L-16	14.7791	0.0		0.119		
400-169314-A-5	194.7216	0.0		1.548		Test limit high
400-169314-A-6	196.5631	0.0		1.562		Test limit high
400-169314-A-7	193.3932	0.0		1.537		Test limit high
400-169468-G-2	82.6595	0.0		0.658		Test limit high
CCV-SO4	14.6730	0.0		0.118		
CCB-SO4	0.5005	0.0		0.005		
CCV-SO4	14.3870	0.0		0.116		
CCB-SO4	0.2952	0.0		0.004		
400-169314-A-8	0.1977	0.0		0.003	R	
400-169468-K-1	1.7761	0.0		0.016	R	
CCV-SO4	14.3500	0.0		0.115		
CCB-SO4	0.2168	0.0		0.003		
480-152450-D-3	40.4323	1.0		0.162		Test limit high
480-152450-D-14	35.8885	4.0		0.058		Test limit high
400-169314-A-5	2097.4036	29.0		0.557		Test limit high
400-169314-A-6	2193.5115	29.0		0.582		Test limit high
CCV-SO4	14.7037	0.0		0.118		
CCB-SO4	0.2377	0.0		0.003		
400-169314-A-7	1774.0514	29.0		0.471		Test limit high
400-169468-G-2	133.1580	4.0		0.213		Test limit high
CCV-SO4	14.4191	0.0		0.116		
CCB-SO4	0.0916	0.0		0.002		
CCV-SO4	14.6197	0.0		0.118		
CCB-SO4	0.1299	0.0		0.003		
400-169314-A-5	3278.9299	99.0		0.262		Test limit high
400-169314-A-6	3205.1936	99.0		0.256		Test limit high

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

5/6/2019 12:58

Test: SULFATE

Sample Id	Result	Dil. 1 +	Response	Errors
400-169314-A-7	2301.1060	99.0	0.184	Test limit high
CCV-SO4	14.9009	0.0	0.120	
CCB-SO4	0.0490	0.0	0.002	

N	38
Mean	421.6884
SD	930.99445
CV%	220.78

TestAmerica [Pensacola]

TestAmeri

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Colorimetric Data Review Checklist

LIMS Batch Number:	Filename:	
Analyst/1st Reviewer:	Method (circle): 375.4, 325.2	Instrument ID (circle one): Konelab-M
Matrix (circle): Drinking Water Non-potable Water Solid Leachate		QC Type (circle): Standard
		Circle One: Total Soluble

Review Items	NA	Yes	No	2nd Rev	If No, why is data reportable?
1. Number of Points: 1st order: 3 standards 2nd order: 6 standards		X			
2. Linearity and Intercept: r ≥ 0.995 |x-intercept| < RL or < ½ RL (special projects)		X			
3. ICV, second source: run before samples 90-110% recovery		X			
4. CCV: 10% frequency & closing 90-110% recovery		X			If no, list details:
5. Cadmium Column Efficiency Check (353.2 & 4500NO3-E): 85-115% NO2 recovery		X			If no, list details:
6. ICB/CCB: run before samples, 10% frequency, & closing Result < RL Result < ½ RL (DoD or special project)		X			If no, list details:
7. Samples with results > linear range [illegible]		X			Comments:
8. On-instrument response of diluted sample is >10X MB on-instrument response		X			Comments:
9. Method Blank: one per preparation batch Result < RL Result < ½ RL (DoD or special project) *If no, list blank ID & explain:*		X			☐ No analyte > RL in associated samples ☐ Sample results >10x blank ☐ Insufficient sample for reanalysis
10. LCS: one per preparation batch 90-110% recovery *If no, list LCS ID & explain:*		X			☐ Insufficient sample for reanalysis ☐ LCS %R > QC limits & samples < RL
11. MS/MSD or MS/Dup frequency: A pair per 10 samples (routine) A pair per batch (4500-x) Laboratory derived limits (routine) 90-110% recovery (drinking water) *If no, list QC ID & explain:*		X			☐ Insufficient sample

Corp Form No. CA-Q-WI-056, Rev.0 dated 30 Mar 2015

TestAmerica [Pensacola]

Review Items	Yes	No	2nd Rev	If No, why is data reportable?
12. Raw Data				
a. Unused data is clearly identified	X			
b. All crossed out data is initialed and dated	X			
c. Out of control QC is clearly identified	X			
d. Any data that has a qualifier tick is commented on with appropriate action taken	X			
e. The first page of the run includes the filename, instrument, and analyst initials/signature	X			
13. Run Log				
a. Unused data is clearly identified	X			
b. All crossed out data is initialed and dated	X			
c. Analyst initials/signature provided	X			
14. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct	X			
b. Method and matrix are correct	X			
c. Date and time match raw data	X			
d. Dilutions are correct	X			
e. Correct suffix designated (where applicable)	X			
15. TALS Worksheet Tab is complete and correct	X			
16. TALS Reagent Tab is complete and correct	X			
17. TALS QC Links Tab is correct	X			
18. TALS Sample Results Tab				
a. All unused data are flagged Rejected or Associated	X			
b. All reported analytes are marked [illegible]	X			
19. TALS Batch Information Screen [illegible]	X			
20. TALS Standard set to [illegible]	X			
21. Were all jobs/project [illegible]				
22. Results for samples and QC correct on final report?				
23. Are all necessary scanned documents in TALS?				
24. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?				

2nd Reviewer: _____ Review Date: _____

Comments: _____

Corp Form No. QA-Q-WI-[illegible]

Shipping and Receiving Documents

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: RAFAEL DIAZ	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-75000-29494.1
Client Contact: Alberto Melendez	Phone: 787-209-6386	E-Mail: eric.lang@testamericainc.com		Page: Page 1 of 1
Company: DNA-Environment, LLC				Job #:

Address: 35 Calle Juan C Borbon Ste 67-227	Due Date Requested:
City: Guaynabo	TAT Requested (days): 10 DAYS (REGULAR TAT)
State, Zip: PR, 00969-5375	
Phone: 787-209-6386	PO #: 555
Email: alberto.melendez@dnaenv.com	WO #:
Project Name: CCR Groundwater Monitoring	Project #: 40008317
Site: AES Puerto Rico LP, Guayama, PR	SSOW#:

Analysis Requested

400-169314 COC

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Radium-226 & Radium-228	SM4500_Cl_E-Chloride, Field pH, SM4500_SO4_E-Sulfate, 4500_F_C - Fluoride, SM2540C - TDS, SM2320B - Alkalinity	6020 - Total Metals, 7470A - Total Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
AES-MW1-042319	4-23-19	1010	G	Water	N		X	X	X	3	(*) pH = 7.61
AES-MW2-042319		1155		Water	N		X	X	X	3	pH = 7.22
AES-MW2-042319 MS		1214		Water	N	Y	X	X	X	3	
AES-MW2-042319 MSD		1232		Water	N	Y	X	X	X	3	
AES-MW3-042319		1510		Water	N		X	X	X	3	pH = 7.56
AES-FB-042319		1532		Water	N		X	X	X	3	
AES-MW4-042419	4-24-19	1025		Water	N		X	X	X	3	pH = 7.43
AES-MW4-DUP-042419		1042		Water	N		X	X	X	3	
AES-MW5-042419		1237		Water	N		X	X	X	3	pH = 6.77
AES-FB-042419		1256		Water	N		X	X	X	3	
											(*) FIELD pH

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For Months

Deliverable Requested: I, II, III, IV, Other (specify): LEVEL IV

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 4/25/19 15:20	Company: DNA	Received by:	Date/Time: 4-24-19/1520	Company: DNA
Relinquished by:	Date/Time: 4-24-19/1735	Company: DNA	Received by:	Date/Time: 4-25-19 908	Company: TA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 4.0, 3.4°C IR 8

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-169314-1

Login Number: 169314
List Number: 1
Creator: Brown, Nathan

List Source: Eurofins TestAmerica, Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.0°C, 3.4°C IR8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Daliz Estades Santaliz

Licensed Chemist

To Whom It May Concern:

I, Daliz M. Estades Santaliz, in my capacity as Puerto Rico Certified Chemist, hereby certify the attached Analytical Results from CCR GW Monitoring AES-PR (Job ID:400-169314-2) Project and ID Numbers:

400-169314-1
400-169314-2
400-169314-3
400-169314-4
400-169314-5
400-169314-6
400-169314-7
400-169314-8



Lcda. Daliz M. Estades Santaliz

PO Box 727
Dorado, PR 00646-0727

ANALYTICAL REPORT

Job Number: 400-169314-2

Job Description: CCR GW Monitoring, AES Puerto Rico, LP

For:
DNA-Environment, LLC
35 Calle Juan C Borbon
Ste 67-227
Guaynabo, PR 00969-5375

Attention: Alberto Melendez



Approved for release.
Eric A. Lang
Manager of Project Management
8/12/2019 9:21 AM

Eric A. Lang, Manager of Project Management
2417 Bond Street, University Park, IL, 60484
(708)534-5200
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08/12/2019

The test results in this report meet all NELAP requirements for accredited parameters, unless otherwise noted, and relate only to the referenced samples. Pursuant to NELAP, this report may not be reproduced, except in full, without written approval from the laboratory. For questions please contact the Project Manager at the e-mail address listed on this page, or the telephone number at the bottom of the page. TestAmerica Pensacola Certifications and Approvals: Alabama (40150), Arizona (AZ0710), Arkansas (88-0689), Florida (E81010), Illinois (200041), Iowa (367), Kansas (E-10253), Kentucky UST (53), Louisiana (30748), Maryland (233), Massachusetts (M-FL094), Michigan (9912), New Hampshire (250510), New Jersey (FL006), North Carolina (314), Oklahoma (9810), Pennsylvania (68-00467), Rhode Island (LAO00307), South Carolina (96026), Tennessee (TN02907), Texas (T104704286-10-2), Virginia (00008), Washington (C2043), West Virginia (136), USDA Foreign Soil Permit (P330-08-00006).

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Definitions/Glossary

Client: DNA-Environment, LLC Job ID: 400-169314-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job Narrative
400-169314-2

Comments
No additional comments.

Receipt
The samples were received on 4/25/2019 9:08 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.4º C and 4.0º C.

RAD
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: AES-MW1-042319

Date Collected: 04/23/19 10:10
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-1
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0210	U	0.0579	0.0580	1.00	0.107	pCi/L	05/30/19 08:33	08/01/19 11:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.5*		*40 - 110*	*05/30/19 08:33*	*08/01/19 11:23*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.189	U	0.235	0.236	1.00	0.453	pCi/L	05/30/19 10:03	07/16/19 12:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.5*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:37*	*1*
Y Carrier	*86.4*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:37*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.168	U	0.242	0.243	5.00	0.453	pCi/L		08/02/19 10:35	1

Client Sample ID: AES-MW2-042319

Date Collected: 04/23/19 11:55
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-2
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00156	U	0.0567	0.0567	1.00	0.116	pCi/L	05/30/19 08:33	08/01/19 11:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.7*		*40 - 110*	*05/30/19 08:33*	*08/01/19 11:24*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0232	U	0.230	0.230	1.00	0.422	pCi/L	05/30/19 10:03	07/16/19 12:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.7*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:37*	*1*
Y Carrier	*84.9*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:37*	*1*

Client Sample Results

Client: DNA-Environment, LLC
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Job ID: 400-169314-2

Client Sample ID: AES-MW2-042319

Lab Sample ID: 400-169314-2
Matrix: Water

Date Collected: 04/23/19 11:55
Date Received: 04/25/19 09:08

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0217	U	0.237	0.237	5.00	0.422	pCi/L		08/02/19 10:35	1

Client Sample ID: AES-MW3-042319

Lab Sample ID: 400-169314-3
Matrix: Water

Date Collected: 04/23/19 15:10
Date Received: 04/25/19 09:08

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0679	U	0.0676	0.0679	1.00	0.106	pCi/L	05/30/19 08:33	08/01/19 13:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*05/30/19 08:33*	*08/01/19 13:10*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.127	U	0.240	0.240	1.00	0.452	pCi/L	05/30/19 10:03	07/16/19 12:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:40*	*1*
Y Carrier	*86.4*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:40*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0595	U	0.249	0.249	5.00	0.452	pCi/L		08/02/19 10:35	1

Client Sample ID: AES-FB-042319

Lab Sample ID: 400-169314-4
Matrix: Water

Date Collected: 04/23/19 15:32
Date Received: 04/25/19 09:08

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0408	U	0.0299	0.0301	1.00	0.0933	pCi/L	05/30/19 08:33	08/01/19 13:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.7*		*40 - 110*	*05/30/19 08:33*	*08/01/19 13:10*	*1*

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Dra. M. Estades Santaliz
Lic. 4026
QUIMICO LICENCIADO

Client Sample Results

Client: DNA-Environment, LLC
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Job ID: 400-169314-2

Client Sample ID: AES-FB-042319

Date Collected: 04/23/19 15:32
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-4
Matrix: Water

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.388	U	0.290	0.292	1.00	0.455	pCi/L	05/30/19 10:03	07/16/19 12:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.7*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:40*	*1*
Y Carrier	*83.7*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:40*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.348	U	0.292	0.294	5.00	0.455	pCi/L		08/02/19 10:35	1

Client Sample ID: AES-MW4-042419

Date Collected: 04/24/19 10:25
Date Received: 04/25/19 09:08

Lab Sample ID: 400-169314-5
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0364	U	0.0649	0.0650	1.00	0.114	pCi/L	05/30/19 08:33	08/01/19 13:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.5*		*40 - 110*	*05/30/19 08:33*	*08/01/19 13:11*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0189	U	0.271	0.271	1.00	0.490	pCi/L	05/30/19 10:03	07/16/19 12:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.5*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:40*	*1*
Y Carrier	*83.7*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:40*	*1*

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Lic. 4026
QUIMICO LICENCIADO

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0175	U	0.279	0.279	5.00	0.490	pCi/L		08/02/19 10:35	1

Client Sample Results

Client: DNA-Environment, LLC
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Job ID: 400-169314-2

Client Sample ID: AES-MW4-DUP-042419

Lab Sample ID: 400-169314-6
Matrix: Water

Date Collected: 04/24/19 10:42
Date Received: 04/25/19 09:08

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0446	U	0.0412	0.0414	1.00	0.114	pCi/L	05/30/19 08:33	08/01/19 13:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.4*		*40 - 110*	*05/30/19 08:33*	*08/01/19 13:12*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.476**		0.280	0.283	1.00	0.423	pCi/L	05/30/19 10:03	07/16/19 12:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.4*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:41*	*1*
Y Carrier	*84.9*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:41*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.432**		0.283	0.286	5.00	0.423	pCi/L		08/02/19 10:35	1

Client Sample ID: AES-MW5-042419

Lab Sample ID: 400-169314-7
Matrix: Water

Date Collected: 04/24/19 12:37
Date Received: 04/25/19 09:08

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0135	U	0.0441	0.0441	1.00	0.0870	pCi/L	05/30/19 08:33	08/01/19 15:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.2*		*40 - 110*	*05/30/19 08:33*	*08/01/19 15:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0275	U	0.275	0.275	1.00	0.499	pCi/L	05/30/19 10:03	07/16/19 12:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*78.2*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:41*	*1*
Y Carrier	*86.4*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:41*	*1*

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Dr. M. Estades Santaliz
Lic. 4026
CONTADOR LICENCIADO

Client Sample ID: AES-MW5-042419

Lab Sample ID: 400-169314-7
Matrix: Water
Date Collected: 04/24/19 12:37
Date Received: 04/25/19 09:08

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0140	U	0.279	0.279	5.00	0.499	pCi/L		08/02/19 10:35	1

Client Sample ID: AES-FB-042419

Lab Sample ID: 400-169314-8
Matrix: Water
Date Collected: 04/24/19 12:56
Date Received: 04/25/19 09:08

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0637	U	0.0635	0.0637	1.00	0.0997	pCi/L	05/30/19 08:33	08/01/19 15:07	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.9*		*40 - 110*	*05/30/19 08:33*	*08/01/19 15:07*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.163	U	0.233	0.234	1.00	0.391	pCi/L	05/30/19 10:03	07/16/19 12:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.9*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:41*	*1*
Y Carrier	*87.5*		*40 - 110*	*05/30/19 10:03*	*07/16/19 12:41*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.227	U	0.241	0.243	5.00	0.391	pCi/L		08/02/19 10:35	1



Tracer/Carrier Summary

Client: DNA-Environment, LLC
Job ID: 400-169314-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Method: 9315 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
400-169314-1	AES-MW1-042319	89.5
400-169314-2	AES-MW2-042319	88.7
400-169314-2 MS	AES-MW2-042319	89.5
400-169314-2 MSD	AES-MW2-042319	85.3
400-169314-3	AES-MW3-042319	87.6
400-169314-4	AES-FB-042319	90.7
400-169314-5	AES-MW4-042419	82.5
400-169314-6	AES-MW4-DUP-042419	90.4
400-169314-7	AES-MW5-042419	78.2
400-169314-8	AES-FB-042419	94.9
LCS 160-430215/1-A	Lab Control Sample	93.5
MB 160-430215/24-A	Method Blank	84.7

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
400-169314-1	AES-MW1-042319	89.5	86.4
400-169314-2	AES-MW2-042319	88.7	84.9
400-169314-2 MS	AES-MW2-042319	89.5	84.9
400-169314-2 MSD	AES-MW2-042319	85.3	86.7
400-169314-3	AES-MW3-042319	87.6	86.4
400-169314-4	AES-FB-042319	90.7	83.7
400-169314-5	AES-MW4-042419	82.5	83.7
400-169314-6	AES-MW4-DUP-042419	90.4	84.9
400-169314-7	AES-MW5-042419	78.2	86.4
400-169314-8	AES-FB-042419	94.9	87.5
LCS 160-430233/1-A	Lab Control Sample	93.5	82.6
MB 160-430233/24-A	Method Blank	84.7	84.1

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-430215/24-A
Matrix: Water
Analysis Batch: 437612

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430215

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02675	U	0.0459	0.0459	1.00	0.0816	pCi/L	05/30/19 08:33	08/01/19 17:57	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.7*		*40 - 110*	*05/30/19 08:33*	*08/01/19 17:57*	*1*

Lab Sample ID: LCS 160-430215/1-A
Matrix: Water
Analysis Batch: 437612

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430215

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.4	10.60		1.09	1.00	0.0757	pCi/L	93	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*93.5*		*40 - 110*

Lab Sample ID: 400-169314-2 MS
Matrix: Water
Analysis Batch: 437612

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA
Prep Batch: 430215

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	0.00156	U	11.3	10.36		1.07	1.00	0.0875	pCi/L	91	75 - 138

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*89.5*		*40 - 110*

Lab Sample ID: 400-169314-2 MSD
Matrix: Water
Analysis Batch: 437612

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA
Prep Batch: 430215

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.00156	U	11.3	9.524		1.00	1.00	0.0812	pCi/L	84	75 - 138	0.40	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*85.3*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-430233/24-A
Matrix: Water
Analysis Batch: 435021

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430233

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.07299	U	0.288	0.288	1.00	0.524	pCi/L	05/30/19 10:03	07/16/19 12:32	1

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.7		40 - 110	05/30/19 10:03	07/16/19 12:32	1
Y Carrier	84.1		40 - 110	05/30/19 10:03	07/16/19 12:32	1

Lab Sample ID: LCS 160-430233/1-A
Matrix: Water
Analysis Batch: 435022

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430233

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	9.02	8.768		1.06	1.00	0.457	pCi/L	97	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	93.5		40 - 110
Y Carrier	82.6		40 - 110

Lab Sample ID: 400-169314-2 MS
Matrix: Water
Analysis Batch: 435022

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA
Prep Batch: 430233

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	-0.0232	U	9.02	8.181		1.02	1.00	0.462	pCi/L	91	45 - 150

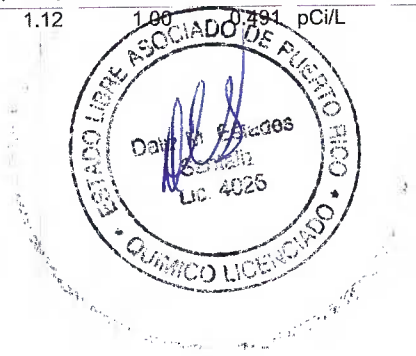
Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	89.5		40 - 110
Y Carrier	84.9		40 - 110

Lab Sample ID: 400-169314-2 MSD
Matrix: Water
Analysis Batch: 435021

Client Sample ID: AES-MW2-042319
Prep Type: Total/NA
Prep Batch: 430233

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	-0.0232	U	9.01	9.256		1.12	1.00	0.491	pCi/L	103	45 - 150	0.50	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	85.3		40 - 110
Y Carrier	86.7		40 - 110



QC Association Summary

Client: DNA-Environment, LLC
Job ID: 400-169314-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Rad

Prep Batch: 430215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total/NA	Water	PrecSep-21	
400-169314-2	AES-MW2-042319	Total/NA	Water	PrecSep-21	
400-169314-3	AES-MW3-042319	Total/NA	Water	PrecSep-21	
400-169314-4	AES-FB-042319	Total/NA	Water	PrecSep-21	
400-169314-5	AES-MW4-042419	Total/NA	Water	PrecSep-21	
400-169314-6	AES-MW4-DUP-042419	Total/NA	Water	PrecSep-21	
400-169314-7	AES-MW5-042419	Total/NA	Water	PrecSep-21	
400-169314-8	AES-FB-042419	Total/NA	Water	PrecSep-21	
MB 160-430215/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-430215/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-169314-2 MS	AES-MW2-042319	Total/NA	Water	PrecSep-21	
400-169314-2 MSD	AES-MW2-042319	Total/NA	Water	PrecSep-21	

Prep Batch: 430233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-169314-1	AES-MW1-042319	Total/NA	Water	PrecSep_0	
400-169314-2	AES-MW2-042319	Total/NA	Water	PrecSep_0	
400-169314-3	AES-MW3-042319	Total/NA	Water	PrecSep_0	
400-169314-4	AES-FB-042319	Total/NA	Water	PrecSep_0	
400-169314-5	AES-MW4-042419	Total/NA	Water	PrecSep_0	
400-169314-6	AES-MW4-DUP-042419	Total/NA	Water	PrecSep_0	
400-169314-7	AES-MW5-042419	Total/NA	Water	PrecSep_0	
400-169314-8	AES-FB-042419	Total/NA	Water	PrecSep_0	
MB 160-430233/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-430233/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-169314-2 MS	AES-MW2-042319	Total/NA	Water	PrecSep_0	
400-169314-2 MSD	AES-MW2-042319	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: DNA-Environment, LLC
Job ID: 400-169314-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW1-042319
Lab Sample ID: 400-169314-1
Date Collected: 04/23/19 10:10
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			430215	05/30/19 08:33	EJQ	TAL SL
Total/NA	Analysis	9315		1	437587	08/01/19 11:23	CDR	TAL SL
Total/NA	Prep	PrecSep_0			430233	05/30/19 10:03	EJQ	TAL SL
Total/NA	Analysis	9320		1	435022	07/16/19 12:37	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	437725	08/02/19 10:35	SMP	TAL SL

Client Sample ID: AES-MW2-042319
Lab Sample ID: 400-169314-2
Date Collected: 04/23/19 11:55
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			430215	05/30/19 08:33	EJQ	TAL SL
Total/NA	Analysis	9315		1	437593	08/01/19 11:24	CDR	TAL SL
Total/NA	Prep	PrecSep_0			430233	05/30/19 10:03	EJQ	TAL SL
Total/NA	Analysis	9320		1	435022	07/16/19 12:37	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	437725	08/02/19 10:35	SMP	TAL SL

Client Sample ID: AES-MW3-042319
Lab Sample ID: 400-169314-3
Date Collected: 04/23/19 15:10
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			430215	05/30/19 08:33	EJQ	TAL SL
Total/NA	Analysis	9315		1	437612	08/01/19 13:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			430233	05/30/19 10:03	EJQ	TAL SL
Total/NA	Analysis	9320		1	434918	07/16/19 12:40	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	437725	08/02/19 10:35	SMP	TAL SL

Client Sample ID: AES-FB-042319
Lab Sample ID: 400-169314-4
Date Collected: 04/23/19 15:32
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			430215	05/30/19 08:33	EJQ	TAL SL
Total/NA	Analysis	9315		1	437612	08/01/19 13:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			430233	05/30/19 10:03	EJQ	TAL SL
Total/NA	Analysis	9320		1	434918	07/16/19 12:40	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	437725	08/02/19 10:35	SMP	TAL SL

Lab Chronicle

Client: DNA-Environment, LLC
Job ID: 400-169314-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW4-042419
Lab Sample ID: 400-169314-5
Date Collected: 04/24/19 10:25
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			430215	05/30/19 08:33	EJQ	TAL SL
Total/NA	Analysis	9315		1	437587	08/01/19 13:11	CDR	TAL SL
Total/NA	Prep	PrecSep_0			430233	05/30/19 10:03	EJQ	TAL SL
Total/NA	Analysis	9320		1	434918	07/16/19 12:40	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	437725	08/02/19 10:35	SMP	TAL SL

Client Sample ID: AES-MW4-DUP-042419
Lab Sample ID: 400-169314-6
Date Collected: 04/24/19 10:42
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			430215	05/30/19 08:33	EJQ	TAL SL
Total/NA	Analysis	9315		1	437593	08/01/19 13:12	CDR	TAL SL
Total/NA	Prep	PrecSep_0			430233	05/30/19 10:03	EJQ	TAL SL
Total/NA	Analysis	9320		1	434918	07/16/19 12:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	437725	08/02/19 10:35	SMP	TAL SL

Client Sample ID: AES-MW5-042419
Lab Sample ID: 400-169314-7
Date Collected: 04/24/19 12:37
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			430215	05/30/19 08:33	EJQ	TAL SL
Total/NA	Analysis	9315		1	437612	08/01/19 15:06	CDR	TAL SL
Total/NA	Prep	PrecSep_0			430233	05/30/19 10:03	EJQ	TAL SL
Total/NA	Analysis	9320		1	434918	07/16/19 12:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	437725	08/02/19 10:35	SMP	TAL SL

Client Sample ID: AES-FB-042419
Lab Sample ID: 400-169314-8
Date Collected: 04/24/19 12:56
Matrix: Water
Date Received: 04/25/19 09:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			430215	05/30/19 08:33	EJQ	TAL SL
Total/NA	Analysis	9315		1	437612	08/01/19 15:07	CDR	TAL SL
Total/NA	Prep	PrecSep_0			430233	05/30/19 10:03	EJQ	TAL SL
Total/NA	Analysis	9320		1	434918	07/16/19 12:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	437725	08/02/19 10:35	SMP	TAL SL

Laboratory References:
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: DNA-Environment, LLC Job ID: 400-169314-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Laboratory: Eurofins TestAmerica, Pensacola

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Florida	NELAP	4	E81010	06-30-20 *

Laboratory: Eurofins TestAmerica, St. Louis

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Florida	NELAP	4	E87689	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9315	PrecSep-21	Water	Radium-226
Ra226_Ra228		Water	Combined Radium 226 + 228

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: DNA-Environment, LLC
Job ID: 400-169314-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: DNA-Environment, LLC
Job ID: 400-169314-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
400-169314-1	AES-MW1-042319	Water	04/23/19 10:10	04/25/19 09:08	
400-169314-2	AES-MW2-042319	Water	04/23/19 11:55	04/25/19 09:08	
400-169314-3	AES-MW3-042319	Water	04/23/19 15:10	04/25/19 09:08	
400-169314-4	AES-FB-042319	Water	04/23/19 15:32	04/25/19 09:08	
400-169314-5	AES-MW4-042419	Water	04/24/19 10:25	04/25/19 09:08	
400-169314-6	AES-MW4-DUP-042419	Water	04/24/19 10:42	04/25/19 09:08	
400-169314-7	AES-MW5-042419	Water	04/24/19 12:37	04/25/19 09:08	
400-169314-8	AES-FB-042419	Water	04/24/19 12:56	04/25/19 09:08	

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 400-169314-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
Ba Carrier_00045	12/18/19		CPI, Lot 10079154-4		(Purchased Reagent)		Ba Carrier	20000 ug/mL
Ra-226_00022	12/06/19	08/24/16	1M HNO3, Lot n/a	100 mL			Ra	7534.61 dpm/mL
					Ra-226_00021	5.0595 g	Radium-226	7534.61 dpm/mL
							Rn-222	7534.61 dpm/mL
							Total Alpha Emitting Radium Isotopes	7534.61 dpm/mL
.Ra-226_00021	09/01/53		NIST, Lot 4967A		(Purchased Reagent)		Radium-226	2482 Bq/g
							Rn-222	2482 Bq/g
							Total Alpha Emitting Radium Isotopes	2482 Bq/g
Ra-226_00025	04/30/20	12/08/16	0.1M HCl, Lot N/A	100 mL	Ra-226_00024	4.9774 g	Ra	8409.79 dpm/mL
							Radium-226	8409.79 dpm/mL
							Rn-222	8409.79 dpm/mL
							Total Alpha Emitting Radium Isotopes	8409.79 dpm/mL
.Ra-226_00024	12/05/66		Eckert & Ziegler, Lot 104858		(Purchased Reagent)		Ra	2815.99 Bq/g
							Radium-226	2815.99 Bq/g
							Rn-222	2815.99 Bq/g
							Total Alpha Emitting Radium Isotopes	2815.99 Bq/g
Ra-226_00029	04/30/20	04/10/19	0.1M HCl, Lot N/A	1000 mL	Ra-226_00025	3 mL	Ra	25.2294 dpm/mL
							Radium-226	25.2294 dpm/mL
							Rn-222	25.2294 dpm/mL
							Total Alpha Emitting Radium Isotopes	25.2294 dpm/mL
.Ra-226_00025	04/30/20	12/08/16	0.1M HCl, Lot N/A	100 mL	Ra-226_00024	4.9774 g	Ra	8409.79 dpm/mL
							Radium-226	8409.79 dpm/mL
							Rn-222	8409.79 dpm/mL
							Total Alpha Emitting Radium Isotopes	8409.79 dpm/mL
..Ra-226_00024	12/05/66		Eckert & Ziegler, Lot 104858		(Purchased Reagent)		Ra	2815.99 Bq/g
							Radium-226	2815.99 Bq/g
							Rn-222	2815.99 Bq/g
							Total Alpha Emitting Radium Isotopes	2815.99 Bq/g

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 400-169314-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
Ra-228_00031	12/20/19	07/09/18	0.1M HCL, Lot n/a	100 mL	Ra-228_00030	4.9846 g	Radium-228	229.501 dpm/mL
.Ra-228_00030	05/31/46	Eckert & Ziegler, Lot D-K-19023-01-00			(Purchased Reagent)		Radium-228	76.7368 Bq/g
Sr-90_00004	09/17/59	06/21/11	0.1M HCL, Lot 0	100 mL	Sr-90_00001	5.0139 g	Gross Beta	45120.6 dpm/mL
							Sr	22560.3 dpm/mL
							Sr-90	22560.3 dpm/mL
.Sr-90_00001	09/17/59	Eckert & Ziegler, Lot 80573-334			(Purchased Reagent)		Gross Beta	14998.5 Bq/g
							Sr	7499.25 Bq/g
							Sr-90	7499.25 Bq/g
Sr-90_00018							Gross Alpha	
					Sr-90_00017	4.9997 g	Gross Beta	44774.2 dpm/mL
							Sr-90	22387.1 dpm/mL
.Sr-90_00017	11/29/62	Analytics, Lot 92352			(Purchased Reagent)		Gross Beta	14925.6 Bq/g
							Sr-90	7462.82 Bq/g
Th-230_00016	11/29/62	11/28/12	0.5M HNO3, Lot 0	100 mL	Th-230_00015	5.0489 g	Gross Alpha	2374.49 dpm/mL
							Th-230	2374.49 dpm/mL
.Th-230_00015	11/29/62	Analytics, Lot 92523			(Purchased Reagent)		Gross Alpha	783.829 Bq/g
							Th-230	783.829 Bq/g
Th-230_00019							Gross Beta	
					Th-230_00018	5.0731 mL	Gross Alpha	2228.23 dpm/mL
							Th-230	2228.23 dpm/mL
.Th-230_00018	08/08/63	Eckert & Ziegler Analytics, Lot 92776			(Purchased Reagent)		Gross Alpha	43922.5 dpm/g
							Th-230	43922.5 dpm/g
Y Carrier_00037	03/31/20	CPI, Lot 10064660-8			(Purchased Reagent)		Y Carrier	50000 mg/L

Reagent

Ba Carrier_00045

1643431
ID: Ba Carrier_00046
Exp:12/18/19 Prpd:CLP Opn:12/18/18
Barium Carrier

REPORT OF ANALYSIS

Single-Element Aqueous RM

Custom Barium Standard

Matrix: 2% HNO_3

Product #: 4400-132859

Lot #: 10079154-5

Element	Certified Concentration
Ba	20,000 µg/mL

Intended Use: This solution is intended for use as a reference material (RM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This RM was manufactured, processed, and/or certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO Guide 34**, and **ISO/IEC 17025**. This RM was prepared to a nominal concentration of 20,000 µg/mL by gravimetric methods using single-element concentrate dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this RM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration was determined based upon gravimetric procedures. Secondary verification of the certified concentration was performed using ICP-OES and is traceable to **NIST SRM 3104a**. The uncertainty associated with the certified concentration is ±0.5% relative, which is the sum of the estimated errors due to the purity of the raw materials, the gravimetric preparation of the solution, and transpiration through the container. This represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the RM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original RM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

December 4, 2018
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Standardization of Carrier

Ba Carrier_00045

Carrier Reagent ID: _____
ID from TALS or lot number

#	Tare Wght (g)	Gross Wght (g)	Net Wght (g)	Z Score
1	8.6367	8.6725	**0.0358**	**0.8216**
2	8.6119	8.6477	**0.0358**	**0.8216**
3	8.6016	8.6370	**0.0354**	**0.0357**
4	8.6506	8.6852	**0.0346**	**1.7504**
5	8.6583	8.6935	**0.0352**	**0.4644**
6	8.7082	8.7439	**0.0357**	**0.6073**

Average: 0.0354 Standardized value
StDev: 0.0005
StDev %: 1.32%

Record the Reagent IDs of all chemicals used to create this carrier in the spaces below.

Reagent ID: _____
Reagent ID: _____
Reagent ID: _____
Reagent ID: _____
Reagent ID: _____
Reagent ID: _____
Reagent ID: _____

SOP Reference: ST-RC-0040 Mod (Direct precipitation)
SOP reference containing prep procedure must be documented

Minimum Criteria:

- Z Score must be within 3 sigma (**2.58**) and no more than one score outside of 2 sigma (**1.96**)
- 4 points required
- Any criteria stipulated in the above referenced SOP must be satisfied in addition.

Carrier: Ba Carrier_00045 ***Standardized Value:*** 0.0354 Carrier Reagent or Lot ID: ***ID Required for Approval***

Approved By: *TJ Romanko* Date Approved: ***5/3/2019***

Rad Worksheet

Batch Number: 160-426501
Method: PrecSep_0
Analyst: Romanko, Terry J

Date Open: May 02 2019 1:24PM
Batch End: May 03 2019 9:39AM

Lab ID	Client ID	Method Chain	Basis	Initial weight/volume of sample	Tare Weight of Barium Planchette	Gross Weight of Barium Planchette	Barium Mass Added	Ingrowth/Decay Date1	Native Ba Mass
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL	8.6367 g	8.6725 g	0.0354 g	5/2/2019 13:00	0 g
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL	8.6119 g	8.6477 g	0.0354 g	5/2/2019 13:00	0 g
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL	8.6016 g	8.6370 g	0.0354 g	5/2/2019 13:00	0 g
MB~160-426501/4				1 mL	8.6506 g	8.6852 g	0.0354 g		0 g
MB~160-426501/5				1 mL	8.6583 g	8.6935 g	0.0354 g		0 g
MB~160-426501/6				1 mL	8.7082 g	8.7439 g	0.0354 g		0 g



Rad Worksheet

Batch Number: 160-426501
Method: PrecSep_0
Analyst: Romanko, Terry J

Date Open: May 02 2019 1:24PM
Batch End: May 03 2019 9:39AM

Lab ID	Client ID	Method Chain	Basis	Ra-226_00029
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL
MB~160-426501/4				
MB~160-426501/5				
MB~160-426501/6				

Balance ID: 0034150037
Analyst ID - Reagent Drop: TJR
Analyst ID - Reagent Drop Witness: NA
Palette ID: RAD112
SOP Number: ST-RC-0040 Mod

Rad Worksheet

Batch Number: 160-426501
Method: PrecSep_0
Analyst: Romanko, Terry J

Date Open: May 02 2019 1:24PM
Batch End: May 03 2019 9:39AM

Comments

Lab ID	Client ID	Method Chain	Basis	Analysis comment
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	H2SO4_00118
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	H2SO4_00118
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	H2SO4_00118
MB~160-426501/4				
MB~160-426501/5				
MB~160-426501/6				

Batch Comment: Direct H2SO4 precip

PrecSep_0 Prep Worksheet

(Used for Collecting Prep Info)

Batch Number: 160-426501 Analyst: Romanko, Terry J Batch Open: 5/2/2019 1:24:00PM

Batch End: 5/3/2019 9:39:39AM

Preparation, Precipitate Separation

	Input Sample Lab ID	Input Sample Lab ID (Analytical Method)	SDG	Matrix	Initial Amount	Final Amount	Due Date	Analytical TAT	Dlv Rank	Comments
1	160-33859-A-1	160-33859-A-1 (903.0_TAR)	N/A	Water	1 mL		5/21/19	18_Days	N/A	H2SO4_00118
2	160-33859-A-1	160-33859-A-1 (903.0_TAR)	N/A	Water	1 mL		5/21/19	18_Days	N/A	H2SO4_00118
3	160-33859-A-1	160-33859-A-1 (903.0_TAR)	N/A	Water	1 mL		5/21/19	18_Days	N/A	H2SO4_00118
4	MB 160-426501/4	MB~160-426501/4 N/A	N/A		1 mL		N/A	N/A	N/A	
	MB 160-426501/5	MB~160-426501/5 N/A	N/A		1 mL		N/A	N/A	N/A	
	MB 160-426501/6	MB~160-426501/6 N/A	N/A		1 mL		N/A	N/A	N/A	TPR 4/3/19

PrecSep_0 Prep Worksheet

(Used for Collecting Prep Info)

Batch Number: 160-426501 Analyst: Romanko, Terry J Batch Open: 5/2/2019 1:24:00PM

Batch End: 5/3/2019 9:39:39AM

Batch Notes

Manually Enter Results? (0=NO, 1=YES)	Yes
EiChrom Used (Y/N)?	N
Radium Batch (Y/N)?	Y
Balance ID	0034150037
Analyst ID - Reagent Drop	TJR
Analyst ID - Reagent Drop Witness	NA
Pipette ID	RAD112
SOP Number	ST-RC-0040 Mod
Carrier ID for Barium	Ba Carrier_00045
Strontium Carrier ID	
Yttrium Carrier ID	
Batch Comment	Direct H2SO4 precip

Comments

PrecSep_0 Prep Worksheet

(Used for Collecting Prep Info)

Batch Number: 160-426501 Analyst: Romanko, Terry J Batch Open: 5/2/2019 1:24:00PM

Batch End: 5/3/2019 9:39:39AM

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			
MB 160-426501/4	Ba Carrier_00045	1 mL			
MB 160-426501/5	Ba Carrier_00045	1 mL			
MB 160-426501/6	Ba Carrier_00045	1 mL			

PrecSep_0 Prep Worksheet

(Used for Collecting Prep Info)

Batch Number: 160-426501 Analyst: Romanko, Terry J Batch Open: 5/2/2019 1:24:00PM

Batch End: 5/3/2019 9:39:39AM

Other Reagents:

Reagent	Amount/Units	Lot#:

Reagent

Ra-226_00021

National Institute of Standards & Technology

Certificate

Standard Reference Material® 4967A

Radium-226 Radioactivity Standard

This Standard Reference Material (SRM) consists of a solution of a standardized and certified quantity of radioactive radium-226 in a suitably stable and homogeneous matrix. It is intended primarily for the calibration of instruments that are used to measure radioactivity and for the monitoring of radiochemical procedures. A unit of SRM 4967A consists of approximately 5 mL of a hydrochloric acid and barium chloride solution, whose composition is specified in Table 1 and 2, contained in a flame-sealed borosilicate-glass ampoule [1].

The certified **radium-226** massic activity value, at a **Reference Time of 1200 EST, 01 September 2003**, is:

$$(2482 \pm 30)\ \mathrm{Bq \cdot g^{-1}}$$

A NIST certified value, as used within the context of this certificate, is a value for which NIST has the highest confidence in its uncertainty assessment. It is a "measurement result" [2] obtained directly or indirectly from a "primary reference measurement procedure" [3]. The certified value is traceable to the derived SI unit, becquerel (Bq).

Additional physical, chemical, and radiological properties for this SRM, as well as details on the standardization method, are given in Table 1 and 2. Uncertainties for the certified quantities are expanded ($k = 2$). The uncertainties are calculated according to the ISO and NIST Guides [4,5]. Table 3 contains a specification of the components that comprise the uncertainty analyses.

Expiration of Certification: The certification of **SRM 4967A** is valid indefinitely, within the measurement uncertainty specified, provided that the SRM is handled and stored properly and that no evaporation or change in composition has occurred. The solution matrix, in an unopened ampoule, is homogeneous and stable within its half-life-dependent useful lifetime provided the SRM is handled in accordance with instructions given in this certificate (see "Instructions for Handling and Storage"). Periodic recertification of this SRM is not required. The certification is nullified if the SRM is damaged, contaminated, or otherwise modified.

Maintenance of Certification: NIST will monitor this SRM over the period of its certification. If substantive technical changes occur that affect the certification, NIST will notify the purchaser. Registration (see attached sheet) will facilitate notification.

Radiological and chemical hazard: Consult the Safety Data Sheet (SDS), enclosed with the SRM shipment, for radiological and chemical hazard information.

This SRM was prepared in the NIST Physical Measurement Laboratory, Radiation Physics Division, under the direction of M.P. Unterweger, Group Leader of the Radioactivity Group. The overall production, technical direction, and physical measurement leading to certification were provided by R. Collé and P. Volkovitsky of the NIST Radiation Physics Division, Radioactivity Group. Statistical consultation was provided by S.D. Leigh of the NIST Statistical Engineering Division.

Support aspects involved in the issuance of this SRM were coordinated through the NIST Office of Reference Materials.

Lisa R. Karam, Chief
Radiation Physics Division

Gaithersburg, Maryland 20899
Certificate Issue Date: 03 September 2013
See Certificate Revision History on Last Page

Robert L. Watters, Jr., Director
Office of Reference Materials

Table 3. Uncertainty Evaluation for the Massic Activity of SRM 4967A

	Uncertainty component	Assessment Type[a]	Relative standard uncertainty contribution on massic activity of ^{226}Ra (%)
1	Calibration of the "1947 (1967 recalibrated) series" of radium-226 solution standards in terms of mass of radium-226[b]	B	0.34
2	Ratio of the mass of radium-226 in SRM 4967A to the mass of radium-226 in the "1947 (1967 recalibrated) series" of radium-226 solution standards. Weighted mean of the ratios obtained using seven different comparisons.	B	0.15
3	Corrections for the decay of radium-226. Standard uncertainty of the radium-226 half-life.	A	0.007
4	Gravimetric measurements	B	0.10
5	Conversion of radium-226 mass to activity. Standard uncertainty of the radium-226 half-life.[c]	A	0.44
6	Photon emitting impurities. Limit of detection.	B	0.01
Relative combined standard uncertainty			**0.6**
Relative expanded uncertainty ($k = 2$)			**1.2**

[a] Letter A denotes evaluation by statistical methods; B denotes evaluation by other methods.

[b] For further details on NBS/NIST radium series calibrations refer to reference [8]. The 1967 recalibrations of the "1947 series" and of the "1957 series" were made using pressurized "4π"γ ionization chamber (PIC) "A". The master solution for SRM 4967A was directly compared with the "1947 (1967 recalibrated) series" of radium-226 solution standards using PIC "A", and was compared with the solutions of the "1992 series" of radium solution standards (SRM 4967) using PIC "A", pulse-ionization-chamber radon analyses (see references [9] and [10]), and germanium photon spectrometry. The radium-226 in SRM 4967A was chemically purified approximately 55 years from the reference time. The lead-210 and its daughter radionuclides are still not in equilibrium as of the 2013 certificate issue date.

[c] The U.S National Standards for radium-226 are certified in terms of mass of radium-226, as were all radium-226 SRMs prior to the "1992 series". Beginning with "1992 series", radium-226 solution SRMs are now certified in terms of the massic activity of radium-226. The relative standard uncertainty of the activity of radium-226 per unit mass of radium-226 is determined by the relative standard uncertainty of λ (i.e., of the half-life). The relative standard uncertainties of the atomic weight of radium-226 and of Avogadro's number are negligible.

Table 1. Certified Massic Activity of SRM 4967A

Radionuclide	**Radium-226**
Reference time	**1200 EST, 01 September 2003**
Massic activity of the solution	**2482 Bq•g^{-1}**
Relative expanded uncertainty ($k = 2$)	**1.20 %**

Table 2. Uncertified Information of SRM 4967A

Source description	Liquid in a flame-sealed 5 mL borosilicate-glass ampoule [1]
Solution composition	1.0 mol•L^{-1} HCl with 80μg of $BaCl_2$ per gram of solution
Solution density	(1.017 ± 0.002) g•mL^{-1} at 21 °C[(a)]
Solution mass	(5.086 ± 0.003) g[(a)]
Photon-Emitting Impurities	None detected[(b)]
Half-lives used	^{226}Ra: (1600 ± 7) a [6][(c)] ^{222}Ra: (3.8235 ± 0.0003) d [7][(c)]
Calibration methods (and instruments)	Gravimetric dilution of SRM 4963, confirmed by comparison with solution standards, and derivatives thereof, from the NBS/NIST "1947 (1967 recalibrated) series" of radium-226 solution standards. The mass of radium-226 in these solution standards had previously been determined by comparison with the U.S. National Standards for radium-226. Conversion from mass of radium-226 to activity of radium-226 was done using the half-life of radium-226 shown above.[(d)]

[(a)] The stated uncertainty is two times the standard uncertainty. See reference 5.

[(b)] The estimated lower limits of detection for photon-emitting impurities, as of September 2003, expressed as massic photon mission rate, are:

6×10^{0} s^{-1}•g^{-1} for energies between 22 keV and 182 keV,
3×10^{0} s^{-1}•g^{-1} for energies between 190 keV and 347 keV,
8×10^{-1} s^{-1}•g^{-1} for energies between 356 keV and 1455 keV, and
3×10^{-1} s^{-1}•g^{-1} for energies between 1465 keV and 2750 keV,

provided that the photons are separated in energy by 4 keV or more from photons emitted in the decay of ^{226}Ra and progeny.

[(c)] The stated uncertainty is the standard uncertainty. See reference 5.

[(d)] For further details on NBS/NIST radium series calibrations refer to reference [8]. The 1967 recalibrations of the "1947 series" and of the "1957 series" were made using pressurized "4π"γ ionization chamber (PIC) "A". The master solution for SRM 4967A was directly compared with the "1947 (1967 recalibrated) series" of radium-226 solution standards using PIC "A", and was compared with the solutions of the "1992 series" of radium solution standards (SRM 4967) using PIC "A", pulse-ionization-chamber radon analyses (see references [9] and [10]), and germanium photon spectrometry. The radium-226 in SRM 4967A was chemically purified approximately 55 years from the reference time. The lead-210 and its daughter radionuclides are still not in equilibrium as of the 2013 certificate issue date.

INSTRUCTIONS FOR HANDLING AND STORAGE

Handling: If the ampoule is transported, it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) because of both the radioactivity and the strong acid. Only persons qualified to handle both radioactive material and alkaline and/or acidic solutions should open the ampoule. To minimize personnel exposure, appropriate shielding and/or distance should be used. Refer to the SDS for further information.

Storage: SRM 4967A should be stored and used at a temperature between 5 °C and 65 °C. The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material.

REFERENCES

[1] NIST Physical Measurement Laboratory; *Storage and Handling of Radioactive Standard Reference Materials, Ampoule Specifications and Opening Procedure*, available at http://www.nist.gov/pml/div682/grp04/srm.cfm (accessed Sep 2013). Note: This SRM is contained in a generic borosilicate-glass ampoule and not in the standard NIST ampoule.

[2] JCGM 200:2012; *International Vocabulary of Metrology - Basic and General Concepts and Associated Terms (VIM)* (2008 version with Minor Corrections), 3rd edition; Joint Committee for Guides in Metrology: BIPM, Sevres Cedex, France; p. 19 (2012); available at http://www.bipm.org/utils/common/documents/jcgm/JCGM_200_2012.pdf (accessed Sep 2013).

[3] JCGM 200:2012; *International Vocabulary of Metrology - Basic and General Concepts and Associated Terms (VIM)* (2008 version with Minor Corrections), 3rd edition; Joint Committee for Guides in Metrology: BIPM, Sevres Cedex, France; p. 18 (2012); available at http://www.bipm.org/utils/common/documents/jcgm/JCGM_200_2012.pdf (accessed Sep 2013).

[4] JCGM 100:2008; *Guide to the Expression of Uncertainty in Measurement;* (GUM 1995 with Minor Corrections), Joint Committee for Guides in Metrology: BIPM, Sevres Cedex, France (2008); available at http://www.bipm.org/utils/common/documents/jcgm/JCGM_100_2008_E.pdf (accessed Sep 2013).

[5] Taylor, B.N.; Kuyatt, C.E.; *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*; NIST Technical Note 1297, U.S. Government Printing Office: Washington, DC (1994); available at http://www.nist.gov/pml/pubs/index.cfm (accessed Sep 2013).

[6] Chisté, V; Bé, M.M.; *January 2007,* ^{226}Ra; LNE-LNHB/CEA Table of Radionuclides, available at http://www.nucleide.org/DDEP_WG/Nuclides/Ra-226_tables.pdf (accessed Sep 2013).

[7] Chisté, V; Bé, M.M.; *July 2010,* ^{222}Rn; LNE-LNHB/CEA Table of Radionuclides, available at http://www.nucleide.org/DDEP_WG/Nuclides/Rn-222_tables.pdf (accessed Sep 2013).

[8] Mann, W.B.; Stockman, L.L.; Youden, W.J.; Schwebel, A.; Mullen, P.A.; Garfinkel, S.B.; Preparation of New Solution Standards of Radium, *Journal of Research of the National Bureau of Standards* 62 (1959) 21-26.

[9] Collé, R.; Hutchinson, J.M.R.; Unterweger, M.P.; The NIST Primary Radon-222 Measurement System, *Journal of Research of the National Institute of Standards and Technology* 95 (1990) 155-165.

[10] Hutchinson J.M.R; Cessna, J.; Collé R.; Hodge P.; An International Radon-In-Air Measurement Intercomparison Using a New Transfer Standard, *Applied Radiation Isotopes* 43 (1992) 175-189.

Certificate Revision History: September 2013 (Text and expiration date revised); December 2004 (Original certification date).

Users of this SRM should ensure that the Certificate in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srminfo@nist.gov; or via the Internet at http://www.nist.gov/srm.

Reagent

Ra-226_00024

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404 352 8677
Fax 404 352 2837
www.ezag.com

CERTIFICATE OF CALIBRATION
Standard Reference Source

SRS Number: 104858
Source Description: 5 mL Liquid in Flame Sealed Vial
Product Code: 8226
Customer: TestAmerica St. Louis
P.O. Number: 2665998, Item 1

This standard radionuclide source was prepared gravimetrically from a master solution calibrated by Eckert & Ziegler Analytics (EZA) using a germanium gamma-ray spectrometer system. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. EZA maintains traceability to the National Institute of Standards and Technology (NIST) through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST."

Reference Date: 05-December-2016 12:00 PM EST

Isotope	Half-Life, d	Activity, Bq	Uncertainty u_A, %	Uncertainty u_B, %	Uncertainty U, %*	Calibration Method**
Ra-226	5.844E+05	1.408E+04	1.0	2.1	4.7	HPGe

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results." ****Calibration Methods:** 4π LS - 4π Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber.

(Certificate continued on reverse side)

SRS Number: 104858

Comments:
5.00002 g 0.1 M HCl solution with approximately 30 µg/g Ba carrier.

Impurities:
γ-impurities (other than decay products) < 0.1%

This source was wipe tested in its inactive areas with leak test results < 185 Bq (5 nCi) of removable activity per ISO 9978:1992.

Source Prepared by: _____
Z. Dimitrova, Radiochemist

QC Approved by: _____ Date: 05-Dec-16
J. Lahr, Spectroscopist

Reagent

Ra-226_00025

SRS Number: 104858

Comments:

5.00002 g 0.1 M HCl solution with approximately 30 µg/g Ba carrier.

Impurities:

γ-impurities (other than decay products) < 0.1%

This source was wipe tested in its inactive areas with leak test results < 185 Bq (5 nCi) of removable activity per ISO 9978:1992.

Source Prepared by: _____

Z. Dimitrova, Radiochemist

QC Approved by: _____ Date: 05-DEC-16

J. Lahr, Spectroscopist

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404-352-8677
Fax 404-352-2837
www.ezag.com

CERTIFICATE OF CALIBRATION
Standard Reference Source

SRS Number: 104858
Source Description: 5 mL Liquid in Flame Sealed Vial
Product Code: 8226
Customer: TestAmerica St. Louis
P.O. Number: 2665998, Item 1

This standard radionuclide source was prepared gravimetrically from a master solution calibrated by Eckert & Ziegler Analytics (EZA) using a germanium gamma-ray spectrometer system. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. EZA maintains traceability to the National Institute of Standards and Technology (NIST) through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST."

Reference Date: 05-December-2016 12:00 PM EST

Isotope	Half-Life, d	Activity, Bq	Uncertainty u_A, %	Uncertainty u_B, %	Uncertainty U, %*	Calibration Method**
Ra-226	5.844E+05	1.408E+04	1.0	2.1	4.7	HPGe

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results." ****Calibration Methods:** 4π LS - 4π Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber.

(Certificate continued on reverse side)

Reagent

Ra-226_00029

Standard ID Number: Ra-226_00029
True Value = 11353 pCi/L or g
Date Analyzed: 4/30/2019

Radionuclide: Ra-226

	Replicates	
#1	10640	pCi/L or g
#2	11650	pCi/L or g
#3	11150	pCi/L or g

Mean = 11146.667

1 sigma = 505.00825 1.96 sigma = 989.8162

True Value minus 5% = 10785.35 (True Value - 5%)
True Value plus 5% = 11920.65 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DoD/DOE Consolidated QSM and LANL Statements of Work

1st Reviewed By/Date: TJR 5/3/2019

2nd Reviewed By/Date: jwl 5/3/19

Decay Calculations

Raw Sample/Standard Information

Initial Date/Time (t_0):	12/5/2016 0:00		
Decayto Date/Time (t):	4/30/19 0:00		
Initial Activity (A_0):	25.23 dpm		
Initial Aliquot:	1 mL		
Initial Conc:	25.229 dpm/mL		
***Soln. Density:**	1 g/mL		
Nuclide:	Ra-226		
Half-Life (days):	584400	decay days	fraction
****Decay Factor:**	0.9990	876.00	0.00150
Decay Corr Activity:	2.5203E+01 dpm		
Decay Corr Conc:	2.5203E+01 dpm/mL		

Conversion/Calculations

Final Activity Unit:	pCi
Activity Unit Factor:	0.45045
Final Volume Unit:	L
Volume Unit Factor:	0.001
Final Concentration:	1.1353E+04 pCi/L
Aliquot Volume:	1.0000E+00 L
Final Activity (A):	1.1353E+04 pCi

** Uses basic decay equation: $A = A_0 * \exp(-\ln(2)*(t-t_0)/(\text{half-life})$

* Soln. Density to be used when converting from liquid expressed in mass (g) units to liquid units (mL), and is only applied in that case.

eurofins Environment Testing TestAmerica

Analysis Report for Total Alpha-Emitting Radium

Batch: 425512 **Operator:**

SampID / Analyte	WRKNO	Ts	Aliquot Tb	Cs	Ba Mass Cb	Ba Yield CPMs	CPMb	Trunc Yield	Ingrowth Activity	Ba Precip Time UncCount	InstrID UncTotal	Eff MDA	Cal Type DLC	Cnt Date Time MQO	Sigma
160-33859-A-1-A	160-33859-A-1-		1.0000mL		0.0295	83.33%		False	1.4639	4/29/19 16:30	Orange9	0.1986	2	4/30/19 13:54	1.00
Total Alpha		100.00	1000.00	578	56	5.78	0.06		1.064E+004pCi/L	4.472E+002	6.552E+002	2.076E+002	7.590E+001	655.1927	
160-33859-A-1-B	160-33859-A-1-		1.0000mL		0.0225	63.56%		False	1.4639	4/29/19 16:30	Orange11	0.2097	2	4/30/19 13:54	1.00
Total Alpha		100.00	1000.00	515	104	5.15	0.10		1.165E+004pCi/L	5.245E+002	7.416E+002	3.262E+002	1.285E+002	741.6337	
160-33859-A-1-C	160-33859-A-1-		1.0000mL		0.0301	85.03%		False	1.4640	4/29/19 16:30	Orange12	0.1964	2	4/30/19 13:54	1.00
Total Alpha		100.00	1000.00	614	85	6.14	0.09		1.115E+004pCi/L	4.568E+002	6.787E+002	2.406E+002	9.267E+001	678.7122	

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

SampID	SampDupID	Analyte	Activity	DupActivity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	WRKNO	Analyte	Activity	MSActivity	StdAdded	Recovery	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-425512 Analyst: Mazariegos, Chelsea M Batch Open: 4/25/2019 11:21:00AM

Batch End:

Preparation, Precipitate Separation

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	Matrix	Initial Amount	Final Amount	Due Date	Analytical TAT	Dlv Rank	Comments Orange	Output Sample Lab ID
1	160-33859-A-1 (903.0_TAR)	N/A (160-33859-1)	Water	1 mL		5/21/19	18_Days	2	9	160-33859-A-1-A
2	160-33859-A-1 (903.0_TAR)	N/A (160-33859-1)	Water	1 mL		5/21/19	18_Days	2	11	160-33859-A-1-B
3	160-33859-A-1 (903.0_TAR)	N/A (160-33859-1)	Water	1 mL		5/21/19	18_Days	2	12	160-33859-A-1-C

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-425512 Analyst: Mazariegos, Chelsea M Batch Open: 4/25/2019 11:21:00AM

Batch End:

Total Alpha Radium (GFPC)

	Input Sample Lab ID (Analytical Method)	(Sub-List)	Analytes
1	160-33859-A-1 (903.0_TAR)	(Standard Target List)	Ba, Total Alpha Emitting Radium Isotopes
2	160-33859-A-1 (903.0_TAR)	(Standard Target List)	Ba, Total Alpha Emitting Radium Isotopes
3	160-33859-A-1 (903.0_TAR)	(Standard Target List)	Ba, Total Alpha Emitting Radium Isotopes

Analytes that are not being reported with be displayed in [...] brackets. Analytes that are not being reported but are on the spike list with be displayed in (...) parentheses.

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-425512 Analyst: Mazariegos, Chelsea M Batch Open: 4/25/2019 11:21:00AM

Batch End:

Batch Notes

Manually Enter Results? (0=NO, 1=YES)	No
EiChrom Used (Y/N)?	N
Radium Batch (Y/N)?	Y
Balance ID	1122021820, 1125330898
Analyst ID - Reagent Drop	HET per LMA
Analyst ID - Reagent Drop Witness	LMA
Pipette ID	Rad 112, Rad 038
SOP Number	ST-RC-0002, ST-RC-0040
Carrier ID for Barium	Ba
Strontium Carrier ID	
Yttrium Carrier ID	
Batch Comment	In- CPR, OUT-PMS

Comments

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-425512 Analyst: Mazariegos, Chelsea M Batch Open: 4/25/2019 11:21:00AM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			

Other Reagents:

Reagent	Amount/Units	Lot#:

CHECKLIST FOR TOTAL ALPHA RADIUM – LIQUIDS & SOLIDS

BATCH NUMBER
(TAR) 425512

# SAMPS	# LCS
9	3

DUE DATE
ASAP

REAGENTS	CHECK	INITIALS	VERIFIED BY	DATE OF SPIKES
A. METHYL ORANGE INDICATOR	✓			
B. ADD HNO3 to MB/LCS/LCSD	✓			
C. BARIUM STD CARRIER 1.0 mL	✓	HET	N/A	4/26/2019
D. SPIKE LCS x3	✓	HET	N/A	
E. ~~SPIKE MS~~			mm 4/25/19	
F. 1M CITRIC ACID 5.0 mL/L	✓			
G. 15 mg/mL LEAD CARRIER 2.5 mL	✓			
MIX THEN HEAT	✓			
H. 15N AMMONIUM HYDROXIDE	✓			
I. 18N SULFURIC ACID, 10.0 mL	✓			
J. AMMONIUM SULFATE 5.0 mL	✓			
LEAD CLEANUP	✓			

Ra-226_00029 verification

	TIME (T)	DATE
T 1	12:26	04/29/2019
T 3	16:30	04/29/2019

	BARIUM CARRIER TRACER	RADIUM-226 SPIKE
STANDARD SOLUTION NUMBER	Ba Carrier_00045	Ra-226_00028
VOLUME (mL)	1.0	1.0
REF. ACTIVITY / CONCENTRATION	0.0339 g	25.229 dpm/mL
ACTIVITY REFERENCE DATE	N/A	12/05/2016

RE-EXTRACT ?	YES / (NO)
NCM NUMBER (IF APPLICABLE)	

K. LEAD CARRIER 1.5 mg/ml 1.0 mL	CPR

Batch Reagent/Chemical IDs

Batch number: 425572 Radium Waters

Date: _____

Analyst: _____

Reagent IDs used:

01	Concentrated Nitric Acid	1502038, 1714321
02	Methyl Orange Indicator	1701455
03	Citric Acid	1713835
04	15 mg/mL Lead Carrier	1704868
05	~~10 mg/mL Strontium Carrier~~	~~1707215~~ CPR 4/29/19
06	~~9 mg/mL Yttrium Carrier~~	~~1715459~~ CPR 4/29/19
07	15N Ammonium Hydroxide	1709964
08	18N Sulfuric Acid	1708031
09	200 mg/mL Ammonium sulfate	1708030, 1710775
10	~~Strontium/Yttrium Mixed Carrier~~	~~1711121~~ CPR 4/29/19
11	EDTA	1694178
12	17.4N Glacial Acetic Acid	1710760
13	Ammonium Sulfide	1702595
14	10N Sodium Hydroxide	1714294
15	1.5 mg/mL Lead Carrier	1622245
16	~~Sodium Hydroxide Pellets (18N NaOH)~~	PMS 04/29/19
17	6N Nitric Acid	
18	2N Nitric Acid	
19	5% Ammonium Oxalate	
20	~~pH strip lot~~	
21	syringr filter lot	16919151
22	centrifuge tube lot	35018162

Reagent

Ra-228_00030

Eckert & Ziegler Analytics, Inc.
1380 Seaboard Industrial Blvd.
Atlanta, GA 30318, USA
Tel 1-404-352-8677
Fax 1-404-352-2837

1463635
ID: Ra-228_00030
Exp: 05/31/46 Prpd:
Ra-228 Ampoule

Eckert & Ziegler Analytics

akkreditiert durch die / *accredited by the*

Deutsche Akkreditierungsstelle GmbH

DAkkS Deutsche Akkreditierungsstelle D-K-19023-01-00

als Kalibrierlaboratorium im / *as calibration laboratory in the*

Deutschen Kalibrierdienst DKD

	000670
Kalibrierzeichen *Calibration mark*	D-K-19023-01-00
	2018-05

Kalibrierschein
Calibration certificate

Gegenstand *Object*	**5 mL Liquid in Flame Sealed Ampoule**
Hersteller *Manufacturer*	**Eckert & Ziegler Analytics, Inc.**
Typ *Type*	**8328-5FSA-370BQ**
Fabrikat/Serien-Nr. *Serial number*	**109656**
Auftraggeber *Customer*	**TestAmerica Laboratories - St. Louis**
Auftragsnummer *Order No.*	**41504**
Anzahl der Seiten des Kalibrierscheines *Number of pages of the certificate*	**2**
Datum der Kalibrierung *Date of calibration*	**29-May-2018 1200 EST (1700 UTC)**

Dieser Kalibrierschein dokumentiert die Rückführung auf nationale Normale zur Darstellung der Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI).
Die DAkkS ist Unterzeichner der multilateralen Übereinkommen der European co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine.
Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.
This calibration certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI).
The DAkkS is signatory to the multilateral agreements of the European co-operation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates.
The user is obliged to have the object recalibrated at appropriate intervals.

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung sowohl der Deutschen Akkreditierungsstelle GmbH als auch des ausstellenden Kalibrierlaboratoriums. Kalibrierscheine ohne Unterschrift haben keine Gültigkeit.
This calibration certificate may not be reproduced other than in full except with the permission of both the Deutsche Akkreditierungsstelle GmbH and the issuing laboratory. Calibration certificates without signature are not valid.

Datum *Date*	Leiter des Kalibrierlaboratoriums *Head of the calibration laboratory*	Bearbeiter *Person in charge*
25-May-18	Levan Tkavadze	Marisa Alfonso

000670
D-K-19023-01-00
2018-05

- **Customer Purchase Order No.:**
  2719399, Item 1

- **Calibration Results:**

Nuclide	Half-Life, d	Activity, Bq	Uncertainty, %	Calibration Method
Ra-228	2.100E+03	3.844E+02	4.9	HPGe

- **Calibration Method(s):**
  This standard radionuclide source was prepared gravimetrically from a master solution calibrated by Eckert & Ziegler Analytics using a germanium gamma-ray spectrometer system (HPGe).

- **Uncertainty:**
  The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor $k = 2$. It has been determined in accordance with DAkkS-DKD-3. The value of the measurand lies within the assigned range of values with a probability of approximately 95%. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

- **Traceability:**
  Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST."

- **Impurities:**
  γ-impurities (other than decay products) < 0.1 %

- **Expiration Date:**
  No expiration date has been given for this source.

- **Wipe Test:**
  This source was wipe tested in its inactive areas with leak test results < 185 Bq (5 nCi) of removable activity per ISO 9978:1992.

- **Additional Information:**
  - 5.00933 g of 0.1 M HCl solution with approximately 30 µg/g Ba carrier.
  - Separation date: 01-March-2018

End of Certificate

Reagent

Ra-228_00031

Reagent

Sr-90_00001

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

80573-334
5 mL Liquid in Flame Sealed Vial

Customer: Test America St. Louis
P.O. No.: 2324797, Item 1

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry and liquid scintillation counting. The nuclear decay rate and assay date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, % Type u_A	u_B	U	Reference Date (12:00 PM EST)
Sr-90	10515.5	3.782E+04	0.1	0.9	1.8	09/17/2009

*Uncertainty: U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: γ-impurities <0.1%. 5.04317 grams 0.1M HCl solution with approximately 30 microg/g each of Sr and Y carriers. NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total beta emission rate for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

Source Prepared by: _____
W. Mao, Radiochemist

QA Approved: _____ Date: 9-22-09
D. M. Montgomery, QA Manager

ACCREDITED SOURCE CALIBRATION LABORATORY
HEALTH PHYSICS SOCIETY
FOUNDED 1956

Corporate Office
Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia 30318

Reagent

Sr-90_00017

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

92352

Sr-90 5 mL Liquid in Flame Sealed Vial

Customer: TestAmerica St. Louis
P.O. No.: 2502682, Item 1 Product Code: 8090-5FSA-37kBq

This standard radionuclide source was prepared gravimetrically from a master solution, calibrated by Eckert & Ziegler Analytics. The master solution was calibrated by liquid scintillation counting. Radionuclide calibration and purity were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

			Uncertainty* , % Type			
Isotope	Half-Life, Days	Activity (Bq)	u_A	u_B	U	Reference Date (12:00 PM EST)
Sr-90	1.052E+04	3.749E+04	0.1	0.9	1.8	11/29/2012

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: γ-impurities<0.1%.
5.02357 g 0.1M HCl solution with approximately 30 µg/g each Sr and Y carriers.

NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total activity for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

Source Prepared by: _____
Z. Dimitrova, Radiochemist

QA Approved: _____ Date: 26 Nov 12
J.D. McCorvey, Counting Room Manager

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1956

RAD12-0042
Sr-90
hursts
None
Prep/Opened: 11/28/2012
Exp(1): 11/29/2062
Exp(2): 11/29/2062

51511
ID Sr-90_00017
Sr-90 Ampoule

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

Reagent

Sr-90_00018

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING



Reagent ID: Sr-90_00018

		Expiration Date:	11/29/2062
Description:	Sr-90 Calibration STD	Laboratory:	TestAmerica St. Louis
No. of Bottles:	1	Prepared By:	Hurst, Sarah
Storage Location:	RAD Separations Reagents - 1	Solvent:	0.1M HCL
Reagent Volume:	100.000 mL	Solvent Lot:	0
Creation Date:	11/28/2012		
Container(s):	51512		
Comment:	Rad12-0043		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
Gross Beta	Sr-90_00017	11/29/2062	14925.64000	Bq/g	44774.23338	dpm/mL
Sr-90	Sr-90_00017	11/29/2062	7462.82000	Bq/g	22387.11669	dpm/mL

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
Sr-90_00017	Sr-90 Ampoule	ASTD	11/29/62	Analytics	92352		4.99970	g

St. Louis Radiological Standard Reverification Form

Standard ID Number: Sr-90_00018 (51512)
True Value = 1976.75 pCi/sample or g
Date Analyzed: 2/10/2014

Radionuclide: Sr-90 (Low mass)

	Replicates	
#1	1935	pCi/sample or g
#2	1941	pCi/sample or g
#3	1924	pCi/sample or g

Mean = 1933.333

1 sigma = 8.621678 1.96 sigma = 16.89849

True Value minus 5% = 1877.913 (True Value - 5%)
True Value plus 5% = 2075.588 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DOE QSAS and LANL Statements of Work

Reviewed By/Date: Jody Watson 2/10/14

SOP Reference: STL-QA-0002, Current Revision

St. Louis Radiological Standard Reverification Form

Standard ID Number: Sr-90_00018 (51512)
True Value = 1948.75 pCi/sample or g
Date Analyzed: 2/10/2014

Radionuclide: Sr-90 (Medium mass)

Replicates		
#1	1911	pCi/sample or g
#2	1945	pCi/sample or g
#3	1893	pCi/sample or g

Mean = 1916.333

1 sigma = 26.40707 1.96 sigma = 51.75786

True Value minus 5% = 1851.313 (True Value - 5%)
True Value plus 5% = 2046.188 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DOE QSAS and LANL Statements of Work

Reviewed By/Date: Jody Watson 2/10/14

SOP Reference: STL-QA-0002, Current Revision

St. Louis Radiological Standard Reverification Form

Standard ID Number: Sr-90_00018 (51512)
True Value = 1992 pCi/sample or g
Date Analyzed: 2/10/2014

Radionuclide: Sr-90 (High mass)

Replicates		
#1	1907	pCi/sample or g
#2	1930	pCi/sample or g
#3	1937	pCi/sample or g

Mean = 1924.667

1 sigma = 15.69501 1.96 sigma = 30.76222

True Value minus 5% = 1892.4 (True Value - 5%)
True Value plus 5% = 2091.6 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DOE QSAS and LANL Statements of Work

Reviewed By/Date: Jody Watson 2/10/14

SOP Reference: STL-QA-0002, Current Revision

Protean Beta ICV-ACV recoveries from March 2013			
Protean Detector	**Low** pCi/sample	**Medium** pCi/sample	**High** pCi/sample
0	1962	1945	1971
1	2003	1947	1995
2	1960	1965	1998
3	1988	1942	1995
4	1977	1940	1997
5	1969	1949	2013
6	1986	1938	1986
7	1969	1964	1981
Average pCi/sample	1976.75	1948.75	1992

Protean Beta ICV-ACV recoveries from February 2014			
Protean Detector	**Low** pCi/sample	**Medium** pCi/sample	**High** pCi/sample
4	1935	1911	1907
5	1941	1945	1930
6	1924	1893	1937
Average pCi/sample	1933.33	1916.33	1924.67

Standard ID
Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Gross Alpha/Beta

Batch: M122640 **Operator:** 63903

Sample ID	WRKNO	Aliquot		Mass	Instr ID	CountTime		Ts	Tb	Dilution	Sigma	
	Analyte	Cs	Cb	XT	CPMs	CPMb	Eff	Activity	UncTot	UncCnt	MDA	DLC
ICVABT-51512;B1	NA	1.000E+000sample		0.0513 g	Protean4	2/10/14 22:54		5.00	1000.00	1.00	2.00	
	Gross Alpha	0	49	0.00	0.000E+000	4.900E-002	0.1157	**-1.908E-001**pCi/sample	5.869E-002	5.452E-002	3.382E+000	8.968E-001
	Gross Beta	9072	417	0.00	1.814E+003	4.170E-001	0.4224	**1.935E+003**pCi/sample	1.977E+002	4.063E+001	1.594E+000	7.165E-001
ICVABT-51512;B2	NA	1.000E+000sample		0.1114 g	Protean4	2/10/14 23:19		5.00	1000.00	1.00	2.00	
	Gross Alpha	1	49	0.00	2.000E-001	4.900E-002	0.0830	**8.194E-001**pCi/sample	2.174E+000	2.172E+000	4.713E+000	1.250E+000
	Gross Beta	8432	417	0.00	1.686E+003	4.170E-001	0.3973	**1.911E+003**pCi/sample	1.956E+002	4.164E+001	1.694E+000	7.616E-001
ICVABT-51512;B3	NA	1.000E+000sample		0.1813 g	Protean4	2/10/14 23:04		5.00	1000.00	1.00	2.00	
	Gross Alpha	1	49	0.00	2.000E-001	4.900E-002	0.0540	**1.260E+000**pCi/sample	3.343E+000	3.340E+000	7.248E+000	1.922E+000
	Gross Beta	8054	417	0.00	1.611E+003	4.170E-001	0.3804	**1.907E+003**pCi/sample	1.954E+002	4.251E+001	1.770E+000	7.956E-001

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery	LCL	UCL	ZFactor
					%			

Sample Duplicate Information

Sample ID	Dup Sample ID	Analyte	Sample Activity	Dup Activity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery	ZFactor
						%	

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

RadCapture, version 4.2.06, released 2/9/2012

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Gross Alpha/Beta

Batch: M122640 **Operator:** 63903

Sample ID	WRKNO	Aliquot		Mass		Instr ID	CountTime		Ts	Tb	Dilution	Sigma	
	Analyte	Cs	Cb	XT		CPMs	CPMb	Eff	Activity	UncTot	UncCnt	MDA	DLC
ICVABT-51512;B1	NA	1.000E+000	sample	0.0513	g	Protean5	2/10/14 23:04		5.00	1000.00	1.00	2.00	
	Gross Alpha	0	43	0.00	0.000E+000	4.300E-002	0.1145		-1.692E-001 pCi/sample	5.510E-002	5.161E-002	3.337E+000	8.490E-001
	Gross Beta	9111	398	0.00	1.822E+003	3.980E-001	0.4228		1.941E+003 pCi/sample	1.983E+002	4.068E+001	1.569E+000	6.992E-001
ICVABT-51512;B2	NA	1.000E+000	sample	0.1114	g	Protean5	2/10/14 22:54		5.00	1000.00	1.00	2.00	
	Gross Alpha	0	43	0.00	0.000E+000	4.300E-002	0.0823		-2.353E-001 pCi/sample	7.661E-002	7.176E-002	4.639E+000	1.180E+000
	Gross Beta	8552	398	0.00	1.710E+003	3.980E-001	0.3960		1.945E+003 pCi/sample	1.990E+002	4.207E+001	1.675E+000	7.465E-001
ICVABT-51512;B3	NA	1.000E+000	sample	0.1813	g	Protean5	2/10/14 23:19		5.00	1000.00	1.00	2.00	
	Gross Alpha	2	43	0.00	4.000E-001	4.300E-002	0.0532		3.022E+000 pCi/sample	4.802E+000	4.790E+000	7.178E+000	1.826E+000
	Gross Beta	8046	398	0.00	1.609E+003	3.980E-001	0.3755		1.930E+003 pCi/sample	1.977E+002	4.304E+001	1.766E+000	7.873E-001

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery	LCL	UCL	ZFactor
					%			

Sample Duplicate Information

Sample ID	Dup Sample ID	Analyte	Sample Activity	Dup Activity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery	ZFactor
						%	

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Gross Alpha/Beta

Batch: M122640 **Operator:** 63903

Sample ID	WRKNO	Aliquot		Mass		Instr ID	CountTime		Ts	Tb	Dilution	Sigma	
	Analyte	Cs	Cb	XT		CPMs	CPMb	Eff	Activity	UncTot	UncCnt	MDA	DLC
ICVABT-51512;B1	NA	1.000E+000	sample	0.0513	g	Protean6	2/10/14 23:19		5.00	1000.00	1.00	2.00	
	Gross Alpha	0	87	0.00	0.000E+000	8.700E-002	0.1165		**-3.362E-001** pCi/sample	8.166E-002	7.210E-002	3.776E+000	1.186E+000
	Gross Beta	8992	520	0.00	1.798E+003	5.200E-001	0.4209		**1.924E+003** pCi/sample	1.966E+002	4.059E+001	1.718E+000	8.029E-001
ICVABT-51512;B2	NA	1.000E+000	sample	0.1114	g	Protean6	2/10/14 23:04		5.00	1000.00	1.00	2.00	
	Gross Alpha	0	87	0.00	0.000E+000	8.700E-002	0.0842		**-4.657E-001** pCi/sample	1.131E-001	9.985E-002	5.230E+000	1.642E+000
	Gross Beta	8356	520	0.00	1.671E+003	5.200E-001	0.3976		**1.893E+003** pCi/sample	1.937E+002	4.142E+001	1.819E+000	8.499E-001
ICVABT-51512;B3	NA	1.000E+000	sample	0.1813	g	Protean6	2/10/14 22:54		5.00	1000.00	1.00	2.00	
	Gross Alpha	0	87	0.00	0.000E+000	8.700E-002	0.0559		**-7.014E-001** pCi/sample	1.703E-001	1.504E-001	7.877E+000	2.474E+000
	Gross Beta	8127	520	0.00	1.625E+003	5.200E-001	0.3778		**1.937E+003** pCi/sample	1.985E+002	4.300E+001	1.914E+000	8.945E-001

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery	LCL	UCL	ZFactor
					%			

Sample Duplicate Information

Sample ID	Dup Sample ID	Analyte	Sample Activity	Dup Activity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery	ZFactor
						%	

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

TestAmerica St. Louis

Standards Preparation Logbook Record

Nov-28-2012

Logbook: \\Qstlmo01\Stdslog\RAD_STD.std

RAD12-0042, Sr-90 Sr-90_00017 #51511 Analyst: hursts

Vendor: Analytics Lot No.: 92352
Solvent: None
Date Prep./Opened: 11-28-2012
Date Expires(1): 11-29-2062 (50 Years)
Date Expires(2): 11-29-2062 (50 Years)
Cert: 92352 Activity: 37490Bq Mass: 5.02357 Ref. Date: 11/29/12

Component	Initial Conc (dpm/g)	Final Conc (dpm/g)
Sr-90	447,769	447,769

RAD12-0043, Sr-90 Calibration STD Sr-90_00018 #51512 Analyst: hursts

Solvent: None Volume (ml): 100.00
Date Prep./Opened: 11-28-2012
Date Expires(1): 11-29-2062 (50 Years)
Date Expires(2): 11-29-2062 (50 Years)

Parent Std No.: RAD12-0042, Sr-90 Aliquot Amount (g): 4.9997
Parent Date Expires(1): 11-29-2062 Parent Date Expires(2): 11-29-2062

Component	Initial Conc (dpm/g)	Final Conc (dpm/mL)
Sr-90	447,769	22,387

Reviewed By: SRO

Page 1 of 1

St. Louis Radiological Standard Reverification Form

Standard ID Number: Rad12-0043
True Value = 2016.7 pCi/L or g
Date Analyzed: 11/30/2012

Radionuclide: Sr90

	Replicates	
#1	1964	pCi/L or g
#2	1958	pCi/L or g
#3	2015	pCi/L or g

Mean = 1979

1 sigma = 31.32092 1.96 sigma = 61.389

True Value minus 5% = 1915.865 (True Value - 5%)
True Value plus 5% = 2117.535 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DOE QSAS and LANL Statements of Work

Reviewed By/Date: 11/30/12

SOP Reference: STL-QA-0002, Current Revision

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Gross Alpha/Beta

Batch: M122629 **Operator:** 63903

Sample ID	WRKNO	*Aliquot*		*Mass*		*Instr ID*	*CountTime*		*Ts*	*Tb*	*Dilution*	*Sigma*	
	Analyte	Cs	Cb	XT		CPMs	CPMb	Eff	Activity	UncTot	UncCnt	MDA	DLC
verification-1b	NA	*1.000E+000sample*		*0.0536*	*g*	*Purple16*	*11/30/12 10:42*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	123	175	0.00	1.538E+001	1.750E-001	0.4314	**1.587E+001**pCi/sample		1.707E+000	1.448E+000	8.638E-001	3.593E-001
	Gross Beta	14954	485	0.00	1.869E+003	4.850E-001	0.4285	**1.964E+003**pCi/sample		9.953E+001	1.607E+001	1.211E+000	6.021E-001
verification-2b	NA	*1.000E+000sample*		*0.0529*	*g*	*Purple17*	*11/30/12 10:43*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	53	87	0.00	6.625E+000	8.700E-002	0.1306	**2.254E+001**pCi/sample		3.391E+000	3.138E+000	2.356E+000	8.365E-001
	Gross Beta	15152	362	0.00	1.894E+003	3.620E-001	0.4356	**1.958E+003**pCi/sample		9.919E+001	1.591E+001	1.077E+000	5.117E-001
verification-3b	NA	*1.000E+000sample*		*0.0528*	*g*	*Purple18*	*11/30/12 10:43*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	85	62	0.00	1.063E+001	6.200E-002	0.1313	**3.624E+001**pCi/sample		4.462E+000	3.954E+000	2.160E+000	7.027E-001
	Gross Beta	15378	395	0.00	1.922E+003	3.950E-001	0.4296	**2.015E+003**pCi/sample		1.020E+002	1.625E+001	1.125E+000	5.420E-001

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery	LCL	UCL	ZFactor
					%			

Sample Duplicate Information

Sample ID	Dup Sample ID	Analyte	Sample Activity	Dup Activity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery	ZFactor
						%	

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Prep Report for Gross Alpha/Beta

Batch: M122629 **Prep Analyst:** 250

SampID	WRKNO	Aliquot		Gross	Tare	Mass	Dilution
verification-1b	NA	1.000E+000	sample	8.7067 g	8.6531 g	0.0536 g	1.00
verification-2b	NA	1.000E+000	sample	8.6615 g	8.6086 g	0.0529 g	1.00
verification-3b	NA	1.000E+000	sample	8.6935 g	8.6407 g	0.0528 g	1.00

purple 16 17 18

Spike Information

Sample ID	Standard ID	Analyte	Std Conc	Aliquot	Ref Date	StdAdded
	Rad12-0043	SR-90	22.387 dpm/mL	0.1 mL	11-29-12	

MS — Spiked By

LM — Spike Verified By

11-28-12 — Spike Date

Standard Operating Procedures

SOPNumber	Title	Revision
☐		

Reviewed By — 11/30/12 Review Date

MS — Analyst/Relenquished By — 11/28/12 Release Date

Received By — 11/28/12 Receipt Date

MS 11-30-12 ~~112~~ 112343897/MS/11-28-12

Balance ID / Initials / Date

Reagent

Th-230_00015

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

92523

Th-230 5 mL Liquid in Flame Sealed Vial

Customer: TestAmerica St. Louis
P.O. No.: 2502650, Item 2 Product Code: 8230-5FSA-4kBq

This standard radionuclide source was prepared gravimetrically from a master solution, calibrated by Eckert & Ziegler Analytics. The master solution was calibrated by liquid scintillation counting. Radionuclide calibration and purity were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty* , % Type u_A	u_B	U	Reference Date (12:00 PM EST)
Th-230	2.753E+07	3.979E+03	0.1	0.9	1.8	11/29/2012

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: α-impurities 1.5915 Bq; γ-impurities (other than decay products)<0.1%.
5.07636 g 0.5M HNO3 solution. Carrier free.

Source Prepared by: M. I. Taskaeva, Radiochemist

QA Approved: J.D. McCorvey, Counting Room Manager Date: 27 Nov 12

51464
ID Th-230_00015
Th-230 Ampoule

RAD12-0040
Th-230 Ampoule
hursts
None
Prep/Opened: 11/28/2012
Exp(1): 11/28/2062
Exp(2): 11/28/2062

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1956

Single Isotope Certificate Rev 3, 23 August 2012

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

Reagent

Th-230_00016

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

92523

Th-230 5 mL Liquid in Flame Sealed Vial

Customer: TestAmerica St. Louis
P.O. No.: 2502650, Item 2 Product Code: 8230-5FSA-4kBq

This standard radionuclide source was prepared gravimetrically from a master solution, calibrated by Eckert & Ziegler Analytics. The master solution was calibrated by liquid scintillation counting. Radionuclide calibration and purity were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, % Type u_A	u_B	U	Reference Date (12:00 PM EST)
Th-230	2.753E+07	3.979E+03	0.1	0.9	1.8	11/29/2012

*Uncertainty: U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: α-impurities 1.5915 Bq; γ-impurities (other than decay products)<0.1%.
5.07636 g 0.5M HNO3 solution. Carrier free.

Source Prepared by: M. I. Taskaeva, Radiochemist

QA Approved: J.D. McCorvey, Counting Room Manager Date: 27 Nov 12

51464
ID Th-230_00015
Th-230 Ampoule

RAD12-0040
Th-230 Ampoule
hursts
None
Prep/Opened: 11/28/2012
Exp(1): 11/28/2062
Exp(2): 11/28/2062

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1958

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

TestAmerica St. Louis

Standards Preparation Logbook Record

Nov-28-2012

Logbook: \\Qstlmo01\Stdslog\RAD_STD.std

RAD12-0040, Th-230 Ampoule Th-230_00015 # 51464 Analyst: hursts

Vendor: Analytics Lot No.: 92523
Solvent: None
Date Prep./Opened: 11-28-2012 Date Consumed: 11-28-2012
Date Expires(1): 11-28-2062 (50 Years)
Date Expires(2): 11-28-2062 (50 Years)
Cert: 92523 Activity: 3979Bq Reference Date: 11/29/12 Mass: 5.07636

Component	Initial Conc (dpm/g)	Final Conc (dpm/g)
Th-230	47,030	47,030

RAD12-0041, Th-230 Calibration Standard Th-230_00016 # 51465 Analyst: hursts

Solvent: 0.5M HNO3 Volume (ml): 100.00
Date Prep./Opened: 11-28-2012
Date Expires(1): 11-29-2062 (50 Years)
Date Expires(2): 11-29-2062 (50 Years)

Parent Std No.: RAD12-0040, Th-230 Ampoule Aliquot Amount (g): 5.0489
Parent Date Expires(1): 11-28-2062 Parent Date Expires(2): 11-28-2062

Component	Initial Conc (dpm/g)	Final Conc (dpm/mL)
Th-230	47,030	2,374.5

Reviewed By: SH

St. Louis Radiological Standard Reverification Form

Standard ID Number: Rad12-0041
True Value = 1069.59 pCi/mL
Date Analyzed: 11/30/2012

Radionuclide: Th-230 Gross Alpha

	Replicates	
#1	1071	pCi/mL
#2	1027	pCi/mL
#3	1085	pCi/mL

Mean = 1061

1 sigma = 30.26549 1.96 sigma = 59.32036

True Value minus 5% = 1016.111 (True Value - 5%)
True Value plus 5% = 1123.07 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DOE QSAS and LANL Statements of Work

Reviewed By/Date: JL 11/30/12

SOP Reference: STL-QA-0002, Current Revision

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Gross Alpha/Beta

Batch: M122628 **Operator:** 63903

Sample ID	WRKNO	*Aliquot*		*Mass*	*Instr ID*	*CountTime*		*Ts*	*Tb*	*Dilution*	*Sigma*	
	Analyte	Cs	Cb	XT	CPMs	CPMb	Eff	Activity	UncTot	UncCnt	MDA	DLC
verification 1a	NA	*1.000E+000mL*		*0.0546 g*	*Purple16*	*11/30/12 13:03*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	2528	175	0.00	3.160E+002	1.750E-001	0.1328	**1.071E+006**pCi/L	6.469E+004	2.132E+004	2.807E+003	1.167E+003
	Gross Beta	792	485	0.00	9.900E+001	4.850E-001	0.4280	**1.037E+005**pCi/L	6.370E+003	3.702E+003	1.212E+003	6.028E+002
verification 2a	NA	*1.000E+000mL*		*0.0536 g*	*Purple17*	*11/30/12 13:03*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	2364	87	0.00	2.955E+002	8.700E-002	0.1295	**1.027E+006**pCi/L	6.225E+004	2.113E+004	2.376E+003	8.436E+002
	Gross Beta	764	362	0.00	9.550E+001	3.620E-001	0.4353	**9.846E+004**pCi/L	6.084E+003	3.576E+003	1.078E+003	5.121E+002
verification 3a	NA	*1.000E+000mL*		*0.0531 g*	*Purple18*	*11/30/12 13:04*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	2521	62	0.00	3.151E+002	6.200E-002	0.1308	**1.085E+006**pCi/L	6.551E+004	2.161E+004	2.168E+003	7.052E+002
	Gross Beta	788	395	0.00	9.850E+001	3.950E-001	0.4295	**1.029E+005**pCi/L	6.325E+003	3.680E+003	1.125E+003	5.421E+002

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

Sample ID	Dup Sample ID	Analyte	Sample Activity	Dup Activity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery %	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Prep Report for Gross Alpha/Beta

Batch: M122628 **Prep Analyst:** 250

SampID	WRKNO	Aliquot	Gross	Tare	Mass	Dilution
verification 1a	NA	6.500E-001 mL	8.6982 g	8.6436 g	0.0546 g	1.00
		Orange 5	protean 14		16	
verification 2a	NA	6.500E-001 mL	8.6698 g	8.6162 g	0.0536 g	1.00
		7	15		17	
verification 3a	NA	6.500E-001 mL	8.6466 g	8.5935 g	0.0531 g	1.00
		8			18	

Spike Information

Sample ID	Standard ID	Analyte	Std Conc	Aliquot	Ref Date	StdAdded
	Rad12-0041	Th-230	2374.5 dpm/mL	1.00 mL	11-29-12	

MS — Spiked By

LM per MS — Spike Verified By

11-28-12 — Spike Date

Standard Operating Procedures

SOPNumber	Title	Revision
☐		

JN — Reviewed By

11/30/12 — Review Date

MS — Analyst/Relenquished By

11-28-12 — Release Date

Unn — Received By

11/28/12 — Receipt Date

1123433897/MS/11-28-12

Balance ID / Initials / Date

Reagent

Th-230_00019

TestAmerica St. Louis

Standards Preparation Logbook Record

Aug-13-2013

Logbook: \\Qstlmo01\Stdslog\RAD_STD.std

RAD13-0028, Th-230 Ampoule — Analyst: marrss

Vendor: Analytics Lot No.: 92776
Solvent: None
Date Prep./Opened: 08-13-2013
Date Expires(1): 08-08-2063 (50 Years)
Date Expires(2): 08-08-2063 (50 Years)
Activity: 3.728 E+03 Bq, Ref date: 08/08/2013, Solution mass: 5.09261g, Source ID: 92776

Component	Initial Conc (dpm/g)	Final Conc (dpm/g)
Th-230	43,922	43,922

Th-230-00019 #181198

RAD13-0029, Th-230 Parent — Analyst: marrss

Solvent: ~~None~~ 1M HNO3 SUB 8/13/13 Volume (ml): 100.00
Date Prep./Opened: 08-13-2013
Date Expires(1): 08-08-2063 (50 Years)
Date Expires(2): 08-08-2063 (50 Years)

Parent Std No.: RAD13-0028, Th-230 Ampoule Aliquot Amount (g): 5.0731
Parent Date Expires(1): 08-08-2063 Parent Date Expires(2): 08-08-2063

Component	Initial Conc (dpm/g)	Final Conc (dpm/mL)
Th-230	43,922	2,228.2

Reviewed By: SUB

Page 1 of 1

Th-230 Parent

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING



Reagent ID: Th-230_00019

		Expiration Date:	08/08/2063
Description:	Th-230 Parent	Laboratory:	TestAmerica St. Louis
No. of Bottles:	1	Prepared By:	Bernsen, Sarah C
Storage Location:	RAD Actinide STDs	Solvent:	1M HNO3
Reagent Volume:	100.000 mL	Solvent Lot:	n/a
Creation Date:	08/13/2013		
Container(s):	181198		
Comment:			

Reagent Analyte Information

Analyte	Source ID	Source Expiration Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
Th-230	Th-230_00018	08/08/2063	43922.46	dpm/g	2228.23072	dpm/mL

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
Th-230_00018	Th-230 Ampoule	ASTD	08/08/63	Eckert & Ziegler	92776		5.07310	mL

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

92776

Th-230 5 mL Liquid in Flame Sealed Vial

Customer: TestAmerica
P.O. No.: 2532686, Item 1 Product Code: 8230-5FSA-4kBq

This standard radionuclide source was prepared gravimetrically from a master solution, calibrated by Eckert & Ziegler Analytics. The master solution was calibrated by liquid scintillation counting. Radionuclide calibration and purity were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, % Type u_A	u_B	U	Reference Date (12:00 PM EST)
Th-230	2.753E+07	3.728E+03	0.1	0.9	1.8	08/08/2013

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: α-impurities 0.04%; γ-impurities (other than decay products)<0.1%.
5.09261 g 0.5M HNO3 solution. Carrier free.

Source Prepared by: R. Ormsby
R. Ormsby, Radiochemist

QA Approved:
J.D. McCorvey, Counting Room Manager

Date: 6AUG13

RAD13-0029
Th-230 Parent
marrss
None
Prep/Opened: 8/13/2013
Exp(1): 8/8/2063
Exp(2): 8/8/2063

181198
ID: Th-230_00019
Exp: 08/08/63 Prpd: SH Cal. 08/13/13
Th-230 Parent

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1956

Single Isotope Certificate Rev 3, 23 August 2012

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

Reagent

Y Carrier_00037

REPORT OF ANALYSIS

Single-Element Aqueous RM

Yttrium Oxide

Product #: Z-067074-05-1L

Matrix: 10% HNO_3

Lot #: 10064660-8

Analyte	Certified Concentration
Y_2O_3	50,000 µg/mL

Intended Use: This solution is intended for use as a reference material (RM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This RM was manufactured, processed, and/or certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO Guide 34**, and **ISO/IEC 17025**. This RM was prepared to a nominal concentration of 50,000 µg/mL by gravimetric methods using single-element concentrate dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this RM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration was determined based upon gravimetric procedures. Secondary verification of the certified concentration was performed using ICP-OES and is traceable to **NIST SRM 3167a**. The uncertainty associated with the certified concentration is ±0.5% relative, which is the sum of the estimated errors due to the purity of the raw materials, the gravimetric preparation of the solution, and transpiration through the container. This represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the RM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original RM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

March 13, 2019
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

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GAS FLOW PROPORTIONAL COUNTER

Method 9315

Radium-226 (GFPC) by Method 9315

Prep Batch: 430215

Preparation, Precipitate Separation (21-Day In-Growth)

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 430215

Lab Id: LCS 160-430215/1-A | Analyzed: 08/01/19 09:22 | Decay Corrected: No | Ts: 100
Client ID: | Detector: Orange12 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	LCS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	10.60	0.528	1.09		pCi/L	1.00	0.0757	1629	62	.	1.	0.19249	3.8304	1.	437612

Carrier	LCS Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03310				g		0.0354	93.5	40 - 110

Lab Id: 400-169314-1 | Analyzed: 08/01/19 11:23 | Decay Corrected: No | Ts: 100
Client ID: AES-MW1-042319 | Detector: Purple4 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.0210	0.0579	0.0580	U	pCi/L	1.00	0.107	18	148	.	1.	0.19998	3.833	1.	437587

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0317				g		0.0354	89.5	40 - 110

Lab Id: 400-169314-2 | Analyzed: 08/01/19 11:24 | Decay Corrected: No | Ts: 100
Client ID: AES-MW2-042319 | Detector: Blue12 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.00156	0.0567	0.0567	U	pCi/L	1.00	0.116	12	118	.	1.	0.16955	3.833	1.	437593

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0314				g		0.0354	88.7	40 - 110

Lab Id: 400-169314-2 MS | Analyzed: 08/01/19 12:51 | Decay Corrected: No | Ts: 100
Client ID: AES-MW2-042319 | Detector: Orange21 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	MS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	10.36	0.528	1.07		pCi/L	1.00	0.0875	1554	85	.	1.	0.19573	3.8348	1.	437612

Carrier	MS Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03170				g		0.0354	89.5	40 - 110

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 430215

Lab Id: 400-169314-2 MSD | Analyzed: 08/01/19 13:09 | Decay Corrected: No | Ts: 100
Client ID: AES-MW2-042319 | Detector: Orange12 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	MSD Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	9.524	0.518	1.00		pCi/L	1.00	0.0812	1365	62	.	1.	0.19630	3.8352	1.	437612

Carrier	MSD Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03020				g		0.0354	85.3	40 - 110

Lab Id: 400-169314-3 | Analyzed: 08/01/19 13:10 | Decay Corrected: No | Ts: 100
Client ID: AES-MW3-042319 | Detector: Orange13 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.0679	0.0676	0.0679	U	pCi/L	1.00	0.106	23	131	.	1.	0.19541	3.8352	1.	437612

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0310				g		0.0354	87.6	40 - 110

Lab Id: 400-169314-4 | Analyzed: 08/01/19 13:10 | Decay Corrected: No | Ts: 100
Client ID: AES-FB-042319 | Detector: Orange20 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	-0.0408	0.0299	0.0301	U	pCi/L	1.00	0.0933	4	101	.	1.	0.19380	3.8352	1.	437612

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0321				g		0.0354	90.7	40 - 110

Lab Id: 400-169314-5 | Analyzed: 08/01/19 13:11 | Decay Corrected: No | Ts: 100
Client ID: AES-MW4-042419 | Detector: Purple4 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.0364	0.0649	0.0650	U	pCi/L	1.00	0.114	20	148	.	1.	0.20310	3.8352	1.	437587

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0292				g		0.0354	82.5	40 - 110

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 430215

Lab Id: 400-169314-6 Analyzed: 08/01/19 13:12 Decay Corrected: No Ts: 100
Client ID: AES-MW4-DUP-042419 Detector: Blue12 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	-0.0446	0.0412	0.0414	U	pCi/L	1.00	0.114	6	118	.	1.	0.16889	3.8352	1.	437593

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0320				g		0.0354	90.4	40 - 110

Lab Id: 400-169314-7 Analyzed: 08/01/19 15:06 Decay Corrected: No Ts: 100
Client ID: AES-MW5-042419 Detector: Orange12 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.0135	0.0441	0.0441	U	pCi/L	1.00	0.0870	8	62	.	1.	0.19966	3.8376	1.	437612

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0277				g		0.0354	78.2	40 - 110

Lab Id: 400-169314-8 Analyzed: 08/01/19 15:07 Decay Corrected: No Ts: 100
Client ID: AES-FB-042419 Detector: Orange13 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.0637	0.0635	0.0637	U	pCi/L	1.00	0.0997	23	131	.	1.	0.19194	3.8376	1.	437612

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0336				g		0.0354	94.9	40 - 110

Lab Id: MB 160-430215/24-A Analyzed: 08/01/19 17:57 Decay Corrected: No Ts: 100
Client ID: Detector: Orange12 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 2

Analyte	MB Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.02675	0.0459	0.0459	U	pCi/L	1.00	0.0816	10	62	.	1.	0.19656	3.841	1.	437612

Carrier	MB Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03000				g		0.0354	84.7	40 - 110

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 430215

Quality Control Summary

Method Blank ID:	Analyte	Parent Result	Spike Added	MB Result	Qualifier	Unit	% Rec	% Rec Limits	RPD	RER	DER	RER Limit	Z Factor
MB 160-430215/24-A	Radium-226			0.02675	U	pCi/L							1.1645
Lab Control Sample ID:	**Analyte**	**Parent Result**	**Spike Added**	**LCS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
LCS 160-430215/1-A	Radium-226		11.4	10.60		pCi/L	93	75 - 125					-1.2063
Matrix Spike ID:	**Analyte**	**Parent Result**	**Spike Added**	**MS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
400-169314-2	Radium-226	0.00156	11.3	10.36		pCi/L	91	75 - 138	8				-1.6242
Matrix Spike Duplicate ID:	**Analyte**	**Parent Result**	**Spike Added**	**MSD Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
400-169314-2	Radium-226	0.00156	11.3	9.524		pCi/L	84	75 - 138	8	0.40	1.13	1	1.1346

Glossary:

Ts = Count Duration, Sample
Tb = Count Duration, Background
Cs = Total Counts, Sample
Cb = Total Counts, Background
X Talk = Crosstalk
Decay = Decay Factor
Eff = Efficiency
I = Ingrowth Factor
A = Abundance

GAS FLOW PROPORTIONAL COUNTER BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 400-169314-2

SDG No.:

Batch Number: 430215 Batch Start Date: 05/30/19 08:33 Batch Analyst: Quinn, Erin J

Batch Method: PrecSep-21 Batch End Date: 07/16/19 16:38

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	Ba_TareWt	Ba_GrossWt	Ba_Mass	IngDecDate1	IngDecDate2
LCS 160-430215/1		PrecSep-21, 9315		1000 mL	8.7248 g	8.7579 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
400-169314-B-1	AES-MW1-042319	PrecSep-21, 9315	T	1000.06 mL	8.6847 g	8.7164 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
400-169314-B-2	AES-MW2-042319	PrecSep-21, 9315	T	1000.49 mL	8.6768 g	8.7082 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
400-169314-B-2 MS	AES-MW2-042319	PrecSep-21, 9315	T	1000.17 mL	8.7115 g	8.7432 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
400-169314-B-2 MSD	AES-MW2-042319	PrecSep-21, 9315	T	1000.65 mL	8.7898 g	8.8200 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
400-169314-B-3	AES-MW3-042319	PrecSep-21, 9315	T	1000.92 mL	8.6519 g	8.6829 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
400-169314-B-4	AES-FB-042319	PrecSep-21, 9315	T	1000.37 mL	8.7453 g	8.7774 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
400-169314-B-5	AES-MW4-042419	PrecSep-21, 9315	T	1000.98 mL	8.7708 g	8.8000 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
400-169314-B-6	AES-MW4-DUP-042419	PrecSep-21, 9315	T	1000.40 mL	8.7029 g	8.7349 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
400-169314-B-7	AES-MW5-042419	PrecSep-21, 9315	T	1000.70 mL	8.6527 g	8.6804 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
400-169314-B-8	AES-FB-042419	PrecSep-21, 9315	T	1000.90 mL	8.6847 g	8.7183 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51
MB 160-430215/24		PrecSep-21, 9315		1000 mL	8.6899 g	8.7199 g	0.0354 g	05/31/2019 13:46	07/16/2019 13:51

Lab Sample ID	Client Sample ID	Method Chain	Basis	IngDecDate3	Ba Carrier 00045	Ra-226 00029			
LCS 160-430215/1		PrecSep-21, 9315		06/21/2019	1 mL	1 mL			
400-169314-B-1	AES-MW1-042319	PrecSep-21, 9315	T	06/21/2019	1 mL				
400-169314-B-2	AES-MW2-042319	PrecSep-21, 9315	T	06/21/2019	1 mL				
400-169314-B-2 MS	AES-MW2-042319	PrecSep-21, 9315	T	06/21/2019	1 mL	1 mL			
400-169314-B-2 MSD	AES-MW2-042319	PrecSep-21, 9315	T	06/21/2019	1 mL	1 mL			
400-169314-B-3	AES-MW3-042319	PrecSep-21, 9315	T	06/21/2019	1 mL				
400-169314-B-4	AES-FB-042319	PrecSep-21, 9315	T	06/21/2019	1 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAS FLOW PROPORTIONAL COUNTER BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 400-169314-2

SDG No.:

Batch Number: 430215 Batch Start Date: 05/30/19 08:33 Batch Analyst: Quinn, Erin J

Batch Method: PrecSep-21 Batch End Date: 07/16/19 16:38

Lab Sample ID	Client Sample ID	Method Chain	Basis	IngDecDate3	Ba Carrier 00045	Ra-226 00029			
400-169314-B-5	AES-MW4-042419	PrecSep-21, 9315	T	06/21/2019	1 mL				
400-169314-B-6	AES-MW4-DUP-042419	PrecSep-21, 9315	T	06/21/2019	1 mL				
400-169314-B-7	AES-MW5-042419	PrecSep-21, 9315	T	06/21/2019	1 mL				
400-169314-B-8	AES-FB-042419	PrecSep-21, 9315	T	06/21/2019	1 mL				
MB 160-430215/24		PrecSep-21, 9315		06/21/2019	1 mL				

Batch Notes	
Balance ID	1121470622, 1125330898
Batch Comment	In CPR, OUT-PMS
Pipette ID	RAD112, RAD038
Analyst ID - Reagent Drop Witness	EJQ
Analyst ID - Reagent Drop	JLC per EJQ
SOP Number	ST-RC-0002, ST-RC-0041

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID LCS 160-430215/1-A

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 8/1/2019 9:22:26 AM

Count Ended 8/1/2019 11:02:32 AM

Sample Count Time 100.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.062	1,629	16.290	16.228
sd	0.008	40.361	0.404	0.404
Beta	0.664	2,796	27.960	27.296
sd	0.026	52.877	0.529	0.529

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID 400-169314-B-1-A

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 8/1/2019 11:23:53 AM

Count Ended 8/1/2019 1:04:02 PM

Sample Count Time 100.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.148	18	0.180	0.032
sd	0.012	4.243	0.042	0.044
Beta	0.452	47	0.470	0.018
sd	0.021	6.856	0.069	0.072

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - A

Addr: 12

Sample ID 400-169314-B-2-A

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 8/1/2019 11:24:39 AM

Count Ended 8/1/2019 1:04:49 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.118	12	0.120	0.002
sd	0.000			0.011	3.464	0.035	0.036
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.357	43	0.430	0.073
sd	0.000			0.019	6.557	0.066	0.068

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID 400-169314-B-2-B MS

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 8/1/2019 12:51:05 PM

Count Ended 8/1/2019 2:38:56 PM

Sample Count Time 100.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.085	1,554	15.540	15.455
sd	0.009	39.421	0.394	0.394
Beta	0.353	2,663	26.630	26.277
sd	0.019	51.604	0.516	0.516

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID 400-169314-B-2-C MSD

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 8/1/2019 1:09:38 PM

Count Ended 8/1/2019 2:49:47 PM

Sample Count Time 100.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.062	1,365	13.650	13.588
sd	0.008	36.946	0.369	0.370
Beta	0.664	2,470	24.700	24.036
sd	0.026	49.699	0.497	0.498

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID 400-169314-B-3-A

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 8/1/2019 1:10:36 PM

Count Ended 8/1/2019 2:50:46 PM

Sample Count Time 100.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.131	23	0.230	0.099
sd	0.011	4.796	0.048	0.049
Beta	0.618	75	0.750	0.132
sd	0.025	8.660	0.087	0.090

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID 400-169314-B-4-A

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 8/1/2019 1:10:28 PM

Count Ended 8/1/2019 2:50:40 PM

Sample Count Time 100.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.101	4	0.040	-0.061
sd	0.010	2.000	0.020	0.041
Beta	0.341	47	0.470	0.129
sd	0.018	6.856	0.069	0.071

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID 400-169314-B-5-A

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 8/1/2019 1:11:24 PM

Count Ended 8/1/2019 2:51:34 PM

Sample Count Time 100.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.148	20	0.200	0.052
sd	0.012	4.472	0.045	0.046
Beta	0.452	54	0.540	0.088
sd	0.021	7.348	0.073	0.076

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - A

Addr: 12

Sample ID 400-169314-B-6-A

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 8/1/2019 1:12:32 PM

Count Ended 8/1/2019 2:52:41 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.118	6	0.060	-0.058
sd	0.000			0.011	2.449	0.024	0.043
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.357	57	0.570	0.213
sd	0.000			0.019	7.550	0.075	0.078

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID 400-169314-B-7-A

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 8/1/2019 3:06:46 PM

Count Ended 8/1/2019 4:46:55 PM

Sample Count Time 100.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.062	8	0.080	0.018
sd	0.008	2.828	0.028	0.029
Beta	0.664	58	0.580	-0.084
sd	0.026	7.616	0.076	0.090

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID 400-169314-B-8-A

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 8/1/2019 3:07:02 PM

Count Ended 8/1/2019 4:47:08 PM

Sample Count Time 100.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.131	23	0.230	0.099
sd	0.011	4.796	0.048	0.049
Beta	0.618	60	0.600	-0.018
sd	0.025	7.746	0.077	0.084

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID MB 160-430215/24-A

Repeat 1

Carrier No. 0

Batch ID 430215

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 8/1/2019 5:57:16 PM

Count Ended 8/1/2019 7:37:23 PM

Sample Count Time 100.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.062	10	0.100	0.038
sd	0.008	3.162	0.032	0.033
Beta	0.664	54	0.540	-0.124
sd	0.026	7.348	0.073	0.092

Method 9320

Radium-228 (GFPC) by Method 9320

Prep Batch: 430233

Preparation, Precipitate Separation

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 430233

Lab Id: LCS 160-430233/1-A | Analyzed: 07/16/19 12:35 | Decay Corrected: No | Ts: 200
Client ID: | Detector: Purple0 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	LCS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	8.768	0.692	1.06		pCi/L	1.00	0.457	843	494	.	.6609	0.44911	.8336	1.	435022

Carrier	LCS Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03310				g		0.0354	93.5	40 - 110
Y Carrier	0.02210				g		0.0268	82.6	40 - 110

Lab Id: 400-169314-1 | Analyzed: 07/16/19 12:37 | Decay Corrected: No | Ts: 200
Client ID: AES-MW1-042319 | Detector: Purple16 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	-0.189	0.235	0.236	U	pCi/L	1.00	0.453	78	469	.	.6584	0.44367	.8336	1.	435022

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0317				g		0.0354	89.5	40 - 110
Y Carrier	0.0231				g		0.0268	86.4	40 - 110

Lab Id: 400-169314-2 | Analyzed: 07/16/19 12:37 | Decay Corrected: No | Ts: 200
Client ID: AES-MW2-042319 | Detector: Purple17 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	-0.0232	0.230	0.230	U	pCi/L	1.00	0.422	66	339	.	.6583	0.42229	.8336	1.	435022

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0314				g		0.0354	88.7	40 - 110
Y Carrier	0.0227				g		0.0268	84.9	40 - 110

Lab Id: 400-169314-2 MS | Analyzed: 07/16/19 12:37 | Decay Corrected: No | Ts: 200
Client ID: AES-MW2-042319 | Detector: Purple18 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	MS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	8.181	0.684	1.02		pCi/L	1.00	0.462	760	463	.	.6581	0.44063	.8336	1.	435022

Carrier	MS Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03170				g		0.0354	89.5	40 - 110
Y Carrier	0.02270				g		0.0268	84.9	40 - 110

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 430233

Lab Id: 400-169314-2 MSD | Analyzed: 07/16/19 12:32 | Decay Corrected: No | Ts: 200
Client ID: AES-MW2-042319 | Detector: Protean2 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	MSD Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	9.256	0.734	1.12		pCi/L	1.00	0.491	840	504	.	.6645	0.43854	.8336	1.	435021

Carrier	MSD Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03020				g		0.0354	85.3	40 - 110
Y Carrier	0.02320				g		0.0268	86.7	40 - 110

Lab Id: 400-169314-3 | Analyzed: 07/16/19 12:40 | Decay Corrected: No | Ts: 200
Client ID: AES-MW3-042319 | Detector: Blue0 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	-0.127	0.240	0.240	U	pCi/L	1.00	0.452	78	442	.	.6549	0.44493	.8336	1.	434918

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0310				g		0.0354	87.6	40 - 110
Y Carrier	0.0231				g		0.0268	86.4	40 - 110

Lab Id: 400-169314-4 | Analyzed: 07/16/19 12:40 | Decay Corrected: No | Ts: 200
Client ID: AES-FB-042319 | Detector: Blue1 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	0.388	0.290	0.292	U	pCi/L	1.00	0.455	118	434	.	.6545	0.43651	.8336	1.	434918

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0321				g		0.0354	90.7	40 - 110
Y Carrier	0.0224				g		0.0268	83.7	40 - 110

Lab Id: 400-169314-5 | Analyzed: 07/16/19 12:40 | Decay Corrected: No | Ts: 200
Client ID: AES-MW4-042419 | Detector: Blue2 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	-0.0189	0.271	0.271	U	pCi/L	1.00	0.490	84	427	.	.6542	0.44284	.8336	1.	434918

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0292				g		0.0354	82.5	40 - 110
Y Carrier	0.0224				g		0.0268	83.7	40 - 110

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 430233

Lab Id: 400-169314-6 Analyzed: 07/16/19 12:41 Decay Corrected: No Ts: 200
Client ID: AES-MW4-DUP-042419 Detector: Blue3 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	0.476	0.280	0.283		pCi/L	1.00	0.423	118	393	.	.6541	0.44514	.8336	1.	434918

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0320				g		0.0354	90.4	40 - 110
Y Carrier	0.0227				g		0.0268	84.9	40 - 110

Lab Id: 400-169314-7 Analyzed: 07/16/19 12:41 Decay Corrected: No Ts: 200
Client ID: AES-MW5-042419 Detector: Blue8 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	-0.0275	0.275	0.275	U	pCi/L	1.00	0.499	83	425	.	.6537	0.44416	.8336	1.	434918

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0277				g		0.0354	78.2	40 - 110
Y Carrier	0.0231				g		0.0268	86.4	40 - 110

Lab Id: 400-169314-8 Analyzed: 07/16/19 12:41 Decay Corrected: No Ts: 200
Client ID: AES-FB-042419 Detector: Blue9 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	0.163	0.233	0.234	U	pCi/L	1.00	0.391	91	383	.	.6536	0.43951	.8336	1.	434918

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0336				g		0.0354	94.9	40 - 110
Y Carrier	0.0234				g		0.0268	87.5	40 - 110

Lab Id: MB 160-430233/24-A Analyzed: 07/16/19 12:32 Decay Corrected: No Ts: 200
Client ID: Detector: Protean1 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 1

Analyte	MB Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	-0.07299	0.288	0.288	U	pCi/L	1.00	0.524	101	533	.	.6646	0.43753	.8336	1.	435021

Carrier	MB Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03000				g		0.0354	84.7	40 - 110
Y Carrier	0.02250				g		0.0268	84.1	40 - 110

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 430233

Quality Control Summary

Method Blank ID:	Analyte	Parent Result	Spike Added	MB Result	Qualifier	Unit	% Rec	% Rec Limits	RPD	RER	DER	RER Limit	Z Factor
MB 160-430233/24-A	Radium-228			-0.07299	U	pCi/L							-.5062
Lab Control Sample ID:	**Analyte**	**Parent Result**	**Spike Added**	**LCS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
LCS 160-430233/1-A	Radium-228		9.02	8.768		pCi/L	97	75 - 125					-.4379
Matrix Spike ID:	**Analyte**	**Parent Result**	**Spike Added**	**MS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
400-169314-2	Radium-228	-0.0232	9.02	8.181		pCi/L	91	45 - 150	12				-1.4381
Matrix Spike Duplicate ID:	**Analyte**	**Parent Result**	**Spike Added**	**MSD Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
400-169314-2	Radium-228	-0.0232	9.01	9.256		pCi/L	103	45 - 150	12	0.50	1.42	1	1.4179

Glossary:

Ts = Count Duration, Sample
Tb = Count Duration, Background
Cs = Total Counts, Sample
Cb = Total Counts, Background
X Talk = Crosstalk
Decay = Decay Factor
Eff = Efficiency
I = Ingrowth Factor
A = Abundance

GAS FLOW PROPORTIONAL COUNTER BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 400-169314-2

SDG No.:

Batch Number: 430233 Batch Start Date: 05/30/19 10:03 Batch Analyst: Quinn, Erin J

Batch Method: PrecSep_0 Batch End Date: 07/16/19 12:07

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	Ba_TareWt	Ba_GrossWt	Ba_Mass	Y_TareWt	Y_GrossWt
LCS 160-430233/1		PrecSep_0, 9320		1000 mL	8.7248 g	8.7579 g	0.0354 g	8.6427 g	8.6648 g
400-169314-B-1	AES-MW1-042319	PrecSep_0, 9320	T	1000.06 mL	8.6847 g	8.7164 g	0.0354 g	8.7670 g	8.7901 g
400-169314-B-2	AES-MW2-042319	PrecSep_0, 9320	T	1000.49 mL	8.6768 g	8.7082 g	0.0354 g	8.6923 g	8.7150 g
400-169314-B-2 MS	AES-MW2-042319	PrecSep_0, 9320	T	1000.17 mL	8.7115 g	8.7432 g	0.0354 g	8.7115 g	8.7342 g
400-169314-B-2 MSD	AES-MW2-042319	PrecSep_0, 9320	T	1000.65 mL	8.7898 g	8.8200 g	0.0354 g	8.7215 g	8.7447 g
400-169314-B-3	AES-MW3-042319	PrecSep_0, 9320	T	1000.92 mL	8.6519 g	8.6829 g	0.0354 g	8.7423 g	8.7654 g
400-169314-B-4	AES-FB-042319	PrecSep_0, 9320	T	1000.37 mL	8.7453 g	8.7774 g	0.0354 g	8.7328 g	8.7552 g
400-169314-B-5	AES-MW4-042419	PrecSep_0, 9320	T	1000.98 mL	8.7708 g	8.8000 g	0.0354 g	8.7267 g	8.7491 g
400-169314-B-6	AES-MW4-DUP-042419	PrecSep_0, 9320	T	1000.40 mL	8.7029 g	8.7349 g	0.0354 g	8.6563 g	8.6790 g
400-169314-B-7	AES-MW5-042419	PrecSep_0, 9320	T	1000.70 mL	8.6527 g	8.6804 g	0.0354 g	8.7008 g	8.7239 g
400-169314-B-8	AES-FB-042419	PrecSep_0, 9320	T	1000.90 mL	8.6847 g	8.7183 g	0.0354 g	8.6739 g	8.6973 g
MB 160-430233/24		PrecSep_0, 9320		1000 mL	8.6899 g	8.7199 g	0.0354 g	8.7213 g	8.7438 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Y_Mass	IngDecDate1	IngDecDate2	NativeMassBa	NativeMassY	Ba Carrier 00045
LCS 160-430233/1		PrecSep_0, 9320		0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL
400-169314-B-1	AES-MW1-042319	PrecSep_0, 9320	T	0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL
400-169314-B-2	AES-MW2-042319	PrecSep_0, 9320	T	0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL
400-169314-B-2 MS	AES-MW2-042319	PrecSep_0, 9320	T	0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL
400-169314-B-2 MSD	AES-MW2-042319	PrecSep_0, 9320	T	0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL
400-169314-B-3	AES-MW3-042319	PrecSep_0, 9320	T	0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL
400-169314-B-4	AES-FB-042319	PrecSep_0, 9320	T	0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAS FLOW PROPORTIONAL COUNTER BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 400-169314-2

SDG No.:

Batch Number: 430233 Batch Start Date: 05/30/19 10:03 Batch Analyst: Quinn, Erin J

Batch Method: PrecSep_0 Batch End Date: 07/16/19 12:07

Lab Sample ID	Client Sample ID	Method Chain	Basis	Y_Mass	IngDecDate1	IngDecDate2	NativeMassBa	NativeMassY	Ba Carrier 00045
400-169314-B-5	AES-MW4-042419	PrecSep_0, 9320	T	0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL
400-169314-B-6	AES-MW4-DUP-042419	PrecSep_0, 9320	T	0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL
400-169314-B-7	AES-MW5-042419	PrecSep_0, 9320	T	0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL
400-169314-B-8	AES-FB-042419	PrecSep_0, 9320	T	0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL
MB 160-430233/24		PrecSep_0, 9320		0.02675 g	05/31/2019 13:46	07/16/2019 8:55	0 g	0 g	1 mL

Lab Sample ID	Client Sample ID	Method Chain	Basis	Ra-228 00031	Y Carrier 00037				
LCS 160-430233/1		PrecSep_0, 9320		0.1 mL	0.2 mL				
400-169314-B-1	AES-MW1-042319	PrecSep_0, 9320	T		0.2 mL				
400-169314-B-2	AES-MW2-042319	PrecSep_0, 9320	T		0.2 mL				
400-169314-B-2 MS	AES-MW2-042319	PrecSep_0, 9320	T	0.1 mL	0.2 mL				
400-169314-B-2 MSD	AES-MW2-042319	PrecSep_0, 9320	T	0.1 mL	0.2 mL				
400-169314-B-3	AES-MW3-042319	PrecSep_0, 9320	T		0.2 mL				
400-169314-B-4	AES-FB-042319	PrecSep_0, 9320	T		0.2 mL				
400-169314-B-5	AES-MW4-042419	PrecSep_0, 9320	T		0.2 mL				
400-169314-B-6	AES-MW4-DUP-042419	PrecSep_0, 9320	T		0.2 mL				
400-169314-B-7	AES-MW5-042419	PrecSep_0, 9320	T		0.2 mL				
400-169314-B-8	AES-FB-042419	PrecSep_0, 9320	T		0.2 mL				
MB 160-430233/24		PrecSep_0, 9320			0.2 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAS FLOW PROPORTIONAL COUNTER BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 400-169314-2

SDG No.:

Batch Number: 430233 Batch Start Date: 05/30/19 10:03 Batch Analyst: Quinn, Erin J

Batch Method: PrecSep_0 Batch End Date: 07/16/19 12:07

Batch Notes	
Balance ID	1121470622, 1125330898
Batch Comment	In CPR, OUT-PMS
Pipette ID	RAD112, RAD038, SEP005
Analyst ID - Reagent Drop Witness	EJQ, PMS per CPR
Analyst ID - Reagent Drop	JLC per EJQ, CPR
SOP Number	ST-RC-0002, ST-RC-0041

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID LCS 160-430233/1-A

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 7/16/2019 12:35:29 PM

Count Ended 7/16/2019 3:55:48 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.169	85	0.425	0.256
sd	0.013	9.220	0.046	0.048
Beta	0.494	843	4.215	3.721
sd	0.022	29.034	0.145	0.147

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID 400-169314-B-1-C

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 7/16/2019 12:37:31 PM

Count Ended 7/16/2019 3:57:46 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.080	35	0.175	0.095
sd	0.009	5.916	0.030	0.031
Beta	0.469	78	0.390	-0.079
sd	0.022	8.832	0.044	0.057

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID 400-169314-B-2-G

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 7/16/2019 12:37:37 PM

Count Ended 7/16/2019 3:57:53 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.173	38	0.190	0.017
sd	0.013	6.164	0.031	0.034
Beta	0.339	66	0.330	-0.009
sd	0.018	8.124	0.041	0.046

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID 400-169314-B-2-H MS

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 7/16/2019 12:37:46 PM

Count Ended 7/16/2019 3:58:00 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.094	55	0.275	0.181
sd	0.010	7.416	0.037	0.038
Beta	0.463	760	3.800	3.337
sd	0.022	27.568	0.138	0.140

Alpha/Beta Count Results

Sample Activity Report

Protean 0-3 - C

Addr: 2

Sample ID 400-169314-B-2-I MSD

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 7/16/2019 12:32:37 PM

Count Ended 7/16/2019 3:52:47 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.121	78	0.390	0.269
sd	0.011	8.832	0.044	0.046
Beta	0.504	840	4.200	3.696
sd	0.022	28.983	0.145	0.147

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID 400-169314-B-3-C

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/16/2019 12:40:25 PM

Count Ended 7/16/2019 4:00:39 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 200.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.140	24	0.120	-0.020
sd	0.000			0.012	4.899	0.024	0.031
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.442	78	0.390	-0.052
sd	0.000			0.021	8.832	0.044	0.054

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID 400-169314-B-4-C

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/16/2019 12:40:43 PM

Count Ended 7/16/2019 4:01:03 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 200.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.216	35	0.175	-0.041
sd	0.000			0.015	5.916	0.030	0.039
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.434	118	0.590	0.156
sd	0.000			0.021	10.863	0.054	0.058

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID 400-169314-B-5-C

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/16/2019 12:40:55 PM

Count Ended 7/16/2019 4:01:11 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 200.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	20	0.100	0.004
sd	0.000			0.010	4.472	0.022	0.024
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	84	0.420	-0.007
sd	0.000			0.021	9.165	0.046	0.051

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID 400-169314-B-6-C

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/16/2019 12:41:00 PM

Count Ended 7/16/2019 4:01:14 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 200.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.086	16	0.080	-0.006
sd	0.000			0.009	4.000	0.020	0.023
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.393	118	0.590	0.197
sd	0.000			0.020	10.863	0.054	0.058

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID 400-169314-B-7-C

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/16/2019 12:41:21 PM

Count Ended 7/16/2019 4:01:35 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 200.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.104	12	0.060	-0.044
sd	0.000			0.010	3.464	0.017	0.029
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.425	83	0.415	-0.010
sd	0.000			0.021	9.110	0.046	0.051

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID 400-169314-B-8-C

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/16/2019 12:41:28 PM

Count Ended 7/16/2019 4:01:43 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 200.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.112	21	0.105	-0.007
sd	0.000			0.011	4.583	0.023	0.027
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.383	91	0.455	0.072
sd	0.000			0.020	9.539	0.048	0.052

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Protean 0-3 - B

Addr: 1

Sample ID MB 160-430233/24-A

Repeat 1

Carrier No. 0

Batch ID 430233

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 7/16/2019 12:32:32 PM

Count Ended 7/16/2019 3:52:42 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.102	23	0.115	0.013
sd	0.010	4.796	0.024	0.026
Beta	0.533	101	0.505	-0.028
sd	0.023	10.050	0.050	0.058

Daily Checks

APPROVED
By Conrad Reuscher at 11:49 pm, Jul 16, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
7/15/2019 3:43:00 AM	11714.39	12736.38	382.09	-1021.99	FAIL	4449.00	4320.40	60.09	128.600	WARNING
7/16/2019 1:38:00 AM	11811.63	12736.38	382.09	-924.75	FAIL	4463.00	4320.40	60.09	142.600	WARNING
Detector 1										
7/15/2019 3:43:00 AM	12547.97	13519.45	405.58	-971.48	FAIL	4718.00	4449.53	44.71	268.475	DOEF
7/16/2019 1:38:00 AM	12690.31	13519.45	405.58	-829.14	FAIL	4582.50	4449.53	44.71	132.975	WARNING
Detector 2										
7/15/2019 3:43:00 AM	12982.51	14253.55	427.61	-1271.04	FAIL	4826.50	4791.68	109.59	34.825	Pass
7/16/2019 1:38:00 AM	12951.51	14253.55	427.61	-1302.04	FAIL	4840.00	4791.68	109.59	48.325	Pass
Detector 3										
7/15/2019 3:43:00 AM	12640.54	13543.80	406.31	-903.26	FAIL	4572.00	4389.20	68.69	182.800	WARNING
7/16/2019 1:38:00 AM	12802.41	13543.80	406.31	-741.39	FAIL	4629.50	4389.20	68.69	240.300	DOEF
Detector 4										
7/15/2019 3:41:00 AM	15755.95	16171.80	485.15	-415.85	Pass	6389.50	6539.20	127.28	-149.700	Pass
7/16/2019 1:33:00 AM	15772.05	16171.80	485.15	-399.75	Pass	6512.50	6539.20	127.28	-26.700	Pass
Detector 5										
7/15/2019 3:41:00 AM	16185.25	16459.75	493.79	-274.50	Pass	6039.00	6151.68	143.92	-112.675	Pass
7/16/2019 1:33:00 AM	16224.39	16459.75	493.79	-235.36	Pass	5835.00	6151.68	143.92	-316.675	WARNING
Detector 6										
7/15/2019 3:41:00 AM	14712.46	15378.63	461.36	-666.16	FAIL	5512.50	5735.28	106.30	-222.775	WARNING
7/16/2019 1:33:00 AM	14821.74	15378.63	461.36	-556.89	FAIL	5418.50	5735.28	106.30	-316.775	WARNING
Detector 7										
7/15/2019 3:41:00 AM	14564.03	14694.35	440.83	-130.32	Pass	5462.00	6293.60	174.59	-831.600	DOEF
7/16/2019 1:33:00 AM	14621.71	14694.35	440.83	-72.64	Pass	5412.00	6293.60	174.59	-881.600	DOEF
Detector 8										
7/15/2019 3:46:00 AM	11600.39	12235.70	367.07	-635.31	FAIL	4506.50	4831.48	170.20	-324.975	Pass
7/16/2019 1:41:00 AM	11601.45	12235.70	367.07	-634.25	FAIL	4302.00	4831.48	170.20	-529.475	DOEF
Detector 9										
7/15/2019 3:46:00 AM	12466.58	13042.63	391.28	-576.04	FAIL	4833.50	5136.70	130.65	-303.200	WARNING
7/16/2019 1:41:00 AM	12631.96	13042.63	391.28	-410.67	FAIL	4819.50	5136.70	130.65	-317.200	WARNING
Detector 10										
7/15/2019 3:46:00 AM	13112.24	13724.85	411.75	-612.61	FAIL	4820.00	5284.65	125.26	-464.650	DOEF
7/16/2019 1:41:00 AM	13019.62	13724.85	411.75	-705.23	FAIL	4858.00	5284.65	125.26	-426.650	DOEF

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 11										
7/15/2019 3:46:00 AM	12619.44	12965.85	388.98	-346.41	Pass	4883.50	5004.60	105.46	-121.100	Pass
7/16/2019 1:41:00 AM	12589.94	12965.85	388.98	-375.91	Pass	4784.50	5004.60	105.46	-220.100	**WARNING**
Detector 12										
7/15/2019 3:43:00 AM	15266.39	15035.28	451.06	231.11	Pass	6984.50	7154.28	501.18	-169.775	Pass
7/16/2019 1:35:00 AM	15406.63	15035.28	451.06	371.36	Pass	6878.00	7154.28	501.18	-276.275	Pass
Detector 13										
7/15/2019 3:43:00 AM	16753.35	16877.30	506.32	-123.95	Pass	5438.00	5477.70	171.80	-39.700	Pass
7/16/2019 1:35:00 AM	16901.61	16877.30	506.32	24.31	Pass	5411.00	5477.70	171.80	-66.700	Pass
Detector 14										
7/15/2019 3:43:00 AM	13667.82	13691.08	410.73	-23.26	Pass	6334.00	6845.08	521.25	-511.075	Pass
7/16/2019 1:35:00 AM	13856.62	13691.08	410.73	165.54	Pass	6330.50	6845.08	521.25	-514.575	Pass
Detector 15										
7/15/2019 3:43:00 AM	14003.15	13998.85	419.97	4.30	Pass	6262.50	6685.98	512.86	-423.475	Pass
7/16/2019 1:35:00 AM	14306.09	13998.85	419.97	307.24	Pass	6238.00	6685.98	512.86	-447.975	Pass
Detector 16										
7/15/2019 3:50:00 AM	11741.24	12089.48	362.68	-348.23	Pass	4495.50	4618.68	103.75	-123.175	Pass
7/15/2019 4:14:00 AM	11565.52	12089.48	362.68	-523.95	**FAIL**	4457.50	4618.68	103.75	-161.175	Pass
7/16/2019 1:44:00 AM	11967.58	12089.48	362.68	-121.90	Pass	4470.00	4618.68	103.75	-148.675	Pass
7/16/2019 2:20:00 AM	11796.86	12089.48	362.68	-292.61	Pass	4490.00	4618.68	103.75	-128.675	Pass
Detector 17										
7/15/2019 3:50:00 AM	12743.50	13119.45	393.58	-375.95	Pass	4735.50	4870.55	102.70	-135.050	Pass
7/15/2019 4:15:00 AM	12594.82	13119.45	393.58	-524.63	**FAIL**	4716.50	4870.55	102.70	-154.050	Pass
7/16/2019 3:17:00 AM	12796.12	13119.45	393.58	-323.33	Pass	4685.00	4870.55	102.70	-185.550	Pass
Detector 18										
7/15/2019 3:50:00 AM	13132.98	13598.40	407.95	-465.42	**FAIL**	4768.50	4892.93	110.28	-124.425	Pass
7/16/2019 1:45:00 AM	13278.72	13598.40	407.95	-319.68	Pass	4678.00	4892.93	110.28	-214.925	Pass
Detector 19										
7/15/2019 3:50:00 AM	12439.99	12858.98	385.77	-418.98	**FAIL**	4879.00	4846.63	121.24	32.375	Pass
7/15/2019 4:14:00 AM	12624.72	12858.98	385.77	-234.25	Pass	4799.00	4846.63	121.24	-47.625	Pass
7/15/2019 4:16:00 AM	12626.72	12858.98	385.77	-232.25	Pass	4679.50	4846.63	121.24	-167.125	Pass
7/16/2019 1:45:00 AM	12793.99	12858.98	385.77	-64.99	Pass	4847.00	4846.63	121.24	0.375	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
7/15/2019 3:37:00 AM	50230.45	50552.05	1516.56	-321.60	Pass	NA	NA	NA	NA	NA
7/16/2019 1:31:00 AM	50349.67	50552.05	1516.56	-202.38	Pass	NA	NA	NA	NA	NA
Detector 1										
7/15/2019 3:37:00 AM	48496.09	47641.23	1429.24	854.87	Pass	NA	NA	NA	NA	NA
7/16/2019 1:31:00 AM	48462.39	47641.23	1429.24	821.17	Pass	NA	NA	NA	NA	NA
Detector 2										
7/15/2019 3:37:00 AM	50547.88	49734.44	1492.03	813.44	Pass	NA	NA	NA	NA	NA
7/16/2019 1:31:00 AM	50263.27	49734.44	1492.03	528.83	Pass	NA	NA	NA	NA	NA
Detector 3										
7/15/2019 3:37:00 AM	59498.05	60167.98	1805.04	-669.92	Pass	NA	NA	NA	NA	NA
7/16/2019 1:31:00 AM	59694.29	60167.98	1805.04	-473.68	Pass	NA	NA	NA	NA	NA
Detector 4										
7/15/2019 3:32:00 AM	53873.17	55277.35	1658.32	-1404.18	Pass	NA	NA	NA	NA	NA
7/16/2019 1:26:00 AM	53858.02	55277.35	1658.32	-1419.33	Pass	NA	NA	NA	NA	NA
Detector 5										
7/15/2019 3:32:00 AM	54638.16	55004.03	1650.12	-365.87	Pass	NA	NA	NA	NA	NA
7/16/2019 1:26:00 AM	54462.98	55004.03	1650.12	-541.05	Pass	NA	NA	NA	NA	NA
Detector 6										
7/15/2019 3:32:00 AM	51804.91	52072.68	1562.18	-267.76	Pass	NA	NA	NA	NA	NA
7/16/2019 1:26:00 AM	51493.13	52072.68	1562.18	-579.55	Pass	NA	NA	NA	NA	NA
Detector 7										
7/15/2019 3:32:00 AM	44929.04	44302.58	1329.08	626.46	Pass	NA	NA	NA	NA	NA
7/16/2019 1:26:00 AM	45100.45	44302.58	1329.08	797.87	Pass	NA	NA	NA	NA	NA
Detector 8										
7/15/2019 3:39:00 AM	49771.60	49959.33	1498.78	-187.73	Pass	NA	NA	NA	NA	NA
7/16/2019 1:33:00 AM	49938.07	49959.33	1498.78	-21.25	Pass	NA	NA	NA	NA	NA
Detector 9										
7/15/2019 3:39:00 AM	48661.11	47696.08	1430.88	965.04	Pass	NA	NA	NA	NA	NA
7/16/2019 1:33:00 AM	48494.37	47696.08	1430.88	798.30	Pass	NA	NA	NA	NA	NA
Detector 10										
7/15/2019 3:39:00 AM	50727.61	50136.65	1504.10	590.96	Pass	NA	NA	NA	NA	NA
7/16/2019 1:33:00 AM	50460.70	50136.65	1504.10	324.05	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
7/15/2019 3:39:00 AM	59653.62	59951.55	1798.55	-297.93	Pass	NA	NA	NA	NA	NA
7/16/2019 1:33:00 AM	60068.15	59951.55	1798.55	116.60	Pass	NA	NA	NA	NA	NA
Detector 12										
7/15/2019 3:34:00 AM	55869.61	56070.40	1682.11	-200.79	Pass	NA	NA	NA	NA	NA
7/16/2019 1:28:00 AM	56105.89	56070.40	1682.11	35.49	Pass	NA	NA	NA	NA	NA
Detector 13										
7/15/2019 3:34:00 AM	55026.62	55607.20	1668.22	-580.58	Pass	NA	NA	NA	NA	NA
7/16/2019 1:28:00 AM	55258.79	55607.20	1668.22	-348.41	Pass	NA	NA	NA	NA	NA
Detector 14										
7/15/2019 3:34:00 AM	50475.56	50580.03	1517.40	-104.46	Pass	NA	NA	NA	NA	NA
7/16/2019 1:28:00 AM	50621.29	50580.03	1517.40	41.26	Pass	NA	NA	NA	NA	NA
Detector 15										
7/15/2019 3:34:00 AM	45636.82	45674.43	1370.23	-37.60	Pass	NA	NA	NA	NA	NA
7/16/2019 1:29:00 AM	45724.55	45674.43	1370.23	50.13	Pass	NA	NA	NA	NA	NA
Detector 16										
7/15/2019 3:41:00 AM	49924.80	49653.23	1489.60	271.57	Pass	NA	NA	NA	NA	NA
7/16/2019 1:36:00 AM	49689.86	49653.23	1489.60	36.64	Pass	NA	NA	NA	NA	NA
Detector 17										
7/15/2019 3:41:00 AM	48377.65	48166.13	1444.98	211.52	Pass	NA	NA	NA	NA	NA
7/16/2019 3:22:00 AM	48619.93	48166.13	1444.98	453.80	Pass	NA	NA	NA	NA	NA
Detector 18										
7/15/2019 3:41:00 AM	50156.47	49957.23	1498.72	199.24	Pass	NA	NA	NA	NA	NA
7/16/2019 1:36:00 AM	50115.26	49957.23	1498.72	158.03	Pass	NA	NA	NA	NA	NA
Detector 19										
7/15/2019 3:41:00 AM	59521.62	59167.80	1775.03	353.82	Pass	NA	NA	NA	NA	NA
7/16/2019 1:36:00 AM	59949.64	59167.80	1775.03	781.84	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
7/15/2019 3:20:00 AM	0.08	0.13	0.02	-0.05	Pass	0.26	0.48	0.09	-0.225	Pass
7/16/2019 5:04:00 AM	0.19	0.13	0.02	0.06	**FAIL**	0.30	0.48	0.09	-0.180	Pass
Detector 1										
7/15/2019 3:20:00 AM	0.15	0.14	0.02	0.01	Pass	0.38	0.44	0.07	-0.067	Pass
7/16/2019 5:04:00 AM	0.27	0.14	0.02	0.13	**FAIL**	0.33	0.44	0.07	-0.112	Pass
Detector 2										
7/15/2019 3:20:00 AM	0.14	0.07	0.02	0.07	**FAIL**	0.50	0.42	0.08	0.075	Pass
7/15/2019 7:31:00 AM	0.17	0.07	0.02	0.09	**FAIL**	0.43	0.42	0.08	0.005	Pass
7/16/2019 5:04:00 AM	0.13	0.07	0.02	0.06	**FAIL**	0.47	0.42	0.08	0.045	Pass
Detector 3										
7/15/2019 3:20:00 AM	0.10	0.06	0.02	0.04	Pass	0.54	0.40	0.09	0.140	Pass
7/16/2019 5:04:00 AM	0.19	0.06	0.02	0.13	**FAIL**	0.42	0.40	0.09	0.019	Pass
Detector 4										
7/15/2019 3:20:00 AM	0.23	0.09	0.03	0.14	**FAIL**	0.29	0.39	0.08	-0.109	Pass
7/15/2019 7:31:00 AM	0.10	0.09	0.03	0.00	Pass	0.37	0.39	0.08	-0.024	Pass
7/16/2019 5:05:00 AM	0.22	0.09	0.03	0.13	**FAIL**	0.45	0.39	0.08	0.056	Pass
7/16/2019 9:50:00 AM	0.22	0.09	0.03	0.13	**FAIL**	0.42	0.39	0.08	0.021	Pass
Detector 5										
7/15/2019 3:20:00 AM	0.14	0.08	0.02	0.06	Pass	0.44	0.42	0.08	0.017	Pass
7/16/2019 5:05:00 AM	0.20	0.08	0.02	0.11	**FAIL**	0.47	0.42	0.08	0.052	Pass
7/16/2019 9:50:00 AM	0.19	0.08	0.02	0.11	**FAIL**	0.44	0.42	0.08	0.022	Pass
Detector 6										
7/15/2019 3:20:00 AM	0.23	0.05	0.02	0.18	**FAIL**	0.34	0.36	0.06	-0.024	Pass
7/16/2019 5:04:00 AM	0.13	0.05	0.02	0.07	**FAIL**	0.37	0.36	0.06	0.006	Pass
Detector 7										
7/15/2019 3:20:00 AM	0.09	0.08	0.03	0.01	Pass	0.48	0.51	0.12	-0.036	Pass
7/16/2019 5:05:00 AM	0.14	0.08	0.03	0.06	Pass	0.54	0.51	0.12	0.024	Pass
Detector 8										
7/15/2019 3:20:00 AM	0.13	0.07	0.03	0.06	Pass	0.33	0.47	0.13	-0.135	Pass
7/16/2019 5:04:00 AM	0.13	0.07	0.03	0.05	Pass	0.35	0.47	0.13	-0.120	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 9										
7/15/2019 3:20:00 AM	0.16	0.08	0.02	0.08	FAIL	0.36	0.41	0.07	-0.048	Pass
7/15/2019 7:31:00 AM	0.11	0.08	0.02	0.03	Pass	0.40	0.41	0.07	-0.013	Pass
7/16/2019 5:04:00 AM	0.12	0.08	0.02	0.04	Pass	0.41	0.41	0.07	-0.003	Pass
Detector 10										
7/15/2019 3:20:00 AM	0.14	0.07	0.03	0.06	Pass	0.37	0.35	0.08	0.020	Pass
7/16/2019 5:04:00 AM	0.15	0.07	0.03	0.08	Pass	0.36	0.35	0.08	0.010	Pass
Detector 11										
7/15/2019 3:20:00 AM	0.14	0.07	0.03	0.07	Pass	0.35	0.45	0.09	-0.099	Pass
7/16/2019 5:04:00 AM	0.16	0.07	0.03	0.09	FAIL	0.47	0.45	0.09	0.021	Pass
7/16/2019 9:50:00 AM	0.15	0.07	0.03	0.08	Pass	0.56	0.45	0.09	0.106	Pass
Detector 12										
7/15/2019 3:20:00 AM	0.17	0.10	0.03	0.07	Pass	0.32	0.46	0.12	-0.146	Pass
7/16/2019 5:05:00 AM	0.22	0.10	0.03	0.12	FAIL	0.48	0.46	0.12	0.014	Pass
7/16/2019 9:50:00 AM	0.12	0.10	0.03	0.02	Pass	0.38	0.46	0.12	-0.081	Pass
Detector 13										
7/15/2019 3:20:00 AM	0.17	0.07	0.03	0.10	FAIL	0.43	0.37	0.09	0.056	Pass
7/15/2019 7:31:00 AM	0.21	0.07	0.03	0.14	FAIL	0.40	0.37	0.09	0.026	Pass
7/16/2019 5:05:00 AM	0.14	0.07	0.03	0.07	Pass	0.39	0.37	0.09	0.016	Pass
Detector 14										
7/15/2019 3:20:00 AM	0.12	0.07	0.03	0.05	Pass	0.36	0.37	0.09	-0.008	Pass
7/16/2019 5:05:00 AM	0.11	0.07	0.03	0.03	Pass	0.32	0.37	0.09	-0.048	Pass
Detector 15										
7/15/2019 3:20:00 AM	0.16	0.07	0.03	0.09	Pass	0.43	0.47	0.09	-0.042	Pass
7/16/2019 5:05:00 AM	0.08	0.07	0.03	0.01	Pass	0.42	0.47	0.09	-0.052	Pass
Detector 16										
7/15/2019 3:20:00 AM	0.09	0.08	0.04	0.01	Pass	0.53	0.61	0.46	-0.076	Pass
7/16/2019 5:42:00 AM	0.20	0.08	0.04	0.12	FAIL	0.81	0.61	0.46	0.204	Pass
7/16/2019 9:50:00 AM	0.21	0.08	0.04	0.13	FAIL	0.56	0.61	0.46	-0.051	Pass
Detector 17										
7/15/2019 3:20:00 AM	0.20	0.07	0.03	0.13	FAIL	0.29	0.38	0.20	-0.093	Pass
7/15/2019 7:35:00 AM	0.33	0.07	0.03	0.26	FAIL	0.44	0.38	0.20	0.062	Pass
7/16/2019 6:47:00 AM	0.14	0.07	0.03	0.07	Pass	0.47	0.38	0.20	0.087	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 18										
7/15/2019 3:20:00 AM	0.90	0.05	0.03	0.85	FAIL	1.26	0.62	0.09	0.635	FAIL
7/16/2019 5:06:00 AM	0.91	0.05	0.03	0.86	FAIL	1.17	0.62	0.09	0.550	FAIL
Detector 19										
7/15/2019 3:20:00 AM	0.13	0.14	0.02	-0.01	Pass	0.57	0.46	0.09	0.105	Pass
7/16/2019 5:06:00 AM	0.24	0.14	0.02	0.10	FAIL	0.39	0.46	0.09	-0.070	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Conrad Reuscher at 9:46 pm, Jul 17, 2019

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
7/16/2019 1:38:00 AM	11811.63	12736.38	382.09	-924.75	FAIL	4463.00	4320.40	60.09	142.600	WARNING
7/17/2019 12:21:00 AM	11911.37	12736.38	382.09	-825.00	FAIL	4405.00	4320.40	60.09	84.600	Pass
Detector 1										
7/16/2019 1:38:00 AM	12690.31	13519.45	405.58	-829.14	FAIL	4582.50	4449.53	44.71	132.975	WARNING
7/17/2019 12:21:00 AM	12696.88	13519.45	405.58	-822.57	FAIL	4622.00	4449.53	44.71	172.475	DOEF
Detector 2										
7/16/2019 1:38:00 AM	12951.51	14253.55	427.61	-1302.04	FAIL	4840.00	4791.68	109.59	48.325	Pass
7/17/2019 12:21:00 AM	12983.63	14253.55	427.61	-1269.92	FAIL	4791.00	4791.68	109.59	-0.675	Pass
Detector 3										
7/16/2019 1:38:00 AM	12802.41	13543.80	406.31	-741.39	FAIL	4629.50	4389.20	68.69	240.300	DOEF
7/17/2019 12:21:00 AM	12870.60	13543.80	406.31	-673.20	FAIL	4634.00	4389.20	68.69	244.800	DOEF
Detector 4										
7/16/2019 1:33:00 AM	15772.05	16171.80	485.15	-399.75	Pass	6512.50	6539.20	127.28	-26.700	Pass
7/17/2019 12:21:00 AM	15936.94	16171.80	485.15	-234.86	Pass	6303.50	6539.20	127.28	-235.700	Pass
Detector 5										
7/16/2019 1:33:00 AM	16224.39	16459.75	493.79	-235.36	Pass	5835.00	6151.68	143.92	-316.675	WARNING
7/17/2019 12:21:00 AM	16409.32	16459.75	493.79	-50.43	Pass	5995.50	6151.68	143.92	-156.175	Pass
Detector 6										
7/16/2019 1:33:00 AM	14821.74	15378.63	461.36	-556.89	FAIL	5418.50	5735.28	106.30	-316.775	WARNING
7/17/2019 12:21:00 AM	14673.51	15378.63	461.36	-705.11	FAIL	5556.00	5735.28	106.30	-179.275	Pass
Detector 7										
7/16/2019 1:33:00 AM	14621.71	14694.35	440.83	-72.64	Pass	5412.00	6293.60	174.59	-881.600	DOEF
7/17/2019 12:21:00 AM	14949.41	14694.35	440.83	255.06	Pass	5538.50	6293.60	174.59	-755.100	DOEF
Detector 8										
7/16/2019 1:41:00 AM	11601.45	12235.70	367.07	-634.25	FAIL	4302.00	4831.48	170.20	-529.475	DOEF
7/17/2019 12:23:00 AM	11859.50	12235.70	367.07	-376.20	FAIL	4415.00	4831.48	170.20	-416.475	WARNING
Detector 9										
7/16/2019 1:41:00 AM	12631.96	13042.63	391.28	-410.67	FAIL	4819.50	5136.70	130.65	-317.200	WARNING
7/17/2019 12:23:00 AM	12705.15	13042.63	391.28	-337.47	Pass	4810.50	5136.70	130.65	-326.200	WARNING
7/17/2019 1:31:00 AM	12744.73	13042.63	391.28	-297.89	Pass	4896.00	5136.70	130.65	-240.700	Pass
7/17/2019 1:50:00 AM	12633.01	13042.63	391.28	-409.61	FAIL	4767.00	5136.70	130.65	-369.700	WARNING

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 10										
7/16/2019 1:41:00 AM	13019.62	13724.85	411.75	-705.23	**FAIL**	4858.00	5284.65	125.26	-426.650	**DOEF**
7/17/2019 12:24:00 AM	13131.39	13724.85	411.75	-593.46	**FAIL**	4877.50	5284.65	125.26	-407.150	**DOEF**
Detector 11										
7/16/2019 1:41:00 AM	12589.94	12965.85	388.98	-375.91	Pass	4784.50	5004.60	105.46	-220.100	**WARNING**
7/17/2019 12:24:00 AM	12824.45	12965.85	388.98	-141.40	Pass	4802.00	5004.60	105.46	-202.600	Pass
Detector 12										
7/16/2019 1:35:00 AM	15406.63	15035.28	451.06	371.36	Pass	6878.00	7154.28	501.18	-276.275	Pass
7/17/2019 12:23:00 AM	15467.78	15035.28	451.06	432.50	Pass	6908.00	7154.28	501.18	-246.275	Pass
Detector 13										
7/16/2019 1:35:00 AM	16901.61	16877.30	506.32	24.31	Pass	5411.00	5477.70	171.80	-66.700	Pass
7/17/2019 12:23:00 AM	16847.62	16877.30	506.32	-29.68	Pass	5411.50	5477.70	171.80	-66.200	Pass
Detector 14										
7/16/2019 1:35:00 AM	13856.62	13691.08	410.73	165.54	Pass	6330.50	6845.08	521.25	-514.575	Pass
7/17/2019 12:23:00 AM	13717.00	13691.08	410.73	25.93	Pass	6253.00	6845.08	521.25	-592.075	Pass
Detector 15										
7/16/2019 1:35:00 AM	14306.09	13998.85	419.97	307.24	Pass	6238.00	6685.98	512.86	-447.975	Pass
7/17/2019 12:23:00 AM	14193.01	13998.85	419.97	194.16	Pass	6203.50	6685.98	512.86	-482.475	Pass
Detector 16										
7/16/2019 1:44:00 AM	11967.58	12089.48	362.68	-121.90	Pass	4470.00	4618.68	103.75	-148.675	Pass
7/16/2019 2:20:00 AM	11796.86	12089.48	362.68	-292.61	Pass	4490.00	4618.68	103.75	-128.675	Pass
7/17/2019 12:26:00 AM	12832.72	12089.48	362.68	743.25	**FAIL**	4833.50	4618.68	103.75	214.825	**WARNING**
7/17/2019 1:31:00 AM	12840.23	12089.48	362.68	750.76	**FAIL**	4915.50	4618.68	103.75	296.825	**WARNING**
7/17/2019 1:51:00 AM	11725.32	12089.48	362.68	-364.15	**FAIL**	4433.00	4618.68	103.75	-185.675	Pass
7/17/2019 1:57:00 AM	12849.75	12089.48	362.68	760.27	**FAIL**	4818.50	4618.68	103.75	199.825	Pass
Detector 17										
7/16/2019 3:17:00 AM	12796.12	13119.45	393.58	-323.33	Pass	4685.00	4870.55	102.70	-185.550	Pass
7/17/2019 12:26:00 AM	13123.09	13119.45	393.58	3.64	Pass	4820.00	4870.55	102.70	-50.550	Pass
Detector 18										
7/16/2019 1:45:00 AM	13278.72	13598.40	407.95	-319.68	Pass	4678.00	4892.93	110.28	-214.925	Pass
7/17/2019 12:26:00 AM	12974.90	13598.40	407.95	-623.50	**FAIL**	4703.00	4892.93	110.28	-189.925	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 19										
7/16/2019 1:45:00 AM	12793.99	12858.98	385.77	-64.99	Pass	4847.00	4846.63	121.24	0.375	Pass
7/17/2019 12:26:00 AM	11684.65	12858.98	385.77	-1174.32	**FAIL**	4305.50	4846.63	121.24	-541.125	**DOEF**
7/17/2019 1:37:00 AM	12603.81	12858.98	385.77	-255.17	Pass	4658.00	4846.63	121.24	-188.625	Pass
7/17/2019 2:00:00 AM	12697.42	12858.98	385.77	-161.55	Pass	4692.00	4846.63	121.24	-154.625	Pass
7/17/2019 2:12:00 AM	12679.90	12858.98	385.77	-179.07	Pass	4673.50	4846.63	121.24	-173.125	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
7/16/2019 1:31:00 AM	50349.67	50552.05	1516.56	-202.38	Pass	NA	NA	NA	NA	NA
7/17/2019 12:12:00 AM	50328.05	50552.05	1516.56	-224.00	Pass	NA	NA	NA	NA	NA
Detector 1										
7/16/2019 1:31:00 AM	48462.39	47641.23	1429.24	821.17	Pass	NA	NA	NA	NA	NA
7/17/2019 12:12:00 AM	48589.30	47641.23	1429.24	948.07	Pass	NA	NA	NA	NA	NA
Detector 2										
7/16/2019 1:31:00 AM	50263.27	49734.44	1492.03	528.83	Pass	NA	NA	NA	NA	NA
7/17/2019 12:12:00 AM	50491.14	49734.44	1492.03	756.70	Pass	NA	NA	NA	NA	NA
Detector 3										
7/16/2019 1:31:00 AM	59694.29	60167.98	1805.04	-473.68	Pass	NA	NA	NA	NA	NA
7/17/2019 12:12:00 AM	59912.90	60167.98	1805.04	-255.07	Pass	NA	NA	NA	NA	NA
Detector 4										
7/16/2019 1:26:00 AM	53858.02	55277.35	1658.32	-1419.33	Pass	NA	NA	NA	NA	NA
7/17/2019 12:12:00 AM	53968.65	55277.35	1658.32	-1308.70	Pass	NA	NA	NA	NA	NA
Detector 5										
7/16/2019 1:26:00 AM	54462.98	55004.03	1650.12	-541.05	Pass	NA	NA	NA	NA	NA
7/17/2019 12:12:00 AM	55087.17	55004.03	1650.12	83.14	Pass	NA	NA	NA	NA	NA
Detector 6										
7/16/2019 1:26:00 AM	51493.13	52072.68	1562.18	-579.55	Pass	NA	NA	NA	NA	NA
7/17/2019 12:12:00 AM	51894.95	52072.68	1562.18	-177.72	Pass	NA	NA	NA	NA	NA
Detector 7										
7/16/2019 1:26:00 AM	45100.45	44302.58	1329.08	797.87	Pass	NA	NA	NA	NA	NA
7/17/2019 12:12:00 AM	45309.09	44302.58	1329.08	1006.51	Pass	NA	NA	NA	NA	NA
Detector 8										
7/16/2019 1:33:00 AM	49938.07	49959.33	1498.78	-21.25	Pass	NA	NA	NA	NA	NA
7/17/2019 12:15:00 AM	49863.41	49959.33	1498.78	-95.91	Pass	NA	NA	NA	NA	NA
Detector 9										
7/16/2019 1:33:00 AM	48494.37	47696.08	1430.88	798.30	Pass	NA	NA	NA	NA	NA
7/17/2019 12:15:00 AM	48650.39	47696.08	1430.88	954.31	Pass	NA	NA	NA	NA	NA
Detector 10										
7/16/2019 1:33:00 AM	50460.70	50136.65	1504.10	324.05	Pass	NA	NA	NA	NA	NA
7/17/2019 12:15:00 AM	50446.88	50136.65	1504.10	310.23	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
7/16/2019 1:33:00 AM	60068.15	59951.55	1798.55	116.60	Pass	NA	NA	NA	NA	NA
7/17/2019 12:15:00 AM	60296.13	59951.55	1798.55	344.58	Pass	NA	NA	NA	NA	NA
Detector 12										
7/16/2019 1:28:00 AM	56105.89	56070.40	1682.11	35.49	Pass	NA	NA	NA	NA	NA
7/17/2019 12:16:00 AM	55617.63	56070.40	1682.11	-452.77	Pass	NA	NA	NA	NA	NA
Detector 13										
7/16/2019 1:28:00 AM	55258.79	55607.20	1668.22	-348.41	Pass	NA	NA	NA	NA	NA
7/17/2019 12:16:00 AM	55126.24	55607.20	1668.22	-480.96	Pass	NA	NA	NA	NA	NA
Detector 14										
7/16/2019 1:28:00 AM	50621.29	50580.03	1517.40	41.26	Pass	NA	NA	NA	NA	NA
7/17/2019 12:16:00 AM	50319.70	50580.03	1517.40	-260.32	Pass	NA	NA	NA	NA	NA
Detector 15										
7/16/2019 1:29:00 AM	45724.55	45674.43	1370.23	50.13	Pass	NA	NA	NA	NA	NA
7/17/2019 12:16:00 AM	45614.78	45674.43	1370.23	-59.64	Pass	NA	NA	NA	NA	NA
Detector 16										
7/16/2019 1:36:00 AM	49689.86	49653.23	1489.60	36.64	Pass	NA	NA	NA	NA	NA
7/17/2019 12:19:00 AM	50037.86	49653.23	1489.60	384.63	Pass	NA	NA	NA	NA	NA
Detector 17										
7/16/2019 3:22:00 AM	48619.93	48166.13	1444.98	453.80	Pass	NA	NA	NA	NA	NA
7/17/2019 12:19:00 AM	48690.71	48166.13	1444.98	524.58	Pass	NA	NA	NA	NA	NA
Detector 18										
7/16/2019 1:36:00 AM	50115.26	49957.23	1498.72	158.03	Pass	NA	NA	NA	NA	NA
7/17/2019 12:19:00 AM	50217.97	49957.23	1498.72	260.75	Pass	NA	NA	NA	NA	NA
Detector 19										
7/16/2019 1:36:00 AM	59949.64	59167.80	1775.03	781.84	Pass	NA	NA	NA	NA	NA
7/17/2019 12:19:00 AM	60031.56	59167.80	1775.03	863.76	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
7/16/2019 5:04:00 AM	0.19	0.13	0.02	0.06	FAIL	0.30	0.48	0.09	-0.180	Pass
7/17/2019 3:43:00 AM	0.10	0.13	0.02	-0.03	Pass	0.39	0.48	0.09	-0.090	Pass
Detector 1										
7/16/2019 5:04:00 AM	0.27	0.14	0.02	0.13	FAIL	0.33	0.44	0.07	-0.112	Pass
7/17/2019 3:43:00 AM	0.26	0.14	0.02	0.12	FAIL	0.41	0.44	0.07	-0.037	Pass
Detector 2										
7/16/2019 5:04:00 AM	0.13	0.07	0.02	0.06	FAIL	0.47	0.42	0.08	0.045	Pass
7/17/2019 3:43:00 AM	0.17	0.07	0.02	0.09	FAIL	0.35	0.42	0.08	-0.075	Pass
Detector 3										
7/16/2019 5:04:00 AM	0.19	0.06	0.02	0.13	FAIL	0.42	0.40	0.09	0.019	Pass
7/17/2019 3:42:00 AM	0.14	0.06	0.02	0.08	FAIL	0.42	0.40	0.09	0.024	Pass
Detector 4										
7/16/2019 5:05:00 AM	0.22	0.09	0.03	0.13	FAIL	0.45	0.39	0.08	0.056	Pass
7/16/2019 9:50:00 AM	0.22	0.09	0.03	0.13	FAIL	0.42	0.39	0.08	0.021	Pass
7/17/2019 3:43:00 AM	0.16	0.09	0.03	0.07	Pass	0.44	0.39	0.08	0.046	Pass
Detector 5										
7/16/2019 5:05:00 AM	0.20	0.08	0.02	0.11	FAIL	0.47	0.42	0.08	0.052	Pass
7/16/2019 9:50:00 AM	0.19	0.08	0.02	0.11	FAIL	0.44	0.42	0.08	0.022	Pass
7/17/2019 3:43:00 AM	0.21	0.08	0.02	0.13	FAIL	0.51	0.42	0.08	0.092	Pass
7/17/2019 9:34:00 AM	0.12	0.08	0.02	0.03	Pass	0.37	0.42	0.08	-0.053	Pass
Detector 6										
7/16/2019 5:04:00 AM	0.13	0.05	0.02	0.07	FAIL	0.37	0.36	0.06	0.006	Pass
7/17/2019 3:43:00 AM	0.20	0.05	0.02	0.14	FAIL	0.37	0.36	0.06	0.001	Pass
Detector 7										
7/16/2019 5:05:00 AM	0.14	0.08	0.03	0.06	Pass	0.54	0.51	0.12	0.024	Pass
7/17/2019 3:43:00 AM	0.18	0.08	0.03	0.10	FAIL	0.49	0.51	0.12	-0.026	Pass
7/17/2019 9:29:00 AM	0.19	0.08	0.03	0.11	FAIL	0.43	0.51	0.12	-0.081	Pass
Detector 8										
7/16/2019 5:04:00 AM	0.13	0.07	0.03	0.05	Pass	0.35	0.47	0.13	-0.120	Pass
7/17/2019 3:45:00 AM	0.19	0.07	0.03	0.11	FAIL	0.43	0.47	0.13	-0.035	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 9										
7/16/2019 5:04:00 AM	0.12	0.08	0.02	0.04	Pass	0.41	0.41	0.07	-0.003	Pass
7/17/2019 5:33:00 AM	0.16	0.08	0.02	0.08	FAIL	0.46	0.41	0.07	0.052	Pass
Detector 10										
7/16/2019 5:04:00 AM	0.15	0.07	0.03	0.08	Pass	0.36	0.35	0.08	0.010	Pass
7/17/2019 3:45:00 AM	0.12	0.07	0.03	0.04	Pass	0.32	0.35	0.08	-0.030	Pass
Detector 11										
7/16/2019 5:04:00 AM	0.16	0.07	0.03	0.09	FAIL	0.47	0.45	0.09	0.021	Pass
7/16/2019 9:50:00 AM	0.15	0.07	0.03	0.08	Pass	0.56	0.45	0.09	0.106	Pass
7/17/2019 3:45:00 AM	0.13	0.07	0.03	0.06	Pass	0.51	0.45	0.09	0.061	Pass
Detector 12										
7/16/2019 5:05:00 AM	0.22	0.10	0.03	0.12	FAIL	0.48	0.46	0.12	0.014	Pass
7/16/2019 9:50:00 AM	0.12	0.10	0.03	0.02	Pass	0.38	0.46	0.12	-0.081	Pass
7/17/2019 3:45:00 AM	0.15	0.10	0.03	0.05	Pass	0.45	0.46	0.12	-0.016	Pass
Detector 13										
7/16/2019 5:05:00 AM	0.14	0.07	0.03	0.07	Pass	0.39	0.37	0.09	0.016	Pass
7/17/2019 3:45:00 AM	0.22	0.07	0.03	0.15	FAIL	0.39	0.37	0.09	0.011	Pass
7/17/2019 9:29:00 AM	0.31	0.07	0.03	0.24	FAIL	0.47	0.37	0.09	0.096	Pass
Detector 14										
7/16/2019 5:05:00 AM	0.11	0.07	0.03	0.03	Pass	0.32	0.37	0.09	-0.048	Pass
7/17/2019 3:45:00 AM	0.12	0.07	0.03	0.04	Pass	0.43	0.37	0.09	0.057	Pass
Detector 15										
7/16/2019 5:05:00 AM	0.08	0.07	0.03	0.01	Pass	0.42	0.47	0.09	-0.052	Pass
7/17/2019 3:45:00 AM	0.14	0.07	0.03	0.07	Pass	0.37	0.47	0.09	-0.097	Pass
Detector 16										
7/16/2019 5:42:00 AM	0.20	0.08	0.04	0.12	FAIL	0.81	0.61	0.46	0.204	Pass
7/16/2019 9:50:00 AM	0.21	0.08	0.04	0.13	FAIL	0.56	0.61	0.46	-0.051	Pass
7/17/2019 5:33:00 AM	0.26	0.08	0.04	0.18	FAIL	0.70	0.61	0.46	0.089	Pass
Detector 17										
7/16/2019 6:47:00 AM	0.14	0.07	0.03	0.07	Pass	0.47	0.38	0.20	0.087	Pass
7/17/2019 3:47:00 AM	0.33	0.07	0.03	0.26	FAIL	0.47	0.38	0.20	0.092	Pass
7/17/2019 9:29:00 AM	0.14	0.07	0.03	0.07	Pass	0.39	0.38	0.20	0.012	Pass
Detector 18										
7/16/2019 5:06:00 AM	0.91	0.05	0.03	0.86	FAIL	1.17	0.62	0.09	0.550	FAIL
7/17/2019 3:47:00 AM	1.00	0.05	0.03	0.94	FAIL	1.13	0.62	0.09	0.510	FAIL

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 19										
7/16/2019 5:06:00 AM	0.24	0.14	0.02	0.10	FAIL	0.39	0.46	0.09	-0.070	Pass
7/17/2019 5:36:00 AM	0.20	0.14	0.02	0.06	Pass	0.65	0.46	0.09	0.185	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Kody Saulters at 10:27 am, Aug 01, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
7/31/2019 12:26:00 AM	11696.68	12736.38	382.09	-1039.70	FAIL	4432.00	4320.40	60.09	111.600	Pass
8/1/2019 1:05:00 AM	11685.20	12736.38	382.09	-1051.17	FAIL	4428.50	4320.40	60.09	108.100	Pass
Detector 1										
7/31/2019 12:26:00 AM	12766.30	13519.45	405.58	-753.15	FAIL	4660.50	4449.53	44.71	210.975	DOEF
8/1/2019 1:05:00 AM	12718.76	13519.45	405.58	-800.69	FAIL	4595.00	4449.53	44.71	145.475	DOEF
Detector 2										
7/31/2019 12:26:00 AM	12977.91	14253.55	427.61	-1275.64	FAIL	4771.50	4791.68	109.59	-20.175	Pass
8/1/2019 1:05:00 AM	12934.89	14253.55	427.61	-1318.66	FAIL	4770.00	4791.68	109.59	-21.675	Pass
Detector 3										
7/31/2019 12:26:00 AM	12736.12	13543.80	406.31	-807.68	FAIL	4589.50	4389.20	68.69	200.300	WARNING
8/1/2019 1:05:00 AM	12804.31	13543.80	406.31	-739.49	FAIL	4512.00	4389.20	68.69	122.800	Pass
Detector 4										
7/31/2019 12:22:00 AM	15631.30	16171.80	485.15	-540.50	FAIL	6356.50	6539.20	127.28	-182.700	Pass
7/31/2019 1:17:00 AM	16066.67	16171.80	485.15	-105.13	Pass	6152.50	6539.20	127.28	-386.700	DOEF
7/31/2019 1:19:00 AM	16119.28	16171.80	485.15	-52.52	Pass	6044.50	6539.20	127.28	-494.700	DOEF
8/1/2019 1:05:00 AM	15817.75	16171.80	485.15	-354.05	Pass	6358.50	6539.20	127.28	-180.700	Pass
Detector 5										
7/31/2019 12:22:00 AM	16135.28	16459.75	493.79	-324.47	Pass	5987.50	6151.68	143.92	-164.175	Pass
8/1/2019 1:05:00 AM	16199.98	16459.75	493.79	-259.77	Pass	5872.50	6151.68	143.92	-279.175	Pass
Detector 6										
7/31/2019 12:22:00 AM	14754.08	15378.63	461.36	-624.55	FAIL	5428.50	5735.28	106.30	-306.775	WARNING
8/1/2019 1:05:00 AM	14680.99	15378.63	461.36	-697.63	FAIL	5343.00	5735.28	106.30	-392.275	DOEF
Detector 7										
7/31/2019 12:22:00 AM	14772.47	14694.35	440.83	78.12	Pass	5416.50	6293.60	174.59	-877.100	DOEF
8/1/2019 1:05:00 AM	14890.77	14694.35	440.83	196.42	Pass	5329.00	6293.60	174.59	-964.600	DOEF
Detector 8										
7/31/2019 12:29:00 AM	11515.54	12235.70	367.07	-720.16	FAIL	4388.50	4831.48	170.20	-442.975	WARNING
8/1/2019 1:09:00 AM	11561.68	12235.70	367.07	-674.02	FAIL	4364.50	4831.48	170.20	-466.975	WARNING
Detector 9										
7/31/2019 12:29:00 AM	12658.84	13042.63	391.28	-383.78	Pass	4779.50	5136.70	130.65	-357.200	WARNING
7/31/2019 1:17:00 AM	12615.25	13042.63	391.28	-427.37	FAIL	4773.50	5136.70	130.65	-363.200	WARNING
8/1/2019 1:09:00 AM	12542.16	13042.63	391.28	-500.46	FAIL	4751.00	5136.70	130.65	-385.700	WARNING

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 10										
7/31/2019 12:29:00 AM	13137.71	13724.85	411.75	-587.14	**FAIL**	4885.00	5284.65	125.26	-399.650	**DOEF**
8/1/2019 1:09:00 AM	13060.11	13724.85	411.75	-664.74	**FAIL**	4808.50	5284.65	125.26	-476.150	**DOEF**
Detector 11										
7/31/2019 12:29:00 AM	12684.46	12965.85	388.98	-281.39	Pass	4751.50	5004.60	105.46	-253.100	**WARNING**
8/1/2019 1:09:00 AM	12833.81	12965.85	388.98	-132.04	Pass	4708.50	5004.60	105.46	-296.100	**WARNING**
Detector 12										
7/31/2019 12:24:00 AM	15394.63	15035.28	451.06	359.36	Pass	6874.50	7154.28	501.18	-279.775	Pass
8/1/2019 1:09:00 AM	15365.16	15035.28	451.06	329.88	Pass	6739.00	7154.28	501.18	-415.275	Pass
Detector 13										
7/31/2019 12:24:00 AM	16859.67	16877.30	506.32	-17.63	Pass	5386.00	5477.70	171.80	-91.700	Pass
8/1/2019 1:09:00 AM	16922.83	16877.30	506.32	45.53	Pass	5477.00	5477.70	171.80	-0.700	Pass
Detector 14										
7/31/2019 12:24:00 AM	13740.88	13691.08	410.73	49.80	Pass	6281.00	6845.08	521.25	-564.075	Pass
8/1/2019 1:09:00 AM	13755.96	13691.08	410.73	64.88	Pass	6171.50	6845.08	521.25	-673.575	Pass
Detector 15										
7/31/2019 12:24:00 AM	14229.93	13998.85	419.97	231.08	Pass	6217.50	6685.98	512.86	-468.475	Pass
8/1/2019 1:09:00 AM	14213.47	13998.85	419.97	214.62	Pass	6220.50	6685.98	512.86	-465.475	Pass
Detector 16										
7/31/2019 12:31:00 AM	11751.58	12089.48	362.68	-337.90	Pass	4439.00	4618.68	103.75	-179.675	Pass
8/1/2019 1:11:00 AM	11617.95	12089.48	362.68	-471.52	**FAIL**	4502.00	4618.68	103.75	-116.675	Pass
8/1/2019 3:02:00 AM	11666.02	12089.48	362.68	-423.46	**FAIL**	4407.50	4618.68	103.75	-211.175	**WARNING**
8/1/2019 3:10:00 AM	11641.98	12089.48	362.68	-447.49	**FAIL**	4384.00	4618.68	103.75	-234.675	**WARNING**
Detector 17										
7/31/2019 12:31:00 AM	14537.27	13119.45	393.58	1417.82	**FAIL**	5644.00	4870.55	102.70	773.450	**DOEF**
8/1/2019 1:11:00 AM	12766.48	13119.45	393.58	-352.97	Pass	4709.00	4870.55	102.70	-161.550	Pass
8/1/2019 3:08:00 AM	12721.42	13119.45	393.58	-398.03	**FAIL**	4711.00	4870.55	102.70	-159.550	Pass
Detector 18										
7/31/2019 12:31:00 AM	13285.11	13598.40	407.95	-313.29	Pass	4731.00	4892.93	110.28	-161.925	Pass
8/1/2019 1:11:00 AM	13139.47	13598.40	407.95	-458.93	**FAIL**	4738.00	4892.93	110.28	-154.925	Pass
Detector 19										
7/31/2019 12:31:00 AM	12836.89	12858.98	385.77	-22.09	Pass	4782.50	4846.63	121.24	-64.125	Pass
8/1/2019 1:11:00 AM	12845.45	12858.98	385.77	-13.52	Pass	4779.00	4846.63	121.24	-67.625	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
7/31/2019 12:19:00 AM	50336.10	50552.05	1516.56	-215.95	Pass	NA	NA	NA	NA	NA
8/1/2019 12:55:00 AM	50203.62	50552.05	1516.56	-348.43	Pass	NA	NA	NA	NA	NA
Detector 1										
7/31/2019 12:19:00 AM	48669.61	47641.23	1429.24	1028.39	Pass	NA	NA	NA	NA	NA
8/1/2019 12:55:00 AM	48495.41	47641.23	1429.24	854.19	Pass	NA	NA	NA	NA	NA
Detector 2										
7/31/2019 12:20:00 AM	50146.07	49734.44	1492.03	411.63	Pass	NA	NA	NA	NA	NA
8/1/2019 12:55:00 AM	50274.26	49734.44	1492.03	539.82	Pass	NA	NA	NA	NA	NA
Detector 3										
7/31/2019 12:20:00 AM	59340.87	60167.98	1805.04	-827.10	Pass	NA	NA	NA	NA	NA
8/1/2019 12:55:00 AM	60003.49	60167.98	1805.04	-164.48	Pass	NA	NA	NA	NA	NA
Detector 4										
7/31/2019 12:17:00 AM	54331.22	55277.35	1658.32	-946.13	Pass	NA	NA	NA	NA	NA
8/1/2019 12:55:00 AM	53926.40	55277.35	1658.32	-1350.95	Pass	NA	NA	NA	NA	NA
Detector 5										
7/31/2019 12:17:00 AM	55023.66	55004.03	1650.12	19.64	Pass	NA	NA	NA	NA	NA
8/1/2019 12:55:00 AM	54954.98	55004.03	1650.12	-49.05	Pass	NA	NA	NA	NA	NA
Detector 6										
7/31/2019 12:17:00 AM	51916.05	52072.68	1562.18	-156.63	Pass	NA	NA	NA	NA	NA
8/1/2019 12:55:00 AM	51553.25	52072.68	1562.18	-519.42	Pass	NA	NA	NA	NA	NA
Detector 7										
7/31/2019 12:17:00 AM	45360.30	44302.58	1329.08	1057.73	Pass	NA	NA	NA	NA	NA
8/1/2019 12:55:00 AM	45036.40	44302.58	1329.08	733.82	Pass	NA	NA	NA	NA	NA
Detector 8										
7/31/2019 12:22:00 AM	49647.85	49959.33	1498.78	-311.47	Pass	NA	NA	NA	NA	NA
8/1/2019 12:53:00 AM	0.52	49959.33	1498.78	-49958.80	**FAIL**	NA	NA	NA	NA	NA
8/1/2019 12:57:00 AM	49906.06	49959.33	1498.78	-53.27	Pass	NA	NA	NA	NA	NA
8/1/2019 3:03:00 AM	49597.02	49959.33	1498.78	-362.30	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 9										
7/31/2019 12:22:00 AM	48609.02	47696.08	1430.88	912.95	Pass	NA	NA	NA	NA	NA
8/1/2019 12:53:00 AM	0.52	47696.08	1430.88	-47695.55	FAIL	NA	NA	NA	NA	NA
8/1/2019 12:57:00 AM	48633.56	47696.08	1430.88	937.49	Pass	NA	NA	NA	NA	NA
8/1/2019 3:03:00 AM	48478.00	47696.08	1430.88	781.92	Pass	NA	NA	NA	NA	NA
Detector 10										
7/31/2019 12:22:00 AM	50692.27	50136.65	1504.10	555.62	Pass	NA	NA	NA	NA	NA
8/1/2019 12:57:00 AM	50553.58	50136.65	1504.10	416.93	Pass	NA	NA	NA	NA	NA
Detector 11										
7/31/2019 12:22:00 AM	60242.65	59951.55	1798.55	291.10	Pass	NA	NA	NA	NA	NA
8/1/2019 12:57:00 AM	60008.34	59951.55	1798.55	56.79	Pass	NA	NA	NA	NA	NA
Detector 12										
7/31/2019 12:20:00 AM	55753.03	56070.40	1682.11	-317.37	Pass	NA	NA	NA	NA	NA
8/1/2019 12:58:00 AM	56258.43	56070.40	1682.11	188.03	Pass	NA	NA	NA	NA	NA
Detector 13										
7/31/2019 12:20:00 AM	55062.07	55607.20	1668.22	-545.13	Pass	NA	NA	NA	NA	NA
8/1/2019 12:58:00 AM	54645.86	55607.20	1668.22	-961.34	Pass	NA	NA	NA	NA	NA
Detector 14										
7/31/2019 12:20:00 AM	50640.98	50580.03	1517.40	60.96	Pass	NA	NA	NA	NA	NA
8/1/2019 12:58:00 AM	50773.96	50580.03	1517.40	193.93	Pass	NA	NA	NA	NA	NA
Detector 15										
7/31/2019 12:20:00 AM	45816.17	45674.43	1370.23	141.74	Pass	NA	NA	NA	NA	NA
8/1/2019 12:58:00 AM	45498.70	45674.43	1370.23	-175.73	Pass	NA	NA	NA	NA	NA
Detector 16										
7/31/2019 12:25:00 AM	49966.19	49653.23	1489.60	312.97	Pass	NA	NA	NA	NA	NA
8/1/2019 1:00:00 AM	49880.51	49653.23	1489.60	227.29	Pass	NA	NA	NA	NA	NA
Detector 17										
7/31/2019 12:25:00 AM	48719.61	48166.13	1444.98	553.49	Pass	NA	NA	NA	NA	NA
8/1/2019 1:00:00 AM	48599.00	48166.13	1444.98	432.87	Pass	NA	NA	NA	NA	NA
Detector 18										
7/31/2019 12:25:00 AM	50080.97	49957.23	1498.72	123.75	Pass	NA	NA	NA	NA	NA
8/1/2019 1:00:00 AM	50440.31	49957.23	1498.72	483.08	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 19										
7/31/2019 12:25:00 AM	59872.22	59167.80	1775.03	704.42	Pass	NA	NA	NA	NA	NA
8/1/2019 1:00:00 AM	60043.70	59167.80	1775.03	875.90	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
7/31/2019 4:37:00 AM	0.23	0.13	0.02	0.10	FAIL	0.68	0.48	0.09	0.200	Pass
8/1/2019 4:29:00 AM	0.21	0.13	0.02	0.08	FAIL	0.53	0.48	0.09	0.045	Pass
Detector 1										
7/31/2019 4:37:00 AM	0.25	0.14	0.02	0.11	FAIL	0.48	0.44	0.07	0.033	Pass
8/1/2019 4:29:00 AM	0.22	0.14	0.02	0.08	FAIL	0.57	0.44	0.07	0.123	Pass
Detector 2										
7/31/2019 4:37:00 AM	0.23	0.07	0.02	0.15	FAIL	0.41	0.42	0.08	-0.015	Pass
8/1/2019 4:29:00 AM	0.21	0.07	0.02	0.14	FAIL	0.50	0.42	0.08	0.080	Pass
Detector 3										
7/31/2019 4:37:00 AM	0.23	0.06	0.02	0.17	FAIL	0.45	0.40	0.09	0.049	Pass
8/1/2019 4:29:00 AM	0.28	0.06	0.02	0.22	FAIL	0.51	0.40	0.09	0.115	Pass
Detector 4										
7/31/2019 4:40:00 AM	0.28	0.09	0.03	0.19	FAIL	0.57	0.39	0.08	0.171	Pass
7/31/2019 8:44:00 AM	0.26	0.09	0.03	0.17	FAIL	0.53	0.39	0.08	0.131	Pass
8/1/2019 4:29:00 AM	0.36	0.09	0.03	0.27	FAIL	0.51	0.39	0.08	0.111	Pass
8/1/2019 9:44:00 AM	0.29	0.09	0.03	0.20	FAIL	0.57	0.39	0.08	0.176	Pass
Detector 5										
7/31/2019 4:36:00 AM	0.27	0.08	0.02	0.18	FAIL	0.53	0.42	0.08	0.112	Pass
7/31/2019 8:44:00 AM	0.22	0.08	0.02	0.13	FAIL	0.48	0.42	0.08	0.057	Pass
8/1/2019 4:29:00 AM	0.24	0.08	0.02	0.15	FAIL	0.49	0.42	0.08	0.067	Pass
8/1/2019 9:44:00 AM	0.23	0.08	0.02	0.15	FAIL	0.56	0.42	0.08	0.142	Pass
Detector 6										
7/31/2019 4:36:00 AM	0.24	0.05	0.02	0.19	FAIL	0.40	0.36	0.06	0.036	Pass
8/1/2019 4:29:00 AM	0.20	0.05	0.02	0.15	FAIL	0.38	0.36	0.06	0.016	Pass
Detector 7										
7/31/2019 4:36:00 AM	0.29	0.08	0.03	0.21	FAIL	0.71	0.51	0.12	0.199	Pass
7/31/2019 8:44:00 AM	0.32	0.08	0.03	0.24	FAIL	0.66	0.51	0.12	0.149	Pass
8/1/2019 4:29:00 AM	0.32	0.08	0.03	0.24	FAIL	0.60	0.51	0.12	0.084	Pass
8/1/2019 9:45:00 AM	0.43	0.08	0.03	0.35	FAIL	0.80	0.51	0.12	0.289	Pass
Detector 8										
7/31/2019 4:36:00 AM	0.18	0.07	0.03	0.10	FAIL	0.76	0.47	0.13	0.295	Pass
8/1/2019 6:30:00 AM	0.16	0.07	0.03	0.09	FAIL	0.57	0.47	0.13	0.100	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 9										
7/31/2019 4:38:00 AM	0.15	0.08	0.02	0.07	FAIL	0.40	0.41	0.07	-0.008	Pass
8/1/2019 6:30:00 AM	0.10	0.08	0.02	0.02	Pass	0.40	0.41	0.07	-0.013	Pass
Detector 10										
7/31/2019 4:36:00 AM	0.25	0.07	0.03	0.18	FAIL	0.34	0.35	0.08	-0.010	Pass
8/1/2019 4:42:00 AM	0.18	0.07	0.03	0.11	FAIL	0.41	0.35	0.08	0.060	Pass
Detector 11										
7/31/2019 4:36:00 AM	0.17	0.07	0.03	0.10	FAIL	0.71	0.45	0.09	0.261	Pass
7/31/2019 8:44:00 AM	0.22	0.07	0.03	0.15	FAIL	0.44	0.45	0.09	-0.009	Pass
8/1/2019 4:42:00 AM	0.16	0.07	0.03	0.09	FAIL	0.45	0.45	0.09	0.001	Pass
8/1/2019 9:45:00 AM	0.16	0.07	0.03	0.09	FAIL	0.55	0.45	0.09	0.096	Pass
Detector 12										
7/31/2019 4:37:00 AM	0.20	0.10	0.03	0.10	FAIL	0.34	0.46	0.12	-0.126	Pass
7/31/2019 8:44:00 AM	0.21	0.10	0.03	0.11	FAIL	0.46	0.46	0.12	-0.001	Pass
8/1/2019 4:42:00 AM	0.14	0.10	0.03	0.04	Pass	0.46	0.46	0.12	-0.006	Pass
Detector 13										
7/31/2019 4:37:00 AM	0.29	0.07	0.03	0.22	FAIL	0.38	0.37	0.09	0.006	Pass
7/31/2019 8:44:00 AM	0.18	0.07	0.03	0.11	FAIL	0.22	0.37	0.09	-0.154	Pass
8/1/2019 4:42:00 AM	0.30	0.07	0.03	0.23	FAIL	0.43	0.37	0.09	0.051	Pass
8/1/2019 9:45:00 AM	0.19	0.07	0.03	0.12	FAIL	0.62	0.37	0.09	0.246	Pass
Detector 14										
7/31/2019 4:37:00 AM	0.14	0.07	0.03	0.06	Pass	0.37	0.37	0.09	0.002	Pass
8/1/2019 4:42:00 AM	0.19	0.07	0.03	0.11	FAIL	0.52	0.37	0.09	0.147	Pass
8/1/2019 9:45:00 AM	0.20	0.07	0.03	0.12	FAIL	0.41	0.37	0.09	0.037	Pass
Detector 15										
7/31/2019 4:37:00 AM	0.47	0.07	0.03	0.40	FAIL	0.91	0.47	0.09	0.443	FAIL
7/31/2019 8:44:00 AM	0.43	0.07	0.03	0.36	FAIL	0.83	0.47	0.09	0.358	FAIL
8/1/2019 4:42:00 AM	0.43	0.07	0.03	0.36	FAIL	0.79	0.47	0.09	0.323	FAIL
8/1/2019 9:45:00 AM	0.41	0.07	0.03	0.34	FAIL	0.81	0.47	0.09	0.338	FAIL
Detector 16										
7/31/2019 4:36:00 AM	0.16	0.08	0.04	0.08	Pass	1.92	0.61	0.46	1.309	Pass
8/1/2019 6:32:00 AM	0.16	0.08	0.04	0.08	Pass	1.56	0.61	0.46	0.949	Pass
Detector 17										
7/31/2019 4:36:00 AM	0.19	0.07	0.03	0.12	FAIL	0.53	0.38	0.20	0.147	Pass
8/1/2019 6:32:00 AM	0.30	0.07	0.03	0.23	FAIL	0.33	0.38	0.20	-0.048	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 18										
7/31/2019 4:36:00 AM	1.10	0.05	0.03	1.04	FAIL	1.23	0.62	0.09	0.610	FAIL
8/1/2019 4:42:00 AM	0.91	0.05	0.03	0.86	FAIL	1.13	0.62	0.09	0.505	FAIL
Detector 19										
7/31/2019 4:36:00 AM	0.25	0.14	0.02	0.11	FAIL	0.57	0.46	0.09	0.105	Pass
7/31/2019 8:44:00 AM	0.28	0.14	0.02	0.14	FAIL	0.48	0.46	0.09	0.015	Pass
8/1/2019 4:42:00 AM	0.38	0.14	0.02	0.24	FAIL	0.67	0.46	0.09	0.205	Pass
8/1/2019 9:45:00 AM	0.27	0.14	0.02	0.13	FAIL	0.71	0.46	0.09	0.245	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Conrad Reuscher at 2:07 am, Aug 02, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Orange

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
7/31/2019 12:12:00 AM	11870.97	12672.50	380.18	-801.53	FAIL	4215.00	4296.38	82.77	-81.375	Pass
8/1/2019 12:50:00 AM	12118.01	12672.50	380.18	-554.49	FAIL	4121.50	4296.38	82.77	-174.875	WARNING
Detector 1										
7/31/2019 12:12:00 AM	12852.41	13470.00	404.10	-617.59	FAIL	4352.50	4380.30	175.16	-27.800	Pass
8/1/2019 12:50:00 AM	12666.60	13470.00	404.10	-803.40	FAIL	4493.00	4380.30	175.16	112.700	Pass
Detector 2										
7/31/2019 12:12:00 AM	13046.49	14052.18	421.57	-1005.68	FAIL	4457.50	4507.15	164.48	-49.650	Pass
8/1/2019 12:50:00 AM	13223.91	14052.18	421.57	-828.27	FAIL	4474.00	4507.15	164.48	-33.150	Pass
Detector 3										
7/31/2019 12:12:00 AM	12604.51	13117.55	393.53	-513.04	FAIL	4210.50	4304.23	107.14	-93.725	Pass
8/1/2019 12:50:00 AM	12643.64	13117.55	393.53	-473.91	FAIL	4252.50	4304.23	107.14	-51.725	Pass
Detector 4										
7/31/2019 12:12:00 AM	15658.09	16081.68	482.45	-423.58	Pass	6362.00	6277.50	110.70	84.500	Pass
8/1/2019 12:50:00 AM	15575.50	16081.68	482.45	-506.18	FAIL	6254.50	6277.50	110.70	-23.000	Pass
8/1/2019 2:59:00 AM	15694.73	16081.68	482.45	-386.94	Pass	6204.00	6277.50	110.70	-73.500	Pass
8/1/2019 3:23:00 AM	15700.75	16081.68	482.45	-380.93	Pass	6285.00	6277.50	110.70	7.500	Pass
Detector 5										
7/31/2019 12:12:00 AM	15885.25	16223.20	486.70	-337.95	Pass	6454.00	6745.73	1761.29	-291.725	Pass
8/1/2019 12:50:00 AM	16003.06	16223.20	486.70	-220.14	Pass	6354.00	6745.73	1761.29	-391.725	Pass
Detector 6										
7/31/2019 12:12:00 AM	14311.77	14588.50	437.66	-276.73	Pass	6012.50	6496.20	551.68	-483.700	Pass
8/1/2019 12:50:00 AM	14299.81	14588.50	437.66	-288.69	Pass	5860.00	6496.20	551.68	-636.200	Pass
Detector 7										
7/31/2019 12:12:00 AM	14713.81	15629.53	468.89	-915.71	FAIL	5616.50	5742.78	47.80	-126.275	WARNING
8/1/2019 12:50:00 AM	14693.83	15629.53	468.89	-935.70	FAIL	5498.00	5742.78	47.80	-244.775	DOEF
Detector 8										
7/31/2019 12:15:00 AM	11723.73	12479.00	374.37	-755.27	FAIL	4217.50	4244.75	69.84	-27.250	Pass
8/1/2019 12:57:00 AM	11941.80	12479.00	374.37	-537.20	FAIL	4132.00	4244.75	69.84	-112.750	Pass
Detector 9										
7/31/2019 12:15:00 AM	12911.48	13598.65	407.96	-687.17	FAIL	4585.50	4590.98	94.06	-5.475	Pass
8/1/2019 12:57:00 AM	13103.99	13598.65	407.96	-494.66	FAIL	4643.50	4590.98	94.06	52.525	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Orange

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 10										
7/31/2019 12:15:00 AM	10745.83	11579.50	347.39	-833.67	**FAIL**	7236.00	7562.65	208.99	-326.650	Pass
8/1/2019 12:57:00 AM	10877.13	11579.50	347.39	-702.37	**FAIL**	7057.00	7562.65	208.99	-505.650	**WARNING**
Detector 11										
7/31/2019 12:15:00 AM	12879.47	13398.55	401.96	-519.08	**FAIL**	4523.50	4216.58	69.06	306.925	**DOEF**
8/1/2019 12:57:00 AM	12880.03	13398.55	401.96	-518.52	**FAIL**	4484.00	4216.58	69.06	267.425	**DOEF**
Detector 12										
7/31/2019 12:15:00 AM	16475.84	16917.10	507.51	-441.26	Pass	5766.00	5738.50	103.00	27.500	Pass
8/1/2019 12:57:00 AM	16620.25	16917.10	507.51	-296.85	Pass	5755.50	5738.50	103.00	17.000	Pass
Detector 13										
7/31/2019 12:15:00 AM	16598.63	17051.55	511.55	-452.92	Pass	5285.00	5209.90	107.08	75.100	Pass
8/1/2019 12:57:00 AM	16738.04	17051.55	511.55	-313.51	Pass	5347.50	5209.90	107.08	137.600	Pass
Detector 14										
7/31/2019 12:15:00 AM	14936.31	15840.60	475.22	-904.29	**FAIL**	4675.00	4992.58	237.19	-317.575	Pass
8/1/2019 12:57:00 AM	14889.78	15840.60	475.22	-950.82	**FAIL**	4558.50	4992.58	237.19	-434.075	Pass
Detector 15										
7/31/2019 12:15:00 AM	14890.68	15402.33	462.07	-511.65	**FAIL**	5155.50	5238.48	99.26	-82.975	Pass
7/31/2019 1:16:00 AM	15036.47	15402.33	462.07	-365.86	Pass	5040.00	5238.48	99.26	-198.475	Pass
7/31/2019 1:19:00 AM	15005.40	15402.33	462.07	-396.92	Pass	4951.50	5238.48	99.26	-286.975	**WARNING**
8/1/2019 12:57:00 AM	14971.90	15402.33	462.07	-430.42	Pass	5104.00	5238.48	99.26	-134.475	Pass
Detector 16										
7/31/2019 12:17:00 AM	11868.13	12627.03	378.81	-758.89	**FAIL**	4189.50	4414.55	41.62	-225.050	**DOEF**
8/1/2019 12:59:00 AM	11809.55	12627.03	378.81	-817.48	**FAIL**	4165.50	4414.55	41.62	-249.050	**DOEF**
Detector 17										
7/31/2019 12:17:00 AM	12682.04	13433.43	403.00	-751.39	**FAIL**	4831.50	4784.03	106.71	47.475	Pass
8/1/2019 12:59:00 AM	12828.94	13433.43	403.00	-604.49	**FAIL**	4781.00	4784.03	106.71	-3.025	Pass
Detector 18										
7/31/2019 12:17:00 AM	13154.14	14158.50	424.76	-1004.36	**FAIL**	4795.00	4572.70	56.75	222.300	**DOEF**
8/1/2019 12:59:00 AM	13136.66	14158.50	424.76	-1021.84	**FAIL**	4783.00	4572.70	56.75	210.300	**DOEF**
Detector 19										
7/31/2019 12:17:00 AM	12926.82	13416.05	402.48	-489.23	**FAIL**	4421.50	4519.53	68.19	-98.025	Pass
8/1/2019 12:59:00 AM	12873.27	13416.05	402.48	-542.78	**FAIL**	4426.50	4519.53	68.19	-93.025	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Orange

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 20										
7/31/2019 12:17:00 AM	16570.05	16878.00	506.34	-307.95	Pass	5681.50	5700.48	42.88	-18.975	Pass
8/1/2019 1:00:00 AM	16404.23	16878.00	506.34	-473.77	Pass	5627.00	5700.48	42.88	-73.475	Pass
Detector 21										
7/31/2019 12:17:00 AM	16867.82	16936.60	508.10	-68.78	Pass	5713.50	5744.13	61.40	-30.625	Pass
8/1/2019 1:00:00 AM	16785.73	16936.60	508.10	-150.87	Pass	5706.50	5744.13	61.40	-37.625	Pass
Detector 22										
7/31/2019 12:17:00 AM	14637.55	15510.45	465.31	-872.90	**FAIL**	5499.50	5610.13	63.22	-110.625	Pass
8/1/2019 1:00:00 AM	14820.55	15510.45	465.31	-689.90	**FAIL**	5469.00	5610.13	63.22	-141.125	**WARNING**
Detector 23										
7/31/2019 12:17:00 AM	14321.80	15430.00	462.90	-1108.20	**FAIL**	5632.00	5503.28	61.42	128.725	**WARNING**
8/1/2019 1:00:00 AM	14507.31	15430.00	462.90	-922.69	**FAIL**	5634.00	5503.28	61.42	130.725	**WARNING**

Gas Proportional Counter Daily Quality Control Checks

Instrument: Orange

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
7/31/2019 12:27:00 AM	49493.73	49935.03	1498.05	-441.30	Pass	NA	NA	NA	NA	NA
8/1/2019 1:07:00 AM	49737.19	49935.03	1498.05	-197.84	Pass	NA	NA	NA	NA	NA
Detector 1										
7/31/2019 12:27:00 AM	47851.19	48521.48	1455.64	-670.28	Pass	NA	NA	NA	NA	NA
8/1/2019 1:07:00 AM	47354.61	48521.48	1455.64	-1166.86	Pass	NA	NA	NA	NA	NA
Detector 2										
7/31/2019 12:27:00 AM	49665.07	49918.95	1497.57	-253.88	Pass	NA	NA	NA	NA	NA
8/1/2019 1:08:00 AM	49680.80	49918.95	1497.57	-238.15	Pass	NA	NA	NA	NA	NA
Detector 3										
7/31/2019 12:27:00 AM	58872.11	59069.20	1772.08	-197.09	Pass	NA	NA	NA	NA	NA
8/1/2019 1:08:00 AM	58477.49	59069.20	1772.08	-591.71	Pass	NA	NA	NA	NA	NA
Detector 4										
7/31/2019 12:22:00 AM	56057.46	55962.22	1678.87	95.24	Pass	NA	NA	NA	NA	NA
8/1/2019 1:08:00 AM	55826.99	55962.22	1678.87	-135.23	Pass	NA	NA	NA	NA	NA
Detector 5										
7/31/2019 12:22:00 AM	53972.57	54077.08	1622.31	-104.50	Pass	NA	NA	NA	NA	NA
8/1/2019 1:08:00 AM	53646.60	54077.08	1622.31	-430.47	Pass	NA	NA	NA	NA	NA
Detector 6										
7/31/2019 12:22:00 AM	51489.71	49736.35	1492.09	1753.36	**FAIL**	NA	NA	NA	NA	NA
8/1/2019 1:08:00 AM	51592.73	49736.35	1492.09	1856.38	**FAIL**	NA	NA	NA	NA	NA
Detector 7										
7/31/2019 12:22:00 AM	45237.02	45414.23	1362.43	-177.20	Pass	NA	NA	NA	NA	NA
8/1/2019 1:08:00 AM	45218.74	45414.23	1362.43	-195.49	Pass	NA	NA	NA	NA	NA
Detector 8										
7/31/2019 12:29:00 AM	49928.87	49452.15	1483.56	476.72	Pass	NA	NA	NA	NA	NA
8/1/2019 1:12:00 AM	49890.52	49452.15	1483.56	438.37	Pass	NA	NA	NA	NA	NA
Detector 9										
7/31/2019 12:29:00 AM	49006.87	48747.90	1462.44	258.97	Pass	NA	NA	NA	NA	NA
8/1/2019 1:12:00 AM	48671.73	48747.90	1462.44	-76.17	Pass	NA	NA	NA	NA	NA
Detector 10										
7/31/2019 12:29:00 AM	50562.02	50054.68	1501.64	507.35	Pass	NA	NA	NA	NA	NA
8/1/2019 1:12:00 AM	50718.93	50054.68	1501.64	664.26	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Orange

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
7/31/2019 12:29:00 AM	59418.28	59142.43	1774.27	275.85	Pass	NA	NA	NA	NA	NA
8/1/2019 1:12:00 AM	59486.23	59142.43	1774.27	343.81	Pass	NA	NA	NA	NA	NA
Detector 12										
7/31/2019 12:27:00 AM	56959.26	56886.15	1706.58	73.11	Pass	NA	NA	NA	NA	NA
8/1/2019 1:12:00 AM	56810.49	56886.15	1706.58	-75.66	Pass	NA	NA	NA	NA	NA
Detector 13										
7/31/2019 12:27:00 AM	55356.00	55204.43	1656.13	151.58	Pass	NA	NA	NA	NA	NA
8/1/2019 1:12:00 AM	55108.74	55204.43	1656.13	-95.68	Pass	NA	NA	NA	NA	NA
Detector 14										
7/31/2019 12:27:00 AM	50989.76	51681.73	1550.45	-691.96	Pass	NA	NA	NA	NA	NA
8/1/2019 1:12:00 AM	51018.02	51681.73	1550.45	-663.71	Pass	NA	NA	NA	NA	NA
Detector 15										
7/31/2019 12:27:00 AM	45496.82	44769.68	1343.09	727.15	Pass	NA	NA	NA	NA	NA
8/1/2019 1:12:00 AM	45672.14	44769.68	1343.09	902.46	Pass	NA	NA	NA	NA	NA
Detector 16										
7/31/2019 12:32:00 AM	49601.83	49427.80	1482.83	174.03	Pass	NA	NA	NA	NA	NA
8/1/2019 1:16:00 AM	49609.27	49427.80	1482.83	181.47	Pass	NA	NA	NA	NA	NA
Detector 17										
7/31/2019 12:32:00 AM	48374.17	48123.48	1443.70	250.70	Pass	NA	NA	NA	NA	NA
8/1/2019 1:16:00 AM	48365.39	48123.48	1443.70	241.92	Pass	NA	NA	NA	NA	NA
Detector 18										
7/31/2019 12:32:00 AM	50429.17	49818.00	1494.54	611.17	Pass	NA	NA	NA	NA	NA
8/1/2019 1:16:00 AM	49976.88	49818.00	1494.54	158.88	Pass	NA	NA	NA	NA	NA
Detector 19										
7/31/2019 12:32:00 AM	59957.84	60133.55	1804.01	-175.71	Pass	NA	NA	NA	NA	NA
8/1/2019 1:16:00 AM	60212.20	60133.55	1804.01	78.65	Pass	NA	NA	NA	NA	NA
Detector 20										
7/31/2019 12:29:00 AM	56087.20	56390.63	1691.72	-303.42	Pass	NA	NA	NA	NA	NA
8/1/2019 1:16:00 AM	56240.84	56390.63	1691.72	-149.78	Pass	NA	NA	NA	NA	NA
Detector 21										
7/31/2019 12:29:00 AM	55257.53	55234.63	1657.04	22.90	Pass	NA	NA	NA	NA	NA
8/1/2019 1:16:00 AM	55545.95	55234.63	1657.04	311.32	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Orange

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 22										
7/31/2019 12:29:00 AM	52100.46	52617.68	1578.53	-517.21	Pass	NA	NA	NA	NA	NA
8/1/2019 1:16:00 AM	51819.14	52617.68	1578.53	-798.53	Pass	NA	NA	NA	NA	NA
Detector 23										
7/31/2019 12:29:00 AM	44238.50	45356.30	1360.69	-1117.80	Pass	NA	NA	NA	NA	NA
8/1/2019 1:16:00 AM	44546.06	45356.30	1360.69	-810.24	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Orange

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
7/31/2019 4:38:00 AM	0.18	0.10	0.04	0.08	Pass	0.41	0.50	0.10	-0.090	Pass
8/1/2019 4:39:00 AM	0.17	0.10	0.04	0.07	Pass	0.40	0.50	0.10	-0.100	Pass
Detector 1										
7/31/2019 4:38:00 AM	0.15	0.08	0.03	0.07	Pass	0.37	0.38	0.06	-0.012	Pass
8/1/2019 4:39:00 AM	0.18	0.08	0.03	0.10	FAIL	0.61	0.38	0.06	0.228	FAIL
8/1/2019 9:40:00 AM	0.17	0.08	0.03	0.09	FAIL	0.48	0.38	0.06	0.093	Pass
Detector 2										
7/31/2019 4:38:00 AM	0.15	0.09	0.03	0.06	Pass	0.63	0.41	0.05	0.217	FAIL
7/31/2019 8:49:00 AM	0.14	0.09	0.03	0.05	Pass	0.49	0.41	0.05	0.077	Pass
8/1/2019 4:40:00 AM	0.11	0.09	0.03	0.02	Pass	0.43	0.41	0.05	0.017	Pass
Detector 3										
7/31/2019 4:38:00 AM	0.19	0.10	0.02	0.08	FAIL	0.57	0.60	0.10	-0.031	Pass
8/1/2019 4:40:00 AM	0.16	0.10	0.02	0.05	Pass	0.71	0.60	0.10	0.104	Pass
Detector 4										
7/31/2019 4:38:00 AM	0.14	0.10	0.03	0.03	Pass	0.60	0.46	0.07	0.139	Pass
8/1/2019 6:48:00 AM	0.14	0.10	0.03	0.03	Pass	0.32	0.46	0.07	-0.147	Pass
Detector 5										
7/31/2019 4:38:00 AM	0.23	0.08	0.01	0.15	FAIL	0.53	0.44	0.11	0.086	Pass
8/1/2019 4:40:00 AM	0.23	0.08	0.01	0.15	FAIL	0.57	0.44	0.11	0.126	Pass
Detector 6										
7/31/2019 4:38:00 AM	0.14	0.10	0.04	0.04	Pass	0.48	0.46	0.08	0.012	Pass
8/1/2019 4:40:00 AM	0.19	0.10	0.04	0.09	Pass	0.49	0.46	0.08	0.022	Pass
Detector 7										
7/31/2019 4:38:00 AM	0.25	0.12	0.03	0.13	FAIL	0.84	0.52	0.10	0.319	FAIL
7/31/2019 8:49:00 AM	0.21	0.12	0.03	0.09	Pass	0.63	0.52	0.10	0.109	Pass
8/1/2019 4:40:00 AM	0.16	0.12	0.03	0.04	Pass	0.66	0.52	0.10	0.139	Pass
Detector 8										
7/31/2019 4:38:00 AM	0.14	0.07	0.02	0.07	FAIL	0.49	0.42	0.07	0.070	Pass
8/1/2019 6:13:00 AM	0.15	0.07	0.02	0.08	FAIL	0.31	0.42	0.07	-0.110	Pass
Detector 9										
7/31/2019 4:38:00 AM	0.22	0.11	0.03	0.10	FAIL	0.65	0.49	0.08	0.158	Pass
8/1/2019 6:13:00 AM	0.14	0.11	0.03	0.02	Pass	0.50	0.49	0.08	0.013	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Orange

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 10										
7/31/2019 4:38:00 AM	0.10	0.13	0.03	-0.03	Pass	0.49	0.51	0.10	-0.016	Pass
8/1/2019 6:13:00 AM	0.09	0.13	0.03	-0.04	Pass	0.45	0.51	0.10	-0.060	Pass
Detector 11										
7/31/2019 4:38:00 AM	0.20	0.12	0.03	0.08	Pass	0.63	0.72	0.10	-0.089	Pass
8/1/2019 6:13:00 AM	0.17	0.12	0.03	0.05	Pass	0.67	0.72	0.10	-0.049	Pass
Detector 12										
7/31/2019 4:38:00 AM	0.20	0.10	0.03	0.10	**FAIL**	0.54	0.88	0.79	-0.335	Pass
7/31/2019 8:49:00 AM	0.13	0.10	0.03	0.03	Pass	0.52	0.88	0.79	-0.360	Pass
8/1/2019 4:40:00 AM	0.16	0.10	0.03	0.06	Pass	0.66	0.88	0.79	-0.220	Pass
Detector 13										
7/31/2019 4:38:00 AM	0.23	0.13	0.04	0.10	Pass	0.64	0.62	0.06	0.014	Pass
8/1/2019 4:40:00 AM	0.20	0.13	0.04	0.07	Pass	0.61	0.62	0.06	-0.011	Pass
Detector 14										
7/31/2019 4:38:00 AM	0.14	0.09	0.03	0.04	Pass	0.44	0.52	0.09	-0.083	Pass
8/1/2019 4:40:00 AM	0.07	0.09	0.03	-0.03	Pass	0.43	0.52	0.09	-0.093	Pass
Detector 15										
7/31/2019 4:39:00 AM	0.20	0.14	0.02	0.06	Pass	0.43	0.54	0.07	-0.114	Pass
8/1/2019 4:40:00 AM	0.22	0.14	0.02	0.08	**FAIL**	0.52	0.54	0.07	-0.029	Pass
8/1/2019 9:40:00 AM	0.21	0.14	0.02	0.07	Pass	0.61	0.54	0.07	0.061	Pass
Detector 16										
7/31/2019 4:38:00 AM	0.24	0.11	0.03	0.13	**FAIL**	0.59	0.51	0.10	0.076	Pass
8/1/2019 4:40:00 AM	0.15	0.11	0.03	0.04	Pass	0.47	0.51	0.10	-0.045	Pass
Detector 17										
7/31/2019 4:38:00 AM	0.21	0.10	0.04	0.11	**FAIL**	0.40	0.41	0.07	-0.015	Pass
8/1/2019 4:40:00 AM	0.13	0.10	0.04	0.02	Pass	0.43	0.41	0.07	0.020	Pass
Detector 18										
7/31/2019 4:38:00 AM	0.20	0.08	0.03	0.12	**FAIL**	0.39	0.36	0.06	0.025	Pass
8/1/2019 4:40:00 AM	0.12	0.08	0.03	0.03	Pass	0.44	0.36	0.06	0.075	Pass
Detector 19										
7/31/2019 4:38:00 AM	0.14	0.11	0.03	0.03	Pass	0.40	2.60	9.52	-2.201	Pass
8/1/2019 4:40:00 AM	0.21	0.11	0.03	0.10	Pass	0.49	2.60	9.52	-2.111	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Orange

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 20										
7/31/2019 4:38:00 AM	0.17	0.10	0.03	0.07	Pass	0.32	0.41	0.08	-0.094	Pass
8/1/2019 4:40:00 AM	0.14	0.10	0.03	0.04	Pass	0.35	0.41	0.08	-0.064	Pass
Detector 21										
7/31/2019 4:38:00 AM	0.12	0.11	0.04	0.01	Pass	0.57	0.41	0.07	0.156	Pass
8/1/2019 4:40:00 AM	0.16	0.11	0.04	0.05	Pass	0.43	0.41	0.07	0.016	Pass
Detector 22										
7/31/2019 4:38:00 AM	0.13	0.10	0.03	0.03	Pass	0.42	0.41	0.06	0.014	Pass
8/1/2019 4:40:00 AM	0.13	0.10	0.03	0.03	Pass	0.40	0.41	0.06	-0.012	Pass
Detector 23										
7/31/2019 4:38:00 AM	0.22	0.11	0.03	0.11	FAIL	0.51	0.44	0.11	0.071	Pass
8/1/2019 4:40:00 AM	0.14	0.11	0.03	0.03	Pass	0.50	0.44	0.11	0.056	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Conrad Reuscher at 11:49 pm, Jul 16, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
7/15/2019 12:33:00 AM	11845.90	12429.48	372.88	-583.58	FAIL	4139.50	4217.68	31.15	-78.175	WARNING
7/16/2019 1:51:00 AM	11983.22	12429.48	372.88	-446.26	FAIL	4149.00	4217.68	31.15	-68.675	WARNING
Detector 1										
7/15/2019 12:33:00 AM	12761.57	13515.73	405.47	-754.15	FAIL	4694.50	4578.40	63.08	116.100	Pass
7/16/2019 1:51:00 AM	12958.58	13515.73	405.47	-557.14	FAIL	4596.50	4578.40	63.08	18.100	Pass
Detector 2										
7/15/2019 12:33:00 AM	13064.77	14068.05	422.04	-1003.28	FAIL	4789.00	4802.25	75.57	-13.250	Pass
7/16/2019 1:51:00 AM	13082.87	14068.05	422.04	-985.18	FAIL	4715.00	4802.25	75.57	-87.250	Pass
Detector 3										
7/15/2019 12:33:00 AM	12961.03	13271.53	398.15	-310.49	Pass	4494.00	4349.03	65.64	144.975	WARNING
7/16/2019 1:51:00 AM	12904.46	13271.53	398.15	-367.07	Pass	4468.50	4349.03	65.64	119.475	Pass
Detector 4										
7/15/2019 12:33:00 AM	16160.45	16556.85	496.71	-396.40	Pass	6312.00	6135.80	62.86	176.200	WARNING
7/15/2019 4:20:00 AM	15908.86	16556.85	496.71	-647.99	FAIL	6352.00	6135.80	62.86	216.200	DOEF
7/16/2019 1:51:00 AM	15995.63	16556.85	496.71	-561.22	FAIL	6250.50	6135.80	62.86	114.700	Pass
Detector 5										
7/15/2019 12:33:00 AM	15448.80	15673.68	470.21	-224.88	Pass	6252.50	6104.98	888.40	147.525	Pass
7/16/2019 1:52:00 AM	15575.66	15673.68	470.21	-98.02	Pass	6283.50	6104.98	888.40	178.525	Pass
Detector 6										
7/15/2019 12:33:00 AM	14453.49	14736.55	442.10	-283.06	Pass	5551.00	5498.28	745.70	52.725	Pass
7/16/2019 1:52:00 AM	14403.44	14736.55	442.10	-333.11	Pass	5672.00	5498.28	745.70	173.725	Pass
Detector 7										
7/15/2019 12:33:00 AM	14793.28	15385.65	461.57	-592.37	FAIL	5644.50	5760.05	798.95	-115.550	Pass
7/16/2019 1:52:00 AM	14768.78	15385.65	461.57	-616.87	FAIL	5687.50	5760.05	798.95	-72.550	Pass
Detector 8										
7/15/2019 12:38:00 AM	11206.46	11620.55	348.62	-414.09	FAIL	3892.00	3784.00	489.68	108.000	Pass
7/15/2019 4:20:00 AM	11367.33	11620.55	348.62	-253.22	Pass	3878.50	3784.00	489.68	94.500	Pass
7/15/2019 4:22:00 AM	11239.04	11620.55	348.62	-381.51	FAIL	3795.00	3784.00	489.68	11.000	Pass
7/16/2019 1:57:00 AM	11170.93	11620.55	348.62	-449.62	FAIL	3911.00	3784.00	489.68	127.000	Pass
Detector 9										
7/15/2019 12:38:00 AM	13017.16	13544.15	406.32	-526.99	FAIL	4639.00	4627.50	61.77	11.500	Pass
7/16/2019 1:58:00 AM	12860.35	13544.15	406.32	-683.80	FAIL	4596.00	4627.50	61.77	-31.500	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 10										
7/15/2019 12:38:00 AM	13009.14	13960.33	418.81	-951.19	**FAIL**	4753.00	4854.78	66.79	-101.775	Pass
7/16/2019 1:58:00 AM	13035.26	13960.33	418.81	-925.07	**FAIL**	4773.50	4854.78	66.79	-81.275	Pass
Detector 11										
7/15/2019 12:38:00 AM	12759.56	13382.03	401.46	-622.46	**FAIL**	4712.00	4646.93	43.88	65.075	Pass
7/16/2019 1:58:00 AM	12731.55	13382.03	401.46	-650.47	**FAIL**	4689.00	4646.93	43.88	42.075	Pass
Detector 12										
7/15/2019 12:38:00 AM	16489.20	16555.28	496.66	-66.07	Pass	5659.00	5593.33	888.56	65.675	Pass
7/16/2019 1:58:00 AM	16557.93	16555.28	496.66	2.66	Pass	5594.00	5593.33	888.56	0.675	Pass
Detector 13										
7/15/2019 12:38:00 AM	16276.71	16489.13	494.67	-212.42	Pass	5833.00	5831.53	819.12	1.475	Pass
7/16/2019 1:58:00 AM	16461.71	16489.13	494.67	-27.42	Pass	5875.00	5831.53	819.12	43.475	Pass
Detector 14										
7/15/2019 12:38:00 AM	14425.92	15209.15	456.27	-783.23	**FAIL**	5655.00	5770.45	63.71	-115.450	Pass
7/16/2019 1:58:00 AM	14459.56	15209.15	456.27	-749.59	**FAIL**	5749.00	5770.45	63.71	-21.450	Pass
Detector 15										
7/15/2019 12:38:00 AM	14513.12	14890.68	446.72	-377.55	Pass	5414.00	5361.50	749.04	52.500	Pass
7/16/2019 1:58:00 AM	14613.42	14890.68	446.72	-277.26	Pass	5537.50	5361.50	749.04	176.000	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
7/15/2019 12:37:00 AM	49585.07	48583.18	1457.50	1001.89	Pass	NA	NA	NA	NA	NA
7/16/2019 1:56:00 AM	49521.75	48583.18	1457.50	938.58	Pass	NA	NA	NA	NA	NA
Detector 1										
7/15/2019 12:37:00 AM	48575.37	47659.85	1429.80	915.52	Pass	NA	NA	NA	NA	NA
7/16/2019 1:56:00 AM	48055.72	47659.85	1429.80	395.87	Pass	NA	NA	NA	NA	NA
Detector 2										
7/15/2019 12:37:00 AM	49841.00	49887.83	1496.63	-46.83	Pass	NA	NA	NA	NA	NA
7/16/2019 1:56:00 AM	49750.13	49887.83	1496.63	-137.69	Pass	NA	NA	NA	NA	NA
Detector 3										
7/15/2019 12:37:00 AM	59128.19	59018.83	1770.56	109.36	Pass	NA	NA	NA	NA	NA
7/16/2019 1:57:00 AM	59419.25	59018.83	1770.56	400.42	Pass	NA	NA	NA	NA	NA
Detector 4										
7/15/2019 12:38:00 AM	56309.47	56572.13	1697.16	-262.66	Pass	NA	NA	NA	NA	NA
7/16/2019 1:57:00 AM	56434.92	56572.13	1697.16	-137.21	Pass	NA	NA	NA	NA	NA
Detector 5										
7/15/2019 12:38:00 AM	53873.12	53786.35	1613.59	86.77	Pass	NA	NA	NA	NA	NA
7/16/2019 1:57:00 AM	53672.76	53786.35	1613.59	-113.59	Pass	NA	NA	NA	NA	NA
Detector 6										
7/15/2019 12:38:00 AM	51044.39	51221.45	1536.64	-177.06	Pass	NA	NA	NA	NA	NA
7/16/2019 1:57:00 AM	51125.83	51221.45	1536.64	-95.62	Pass	NA	NA	NA	NA	NA
Detector 7										
7/15/2019 12:38:00 AM	44936.05	44749.03	1342.47	187.03	Pass	NA	NA	NA	NA	NA
7/16/2019 1:57:00 AM	45075.31	44749.03	1342.47	326.29	Pass	NA	NA	NA	NA	NA
Detector 8										
7/15/2019 12:34:00 AM	46514.11	46135.45	1384.06	378.66	Pass	NA	NA	NA	NA	NA
7/16/2019 1:49:00 AM	46763.76	46135.45	1384.06	628.31	Pass	NA	NA	NA	NA	NA
Detector 9										
7/15/2019 12:34:00 AM	47752.14	47841.35	1435.24	-89.21	Pass	NA	NA	NA	NA	NA
7/16/2019 1:49:00 AM	47861.42	47841.35	1435.24	20.07	Pass	NA	NA	NA	NA	NA
Detector 10										
7/15/2019 12:34:00 AM	49197.56	49376.35	1481.29	-178.79	Pass	NA	NA	NA	NA	NA
7/16/2019 1:50:00 AM	49782.39	49376.35	1481.29	406.04	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
7/15/2019 12:34:00 AM	58877.68	59256.13	1777.68	-378.44	Pass	NA	NA	NA	NA	NA
7/16/2019 1:50:00 AM	59149.99	59256.13	1777.68	-106.13	Pass	NA	NA	NA	NA	NA
Detector 12										
7/15/2019 12:34:00 AM	57342.01	57255.23	1717.66	86.78	Pass	NA	NA	NA	NA	NA
7/16/2019 1:50:00 AM	57118.97	57255.23	1717.66	-136.26	Pass	NA	NA	NA	NA	NA
Detector 13										
7/15/2019 12:34:00 AM	54782.02	54928.25	1647.85	-146.23	Pass	NA	NA	NA	NA	NA
7/16/2019 1:50:00 AM	54636.51	54928.25	1647.85	-291.74	Pass	NA	NA	NA	NA	NA
Detector 14										
7/15/2019 12:34:00 AM	51150.88	51515.98	1545.48	-365.09	Pass	NA	NA	NA	NA	NA
7/16/2019 1:50:00 AM	51283.27	51515.98	1545.48	-232.70	Pass	NA	NA	NA	NA	NA
Detector 15										
7/15/2019 12:34:00 AM	44608.16	45036.85	1351.11	-428.69	Pass	NA	NA	NA	NA	NA
7/16/2019 1:50:00 AM	44638.16	45036.85	1351.11	-398.69	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
7/15/2019 3:59:00 AM	0.14	0.10	0.04	0.04	Pass	0.68	0.72	0.09	-0.041	Pass
7/16/2019 5:20:00 AM	0.18	0.10	0.04	0.08	Pass	0.72	0.72	0.09	0.004	Pass
Detector 1										
7/15/2019 3:59:00 AM	0.14	0.11	0.03	0.02	Pass	0.56	0.50	0.08	0.058	Pass
7/16/2019 5:20:00 AM	0.22	0.11	0.03	0.10	FAIL	0.70	0.50	0.08	0.203	Pass
Detector 2										
7/15/2019 3:59:00 AM	0.22	0.09	0.03	0.13	FAIL	0.54	0.54	0.09	-0.001	Pass
7/16/2019 5:21:00 AM	0.12	0.09	0.03	0.03	Pass	0.43	0.54	0.09	-0.116	Pass
Detector 3										
7/15/2019 3:59:00 AM	0.13	0.08	0.02	0.04	Pass	0.63	0.68	0.09	-0.052	Pass
7/16/2019 5:21:00 AM	0.12	0.08	0.02	0.03	Pass	0.58	0.68	0.09	-0.107	Pass
Detector 4										
7/15/2019 3:59:00 AM	0.27	0.11	0.02	0.16	FAIL	0.54	0.48	0.05	0.057	Pass
7/16/2019 5:21:00 AM	0.19	0.11	0.02	0.08	FAIL	0.44	0.48	0.05	-0.039	Pass
Detector 5										
7/15/2019 3:59:00 AM	0.17	0.09	0.03	0.08	Pass	0.48	0.47	0.07	0.010	Pass
7/16/2019 5:21:00 AM	0.19	0.09	0.03	0.10	FAIL	0.53	0.47	0.07	0.065	Pass
7/16/2019 9:59:00 AM	0.15	0.09	0.03	0.06	Pass	0.46	0.47	0.07	-0.005	Pass
Detector 6										
7/15/2019 3:59:00 AM	0.24	0.16	0.06	0.08	Pass	0.59	0.52	0.06	0.073	Pass
7/16/2019 5:21:00 AM	0.28	0.16	0.06	0.12	Pass	0.50	0.52	0.06	-0.017	Pass
Detector 7										
7/15/2019 3:59:00 AM	0.26	0.07	0.03	0.19	FAIL	0.73	0.52	0.07	0.202	FAIL
7/16/2019 5:21:00 AM	0.18	0.07	0.03	0.11	FAIL	0.62	0.52	0.07	0.092	Pass
Detector 8										
7/15/2019 3:59:00 AM	0.27	0.10	0.03	0.17	FAIL	0.45	0.45	0.08	0.005	Pass
7/16/2019 5:21:00 AM	0.17	0.10	0.03	0.07	Pass	0.47	0.45	0.08	0.025	Pass
Detector 9										
7/15/2019 3:59:00 AM	0.25	0.12	0.03	0.14	FAIL	0.45	0.44	0.05	0.010	Pass
7/16/2019 5:21:00 AM	0.17	0.12	0.03	0.05	Pass	0.41	0.44	0.05	-0.035	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 10										
7/15/2019 4:00:00 AM	0.26	0.11	0.04	0.15	FAIL	0.69	0.42	0.09	0.265	Pass
7/16/2019 5:21:00 AM	0.18	0.11	0.04	0.07	Pass	0.49	0.42	0.09	0.070	Pass
Detector 11										
7/15/2019 4:00:00 AM	0.24	0.10	0.03	0.14	FAIL	0.39	0.47	0.06	-0.079	Pass
7/16/2019 5:22:00 AM	0.18	0.10	0.03	0.08	Pass	0.46	0.47	0.06	-0.009	Pass
Detector 12										
7/15/2019 4:11:00 AM	0.15	0.11	0.04	0.04	Pass	0.57	0.49	0.11	0.073	Pass
7/16/2019 5:22:00 AM	0.11	0.11	0.04	0.00	Pass	0.47	0.49	0.11	-0.027	Pass
Detector 13										
7/15/2019 4:11:00 AM	0.18	0.14	0.02	0.03	Pass	0.50	0.48	0.07	0.015	Pass
7/16/2019 5:22:00 AM	0.17	0.14	0.02	0.02	Pass	0.35	0.48	0.07	-0.130	Pass
Detector 14										
7/15/2019 4:11:00 AM	0.20	0.11	0.04	0.09	Pass	0.51	0.43	0.07	0.071	Pass
7/16/2019 5:22:00 AM	0.12	0.11	0.04	0.01	Pass	0.41	0.43	0.07	-0.029	Pass
Detector 15										
7/15/2019 4:11:00 AM	0.20	0.15	0.02	0.05	Pass	0.53	0.55	0.05	-0.020	Pass
7/16/2019 5:22:00 AM	0.11	0.15	0.02	-0.04	Pass	0.47	0.55	0.05	-0.080	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Conrad Reuscher at 9:46 pm, Jul 17, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
7/16/2019 1:51:00 AM	11983.22	12429.48	372.88	-446.26	FAIL	4149.00	4217.68	31.15	-68.675	WARNING
7/17/2019 12:34:00 AM	13191.62	12429.48	372.88	762.14	FAIL	4508.00	4217.68	31.15	290.325	DOEF
Detector 1										
7/16/2019 1:51:00 AM	12958.58	13515.73	405.47	-557.14	FAIL	4596.50	4578.40	63.08	18.100	Pass
7/17/2019 12:34:00 AM	13213.23	13515.73	405.47	-302.49	Pass	4738.00	4578.40	63.08	159.600	WARNING
7/17/2019 2:19:00 AM	13055.37	13515.73	405.47	-460.36	FAIL	4621.50	4578.40	63.08	43.100	Pass
Detector 2										
7/16/2019 1:51:00 AM	13082.87	14068.05	422.04	-985.18	FAIL	4715.00	4802.25	75.57	-87.250	Pass
7/17/2019 12:34:00 AM	12958.14	14068.05	422.04	-1109.91	FAIL	4677.50	4802.25	75.57	-124.750	Pass
Detector 3										
7/16/2019 1:51:00 AM	12904.46	13271.53	398.15	-367.07	Pass	4468.50	4349.03	65.64	119.475	Pass
7/17/2019 12:34:00 AM	11917.22	13271.53	398.15	-1354.31	FAIL	4198.00	4349.03	65.64	-151.025	WARNING
7/17/2019 2:20:00 AM	13040.83	13271.53	398.15	-230.69	Pass	4510.50	4349.03	65.64	161.475	WARNING
7/17/2019 2:23:00 AM	12913.03	13271.53	398.15	-358.49	Pass	4543.00	4349.03	65.64	193.975	WARNING
Detector 4										
7/16/2019 1:51:00 AM	15995.63	16556.85	496.71	-561.22	FAIL	6250.50	6135.80	62.86	114.700	Pass
7/17/2019 12:34:00 AM	16096.44	16556.85	496.71	-460.41	Pass	6253.50	6135.80	62.86	117.700	Pass
7/17/2019 2:19:00 AM	16095.94	16556.85	496.71	-460.91	Pass	6190.50	6135.80	62.86	54.700	Pass
Detector 5										
7/16/2019 1:52:00 AM	15575.66	15673.68	470.21	-98.02	Pass	6283.50	6104.98	888.40	178.525	Pass
7/17/2019 12:35:00 AM	15492.53	15673.68	470.21	-181.14	Pass	6374.50	6104.98	888.40	269.525	Pass
Detector 6										
7/16/2019 1:52:00 AM	14403.44	14736.55	442.10	-333.11	Pass	5672.00	5498.28	745.70	173.725	Pass
7/17/2019 12:35:00 AM	14412.02	14736.55	442.10	-324.53	Pass	5643.50	5498.28	745.70	145.225	Pass
Detector 7										
7/16/2019 1:52:00 AM	14768.78	15385.65	461.57	-616.87	FAIL	5687.50	5760.05	798.95	-72.550	Pass
7/17/2019 12:35:00 AM	14939.75	15385.65	461.57	-445.90	Pass	5717.00	5760.05	798.95	-43.050	Pass
7/17/2019 2:19:00 AM	15043.99	15385.65	461.57	-341.66	Pass	5803.00	5760.05	798.95	42.950	Pass
Detector 8										
7/16/2019 1:57:00 AM	11170.93	11620.55	348.62	-449.62	FAIL	3911.00	3784.00	489.68	127.000	Pass
7/17/2019 12:40:00 AM	12345.21	11620.55	348.62	724.66	FAIL	4318.50	3784.00	489.68	534.500	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 9										
7/16/2019 1:58:00 AM	12860.35	13544.15	406.32	-683.80	**FAIL**	4596.00	4627.50	61.77	-31.500	Pass
7/17/2019 12:40:00 AM	13378.11	13544.15	406.32	-166.04	Pass	4696.00	4627.50	61.77	68.500	Pass
7/17/2019 2:22:00 AM	12905.01	13544.15	406.32	-639.14	**FAIL**	4597.00	4627.50	61.77	-30.500	Pass
Detector 10										
7/16/2019 1:58:00 AM	13035.26	13960.33	418.81	-925.07	**FAIL**	4773.50	4854.78	66.79	-81.275	Pass
7/17/2019 12:41:00 AM	12755.16	13960.33	418.81	-1205.16	**FAIL**	4758.50	4854.78	66.79	-96.275	Pass
Detector 11										
7/16/2019 1:58:00 AM	12731.55	13382.03	401.46	-650.47	**FAIL**	4689.00	4646.93	43.88	42.075	Pass
7/17/2019 12:41:00 AM	11857.07	13382.03	401.46	-1524.95	**FAIL**	4444.50	4646.93	43.88	-202.425	**DOEF**
Detector 12										
7/16/2019 1:58:00 AM	16557.93	16555.28	496.66	2.66	Pass	5594.00	5593.33	888.56	0.675	Pass
7/17/2019 12:41:00 AM	16584.57	16555.28	496.66	29.29	Pass	5766.50	5593.33	888.56	173.175	Pass
Detector 13										
7/16/2019 1:58:00 AM	16461.71	16489.13	494.67	-27.42	Pass	5875.00	5831.53	819.12	43.475	Pass
7/17/2019 12:41:00 AM	16201.68	16489.13	494.67	-287.45	Pass	5990.00	5831.53	819.12	158.475	Pass
Detector 14										
7/16/2019 1:58:00 AM	14459.56	15209.15	456.27	-749.59	**FAIL**	5749.00	5770.45	63.71	-21.450	Pass
7/17/2019 12:41:00 AM	14328.82	15209.15	456.27	-880.33	**FAIL**	5622.50	5770.45	63.71	-147.950	**WARNING**
Detector 15										
7/16/2019 1:58:00 AM	14613.42	14890.68	446.72	-277.26	Pass	5537.50	5361.50	749.04	176.000	Pass
7/17/2019 12:41:00 AM	14455.62	14890.68	446.72	-435.06	Pass	5385.00	5361.50	749.04	23.500	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
7/16/2019 1:56:00 AM	49521.75	48583.18	1457.50	938.58	Pass	NA	NA	NA	NA	NA
7/17/2019 12:40:00 AM	49934.46	48583.18	1457.50	1351.29	Pass	NA	NA	NA	NA	NA
Detector 1										
7/16/2019 1:56:00 AM	48055.72	47659.85	1429.80	395.87	Pass	NA	NA	NA	NA	NA
7/17/2019 12:40:00 AM	48712.90	47659.85	1429.80	1053.05	Pass	NA	NA	NA	NA	NA
Detector 2										
7/16/2019 1:56:00 AM	49750.13	49887.83	1496.63	-137.69	Pass	NA	NA	NA	NA	NA
7/17/2019 12:40:00 AM	50196.14	49887.83	1496.63	308.32	Pass	NA	NA	NA	NA	NA
Detector 3										
7/16/2019 1:57:00 AM	59419.25	59018.83	1770.56	400.42	Pass	NA	NA	NA	NA	NA
7/17/2019 12:40:00 AM	59078.25	59018.83	1770.56	59.42	Pass	NA	NA	NA	NA	NA
Detector 4										
7/16/2019 1:57:00 AM	56434.92	56572.13	1697.16	-137.21	Pass	NA	NA	NA	NA	NA
7/17/2019 12:39:00 AM	56320.03	56572.13	1697.16	-252.10	Pass	NA	NA	NA	NA	NA
Detector 5										
7/16/2019 1:57:00 AM	53672.76	53786.35	1613.59	-113.59	Pass	NA	NA	NA	NA	NA
7/17/2019 12:39:00 AM	53652.37	53786.35	1613.59	-133.98	Pass	NA	NA	NA	NA	NA
Detector 6										
7/16/2019 1:57:00 AM	51125.83	51221.45	1536.64	-95.62	Pass	NA	NA	NA	NA	NA
7/17/2019 12:39:00 AM	51135.45	51221.45	1536.64	-86.00	Pass	NA	NA	NA	NA	NA
Detector 7										
7/16/2019 1:57:00 AM	45075.31	44749.03	1342.47	326.29	Pass	NA	NA	NA	NA	NA
7/17/2019 12:39:00 AM	45040.31	44749.03	1342.47	291.29	Pass	NA	NA	NA	NA	NA
Detector 8										
7/16/2019 1:49:00 AM	46763.76	46135.45	1384.06	628.31	Pass	NA	NA	NA	NA	NA
7/17/2019 12:35:00 AM	46227.87	46135.45	1384.06	92.42	Pass	NA	NA	NA	NA	NA
Detector 9										
7/16/2019 1:49:00 AM	47861.42	47841.35	1435.24	20.07	Pass	NA	NA	NA	NA	NA
7/17/2019 12:36:00 AM	47704.86	47841.35	1435.24	-136.49	Pass	NA	NA	NA	NA	NA
Detector 10										
7/16/2019 1:50:00 AM	49782.39	49376.35	1481.29	406.04	Pass	NA	NA	NA	NA	NA
7/17/2019 12:36:00 AM	49252.96	49376.35	1481.29	-123.39	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
7/16/2019 1:50:00 AM	59149.99	59256.13	1777.68	-106.13	Pass	NA	NA	NA	NA	NA
7/17/2019 12:36:00 AM	59346.38	59256.13	1777.68	90.26	Pass	NA	NA	NA	NA	NA
Detector 12										
7/16/2019 1:50:00 AM	57118.97	57255.23	1717.66	-136.26	Pass	NA	NA	NA	NA	NA
7/17/2019 12:36:00 AM	57400.57	57255.23	1717.66	145.34	Pass	NA	NA	NA	NA	NA
Detector 13										
7/16/2019 1:50:00 AM	54636.51	54928.25	1647.85	-291.74	Pass	NA	NA	NA	NA	NA
7/17/2019 12:36:00 AM	54774.24	54928.25	1647.85	-154.01	Pass	NA	NA	NA	NA	NA
Detector 14										
7/16/2019 1:50:00 AM	51283.27	51515.98	1545.48	-232.70	Pass	NA	NA	NA	NA	NA
7/17/2019 12:36:00 AM	51443.25	51515.98	1545.48	-72.72	Pass	NA	NA	NA	NA	NA
Detector 15										
7/16/2019 1:50:00 AM	44638.16	45036.85	1351.11	-398.69	Pass	NA	NA	NA	NA	NA
7/17/2019 12:37:00 AM	44668.16	45036.85	1351.11	-368.69	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
7/16/2019 5:20:00 AM	0.18	0.10	0.04	0.08	Pass	0.72	0.72	0.09	0.004	Pass
7/17/2019 4:01:00 AM	0.15	0.10	0.04	0.05	Pass	0.70	0.72	0.09	-0.016	Pass
Detector 1										
7/16/2019 5:20:00 AM	0.22	0.11	0.03	0.10	FAIL	0.70	0.50	0.08	0.203	Pass
7/17/2019 5:42:00 AM	0.20	0.11	0.03	0.09	FAIL	0.59	0.50	0.08	0.087	Pass
Detector 2										
7/16/2019 5:21:00 AM	0.12	0.09	0.03	0.03	Pass	0.43	0.54	0.09	-0.116	Pass
7/17/2019 4:02:00 AM	0.15	0.09	0.03	0.06	Pass	0.51	0.54	0.09	-0.031	Pass
Detector 3										
7/16/2019 5:21:00 AM	0.12	0.08	0.02	0.03	Pass	0.58	0.68	0.09	-0.107	Pass
7/17/2019 5:44:00 AM	0.13	0.08	0.02	0.05	Pass	0.65	0.68	0.09	-0.032	Pass
Detector 4										
7/16/2019 5:21:00 AM	0.19	0.11	0.02	0.08	FAIL	0.44	0.48	0.05	-0.039	Pass
7/17/2019 5:42:00 AM	0.19	0.11	0.02	0.08	FAIL	0.37	0.48	0.05	-0.114	Pass
Detector 5										
7/16/2019 5:21:00 AM	0.19	0.09	0.03	0.10	FAIL	0.53	0.47	0.07	0.065	Pass
7/16/2019 9:59:00 AM	0.15	0.09	0.03	0.06	Pass	0.46	0.47	0.07	-0.005	Pass
7/17/2019 4:02:00 AM	0.18	0.09	0.03	0.08	Pass	0.53	0.47	0.07	0.065	Pass
Detector 6										
7/16/2019 5:21:00 AM	0.28	0.16	0.06	0.12	Pass	0.50	0.52	0.06	-0.017	Pass
7/17/2019 4:02:00 AM	0.32	0.16	0.06	0.16	Pass	0.64	0.52	0.06	0.123	Pass
Detector 7										
7/16/2019 5:21:00 AM	0.18	0.07	0.03	0.11	FAIL	0.62	0.52	0.07	0.092	Pass
7/17/2019 5:42:00 AM	0.17	0.07	0.03	0.10	FAIL	0.63	0.52	0.07	0.107	Pass
Detector 8										
7/16/2019 5:21:00 AM	0.17	0.10	0.03	0.07	Pass	0.47	0.45	0.08	0.025	Pass
7/17/2019 4:04:00 AM	0.16	0.10	0.03	0.06	Pass	0.45	0.45	0.08	0.000	Pass
Detector 9										
7/16/2019 5:21:00 AM	0.17	0.12	0.03	0.05	Pass	0.41	0.44	0.05	-0.035	Pass
7/17/2019 5:43:00 AM	0.17	0.12	0.03	0.05	Pass	0.41	0.44	0.05	-0.030	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 10										
7/16/2019 5:21:00 AM	0.18	0.11	0.04	0.07	Pass	0.49	0.42	0.09	0.070	Pass
7/17/2019 4:04:00 AM	0.17	0.11	0.04	0.06	Pass	0.46	0.42	0.09	0.035	Pass
Detector 11										
7/16/2019 5:22:00 AM	0.18	0.10	0.03	0.08	Pass	0.46	0.47	0.06	-0.009	Pass
7/17/2019 4:04:00 AM	0.20	0.10	0.03	0.10	FAIL	0.57	0.47	0.06	0.096	Pass
Detector 12										
7/16/2019 5:22:00 AM	0.11	0.11	0.04	0.00	Pass	0.47	0.49	0.11	-0.027	Pass
7/17/2019 4:04:00 AM	0.13	0.11	0.04	0.01	Pass	0.38	0.49	0.11	-0.112	Pass
Detector 13										
7/16/2019 5:22:00 AM	0.17	0.14	0.02	0.02	Pass	0.35	0.48	0.07	-0.130	Pass
7/17/2019 4:05:00 AM	0.15	0.14	0.02	0.01	Pass	0.48	0.48	0.07	-0.005	Pass
Detector 14										
7/16/2019 5:22:00 AM	0.12	0.11	0.04	0.01	Pass	0.41	0.43	0.07	-0.029	Pass
7/17/2019 4:05:00 AM	0.15	0.11	0.04	0.04	Pass	0.45	0.43	0.07	0.016	Pass
Detector 15										
7/16/2019 5:22:00 AM	0.11	0.15	0.02	-0.04	Pass	0.47	0.55	0.05	-0.080	Pass
7/17/2019 4:05:00 AM	0.29	0.15	0.02	0.14	FAIL	0.83	0.55	0.05	0.281	FAIL
7/17/2019 9:24:00 AM	0.21	0.15	0.02	0.06	Pass	0.52	0.55	0.05	-0.030	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Conrad Reuscher at 11:49 pm, Jul 16, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
7/15/2019 3:36:00 AM	12277.36	12818.03	384.54	-540.66	FAIL	4068.50	4137.60	27.33	-69.100	WARNING
7/16/2019 1:30:00 AM	12323.02	12818.03	384.54	-495.00	FAIL	4058.00	4137.60	27.33	-79.600	WARNING
Detector 1										
7/15/2019 3:36:00 AM	13266.11	13847.28	415.42	-581.17	FAIL	4524.00	4251.53	66.02	272.475	DOEF
7/16/2019 1:30:00 AM	13243.11	13847.28	415.42	-604.16	FAIL	4432.50	4251.53	66.02	180.975	WARNING
Detector 2										
7/15/2019 3:36:00 AM	13320.82	14354.23	430.63	-1033.40	FAIL	4626.50	4891.15	60.37	-264.650	DOEF
7/16/2019 1:30:00 AM	13207.15	14354.23	430.63	-1147.08	FAIL	4545.00	4891.15	60.37	-346.150	DOEF
Detector 3										
7/15/2019 3:36:00 AM	12906.07	13419.20	402.58	-513.13	FAIL	4837.50	4922.70	84.85	-85.200	Pass
7/16/2019 1:30:00 AM	13022.37	13419.20	402.58	-396.83	Pass	4855.00	4922.70	84.85	-67.700	Pass
7/16/2019 2:23:00 AM	12871.06	13419.20	402.58	-548.14	FAIL	4902.50	4922.70	84.85	-20.200	Pass
Detector 4										
7/15/2019 3:37:00 AM	16530.02	16907.73	507.23	-377.71	Pass	6050.00	5249.05	86.84	800.950	DOEF
7/16/2019 1:30:00 AM	16736.56	16907.73	507.23	-171.17	Pass	6085.50	5249.05	86.84	836.450	DOEF
Detector 5										
7/15/2019 3:36:00 AM	16424.78	16603.10	498.09	-178.32	Pass	6040.50	5630.28	57.62	410.225	DOEF
7/16/2019 1:30:00 AM	16618.29	16603.10	498.09	15.19	Pass	6095.50	5630.28	57.62	465.225	DOEF
Detector 6										
7/15/2019 3:36:00 AM	14659.27	15352.98	460.59	-693.71	FAIL	5428.50	5483.13	60.86	-54.625	Pass
7/16/2019 1:30:00 AM	14797.15	15352.98	460.59	-555.83	FAIL	5368.50	5483.13	60.86	-114.625	Pass
Detector 7										
7/15/2019 3:36:00 AM	14729.46	15273.85	458.22	-544.39	FAIL	5739.50	5724.88	85.05	14.625	Pass
7/16/2019 1:30:00 AM	14554.68	15273.85	458.22	-719.17	FAIL	5657.50	5724.88	85.05	-67.375	Pass
Detector 8										
7/15/2019 3:39:00 AM	11949.11	12654.18	379.63	-705.06	FAIL	4035.50	3940.58	65.19	94.925	Pass
7/16/2019 1:33:00 AM	12112.04	12654.18	379.63	-542.14	FAIL	3951.50	3940.58	65.19	10.925	Pass
Detector 9										
7/15/2019 3:39:00 AM	12994.54	13595.78	407.87	-601.24	FAIL	4603.00	4722.55	71.26	-119.550	Pass
7/16/2019 1:33:00 AM	13056.22	13595.78	407.87	-539.56	FAIL	4590.50	4722.55	71.26	-132.050	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 10										
7/15/2019 3:39:00 AM	13167.60	14277.18	428.32	-1109.57	**FAIL**	4684.50	5018.53	72.48	-334.025	**DOEF**
7/16/2019 1:33:00 AM	13264.36	14277.18	428.32	-1012.81	**FAIL**	4783.50	5018.53	72.48	-235.025	**DOEF**
Detector 11										
7/15/2019 3:39:00 AM	12981.96	13390.48	401.71	-408.52	**FAIL**	4512.50	4510.73	57.64	1.775	Pass
7/16/2019 1:33:00 AM	12949.44	13390.48	401.71	-441.03	**FAIL**	4592.50	4510.73	57.64	81.775	Pass
Detector 16										
7/15/2019 3:41:00 AM	11913.53	12631.78	378.95	-718.25	**FAIL**	3831.50	3761.83	61.84	69.675	Pass
7/16/2019 1:35:00 AM	12001.78	12631.78	378.95	-630.00	**FAIL**	3946.50	3761.83	61.84	184.675	**WARNING**
Detector 17										
7/15/2019 3:41:00 AM	13280.33	13889.18	416.68	-608.85	**FAIL**	3941.50	4215.80	68.01	-274.300	**DOEF**
7/16/2019 1:35:00 AM	13275.38	13889.18	416.68	-613.80	**FAIL**	4089.50	4215.80	68.01	-126.300	Pass
Detector 18										
7/15/2019 3:41:00 AM	13135.30	14192.53	425.78	-1057.23	**FAIL**	4875.00	4822.80	47.76	52.200	Pass
7/16/2019 1:35:00 AM	13202.01	14192.53	425.78	-990.52	**FAIL**	4782.50	4822.80	47.76	-40.300	Pass
Detector 19										
7/15/2019 3:41:00 AM	13191.93	13562.28	406.87	-370.35	Pass	4379.50	4355.90	55.82	23.600	Pass
7/16/2019 1:35:00 AM	13157.40	13562.28	406.87	-404.87	Pass	4481.00	4355.90	55.82	125.100	**WARNING**

Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
7/15/2019 3:30:00 AM	50401.87	50226.98	1506.81	174.90	Pass	NA	NA	NA	NA	NA
7/16/2019 1:23:00 AM	50152.49	50226.98	1506.81	-74.48	Pass	NA	NA	NA	NA	NA
Detector 1										
7/15/2019 3:30:00 AM	49024.27	48796.70	1463.90	227.57	Pass	NA	NA	NA	NA	NA
7/16/2019 1:23:00 AM	48893.41	48796.70	1463.90	96.71	Pass	NA	NA	NA	NA	NA
Detector 2										
7/15/2019 3:30:00 AM	50554.90	50875.48	1526.26	-320.57	Pass	NA	NA	NA	NA	NA
7/16/2019 1:23:00 AM	50703.80	50875.48	1526.26	-171.67	Pass	NA	NA	NA	NA	NA
Detector 3										
7/15/2019 3:30:00 AM	60074.14	60107.23	1803.22	-33.08	Pass	NA	NA	NA	NA	NA
7/16/2019 1:23:00 AM	60272.53	60107.23	1803.22	165.31	Pass	NA	NA	NA	NA	NA
Detector 4										
7/15/2019 3:30:00 AM	56569.17	56940.95	1708.23	-371.78	Pass	NA	NA	NA	NA	NA
7/16/2019 1:23:00 AM	56873.72	56940.95	1708.23	-67.23	Pass	NA	NA	NA	NA	NA
Detector 5										
7/15/2019 3:30:00 AM	54990.83	54659.90	1639.80	330.93	Pass	NA	NA	NA	NA	NA
7/16/2019 1:23:00 AM	55189.93	54659.90	1639.80	530.03	Pass	NA	NA	NA	NA	NA
Detector 6										
7/15/2019 3:30:00 AM	51777.56	52013.25	1560.40	-235.69	Pass	NA	NA	NA	NA	NA
7/16/2019 1:23:00 AM	51967.09	52013.25	1560.40	-46.16	Pass	NA	NA	NA	NA	NA
Detector 7										
7/15/2019 3:30:00 AM	44790.20	45069.13	1352.07	-278.92	Pass	NA	NA	NA	NA	NA
7/16/2019 1:23:00 AM	45521.99	45069.13	1352.07	452.86	Pass	NA	NA	NA	NA	NA
Detector 8										
7/15/2019 3:32:00 AM	49885.63	50025.35	1500.76	-139.72	Pass	NA	NA	NA	NA	NA
7/16/2019 1:26:00 AM	50317.27	50025.35	1500.76	291.92	Pass	NA	NA	NA	NA	NA
Detector 9										
7/15/2019 3:32:00 AM	48798.70	48665.90	1459.98	132.80	Pass	NA	NA	NA	NA	NA
7/16/2019 1:26:00 AM	48762.94	48665.90	1459.98	97.04	Pass	NA	NA	NA	NA	NA
Detector 10										
7/15/2019 3:32:00 AM	50341.50	50649.48	1519.48	-307.98	Pass	NA	NA	NA	NA	NA
7/16/2019 1:26:00 AM	50671.80	50649.48	1519.48	22.33	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
7/15/2019 3:32:00 AM	59732.90	59849.50	1795.49	-116.60	Pass	NA	NA	NA	NA	NA
7/16/2019 1:26:00 AM	59890.20	59849.50	1795.49	40.70	Pass	NA	NA	NA	NA	NA
Detector 16										
7/15/2019 3:34:00 AM	49553.37	49489.98	1484.70	63.39	Pass	NA	NA	NA	NA	NA
7/16/2019 1:28:00 AM	49535.33	49489.98	1484.70	45.35	Pass	NA	NA	NA	NA	NA
Detector 17										
7/15/2019 3:34:00 AM	46956.92	46812.78	1404.38	144.15	Pass	NA	NA	NA	NA	NA
7/16/2019 1:28:00 AM	46824.87	46812.78	1404.38	12.09	Pass	NA	NA	NA	NA	NA
Detector 18										
7/15/2019 3:34:00 AM	50092.93	50124.63	1503.74	-31.70	Pass	NA	NA	NA	NA	NA
7/16/2019 1:28:00 AM	50337.96	50124.63	1503.74	213.34	Pass	NA	NA	NA	NA	NA
Detector 19										
7/15/2019 3:34:00 AM	60028.55	60073.05	1802.19	-44.50	Pass	NA	NA	NA	NA	NA
7/16/2019 1:28:00 AM	60099.58	60073.05	1802.19	26.53	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
7/15/2019 3:20:00 AM	0.29	0.12	0.01	0.17	FAIL	0.54	0.46	0.08	0.083	Pass
7/16/2019 4:55:00 AM	0.23	0.12	0.01	0.11	FAIL	0.46	0.46	0.08	-0.002	Pass
Detector 1										
7/15/2019 3:20:00 AM	0.19	0.09	0.04	0.10	Pass	0.41	0.43	0.08	-0.029	Pass
7/16/2019 4:55:00 AM	0.20	0.09	0.04	0.10	Pass	0.46	0.43	0.08	0.026	Pass
Detector 2										
7/15/2019 3:20:00 AM	0.15	0.12	0.02	0.03	Pass	0.52	0.47	0.06	0.045	Pass
7/16/2019 4:55:00 AM	0.16	0.12	0.02	0.04	Pass	0.43	0.47	0.06	-0.045	Pass
Detector 3										
7/15/2019 3:20:00 AM	0.17	0.08	0.02	0.09	FAIL	0.40	0.41	0.08	-0.005	Pass
7/16/2019 5:46:00 AM	0.14	0.08	0.02	0.05	Pass	0.40	0.41	0.08	-0.005	Pass
Detector 4										
7/15/2019 3:20:00 AM	0.16	0.11	0.03	0.05	Pass	0.47	0.46	0.08	0.010	Pass
7/16/2019 4:55:00 AM	0.15	0.11	0.03	0.04	Pass	0.39	0.46	0.08	-0.070	Pass
Detector 5										
7/15/2019 3:20:00 AM	0.20	0.10	0.03	0.10	FAIL	0.36	0.43	0.06	-0.072	Pass
7/16/2019 4:55:00 AM	0.23	0.10	0.03	0.13	FAIL	0.41	0.43	0.06	-0.027	Pass
Detector 6										
7/15/2019 3:20:00 AM	0.16	0.10	0.03	0.06	Pass	0.45	0.46	0.08	-0.019	Pass
7/16/2019 4:55:00 AM	0.17	0.10	0.03	0.07	Pass	0.36	0.46	0.08	-0.104	Pass
Detector 7										
7/15/2019 3:20:00 AM	0.16	0.10	0.03	0.05	Pass	0.38	0.47	0.06	-0.100	Pass
7/16/2019 4:55:00 AM	0.11	0.10	0.03	0.01	Pass	0.38	0.47	0.06	-0.100	Pass
Detector 8										
7/15/2019 3:20:00 AM	0.19	0.12	0.04	0.07	Pass	0.43	0.47	0.05	-0.050	Pass
7/16/2019 4:55:00 AM	0.18	0.12	0.04	0.06	Pass	0.54	0.47	0.05	0.065	Pass
Detector 9										
7/15/2019 3:20:00 AM	0.27	0.07	0.02	0.20	FAIL	0.45	0.42	0.07	0.034	Pass
7/16/2019 4:55:00 AM	0.23	0.07	0.02	0.16	FAIL	0.53	0.42	0.07	0.114	Pass
Detector 10										
7/15/2019 3:20:00 AM	0.18	0.08	0.02	0.10	FAIL	0.30	0.36	0.06	-0.061	Pass
7/16/2019 4:55:00 AM	0.09	0.08	0.02	0.01	Pass	0.42	0.36	0.06	0.055	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 11										
7/15/2019 3:20:00 AM	0.11	0.08	0.02	0.03	Pass	0.39	0.43	0.06	-0.040	Pass
7/16/2019 4:55:00 AM	0.10	0.08	0.02	0.02	Pass	0.39	0.43	0.06	-0.040	Pass
Detector 16										
7/15/2019 3:20:00 AM	0.13	0.07	0.02	0.06	FAIL	0.41	0.40	0.07	0.005	Pass
7/16/2019 4:57:00 AM	0.11	0.07	0.02	0.04	Pass	0.37	0.40	0.07	-0.030	Pass
Detector 17										
7/15/2019 3:20:00 AM	0.11	0.15	0.02	-0.04	Pass	0.24	0.31	0.06	-0.065	Pass
7/16/2019 4:57:00 AM	0.23	0.15	0.02	0.09	FAIL	0.24	0.31	0.06	-0.070	Pass
Detector 18										
7/15/2019 3:20:00 AM	0.16	0.10	0.03	0.06	Pass	0.38	0.37	0.06	0.010	Pass
7/16/2019 4:57:00 AM	0.16	0.10	0.03	0.06	Pass	0.31	0.37	0.06	-0.060	Pass
Detector 19										
7/15/2019 3:20:00 AM	0.22	0.10	0.02	0.12	FAIL	0.44	0.49	0.05	-0.051	Pass
7/15/2019 7:31:00 AM	0.08	0.10	0.02	-0.02	Pass	0.50	0.49	0.05	0.014	Pass
7/16/2019 4:57:00 AM	0.19	0.10	0.02	0.09	FAIL	0.40	0.49	0.05	-0.086	Pass
7/16/2019 9:46:00 AM	0.16	0.10	0.02	0.06	FAIL	0.50	0.49	0.05	0.014	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Kody Saulters at 9:45 am, Aug 01, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
7/31/2019 12:19:00 AM	12004.59	12818.03	384.54	-813.44	FAIL	4059.50	4137.60	27.33	-78.100	WARNING
8/1/2019 12:36:00 AM	12052.25	12818.03	384.54	-765.77	FAIL	4070.00	4137.60	27.33	-67.600	WARNING
Detector 1										
7/31/2019 12:19:00 AM	13459.99	13847.28	415.42	-387.28	Pass	4511.00	4251.53	66.02	259.475	DOEF
8/1/2019 12:36:00 AM	13370.34	13847.28	415.42	-476.93	FAIL	4453.00	4251.53	66.02	201.475	DOEF
8/1/2019 2:59:00 AM	13305.19	13847.28	415.42	-542.09	FAIL	4358.00	4251.53	66.02	106.475	Pass
8/1/2019 3:06:00 AM	13223.00	13847.28	415.42	-624.28	FAIL	4209.00	4251.53	66.02	-42.525	Pass
Detector 2										
7/31/2019 12:19:00 AM	13226.56	14354.23	430.63	-1127.67	FAIL	4570.50	4891.15	60.37	-320.650	DOEF
8/1/2019 12:36:00 AM	13209.58	14354.23	430.63	-1144.65	FAIL	4623.50	4891.15	60.37	-267.650	DOEF
Detector 3										
7/31/2019 12:19:00 AM	12833.32	13419.20	402.58	-585.88	FAIL	4761.50	4922.70	84.85	-161.200	Pass
8/1/2019 12:36:00 AM	12962.15	13419.20	402.58	-457.05	FAIL	4797.50	4922.70	84.85	-125.200	Pass
Detector 4										
7/31/2019 12:19:00 AM	16796.30	16907.73	507.23	-111.43	Pass	6126.50	5249.05	86.84	877.450	DOEF
8/1/2019 12:36:00 AM	16620.96	16907.73	507.23	-286.76	Pass	5947.00	5249.05	86.84	697.950	DOEF
Detector 5										
7/31/2019 12:19:00 AM	16636.92	16603.10	498.09	33.82	Pass	6064.50	5630.28	57.62	434.225	DOEF
8/1/2019 12:36:00 AM	16489.65	16603.10	498.09	-113.45	Pass	6092.50	5630.28	57.62	462.225	DOEF
Detector 6										
7/31/2019 12:19:00 AM	14712.92	15352.98	460.59	-640.05	FAIL	5493.00	5483.13	60.86	9.875	Pass
8/1/2019 12:36:00 AM	14606.74	15352.98	460.59	-746.24	FAIL	5365.00	5483.13	60.86	-118.125	Pass
Detector 7										
7/31/2019 12:19:00 AM	14414.36	15273.85	458.22	-859.49	FAIL	5585.50	5724.88	85.05	-139.375	Pass
8/1/2019 12:36:00 AM	14712.02	15273.85	458.22	-561.83	FAIL	5735.00	5724.88	85.05	10.125	Pass
Detector 8										
7/31/2019 12:21:00 AM	12022.62	12654.18	379.63	-631.55	FAIL	4092.00	3940.58	65.19	151.425	WARNING
8/1/2019 12:41:00 AM	11889.36	12654.18	379.63	-764.81	FAIL	4017.00	3940.58	65.19	76.425	Pass
Detector 9										
7/31/2019 12:21:00 AM	13100.17	13595.78	407.87	-495.60	FAIL	4540.00	4722.55	71.26	-182.550	WARNING
8/1/2019 12:41:00 AM	12837.67	13595.78	407.87	-758.10	FAIL	4579.00	4722.55	71.26	-143.550	WARNING

Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 10										
7/31/2019 12:21:00 AM	13403.03	14277.18	428.32	-874.15	**FAIL**	4613.00	5018.53	72.48	-405.525	**DOEF**
8/1/2019 12:41:00 AM	13329.93	14277.18	428.32	-947.24	**FAIL**	4659.00	5018.53	72.48	-359.525	**DOEF**
Detector 11										
7/31/2019 12:21:00 AM	12980.87	13390.48	401.71	-409.61	**FAIL**	4565.00	4510.73	57.64	54.275	Pass
8/1/2019 12:41:00 AM	12822.55	13390.48	401.71	-567.92	**FAIL**	4464.50	4510.73	57.64	-46.225	Pass
Detector 16										
7/31/2019 12:24:00 AM	12029.13	12631.78	378.95	-602.64	**FAIL**	3917.50	3761.83	61.84	155.675	**WARNING**
8/1/2019 12:45:00 AM	11968.04	12631.78	378.95	-663.73	**FAIL**	3965.50	3761.83	61.84	203.675	**DOEF**
Detector 17										
7/31/2019 12:24:00 AM	13363.42	13889.18	416.68	-525.76	**FAIL**	3930.00	4215.80	68.01	-285.800	**DOEF**
8/1/2019 12:45:00 AM	13181.63	13889.18	416.68	-707.55	**FAIL**	4016.00	4215.80	68.01	-199.800	**WARNING**
Detector 18										
7/31/2019 12:24:00 AM	13285.57	14192.53	425.78	-906.96	**FAIL**	4721.50	4822.80	47.76	-101.300	**WARNING**
8/1/2019 12:45:00 AM	13327.22	14192.53	425.78	-865.30	**FAIL**	4766.00	4822.80	47.76	-56.800	Pass
Detector 19										
7/31/2019 12:24:00 AM	13361.25	13562.28	406.87	-201.03	Pass	4515.50	4355.90	55.82	159.600	**WARNING**
8/1/2019 12:45:00 AM	13142.79	13562.28	406.87	-419.48	**FAIL**	4465.50	4355.90	55.82	109.600	Pass
8/1/2019 3:00:00 AM	13182.89	13562.28	406.87	-379.39	Pass	4436.00	4355.90	55.82	80.100	Pass
8/1/2019 3:06:00 AM	13230.00	13562.28	406.87	-332.28	Pass	4449.00	4355.90	55.82	93.100	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
7/31/2019 12:13:00 AM	50081.41	50226.98	1506.81	-145.56	Pass	NA	NA	NA	NA	NA
8/1/2019 12:30:00 AM	49898.62	50226.98	1506.81	-328.36	Pass	NA	NA	NA	NA	NA
Detector 1										
7/31/2019 12:13:00 AM	49146.58	48796.70	1463.90	349.88	Pass	NA	NA	NA	NA	NA
8/1/2019 12:30:00 AM	48869.42	48796.70	1463.90	72.72	Pass	NA	NA	NA	NA	NA
Detector 2										
7/31/2019 12:13:00 AM	50567.75	50875.48	1526.26	-307.72	Pass	NA	NA	NA	NA	NA
8/1/2019 12:30:00 AM	50452.96	50875.48	1526.26	-422.51	Pass	NA	NA	NA	NA	NA
Detector 3										
7/31/2019 12:13:00 AM	59770.79	60107.23	1803.22	-336.44	Pass	NA	NA	NA	NA	NA
8/1/2019 12:30:00 AM	60195.74	60107.23	1803.22	88.51	Pass	NA	NA	NA	NA	NA
Detector 4										
7/31/2019 12:15:00 AM	56881.88	56940.95	1708.23	-59.07	Pass	NA	NA	NA	NA	NA
8/1/2019 12:31:00 AM	56751.92	56940.95	1708.23	-189.03	Pass	NA	NA	NA	NA	NA
Detector 5										
7/31/2019 12:13:00 AM	55036.47	54659.90	1639.80	376.57	Pass	NA	NA	NA	NA	NA
8/1/2019 12:31:00 AM	55126.49	54659.90	1639.80	466.59	Pass	NA	NA	NA	NA	NA
Detector 6										
7/31/2019 12:13:00 AM	51699.60	52013.25	1560.40	-313.65	Pass	NA	NA	NA	NA	NA
8/1/2019 12:31:00 AM	51769.63	52013.25	1560.40	-243.62	Pass	NA	NA	NA	NA	NA
Detector 7										
7/31/2019 12:13:00 AM	44845.88	45069.13	1352.07	-223.25	Pass	NA	NA	NA	NA	NA
8/1/2019 12:31:00 AM	45391.09	45069.13	1352.07	321.97	Pass	NA	NA	NA	NA	NA
Detector 8										
7/31/2019 12:15:00 AM	49947.20	50025.35	1500.76	-78.15	Pass	NA	NA	NA	NA	NA
8/1/2019 12:34:00 AM	50044.17	50025.35	1500.76	18.82	Pass	NA	NA	NA	NA	NA
Detector 9										
7/31/2019 12:15:00 AM	48761.83	48665.90	1459.98	95.93	Pass	NA	NA	NA	NA	NA
8/1/2019 12:34:00 AM	48739.03	48665.90	1459.98	73.13	Pass	NA	NA	NA	NA	NA
Detector 10										
7/31/2019 12:15:00 AM	50738.67	50649.48	1519.48	89.19	Pass	NA	NA	NA	NA	NA
8/1/2019 12:34:00 AM	50827.36	50649.48	1519.48	177.89	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
7/31/2019 12:15:00 AM	59831.95	59849.50	1795.49	-17.55	Pass	NA	NA	NA	NA	NA
8/1/2019 12:34:00 AM	59958.71	59849.50	1795.49	109.21	Pass	NA	NA	NA	NA	NA
Detector 16										
7/31/2019 12:17:00 AM	49630.21	49489.98	1484.70	140.23	Pass	NA	NA	NA	NA	NA
8/1/2019 12:38:00 AM	49435.73	49489.98	1484.70	-54.24	Pass	NA	NA	NA	NA	NA
Detector 17										
7/31/2019 12:17:00 AM	46648.55	46812.78	1404.38	-164.22	Pass	NA	NA	NA	NA	NA
8/1/2019 12:38:00 AM	46914.95	46812.78	1404.38	102.18	Pass	NA	NA	NA	NA	NA
Detector 18										
7/31/2019 12:17:00 AM	50186.99	50124.63	1503.74	62.36	Pass	NA	NA	NA	NA	NA
8/1/2019 12:38:00 AM	50330.81	50124.63	1503.74	206.18	Pass	NA	NA	NA	NA	NA
Detector 19										
7/31/2019 12:17:00 AM	60186.19	60073.05	1802.19	113.14	Pass	NA	NA	NA	NA	NA
8/1/2019 12:38:00 AM	59936.74	60073.05	1802.19	-136.31	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
7/31/2019 3:46:00 AM	0.27	0.12	0.01	0.15	FAIL	0.51	0.46	0.08	0.048	Pass
8/1/2019 3:58:00 AM	0.23	0.12	0.01	0.11	FAIL	0.54	0.46	0.08	0.078	Pass
Detector 1										
7/31/2019 3:46:00 AM	0.27	0.09	0.04	0.18	FAIL	0.56	0.43	0.08	0.121	Pass
8/1/2019 6:27:00 AM	0.22	0.09	0.04	0.13	FAIL	0.31	0.43	0.08	-0.125	Pass
Detector 2										
7/31/2019 3:46:00 AM	0.23	0.12	0.02	0.11	FAIL	0.60	0.47	0.06	0.120	Pass
8/1/2019 3:58:00 AM	0.23	0.12	0.02	0.11	FAIL	0.58	0.47	0.06	0.100	Pass
Detector 3										
7/31/2019 3:46:00 AM	0.23	0.08	0.02	0.14	FAIL	0.52	0.41	0.08	0.110	Pass
8/1/2019 3:59:00 AM	0.24	0.08	0.02	0.15	FAIL	0.45	0.41	0.08	0.045	Pass
Detector 4										
7/31/2019 4:34:00 AM	0.23	0.11	0.03	0.12	FAIL	0.50	0.46	0.08	0.045	Pass
7/31/2019 8:44:00 AM	0.23	0.11	0.03	0.12	FAIL	0.49	0.46	0.08	0.030	Pass
8/1/2019 3:59:00 AM	0.19	0.11	0.03	0.08	Pass	0.62	0.46	0.08	0.160	Pass
Detector 5										
7/31/2019 3:46:00 AM	0.25	0.10	0.03	0.15	FAIL	0.52	0.43	0.06	0.088	Pass
8/1/2019 3:59:00 AM	0.22	0.10	0.03	0.12	FAIL	0.50	0.43	0.06	0.063	Pass
Detector 6										
7/31/2019 3:46:00 AM	0.22	0.10	0.03	0.12	FAIL	0.40	0.46	0.08	-0.064	Pass
8/1/2019 3:59:00 AM	0.22	0.10	0.03	0.12	FAIL	0.55	0.46	0.08	0.082	Pass
Detector 7										
7/31/2019 3:47:00 AM	0.16	0.10	0.03	0.05	Pass	0.40	0.47	0.06	-0.075	Pass
8/1/2019 3:59:00 AM	0.20	0.10	0.03	0.10	FAIL	0.38	0.47	0.06	-0.095	Pass
Detector 8										
7/31/2019 3:47:00 AM	0.20	0.12	0.04	0.07	Pass	0.53	0.47	0.05	0.050	Pass
8/1/2019 4:17:00 AM	0.17	0.12	0.04	0.05	Pass	0.50	0.47	0.05	0.020	Pass
Detector 9										
7/31/2019 3:47:00 AM	0.19	0.07	0.02	0.12	FAIL	0.53	0.42	0.07	0.109	Pass
8/1/2019 4:17:00 AM	0.27	0.07	0.02	0.20	FAIL	0.38	0.42	0.07	-0.037	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Purple

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 10										
7/31/2019 3:47:00 AM	0.28	0.08	0.02	0.19	FAIL	0.43	0.36	0.06	0.065	Pass
8/1/2019 4:17:00 AM	0.16	0.08	0.02	0.08	FAIL	0.32	0.36	0.06	-0.041	Pass
Detector 11										
7/31/2019 3:47:00 AM	0.17	0.08	0.02	0.09	FAIL	0.46	0.43	0.06	0.026	Pass
8/1/2019 4:17:00 AM	0.21	0.08	0.02	0.13	FAIL	0.47	0.43	0.06	0.036	Pass
Detector 16										
7/31/2019 3:47:00 AM	0.16	0.07	0.02	0.09	FAIL	0.50	0.40	0.07	0.100	Pass
8/1/2019 4:16:00 AM	0.19	0.07	0.02	0.12	FAIL	0.53	0.40	0.07	0.130	Pass
Detector 17										
7/31/2019 3:47:00 AM	0.22	0.15	0.02	0.07	FAIL	0.29	0.31	0.06	-0.020	Pass
8/1/2019 4:17:00 AM	0.21	0.15	0.02	0.07	FAIL	0.34	0.31	0.06	0.030	Pass
Detector 18										
7/31/2019 3:47:00 AM	0.16	0.10	0.03	0.06	Pass	0.36	0.37	0.06	-0.010	Pass
8/1/2019 4:17:00 AM	0.14	0.10	0.03	0.04	Pass	0.40	0.37	0.06	0.030	Pass
Detector 19										
7/31/2019 3:47:00 AM	0.25	0.10	0.02	0.15	FAIL	0.37	0.49	0.05	-0.116	Pass
7/31/2019 8:44:00 AM	0.25	0.10	0.02	0.15	FAIL	0.53	0.49	0.05	0.044	Pass
8/1/2019 6:28:00 AM	0.25	0.10	0.02	0.15	FAIL	0.48	0.49	0.05	-0.011	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

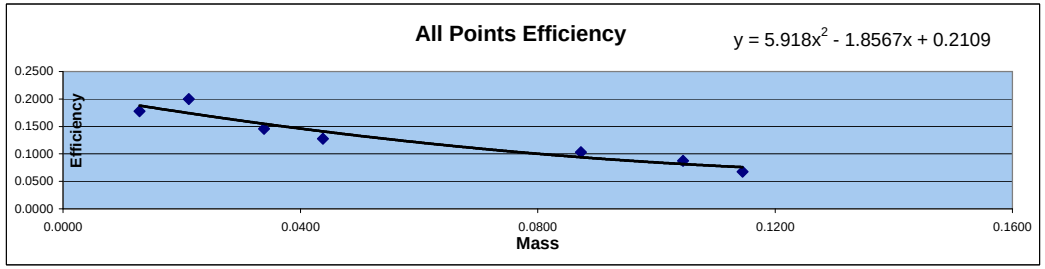
Alpha Beta Calibrations

Curve is for Gross Alpha

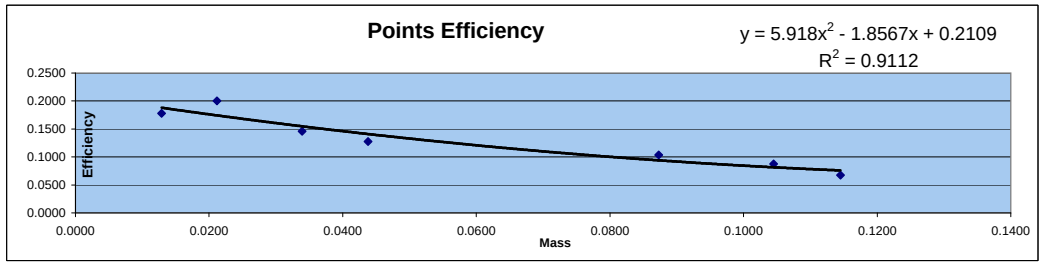
Blue 0

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
0	ICABT-51465;A1	3/19/2017 14:48	50	21102	422.040	2374.5	0.1777	1mL	0.0129
0	ICABT-51465;A2	3/29/2017 14:09	50	23741	474.820	2374.5	0.2000	1mL	0.0212
0	ICABT-51465;A3	3/30/2017 9:08	50	17304	346.080	2374.5	0.1457	1mL	0.0339
0	ICABT-51465;A4	3/30/2017 10:04	50	15142	302.840	2374.5	0.1275	1mL	0.0438
0	ICABT-51465;A6	3/20/2017 5:44	50	24554	491.080	4749.0	0.1034	2mL	0.0873
0	ICABT-51465;A7	3/20/2017 4:38	50	20815	416.300	4749.0	0.0877	2mL	0.1045
0	ICABT-51465;A8	3/20/2017 3:37	50	15992	319.840	4749.0	0.0673	2mL	0.1145

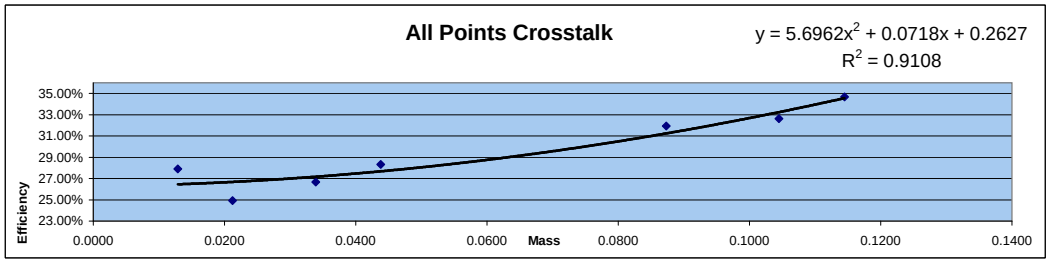
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1777	0.1879	-5.42%
0.0212	0.2000	0.1742	14.79%
0.0339	0.1457	0.1548	-5.82%
0.0438	0.1275	0.1409	-9.50%
0.0873	0.1034	0.0939	10.11%
0.1045	0.0877	0.0815	7.56%
0.1145	0.0673	0.0759	-11.26%



Mass	Efficiency
0.0129	0.1777
0.0212	0.2000
0.0339	0.1457
0.0438	0.1275
0.0873	0.1034
0.1045	0.0877
0.1145	0.0673



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
0	ICABT-51465;A1	0.0129	50	21102	8169	422.04	163.38	27.91%	Min
0	ICABT-51465;A2	0.0212	50	23741	7882	474.82	157.64	24.92%	24.92%
0	ICABT-51465;A3	0.0339	50	17304	6291	346.08	125.82	26.66%	
0	ICABT-51465;A4	0.0438	50	15142	5983	302.84	119.66	28.32%	Max
0	ICABT-51465;A6	0.0873	50	24554	11516	491.08	230.32	31.93%	
0	ICABT-51465;A7	0.1045	50	20815	10079	416.30	201.58	32.62%	Mean
0	ICABT-51465;A8	0.1145	50	15992	8488	319.84	169.76	34.67%	29.58%



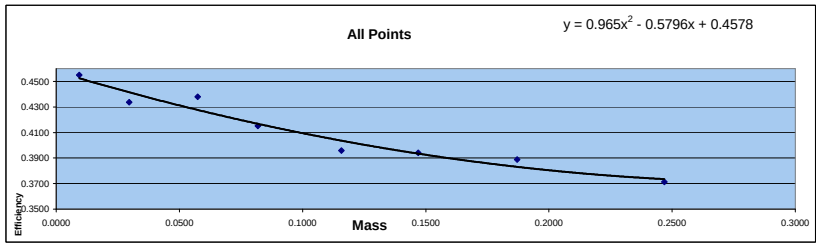
Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Curve is for Gross Beta
Strontium 90
and
Total Strontium

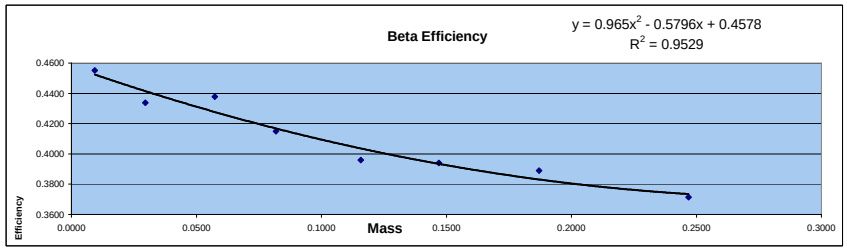
Blue 0

Detector ID	Std ID	Sample Wt	Count Date	Count Time	Beta Counts	DPM 37595.2171 DPM 37592.71382 CPM	Sr-90 Eff	Standard Aliquot
0	B1	0.0093	3/19/2017 14:32	5	85550	17110.000	0.4551	1mL
0	B2	0.0296	3/20/2017 0:59	5	81536	16307.200	0.4338	1mL
0	B3	0.0574	3/20/2017 0:37	5	82310	16462.000	0.4379	1mL
0	B4	0.0818	3/20/2017 0:22	5	78015	15603.000	0.4151	1mL
0	B5	0.1157	3/19/2017 14:40	5	74417	14883.400	0.3959	1mL
0	B6	0.1470	3/20/2017 1:50	5	74059	14811.800	0.3940	1mL
0	B7	0.1871	3/20/2017 3:22	5	73102	14620.400	0.3889	1mL
0	B8	0.2469	3/20/2017 3:28	5	69810	13962.000	0.3714	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4551	0.4525	0.58%
0.0296	0.4338	0.4415	-1.74%
0.0574	0.4379	0.4277	2.38%
0.0818	0.4151	0.4168	-0.43%
0.1157	0.3959	0.4037	-1.93%
0.1470	0.3940	0.3935	0.14%
0.1871	0.3889	0.3831	1.51%
0.2469	0.3714	0.3735	-0.57%



Mass	Efficiency
0.0093	0.4551
0.0296	0.4338
0.0574	0.4379
0.0818	0.4151
0.1157	0.3959
0.1470	0.3940
0.1871	0.3889
0.2469	0.3714



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/19/2017
Elapsed Time:	2740.000 days
Half Life:	10409.625 days
Exponential Term:	0.833227329
Corrected Activity:	18797.60855 dpm/mL
Decay Activity (Sr/Y-90)	37595.2171 dpm

Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/20/2017
Elapsed Time:	2741.000 days
Half Life:	10409.625 days
Exponential Term:	0.833171849
Corrected Activity:	18796.35691 dpm/mL
Decay Activity (Sr/Y-90)	37592.71382 dpm

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-6322;Beta1

Repeat 5

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 2:32:01 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 2:37:13 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15	3.000	3.000
sd	0.000			0.000	3.873	0.775	0.775
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	85,550	17,110.000	17,110.000
sd	0.000			0.000	292.489	58.498	58.498

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-6322;Beta5

Repeat 5

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:40:09 PM

Count Ended 3/19/2017 2:45:21 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	6	1.200	1.200
sd	0.000			0.000	2.449	0.490	0.490
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	74,417	14,883.400	14,883.400
sd	0.000			0.000	272.795	54.559	54.559

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-51465;A1

Repeat 1

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:48:48 PM

Count Ended 3/19/2017 3:38:58 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	21,102	422.040	422.040
sd	0.000			0.000	145.265	2.905	2.905
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,169	163.380	163.380
sd	0.000			0.000	90.383	1.808	1.808

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-6322;Beta4

Repeat 10

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 12:22:23 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 12:27:36 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	16	3.200	3.200
sd	0.000			0.000	4.000	0.800	0.800
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	78,015	15,603.000	15,603.000
sd	0.000			0.000	279.312	55.862	55.862

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-6322;Beta3 **Repeat** 11

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:37:38 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 12:42:47 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15	3.000	3.000
sd	0.000			0.000	3.873	0.775	0.775
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	82,310	16,462.000	16,462.000
sd	0.000			0.000	286.897	57.379	57.379

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-6322;Beta2

Repeat 12

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 12:59:01 AM

Count Ended 3/20/2017 1:04:10 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15	3.000	3.000
sd	0.000			0.000	3.873	0.775	0.775
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	81,536	16,307.200	16,307.200
sd	0.000			0.000	285.545	57.109	57.109

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-6322;Beta6

Repeat 8

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 1:50:40 AM

Count Ended 3/20/2017 1:55:48 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	24	4.800	4.800
sd	0.000			0.000	4.899	0.980	0.980
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	74,059	14,811.800	14,811.800
sd	0.000			0.000	272.138	54.428	54.428

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-6322;Beta7

Repeat 8

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 3:22:35 AM

Count Ended 3/20/2017 3:27:46 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	10	2.000	2.000
sd	0.000			0.000	3.162	0.632	0.632
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	73,102	14,620.400	14,620.400
sd	0.000			0.000	270.374	54.075	54.075

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-6322;Beta8 **Repeat** 8

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 3:28:59 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 3:34:08 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	9	1.800	1.800
sd	0.000			0.000	3.000	0.600	0.600
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	69,810	13,962.000	13,962.000
sd	0.000			0.000	264.216	52.843	52.843

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-51465;A8 **Repeat** 2

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 3:37:33 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 4:27:43 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15,992	319.840	319.840
sd	0.000			0.000	126.459	2.529	2.529
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,488	169.760	169.760
sd	0.000			0.000	92.130	1.843	1.843

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-51465;A7

Repeat 3

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 4:38:28 AM

Count Ended 3/20/2017 5:28:37 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	20,815	416.300	416.300
sd	0.000			0.000	144.274	2.885	2.885
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	10,079	201.580	201.580
sd	0.000			0.000	100.394	2.008	2.008

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-51465;A6

Repeat 4

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 5:44:39 AM

Count Ended 3/20/2017 6:34:48 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	24,554	491.080	491.080
sd	0.000			0.000	156.697	3.134	3.134
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	11,516	230.320	230.320
sd	0.000			0.000	107.313	2.146	2.146

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-51465;A2

Repeat 9

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/29/2017 2:09:21 PM

Count Ended 3/29/2017 2:59:28 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	23,741	474.820	474.820
sd	0.000			0.000	154.081	3.082	3.082
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.000	7,882	157.640	157.640
sd	0.000			0.000	88.781	1.776	1.776

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-51465;A3

Repeat 9

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/30/2017 9:08:58 AM

Count Ended 3/30/2017 9:59:05 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	17,304	346.080	346.080
sd	0.000			0.000	131.545	2.631	2.631
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.000	6,291	125.820	125.820
sd	0.000			0.000	79.316	1.586	1.586

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICABT-51465;A4

Repeat 9

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/30/2017 10:04:49 AM

Count Ended 3/30/2017 10:54:58 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	15,142	302.840	302.840
sd	0.000			0.000	123.053	2.461	2.461
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.000	5,983	119.660	119.660
sd	0.000			0.000	77.350	1.547	1.547

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

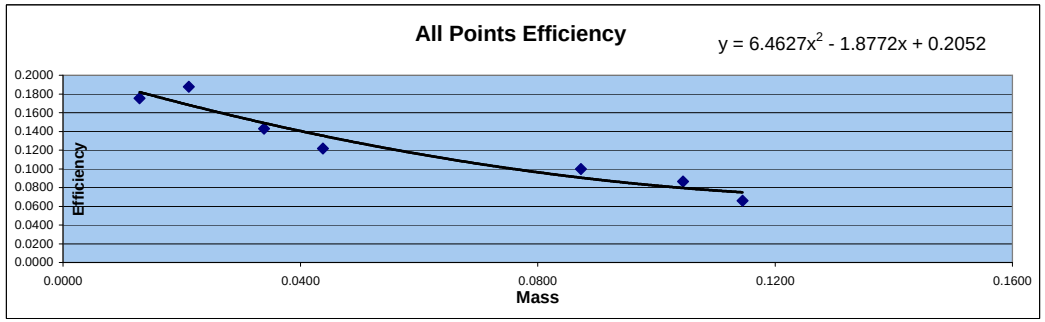
Error = .00 **x sd**

Curve is for Gross Alpha

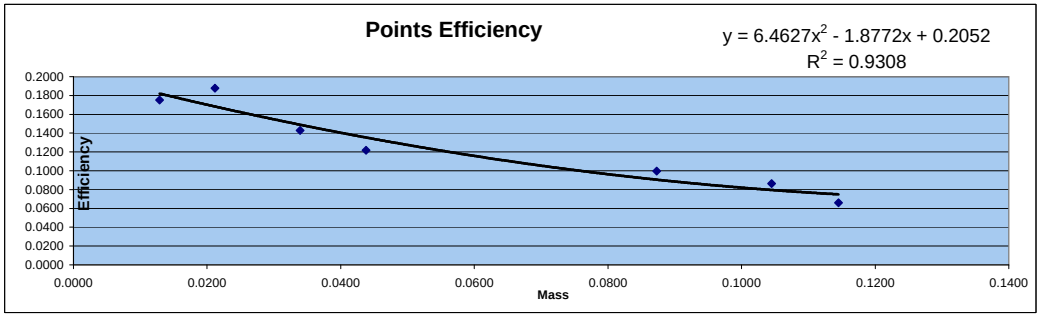
Blue 1

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
1	ICABT-51465;A1	3/20/2017 3:36	50	20806	416.120	2374.5	0.1752	1mL	0.0129
1	ICABT-51465;A2	3/19/2017 14:48	50	22295	445.900	2374.5	0.1878	1mL	0.0212
1	ICABT-51465;A3	3/29/2017 11:58	50	16963	339.260	2374.5	0.1429	1mL	0.0339
1	ICABT-51465;A4	3/29/2017 10:24	50	14460	289.200	2374.5	0.1218	1mL	0.0438
1	ICABT-51465;A6	3/20/2017 6:39	50	23677	473.540	4749.0	0.0997	2mL	0.0873
1	ICABT-51465;A7	3/20/2017 5:44	50	20511	410.220	4749.0	0.0864	2mL	0.1045
1	ICABT-51465;A8	3/20/2017 4:38	50	15645	312.900	4749.0	0.0659	2mL	0.1145

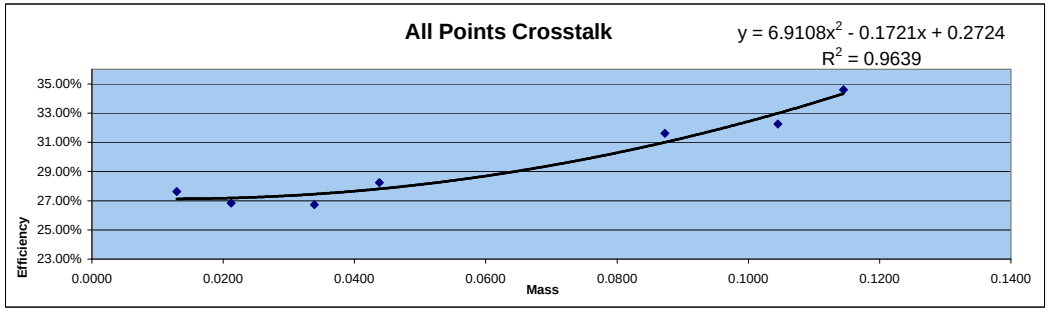
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1752	0.1821	-3.74%
0.0212	0.1878	0.1683	11.57%
0.0339	0.1429	0.1490	-4.10%
0.0438	0.1218	0.1354	-10.03%
0.0873	0.0997	0.0906	10.09%
0.1045	0.0864	0.0796	8.51%
0.1145	0.0659	0.0750	-12.14%



Mass	Efficiency
0.0129	0.1752
0.0212	0.1878
0.0339	0.1429
0.0438	0.1218
0.0873	0.0997
0.1045	0.0864
0.1145	0.0659



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
1	ICABT-51465;A1	0.0129	50	20806	7946	416.12	158.92	27.64%	Min
1	ICABT-51465;A2	0.0212	50	22295	8176	445.90	163.52	26.83%	26.72%
1	ICABT-51465;A3	0.0339	50	16963	6186	339.26	123.72	26.72%	
1	ICABT-51465;A4	0.0438	50	14460	5693	289.20	113.86	28.25%	Max
1	ICABT-51465;A6	0.0873	50	23677	10941	473.54	218.82	31.60%	
1	ICABT-51465;A7	0.1045	50	20511	9763	410.22	195.26	32.25%	Mean
1	ICABT-51465;A8	0.1145	50	15645	8276	312.90	165.52	34.60%	29.70%



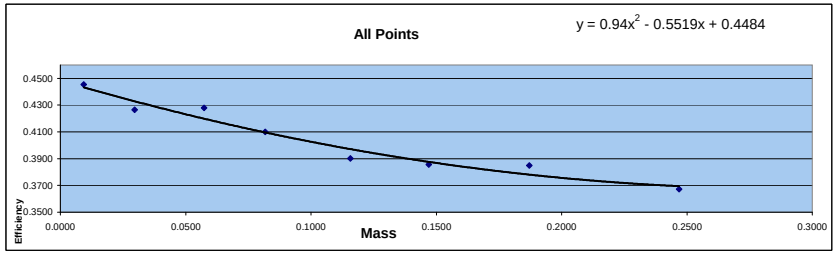
Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Curve is for Gross Beta
Strontium 90
and
Total Strontium

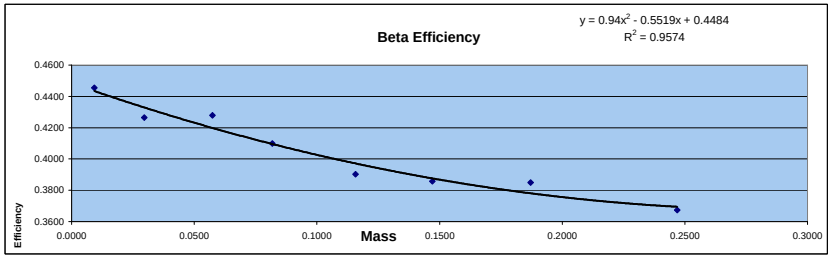
Blue 1

Detector ID	Std ID	Sample Wt	Count Date	Count Time	Beta Counts	DPM 37595.2171 DPM 37592.71382 CPM	Sr-90 Eff	Standard Aliquot
1	B1	0.0093	3/19/2017 23:09	5	83748	16749.600	0.4455	1mL
1	B2	0.0296	3/19/2017 14:32	5	80154	16030.800	0.4264	1mL
1	B3	0.0574	3/20/2017 0:59	5	80431	16086.200	0.4279	1mL
1	B4	0.0818	3/20/2017 0:37	5	77058	15411.600	0.4100	1mL
1	B5	0.1157	3/20/2017 0:22	5	73352	14670.400	0.3902	1mL
1	B6	0.1470	3/19/2017 14:40	5	72511	14502.200	0.3857	1mL
1	B7	0.1871	3/20/2017 1:50	5	72357	14471.400	0.3850	1mL
1	B8	0.2469	3/20/2017 3:22	5	69044	13808.800	0.3673	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4455	0.4433	0.49%
0.0296	0.4264	0.4329	-1.50%
0.0574	0.4279	0.4198	1.93%
0.0818	0.4100	0.4095	0.10%
0.1157	0.3902	0.3971	-1.73%
0.1470	0.3857	0.3876	-0.47%
0.1871	0.3850	0.3780	1.83%
0.2469	0.3673	0.3694	-0.57%



Mass	Efficiency
0.0093	0.4455
0.0296	0.4264
0.0574	0.4279
0.0818	0.4100
0.1157	0.3902
0.1470	0.3857
0.1871	0.3850
0.2469	0.3673



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/19/2017
Elapsed Time:	2740.000 days
Half Life:	10409.625 days
Exponential Term:	0.833227329
Corrected Activity:	18797.60855 dpm/mL
Decay Activity (Sr/Y-90)	37595.2171 dpm

Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/20/2017
Elapsed Time:	2741.000 days
Half Life:	10409.625 days
Exponential Term:	0.833171849
Corrected Activity:	18796.35691 dpm/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-6322;Beta2

Repeat 5

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:32:06 PM

Count Ended 3/19/2017 2:37:17 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	9	1.800	1.800
sd	0.000			0.000	3.000	0.600	0.600
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	80,154	16,030.800	16,030.800
sd	0.000			0.000	283.115	56.623	56.623

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-6322;Beta6

Repeat 5

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 2:40:14 PM

Count Ended 3/19/2017 2:45:25 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15	3.000	3.000
sd	0.000			0.000	3.873	0.775	0.775
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	72,511	14,502.200	14,502.200
sd	0.000			0.000	269.279	53.856	53.856

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-51465;A2

Repeat 1

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:48:56 PM

Count Ended 3/19/2017 3:39:06 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	22,295	445.900	445.900
sd	0.000			0.000	149.315	2.986	2.986
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,176	163.520	163.520
sd	0.000			0.000	90.421	1.808	1.808

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-6322;Beta1 **Repeat** 7

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 11:09:19 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 11:14:36 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	23	4.600	4.600
sd	0.000			0.000	4.796	0.959	0.959
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	83,748	16,749.600	16,749.600
sd	0.000			0.000	289.392	57.878	57.878

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-6322;Beta5 **Repeat** 6

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:22:31 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 12:27:40 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	18	3.600	3.600
sd	0.000			0.000	4.243	0.849	0.849
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	73,352	14,670.400	14,670.400
sd	0.000			0.000	270.836	54.167	54.167

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-6322;Beta4 **Repeat** 11

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:37:47 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 12:42:58 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	77,058	15,411.600	15,411.600
sd	0.000			0.000	277.593	55.519	55.519

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-6322;Beta3 **Repeat** 12

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:59:08 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 1:04:18 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	80,431	16,086.200	16,086.200
sd	0.000			0.000	283.604	56.721	56.721

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-6322;Beta7 **Repeat** 7

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 1:50:43 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 1:55:55 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	13	2.600	2.600
sd	0.000			0.000	3.606	0.721	0.721
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	72,357	14,471.400	14,471.400
sd	0.000			0.000	268.993	53.799	53.799

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-6322;Beta8 **Repeat** 7

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 3:22:23 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 3:27:33 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	13	2.600	2.600
sd	0.000			0.000	3.606	0.721	0.721
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	69,044	13,808.800	13,808.800
sd	0.000			0.000	262.762	52.552	52.552

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-51465;A1

Repeat 2

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 3:36:49 AM

Count Ended 3/20/2017 4:26:57 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	20,806	416.120	416.120
sd	0.000			0.000	144.243	2.885	2.885
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	7,946	158.920	158.920
sd	0.000			0.000	89.140	1.783	1.783

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-51465;A8

Repeat 3

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 4:38:34 AM

Count Ended 3/20/2017 5:28:41 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15,645	312.900	312.900
sd	0.000			0.000	125.080	2.502	2.502
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,276	165.520	165.520
sd	0.000			0.000	90.973	1.819	1.819

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-51465;A7

Repeat 4

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 5:44:44 AM

Count Ended 3/20/2017 6:34:52 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	20,511	410.220	410.220
sd	0.000			0.000	143.217	2.864	2.864
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	9,763	195.260	195.260
sd	0.000			0.000	98.808	1.976	1.976

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-51465;A6

Repeat 5

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 6:39:43 AM

Count Ended 3/20/2017 7:29:51 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	23,677	473.540	473.540
sd	0.000			0.000	153.873	3.077	3.077
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	10,941	218.820	218.820
sd	0.000			0.000	104.599	2.092	2.092

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-51465;A4

Repeat 7

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/29/2017 10:24:45 AM

Count Ended 3/29/2017 11:14:52 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14,460	289.200	289.200
sd	0.000			0.000	120.250	2.405	2.405
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	5,693	113.860	113.860
sd	0.000			0.000	75.452	1.509	1.509

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICABT-51465;A3

Repeat 8

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/29/2017 11:58:24 AM

Count Ended 3/29/2017 12:48:31 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	16,963	339.260	339.260
sd	0.000			0.000	130.242	2.605	2.605
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	6,186	123.720	123.720
sd	0.000			0.000	78.651	1.573	1.573

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

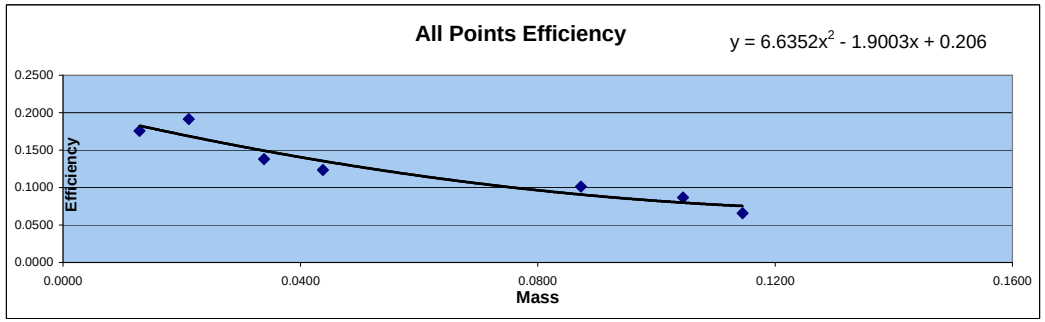
Error = .00 **x sd**

Curve is for Gross Alpha

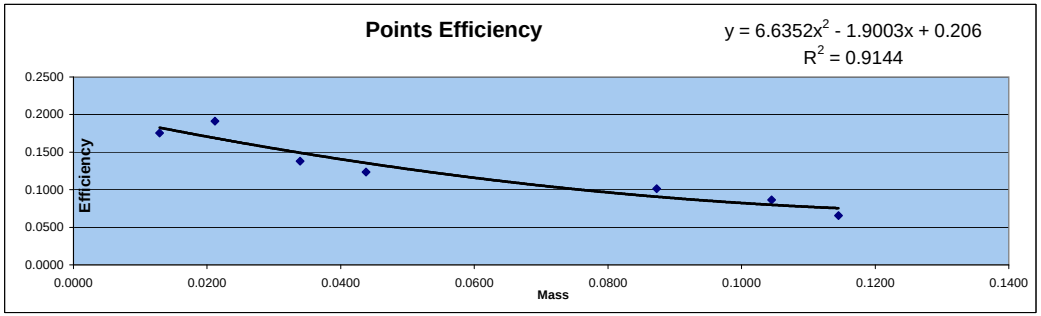
Blue 2

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
2	ICABT-51465;A1	3/20/2017 4:37	50	20851	417.020	2374.5	0.1756	1mL	0.0129
2	ICABT-51465;A2	3/20/2017 3:36	50	22708	454.160	2374.5	0.1913	1mL	0.0212
2	ICABT-51465;A3	3/19/2017 14:49	50	16393	327.860	2374.5	0.1381	1mL	0.0339
2	ICABT-51465;A4	3/29/2017 11:58	50	14645	292.900	2374.5	0.1234	1mL	0.0438
2	ICABT-51465;A6	3/20/2017 12:45	50	24092	481.840	4749.0	0.1015	2mL	0.0873
2	ICABT-51465;A7	3/20/2017 6:39	50	20551	411.020	4749.0	0.0865	2mL	0.1045
2	ICABT-51465;A8	3/20/2017 5:44	50	15592	311.840	4749.0	0.0657	2mL	0.1145

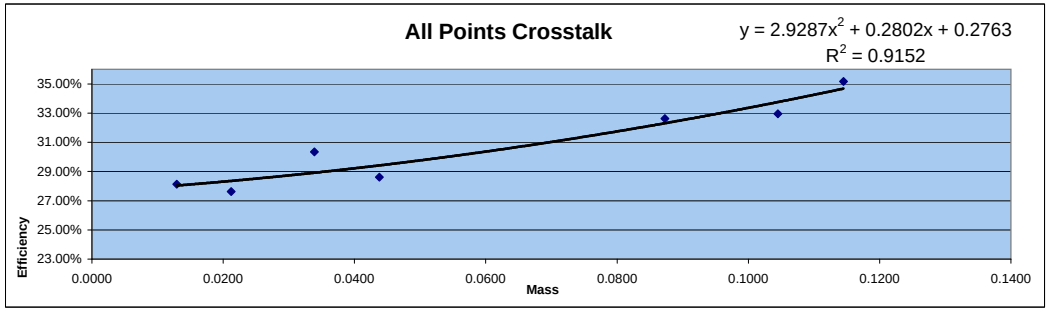
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1756	0.1826	-3.82%
0.0212	0.1913	0.1687	13.38%
0.0339	0.1381	0.1492	-7.46%
0.0438	0.1234	0.1355	-8.96%
0.0873	0.1015	0.0907	11.90%
0.1045	0.0865	0.0799	8.35%
0.1145	0.0657	0.0754	-12.92%



Mass	Efficiency
0.0129	0.1756
0.0212	0.1913
0.0339	0.1381
0.0438	0.1234
0.0873	0.1015
0.1045	0.0865
0.1145	0.0657



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
2	ICABT-51465;A1	0.0129	50	20851	8160	417.02	163.20	28.13%	Min
2	ICABT-51465;A2	0.0212	50	22708	8669	454.16	173.38	27.63%	27.63%
2	ICABT-51465;A3	0.0339	50	16393	7140	327.86	142.80	30.34%	
2	ICABT-51465;A4	0.0438	50	14645	5872	292.90	117.44	28.62%	Max
2	ICABT-51465;A6	0.0873	50	24092	11661	481.84	233.22	32.62%	
2	ICABT-51465;A7	0.1045	50	20551	10104	411.02	202.08	32.96%	Mean
2	ICABT-51465;A8	0.1145	50	15592	8461	311.84	169.22	35.18%	30.78%



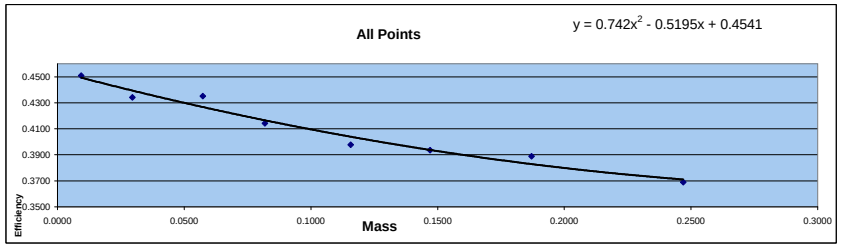
Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Curve is for Gross Beta
Strontium 90
and
Total Strontium

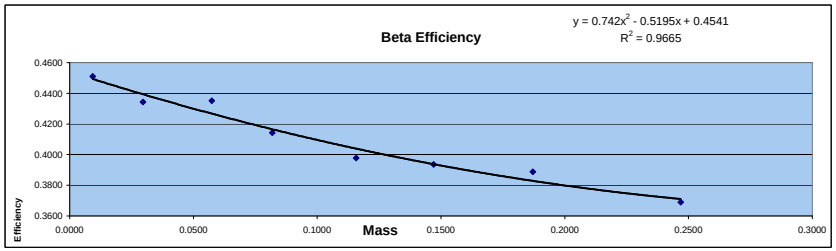
Blue 2

Detector ID	Std ID	Sample Wt	Count Date	Count Time	Beta Counts	DPM 37595.2171 DPM 37592.71382 CPM	Sr-90 Eff	Standard Aliquot
2	B1	0.0093	3/19/2017 23:27	5	84763	16952.600	0.4509	1mL
2	B2	0.0296	3/19/2017 23:09	5	81631	16326.200	0.4343	1mL
2	B3	0.0574	3/19/2017 14:32	5	81804	16360.800	0.4352	1mL
2	B4	0.0818	3/20/2017 0:59	5	77856	15571.200	0.4142	1mL
2	B5	0.1157	3/20/2017 0:37	5	74769	14953.800	0.3978	1mL
2	B6	0.1470	3/20/2017 0:22	5	73966	14793.200	0.3935	1mL
2	B7	0.1871	3/19/2017 14:40	5	73088	14617.600	0.3888	1mL
2	B8	0.2469	3/20/2017 1:50	5	69353	13870.600	0.3690	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4509	0.4493	0.35%
0.0296	0.4343	0.4394	-1.16%
0.0574	0.4352	0.4267	1.98%
0.0818	0.4142	0.4166	-0.57%
0.1157	0.3978	0.4039	-1.52%
0.1470	0.3935	0.3938	-0.06%
0.1871	0.3888	0.3829	1.55%
0.2469	0.3690	0.3711	-0.57%



Mass	Efficiency
0.0093	0.4509
0.0296	0.4343
0.0574	0.4352
0.0818	0.4142
0.1157	0.3978
0.1470	0.3935
0.1871	0.3888
0.2469	0.3690



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/19/2017
Elapsed Time:	2740.000 days
Half Life:	10409.625 days
Exponential Term:	0.833227329
Corrected Activity:	18797.60855 dpm/mL
Decay Activity (Sr/Y-90)	37595.2171 dpm

Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/20/2017
Elapsed Time:	2741.000 days
Half Life:	10409.625 days
Exponential Term:	0.833171849
Corrected Activity:	18796.35691 dpm/mL
Decay Activity (Sr/Y-90)	37592.71382 dpm

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-6322;Beta3 **Repeat** 5

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 2:32:12 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 2:37:21 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	81,804	16,360.800	16,360.800
sd	0.000			0.000	286.014	57.203	57.203

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-6322;Beta7

Repeat 5

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:40:19 PM

Count Ended 3/19/2017 2:45:30 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	12	2.400	2.400
sd	0.000			0.000	3.464	0.693	0.693
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	73,088	14,617.600	14,617.600
sd	0.000			0.000	270.348	54.070	54.070

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-51465;A3

Repeat 1

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:49:01 PM

Count Ended 3/19/2017 3:39:09 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	16,393	327.860	327.860
sd	0.000			0.000	128.035	2.561	2.561
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	7,140	142.800	142.800
sd	0.000			0.000	84.499	1.690	1.690

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-6322;Beta2 **Repeat** 7

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 11:09:35 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 11:14:47 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	23	4.600	4.600
sd	0.000			0.000	4.796	0.959	0.959
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	81,631	16,326.200	16,326.200
sd	0.000			0.000	285.711	57.142	57.142

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-6322;Beta1

Repeat 8

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 11:27:39 PM

Count Ended 3/19/2017 11:32:51 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	13	2.600	2.600
sd	0.000			0.000	3.606	0.721	0.721
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	84,763	16,952.600	16,952.600
sd	0.000			0.000	291.141	58.228	58.228

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-6322;Beta6

Repeat 6

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:22:37 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 12:27:48 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	19	3.800	3.800
sd	0.000			0.000	4.359	0.872	0.872
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	73,966	14,793.200	14,793.200
sd	0.000			0.000	271.967	54.393	54.393

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-6322;Beta5

Repeat 7

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:37:53 AM

Count Ended 3/20/2017 12:43:05 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	13	2.600	2.600
sd	0.000			0.000	3.606	0.721	0.721
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	74,769	14,953.800	14,953.800
sd	0.000			0.000	273.439	54.688	54.688

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-6322;Beta4

Repeat 12

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:59:18 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 1:04:29 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	17	3.400	3.400
sd	0.000			0.000	4.123	0.825	0.825
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	77,856	15,571.200	15,571.200
sd	0.000			0.000	279.027	55.805	55.805

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-6322;Beta8

Repeat 6

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 1:50:47 AM

Count Ended 3/20/2017 1:55:56 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	16	3.200	3.200
sd	0.000			0.000	4.000	0.800	0.800
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	69,353	13,870.600	13,870.600
sd	0.000			0.000	263.350	52.670	52.670

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-51465;A2

Repeat 2

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 3:36:58 AM

Count Ended 3/20/2017 4:27:06 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	22,708	454.160	454.160
sd	0.000			0.000	150.692	3.014	3.014
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,669	173.380	173.380
sd	0.000			0.000	93.107	1.862	1.862

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-51465;A1

Repeat 3

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 4:37:54 AM

Count Ended 3/20/2017 5:28:02 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	20,851	417.020	417.020
sd	0.000			0.000	144.399	2.888	2.888
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,160	163.200	163.200
sd	0.000			0.000	90.333	1.807	1.807

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-51465;A8

Repeat 4

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 5:44:49 AM

Count Ended 3/20/2017 6:34:56 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15,592	311.840	311.840
sd	0.000			0.000	124.868	2.497	2.497
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,461	169.220	169.220
sd	0.000			0.000	91.984	1.840	1.840

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-51465;A7

Repeat 5

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 6:39:28 AM

Count Ended 3/20/2017 7:29:37 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	20,551	411.020	411.020
sd	0.000			0.000	143.356	2.867	2.867
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	10,104	202.080	202.080
sd	0.000			0.000	100.519	2.010	2.010

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-51465;A6

Repeat 6

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 12:45:42 PM

Count Ended 3/20/2017 1:35:50 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	24,092	481.840	481.840
sd	0.000			0.000	155.216	3.104	3.104
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	11,661	233.220	233.220
sd	0.000			0.000	107.986	2.160	2.160

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICABT-51465;A4

Repeat 8

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/29/2017 11:58:31 AM

Count Ended 3/29/2017 12:48:40 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14,645	292.900	292.900
sd	0.000			0.000	121.017	2.420	2.420
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	5,872	117.440	117.440
sd	0.000			0.000	76.629	1.533	1.533

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

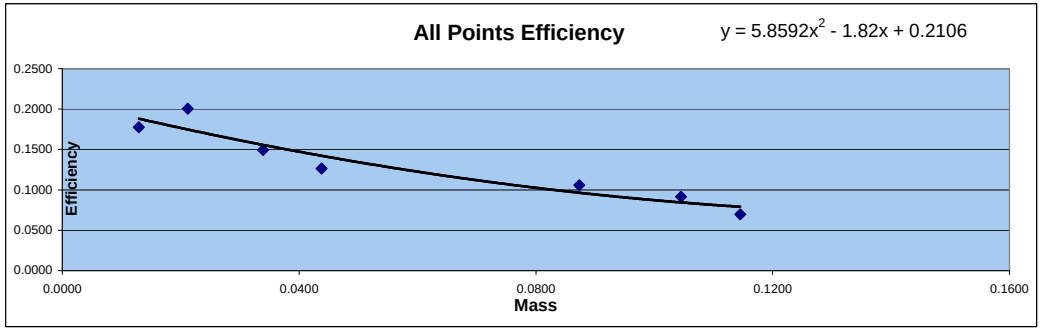
Error = .00 **x sd**

Curve is for Gross Alpha

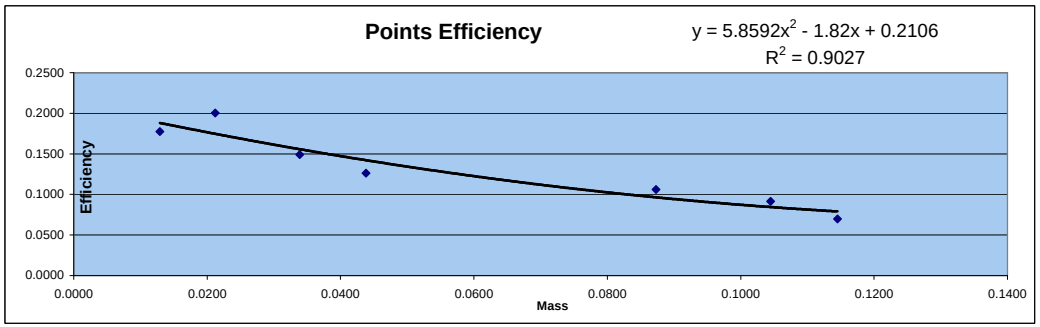
Blue 3

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
3	ICABT-51465;A1	3/30/2017 11:12	50	21068	421.360	2374.5	0.1775	1mL	0.0129
3	ICABT-51465;A2	3/30/2017 13:05	50	23792	475.840	2374.5	0.2004	1mL	0.0212
3	ICABT-51465;A3	3/30/2017 14:03	50	17711	354.220	2374.5	0.1492	1mL	0.0339
3	ICABT-51465;A4	3/31/2017 8:28	50	15004	300.080	2374.5	0.1264	1mL	0.0438
3	ICABT-51465;A6	3/29/2017 14:09	50	25146	502.920	4749.0	0.1059	2mL	0.0873
3	ICABT-51465;A7	3/30/2017 9:09	50	21705	434.100	4749.0	0.0914	2mL	0.1045
3	ICABT-51465;A8	3/30/2017 10:04	50	16592	331.840	4749.0	0.0699	2mL	0.1145

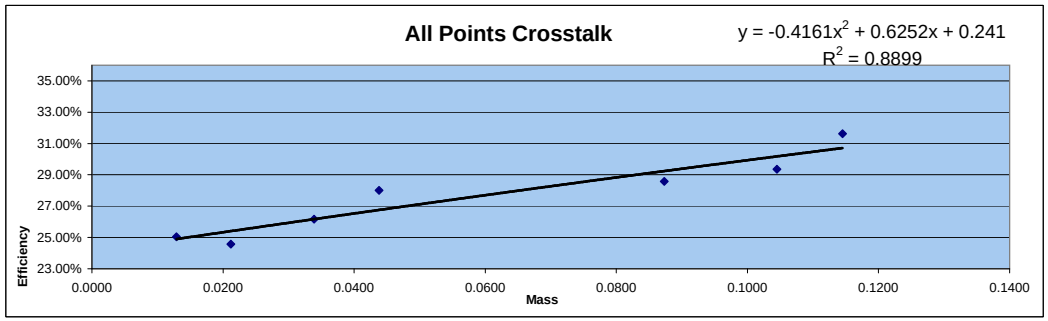
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1775	0.1881	-5.66%
0.0212	0.2004	0.1746	14.74%
0.0339	0.1492	0.1556	-4.15%
0.0438	0.1264	0.1421	-11.08%
0.0873	0.1059	0.0964	9.89%
0.1045	0.0914	0.0844	8.31%
0.1145	0.0699	0.0790	-11.58%



Mass	Efficiency
0.0129	0.1775
0.0212	0.2004
0.0339	0.1492
0.0438	0.1264
0.0873	0.1059
0.1045	0.0914
0.1145	0.0699



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
3	ICABT-51465;A1	0.0129	50	21068	7038	421.36	140.76	25.04%	Min
3	ICABT-51465;A2	0.0212	50	23792	7755	475.84	155.10	24.58%	24.58%
3	ICABT-51465;A3	0.0339	50	17711	6280	354.22	125.60	26.18%	
3	ICABT-51465;A4	0.0438	50	15004	5835	300.08	116.70	28.00%	Max
3	ICABT-51465;A6	0.0873	50	25146	10062	502.92	201.24	28.58%	
3	ICABT-51465;A7	0.1045	50	21705	9019	434.10	180.38	29.35%	Mean
3	ICABT-51465;A8	0.1145	50	16592	7674	331.84	153.48	31.62%	27.62%



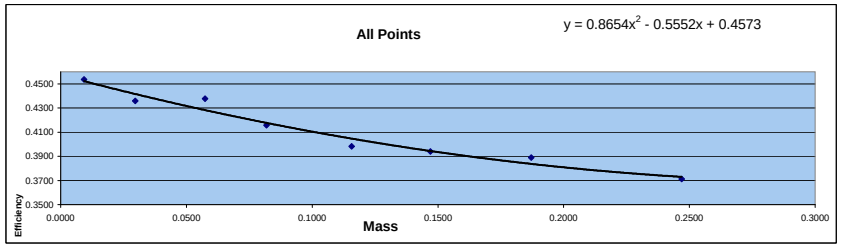
Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Curve is for Gross Beta
Strontium 90
and
Total Strontium

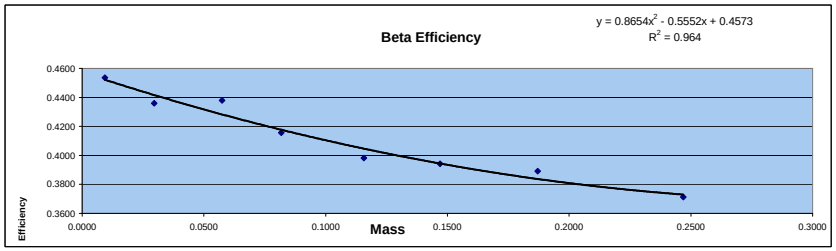
Blue 3

Detector ID	Std ID	Sample Wt	Count Date	Count Time	Beta Counts	DPM 37595.2171 DPM 37592.71382 CPM	Sr-90 Eff	Standard Aliquot
3	B1	0.0093	3/19/2017 23:56	5	85272	17054.400	0.4536	1mL
3	B2	0.0296	3/19/2017 23:27	5	81928	16385.600	0.4358	1mL
3	B3	0.0574	3/19/2017 23:09	5	82301	16460.200	0.4378	1mL
3	B4	0.0818	3/19/2017 14:32	5	78143	15628.600	0.4157	1mL
3	B5	0.1157	3/20/2017 0:59	5	74837	14967.400	0.3981	1mL
3	B6	0.1470	3/20/2017 0:38	5	74080	14816.000	0.3941	1mL
3	B7	0.1871	3/20/2017 0:22	5	73132	14626.400	0.3891	1mL
3	B8	0.2469	3/19/2017 14:40	5	69782	13956.400	0.3712	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4536	0.4522	0.31%
0.0296	0.4358	0.4416	-1.31%
0.0574	0.4378	0.4283	2.23%
0.0818	0.4157	0.4177	-0.47%
0.1157	0.3981	0.4046	-1.61%
0.1470	0.3941	0.3944	-0.07%
0.1871	0.3891	0.3837	1.40%
0.2469	0.3712	0.3730	-0.47%



Mass	Efficiency
0.0093	0.4536
0.0296	0.4358
0.0574	0.4378
0.0818	0.4157
0.1157	0.3981
0.1470	0.3941
0.1871	0.3891
0.2469	0.3712



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/19/2017
Elapsed Time:	2740.000 days
Half Life:	10409.625 days
Exponential Term:	0.833227329
Corrected Activity:	18797.60855 dpm/mL
Decay Activity (Sr/Y-90)	37595.2171 dpm

Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/20/2017
Elapsed Time:	2741.000 days
Half Life:	10409.625 days
Exponential Term:	0.833171849
Corrected Activity:	18796.35691 dpm/mL
Decay Activity (Sr/Y-90)	37592.71382 dpm

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-6322;Beta4

Repeat 5

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:32:17 PM

Count Ended 3/19/2017 2:37:28 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	6	1.200	1.200
sd	0.000			0.000	2.449	0.490	0.490
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	78,143	15,628.600	15,628.600
sd	0.000			0.000	279.541	55.908	55.908

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-6322;Beta8

Repeat 5

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 2:40:23 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 2:45:35 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	10	2.000	2.000
sd	0.000			0.000	3.162	0.632	0.632
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	69,782	13,956.400	13,956.400
sd	0.000			0.000	264.163	52.833	52.833

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-6322;Beta3 **Repeat** 7

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 11:09:46 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 11:14:58 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	17	3.400	3.400
sd	0.000			0.000	4.123	0.825	0.825
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	82,301	16,460.200	16,460.200
sd	0.000			0.000	286.882	57.376	57.376

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-6322;Beta2

Repeat 8

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 11:27:43 PM

Count Ended 3/19/2017 11:32:55 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	13	2.600	2.600
sd	0.000			0.000	3.606	0.721	0.721
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	81,928	16,385.600	16,385.600
sd	0.000			0.000	286.231	57.246	57.246

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-6322;Beta1

Repeat 9

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 11:56:21 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 12:01:34 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	12	2.400	2.400
sd	0.000			0.000	3.464	0.693	0.693
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	85,272	17,054.400	17,054.400
sd	0.000			0.000	292.014	58.403	58.403

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-6322;Beta7

Repeat 6

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:22:41 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 12:27:52 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	20	4.000	4.000
sd	0.000			0.000	4.472	0.894	0.894
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	73,132	14,626.400	14,626.400
sd	0.000			0.000	270.429	54.086	54.086

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-6322;Beta6 **Repeat** 7

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:38:01 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 12:43:12 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	74,080	14,816.000	14,816.000
sd	0.000			0.000	272.176	54.435	54.435

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-6322;Beta5

Repeat 8

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:59:24 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 1:04:33 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	74,837	14,967.400	14,967.400
sd	0.000			0.000	273.564	54.713	54.713

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-51465;A6

Repeat 9

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/29/2017 2:09:33 PM

Count Ended 3/29/2017 2:59:42 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	25,146	502.920	502.920
sd	0.000			0.000	158.575	3.171	3.171
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	10,062	201.240	201.240
sd	0.000			0.000	100.310	2.006	2.006

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-51465;A7

Repeat 9

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/30/2017 9:09:08 AM

Count Ended 3/30/2017 9:59:16 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	21,705	434.100	434.100
sd	0.000			0.000	147.326	2.947	2.947
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	9,019	180.380	180.380
sd	0.000			0.000	94.968	1.899	1.899

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-51465;A8

Repeat 9

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/30/2017 10:04:57 AM

Count Ended 3/30/2017 10:55:08 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	16,592	331.840	331.840
sd	0.000			0.000	128.810	2.576	2.576
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	7,674	153.480	153.480
sd	0.000			0.000	87.601	1.752	1.752

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-51465;A1

Repeat 9

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/30/2017 11:12:04 AM

Count Ended 3/30/2017 12:02:12 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	21,068	421.360	421.360
sd	0.000			0.000	145.148	2.903	2.903
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	7,038	140.760	140.760
sd	0.000			0.000	83.893	1.678	1.678

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-51465;A2

Repeat 10

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/30/2017 1:05:34 PM

Count Ended 3/30/2017 1:55:44 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	23,792	475.840	475.840
sd	0.000			0.000	154.247	3.085	3.085
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	7,755	155.100	155.100
sd	0.000			0.000	88.062	1.761	1.761

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-51465;A3

Repeat 10

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/30/2017 2:03:31 PM

Count Ended 3/30/2017 2:53:40 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	17,711	354.220	354.220
sd	0.000			0.000	133.083	2.662	2.662
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	6,280	125.600	125.600
sd	0.000			0.000	79.246	1.585	1.585

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICABT-51465;A4

Repeat 10

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1575

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 8:28:50 AM

Count Ended 3/31/2017 9:19:00 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15,004	300.080	300.080
sd	0.000			0.000	122.491	2.450	2.450
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	5,835	116.700	116.700
sd	0.000			0.000	76.387	1.528	1.528

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

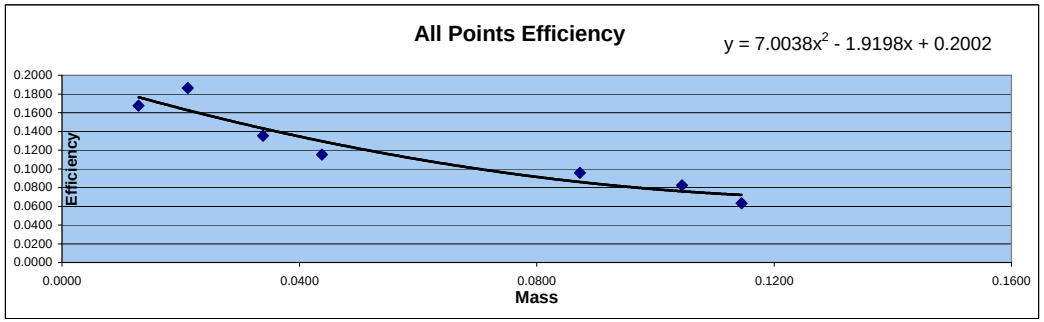
Error = .00 **x sd**

Curve is for Gross Alpha

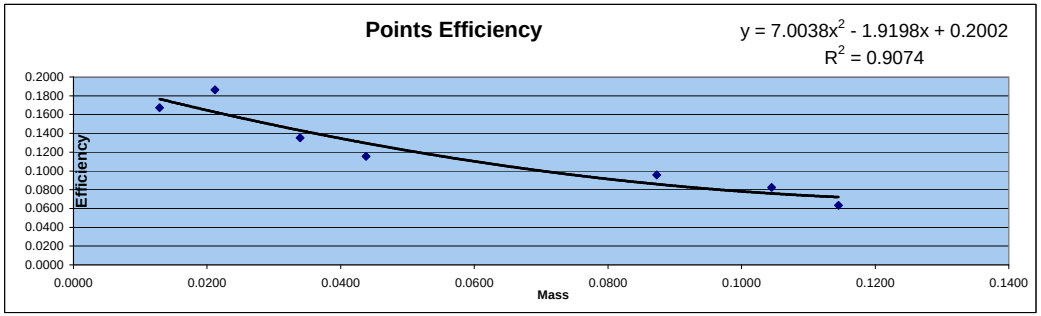
Blue 8

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
8	ICABT-51465;A1	3/31/2017 14:00	50	19876	397.520	2374.5	0.1674	1mL	0.0129
8	ICABT-51465;A2	4/1/2017 11:35	50	22135	442.700	2374.5	0.1864	1mL	0.0212
8	ICABT-51465;A3	3/31/2017 17:27	50	16078	321.560	2374.5	0.1354	1mL	0.0339
8	ICABT-51465;A4	3/31/2017 15:18	50	13699	273.980	2374.5	0.1154	1mL	0.0438
8	ICABT-51465;A6	4/1/2017 15:27	50	22711	454.220	4749.0	0.0956	2mL	0.0873
8	ICABT-51465;A7	4/1/2017 14:29	50	19565	391.300	4749.0	0.0824	2mL	0.1045
8	ICABT-51465;A8	4/1/2017 13:35	50	15022	300.440	4749.0	0.0633	2mL	0.1145

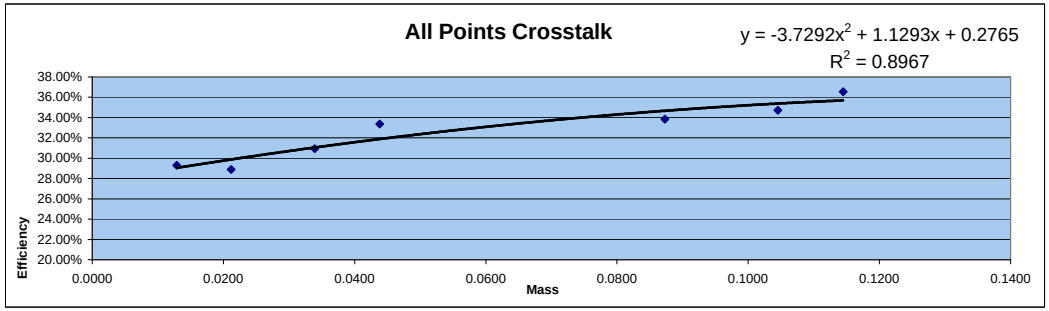
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1674	0.1766	-5.20%
0.0212	0.1864	0.1626	14.63%
0.0339	0.1354	0.1432	-5.41%
0.0438	0.1154	0.1295	-10.93%
0.0873	0.0956	0.0860	11.24%
0.1045	0.0824	0.0761	8.32%
0.1145	0.0633	0.0722	-12.38%



Mass	Efficiency
0.0129	0.1674
0.0212	0.1864
0.0339	0.1354
0.0438	0.1154
0.0873	0.0956
0.1045	0.0824
0.1145	0.0633



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
8	ICABT-51465;A1	0.0129	50	19876	8240	397.52	164.80	29.31%	Min
8	ICABT-51465;A2	0.0212	50	22135	8989	442.70	179.78	28.88%	28.88%
8	ICABT-51465;A3	0.0339	50	16078	7207	321.56	144.14	30.95%	
8	ICABT-51465;A4	0.0438	50	13699	6858	273.98	137.16	33.36%	Max
8	ICABT-51465;A6	0.0873	50	22711	11622	454.22	232.44	33.85%	
8	ICABT-51465;A7	0.1045	50	19565	10401	391.30	208.02	34.71%	Mean
8	ICABT-51465;A8	0.1145	50	15022	8656	300.44	173.12	36.56%	32.52%



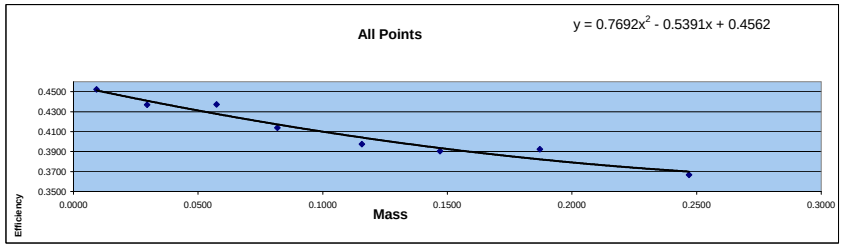
Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Curve is for Gross Beta
Strontium 90
and
Total Strontium

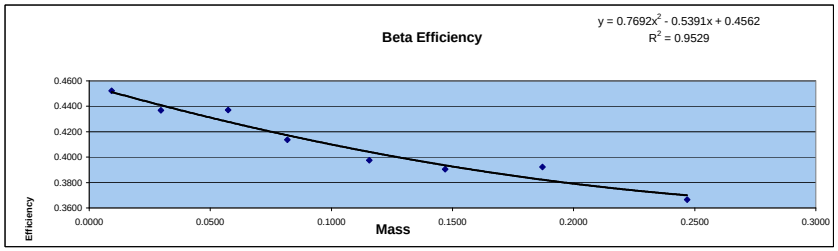
Blue 8

Detector ID	Std ID	Sample Wt	Count Date	Count Time	Beta Counts	DPM 37595.2171 DPM 37592.71382 CPM	Sr-90 Eff	Standard Aliquot
8	B1	0.0093	3/19/2017 13:52	5	85004	17000.800	0.4522	1mL
8	B2	0.0296	3/19/2017 14:11	5	82113	16422.600	0.4368	1mL
8	B3	0.0574	3/19/2017 14:05	5	82168	16433.600	0.4371	1mL
8	B4	0.0818	3/19/2017 13:58	5	77774	15554.800	0.4137	1mL
8	B5	0.1157	3/20/2017 3:38	5	74735	14947.000	0.3976	1mL
8	B6	0.1470	3/20/2017 4:34	5	73387	14677.400	0.3904	1mL
8	B7	0.1871	3/20/2017 4:26	5	73741	14748.200	0.3923	1mL
8	B8	0.2469	3/20/2017 3:47	5	68911	13782.200	0.3666	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4522	0.4513	0.21%
0.0296	0.4368	0.4409	-0.93%
0.0574	0.4371	0.4278	2.18%
0.0818	0.4137	0.4172	-0.84%
0.1157	0.3976	0.4041	-1.61%
0.1470	0.3904	0.3936	-0.80%
0.1871	0.3923	0.3823	2.63%
0.2469	0.3666	0.3700	-0.91%



Mass	Efficiency
0.0093	0.4522
0.0296	0.4368
0.0574	0.4371
0.0818	0.4137
0.1157	0.3976
0.1470	0.3904
0.1871	0.3923
0.2469	0.3666



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/19/2017
Elapsed Time:	2740.000 days
Half Life:	10409.625 days
Exponential Term:	0.833227329
Corrected Activity:	18797.60855 dpm/mL
Decay Activity (Sr/Y-90)	37595.2171 dpm

Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/20/2017
Elapsed Time:	2741.000 days
Half Life:	10409.625 days
Exponential Term:	0.833171849
Corrected Activity:	18796.35691 dpm/mL
Decay Activity (Sr/Y-90)	37592.71382 dpm

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-6322;Beta1

Repeat 1

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 1:52:24 PM

Count Ended 3/19/2017 1:57:35 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	85,004	17,000.800	17,000.800
sd	0.000			0.000	291.554	58.311	58.311

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-6322;Beta4

Repeat 2

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 1:58:56 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 2:04:04 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	77,774	15,554.800	15,554.800
sd	0.000			0.000	278.880	55.776	55.776

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-6322;Beta3

Repeat 3

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 2:05:12 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 2:10:24 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	18	3.600	3.600
sd	0.000			0.000	4.243	0.849	0.849
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	82,168	16,433.600	16,433.600
sd	0.000			0.000	286.650	57.330	57.330

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-6322;Beta2 **Repeat** 4

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 2:11:30 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 2:16:39 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	82,113	16,422.600	16,422.600
sd	0.000			0.000	286.554	57.311	57.311

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-6322;Beta5

Repeat 9

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 3:38:24 AM

Count Ended 3/20/2017 3:43:33 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	74,735	14,947.000	14,947.000
sd	0.000			0.000	273.377	54.675	54.675

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-6322;Beta8

Repeat 10

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 3:47:02 AM

Count Ended 3/20/2017 3:52:10 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	19	3.800	3.800
sd	0.000			0.000	4.359	0.872	0.872
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	68,911	13,782.200	13,782.200
sd	0.000			0.000	262.509	52.502	52.502

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-6322;Beta7

Repeat 11

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 4:26:22 AM

Count Ended 3/20/2017 4:31:32 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	73,741	14,748.200	14,748.200
sd	0.000			0.000	271.553	54.311	54.311

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-6322;Beta6

Repeat 12

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 4:34:47 AM

Count Ended 3/20/2017 4:39:55 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	16	3.200	3.200
sd	0.000			0.000	4.000	0.800	0.800
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	73,387	14,677.400	14,677.400
sd	0.000			0.000	270.900	54.180	54.180

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-51465;A1

Repeat 10

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 2:00:19 PM

Count Ended 3/31/2017 2:50:26 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	19,876	397.520	397.520
sd	0.000			0.000	140.982	2.820	2.820
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,240	164.800	164.800
sd	0.000			0.000	90.774	1.815	1.815

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-51465;A4

Repeat 12

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 3:18:37 PM

Count Ended 3/31/2017 4:08:46 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	13,699	273.980	273.980
sd	0.000			0.000	117.043	2.341	2.341
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	6,858	137.160	137.160
sd	0.000			0.000	82.813	1.656	1.656

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-51465;A3

Repeat 13

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 5:27:31 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 6:17:39 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	16,078	321.560	321.560
sd	0.000			0.000	126.799	2.536	2.536
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	7,207	144.140	144.140
sd	0.000			0.000	84.894	1.698	1.698

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-51465;A2

Repeat 14

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/1/2017 11:35:03 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/1/2017 12:25:10 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	22,135	442.700	442.700
sd	0.000			0.000	148.778	2.976	2.976
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,989	179.780	179.780
sd	0.000			0.000	94.810	1.896	1.896

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-51465;A8

Repeat 11

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/1/2017 1:35:49 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/1/2017 2:25:55 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15,022	300.440	300.440
sd	0.000			0.000	122.564	2.451	2.451
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,656	173.120	173.120
sd	0.000			0.000	93.038	1.861	1.861

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-51465;A7

Repeat 12

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/1/2017 2:29:00 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/1/2017 3:19:09 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	19,565	391.300	391.300
sd	0.000			0.000	139.875	2.797	2.797
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	10,401	208.020	208.020
sd	0.000			0.000	101.985	2.040	2.040

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICABT-51465;A6

Repeat 13

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/1/2017 3:27:17 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/1/2017 4:17:28 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	22,711	454.220	454.220
sd	0.000			0.000	150.702	3.014	3.014
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	11,622	232.440	232.440
sd	0.000			0.000	107.805	2.156	2.156

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

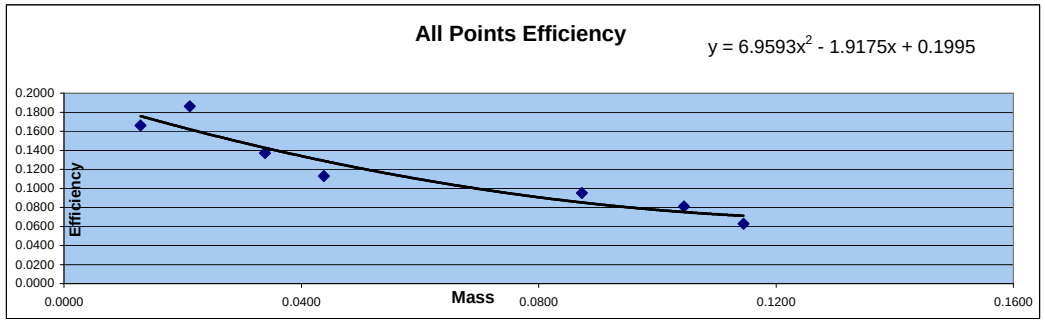
*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Curve is for Gross Alpha

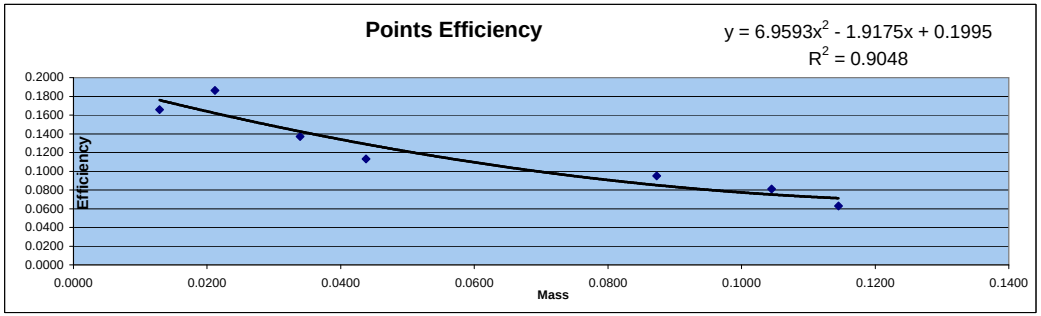
Blue 9

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
9	ICABT-51465;A1	4/3/2017 12:18	50	19700	394.000	2374.5	0.1659	1mL	0.0129
9	ICABT-51465;A2	3/31/2017 14:00	50	22102	442.040	2374.5	0.1862	1mL	0.0212
9	ICABT-51465;A3	4/3/2017 14:12	50	16264	325.280	2374.5	0.1370	1mL	0.0339
9	ICABT-51465;A4	3/31/2017 17:27	50	13425	268.500	2374.5	0.1131	1mL	0.0438
9	ICABT-51465;A6	4/1/2017 12:38	50	22549	450.980	4749.0	0.0950	2mL	0.0873
9	ICABT-51465;A7	4/1/2017 15:27	50	19223	384.460	4749.0	0.0810	2mL	0.1045
9	ICABT-51465;A8	4/1/2017 14:29	50	14902	298.040	4749.0	0.0628	2mL	0.1145

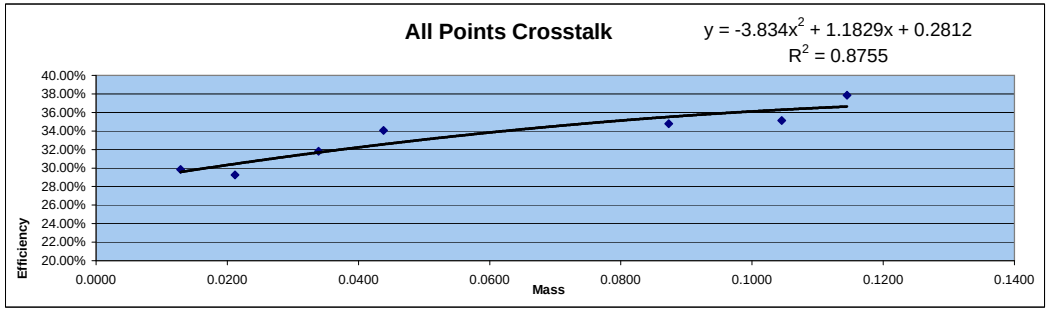
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1659	0.1759	-5.68%
0.0212	0.1862	0.1620	14.93%
0.0339	0.1370	0.1425	-3.86%
0.0438	0.1131	0.1289	-12.25%
0.0873	0.0950	0.0851	11.54%
0.1045	0.0810	0.0751	7.77%
0.1145	0.0628	0.0712	-11.84%



Mass	Efficiency
0.0129	0.1659
0.0212	0.1862
0.0339	0.1370
0.0438	0.1131
0.0873	0.0950
0.1045	0.0810
0.1145	0.0628



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
9	ICABT-51465;A1	0.0129	50	19700	8379	394.00	167.58	29.84%	Min
9	ICABT-51465;A2	0.0212	50	22102	9143	442.04	182.86	29.26%	29.26%
9	ICABT-51465;A3	0.0339	50	16264	7586	325.28	151.72	31.81%	
9	ICABT-51465;A4	0.0438	50	13425	6935	268.50	138.70	34.06%	Max
9	ICABT-51465;A6	0.0873	50	22549	12026	450.98	240.52	34.78%	
9	ICABT-51465;A7	0.1045	50	19223	10406	384.46	208.12	35.12%	Mean
9	ICABT-51465;A8	0.1145	50	14902	9073	298.04	181.46	37.84%	33.25%



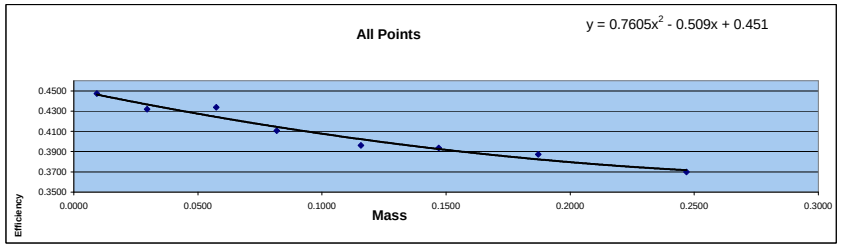
Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Curve is for Gross Beta
Strontium 90
and
Total Strontium

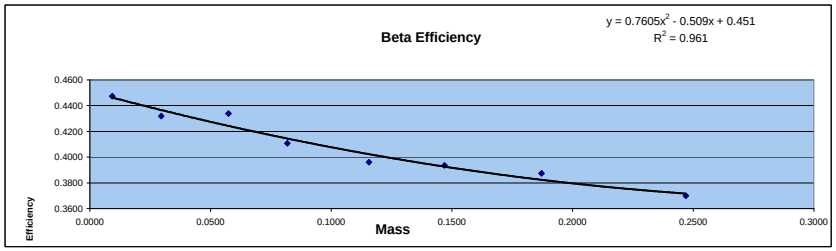
Blue 9

Detector ID	Std ID	Sample Wt	Count Date	Count Time	Beta Counts	DPM 37595.2171 DPM 37592.71382 CPM	Sr-90 Eff	Standard Aliquot
9	B1	0.0093	3/19/2017 13:58	5	84084	16816.800	0.4473	1mL
9	B2	0.0296	3/19/2017 13:52	5	81205	16241.000	0.4320	1mL
9	B3	0.0574	3/19/2017 14:11	5	81554	16310.800	0.4339	1mL
9	B4	0.0818	3/19/2017 14:05	5	77197	15439.400	0.4107	1mL
9	B5	0.1157	3/20/2017 3:46	5	74438	14887.600	0.3960	1mL
9	B6	0.1470	3/20/2017 3:38	5	73964	14792.800	0.3935	1mL
9	B7	0.1871	3/20/2017 4:34	5	72808	14561.600	0.3874	1mL
9	B8	0.2469	3/20/2017 4:26	5	69516	13903.200	0.3698	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4473	0.4463	0.22%
0.0296	0.4320	0.4366	-1.05%
0.0574	0.4339	0.4243	2.25%
0.0818	0.4107	0.4145	-0.91%
0.1157	0.3960	0.4023	-1.56%
0.1470	0.3935	0.3926	0.23%
0.1871	0.3874	0.3824	1.30%
0.2469	0.3698	0.3717	-0.50%



Mass	Efficiency
0.0093	0.4473
0.0296	0.4320
0.0574	0.4339
0.0818	0.4107
0.1157	0.3960
0.1470	0.3935
0.1871	0.3874
0.2469	0.3698



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/19/2017
Elapsed Time:	2740.000 days
Half Life:	10409.625 days
Exponential Term:	0.833227329
Corrected Activity:	18797.60855 dpm/mL
Decay Activity (Sr/Y-90)	37595.2171 dpm

Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/20/2017
Elapsed Time:	2741.000 days
Half Life:	10409.625 days
Exponential Term:	0.833171849
Corrected Activity:	18796.35691 dpm/mL
Decay Activity (Sr/Y-90)	37592.71382 dpm

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-6322;Beta2 **Repeat** 1

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 1:52:30 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 1:57:40 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	10	2.000	2.000
sd	0.000			0.000	3.162	0.632	0.632
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	81,205	16,241.000	16,241.000
sd	0.000			0.000	284.965	56.993	56.993

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-6322;Beta1 **Repeat** 2

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 1:58:35 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 2:03:47 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	8	1.600	1.600
sd	0.000			0.000	2.828	0.566	0.566
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	84,084	16,816.800	16,816.800
sd	0.000			0.000	289.972	57.994	57.994

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-6322;Beta4

Repeat 3

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:05:20 PM

Count Ended 3/19/2017 2:10:32 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	3	0.600	0.600
sd	0.000			0.000	1.732	0.346	0.346
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	77,197	15,439.400	15,439.400
sd	0.000			0.000	277.843	55.569	55.569

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-6322;Beta3

Repeat 4

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:11:35 PM

Count Ended 3/19/2017 2:16:47 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	6	1.200	1.200
sd	0.000			0.000	2.449	0.490	0.490
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	81,554	16,310.800	16,310.800
sd	0.000			0.000	285.577	57.115	57.115

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-6322;Beta6

Repeat 9

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 3:38:32 AM

Count Ended 3/20/2017 3:43:43 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	16	3.200	3.200
sd	0.000			0.000	4.000	0.800	0.800
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	73,964	14,792.800	14,792.800
sd	0.000			0.000	271.963	54.393	54.393

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-6322;Beta5

Repeat 10

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 3:46:46 AM

Count Ended 3/20/2017 3:51:57 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14	2.800	2.800
sd	0.000			0.000	3.742	0.748	0.748
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	74,438	14,887.600	14,887.600
sd	0.000			0.000	272.833	54.567	54.567

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-6322;Beta8 **Repeat** 11

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 4:26:25 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 4:31:36 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	10	2.000	2.000
sd	0.000			0.000	3.162	0.632	0.632
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	69,516	13,903.200	13,903.200
sd	0.000			0.000	263.659	52.732	52.732

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-6322;Beta7

Repeat 12

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 4:34:50 AM

Count Ended 3/20/2017 4:40:00 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	12	2.400	2.400
sd	0.000			0.000	3.464	0.693	0.693
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	72,808	14,561.600	14,561.600
sd	0.000			0.000	269.830	53.966	53.966

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-51465;A2

Repeat 11

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 2:00:23 PM

Count Ended 3/31/2017 2:50:33 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	22,102	442.040	442.040
sd	0.000			0.000	148.667	2.973	2.973
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	9,143	182.860	182.860
sd	0.000			0.000	95.619	1.912	1.912

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-51465;A1

Repeat 11

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 3:18:43 PM

Count Ended 3/31/2017 4:08:51 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	19,412	388.240	388.240
sd	0.000			0.000	139.327	2.787	2.787
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,338	166.760	166.760
sd	0.000			0.000	91.313	1.826	1.826

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-51465;A4

Repeat 13

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 5:27:37 PM

Count Ended 3/31/2017 6:17:46 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	13,425	268.500	268.500
sd	0.000			0.000	115.866	2.317	2.317
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	6,935	138.700	138.700
sd	0.000			0.000	83.277	1.666	1.666

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-51465;A3

Repeat 14

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/1/2017 11:35:16 AM

Count Ended 4/1/2017 12:25:25 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15,922	318.440	318.440
sd	0.000			0.000	126.182	2.524	2.524
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	7,377	147.540	147.540
sd	0.000			0.000	85.889	1.718	1.718

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-51465;A6

Repeat 10

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 4/1/2017 12:38:11 PM

Count Ended 4/1/2017 1:28:19 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	22,549	450.980	450.980
sd	0.000			0.000	150.163	3.003	3.003
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	12,026	240.520	240.520
sd	0.000			0.000	109.663	2.193	2.193

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-51465;A8

Repeat 12

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/1/2017 2:29:09 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/1/2017 3:19:18 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14,902	298.040	298.040
sd	0.000			0.000	122.074	2.441	2.441
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	9,073	181.460	181.460
sd	0.000			0.000	95.252	1.905	1.905

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICABT-51465;A7

Repeat 13

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/1/2017 3:27:30 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/1/2017 4:17:39 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	19,223	384.460	384.460
sd	0.000			0.000	138.647	2.773	2.773
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	10,406	208.120	208.120
sd	0.000			0.000	102.010	2.040	2.040

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

APPROVED
By Conrad Reuscher at 9:55 pm, Jun 25, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
6/24/2019 1:21:00 AM	11996.59	12429.48	372.88	-432.89	FAIL	4076.00	4217.68	31.15	-141.675	DOEF
6/25/2019 12:49:00 AM	12003.15	12429.48	372.88	-426.32	FAIL	4181.00	4217.68	31.15	-36.675	Pass
Detector 1										
6/24/2019 1:21:00 AM	12942.30	13515.73	405.47	-573.43	FAIL	4590.50	4578.40	63.08	12.100	Pass
6/25/2019 12:49:00 AM	12881.72	13515.73	405.47	-634.00	FAIL	4633.00	4578.40	63.08	54.600	Pass
Detector 2										
6/24/2019 1:21:00 AM	13123.70	14068.05	422.04	-944.35	FAIL	4807.50	4802.25	75.57	5.250	Pass
6/25/2019 12:49:00 AM	13389.85	14068.05	422.04	-678.20	FAIL	4760.50	4802.25	75.57	-41.750	Pass
Detector 3										
6/24/2019 1:21:00 AM	12805.49	13271.53	398.15	-466.03	FAIL	4595.00	4349.03	65.64	245.975	DOEF
6/25/2019 12:49:00 AM	12846.64	13271.53	398.15	-424.88	FAIL	4601.00	4349.03	65.64	251.975	DOEF
Detector 4										
6/24/2019 1:21:00 AM	16203.56	16556.85	496.71	-353.29	Pass	6265.00	6135.80	62.86	129.200	WARNING
6/25/2019 12:49:00 AM	15992.66	16556.85	496.71	-564.19	FAIL	6162.00	6135.80	62.86	26.200	Pass
Detector 5										
6/24/2019 1:21:00 AM	15260.96	15673.68	470.21	-412.72	Pass	6539.00	6104.98	888.40	434.025	Pass
6/25/2019 12:49:00 AM	15355.23	15673.68	470.21	-318.44	Pass	6386.50	6104.98	888.40	281.525	Pass
Detector 6										
6/24/2019 1:21:00 AM	14542.86	14736.55	442.10	-193.69	Pass	5816.50	5498.28	745.70	318.225	Pass
6/25/2019 12:49:00 AM	14403.61	14736.55	442.10	-332.94	Pass	5772.50	5498.28	745.70	274.225	Pass
Detector 7										
6/24/2019 1:21:00 AM	14745.81	15385.65	461.57	-639.84	FAIL	5660.50	5760.05	798.95	-99.550	Pass
6/25/2019 12:49:00 AM	14855.12	15385.65	461.57	-530.53	FAIL	5643.00	5760.05	798.95	-117.050	Pass
Detector 8										
6/24/2019 1:35:00 AM	11371.30	11620.55	348.62	-249.25	Pass	4016.50	3784.00	489.68	232.500	Pass
6/25/2019 12:53:00 AM	11405.42	11620.55	348.62	-215.13	Pass	3954.00	3784.00	489.68	170.000	Pass
Detector 9										
6/24/2019 1:35:00 AM	13079.60	13544.15	406.32	-464.55	FAIL	4570.00	4627.50	61.77	-57.500	Pass
6/25/2019 12:53:00 AM	13040.07	13544.15	406.32	-504.08	FAIL	4584.50	4627.50	61.77	-43.000	Pass
Detector 10										
6/24/2019 1:35:00 AM	13034.00	13960.33	418.81	-926.33	FAIL	4842.50	4854.78	66.79	-12.275	Pass
6/25/2019 12:53:00 AM	13110.73	13960.33	418.81	-849.60	FAIL	4704.00	4854.78	66.79	-150.775	WARNING

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 11										
6/24/2019 1:35:00 AM	13141.74	13382.03	401.46	-240.29	Pass	4728.00	4646.93	43.88	81.075	Pass
6/25/2019 12:53:00 AM	13004.49	13382.03	401.46	-377.54	Pass	4681.00	4646.93	43.88	34.075	Pass
Detector 12										
6/24/2019 1:35:00 AM	16477.16	16555.28	496.66	-78.12	Pass	5563.50	5593.33	888.56	-29.825	Pass
6/25/2019 12:53:00 AM	16427.12	16555.28	496.66	-128.16	Pass	5574.00	5593.33	888.56	-19.325	Pass
Detector 13										
6/24/2019 1:35:00 AM	16336.84	16489.13	494.67	-152.28	Pass	5848.00	5831.53	819.12	16.475	Pass
6/25/2019 12:53:00 AM	16164.53	16489.13	494.67	-324.59	Pass	5757.00	5831.53	819.12	-74.525	Pass
Detector 14										
6/24/2019 1:35:00 AM	14403.54	15209.15	456.27	-805.61	**FAIL**	5730.50	5770.45	63.71	-39.950	Pass
6/25/2019 12:53:00 AM	14362.52	15209.15	456.27	-846.63	**FAIL**	5682.50	5770.45	63.71	-87.950	Pass
Detector 15										
6/24/2019 1:35:00 AM	14698.20	14890.68	446.72	-192.48	Pass	5484.00	5361.50	749.04	122.500	Pass
6/25/2019 12:53:00 AM	14630.11	14890.68	446.72	-260.56	Pass	5471.50	5361.50	749.04	110.000	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
6/24/2019 1:34:00 AM	49943.88	48583.18	1457.50	1360.70	Pass	NA	NA	NA	NA	NA
6/25/2019 12:52:00 AM	49565.86	48583.18	1457.50	982.69	Pass	NA	NA	NA	NA	NA
Detector 1										
6/24/2019 1:34:00 AM	48482.09	47659.85	1429.80	822.24	Pass	NA	NA	NA	NA	NA
6/25/2019 12:52:00 AM	48173.05	47659.85	1429.80	513.20	Pass	NA	NA	NA	NA	NA
Detector 2										
6/24/2019 1:34:00 AM	49785.44	49887.83	1496.63	-102.38	Pass	NA	NA	NA	NA	NA
6/25/2019 12:52:00 AM	49874.44	49887.83	1496.63	-13.38	Pass	NA	NA	NA	NA	NA
Detector 3										
6/24/2019 1:35:00 AM	59478.96	59018.83	1770.56	460.13	Pass	NA	NA	NA	NA	NA
6/25/2019 12:52:00 AM	59118.72	59018.83	1770.56	99.90	Pass	NA	NA	NA	NA	NA
Detector 4										
6/24/2019 1:35:00 AM	56230.92	56572.13	1697.16	-341.20	Pass	NA	NA	NA	NA	NA
6/25/2019 12:52:00 AM	56191.52	56572.13	1697.16	-380.61	Pass	NA	NA	NA	NA	NA
Detector 5										
6/24/2019 1:35:00 AM	53726.78	53786.35	1613.59	-59.57	Pass	NA	NA	NA	NA	NA
6/25/2019 12:52:00 AM	53508.51	53786.35	1613.59	-277.84	Pass	NA	NA	NA	NA	NA
Detector 6										
6/24/2019 1:35:00 AM	51644.59	51221.45	1536.64	423.14	Pass	NA	NA	NA	NA	NA
6/25/2019 12:53:00 AM	51093.96	51221.45	1536.64	-127.49	Pass	NA	NA	NA	NA	NA
Detector 7										
6/24/2019 1:35:00 AM	44941.83	44749.03	1342.47	192.81	Pass	NA	NA	NA	NA	NA
6/25/2019 12:53:00 AM	44958.83	44749.03	1342.47	209.80	Pass	NA	NA	NA	NA	NA
Detector 8										
6/24/2019 1:20:00 AM	46555.62	46135.45	1384.06	420.17	Pass	NA	NA	NA	NA	NA
6/25/2019 12:49:00 AM	46378.95	46135.45	1384.06	243.50	Pass	NA	NA	NA	NA	NA
Detector 9										
6/24/2019 1:20:00 AM	47880.25	47841.35	1435.24	38.90	Pass	NA	NA	NA	NA	NA
6/25/2019 12:49:00 AM	48148.35	47841.35	1435.24	307.00	Pass	NA	NA	NA	NA	NA
Detector 10										
6/24/2019 1:20:00 AM	49286.78	49376.35	1481.29	-89.57	Pass	NA	NA	NA	NA	NA
6/25/2019 12:49:00 AM	49714.45	49376.35	1481.29	338.10	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
6/24/2019 1:20:00 AM	59106.20	59256.13	1777.68	-149.92	Pass	NA	NA	NA	NA	NA
6/25/2019 12:49:00 AM	59121.54	59256.13	1777.68	-134.59	Pass	NA	NA	NA	NA	NA
Detector 12										
6/24/2019 1:21:00 AM	57042.29	57255.23	1717.66	-212.94	Pass	NA	NA	NA	NA	NA
6/25/2019 12:50:00 AM	56610.17	57255.23	1717.66	-645.05	Pass	NA	NA	NA	NA	NA
Detector 13										
6/24/2019 1:21:00 AM	54741.50	55313.48	1659.40	-571.97	Pass	NA	NA	NA	NA	NA
6/25/2019 12:50:00 AM	54515.50	55313.48	1659.40	-797.97	Pass	NA	NA	NA	NA	NA
Detector 14										
6/24/2019 1:21:00 AM	51375.57	51515.98	1545.48	-140.40	Pass	NA	NA	NA	NA	NA
6/25/2019 12:50:00 AM	51222.60	51515.98	1545.48	-293.37	Pass	NA	NA	NA	NA	NA
Detector 15										
6/24/2019 1:21:00 AM	45135.42	45036.85	1351.11	98.57	Pass	NA	NA	NA	NA	NA
6/25/2019 12:50:00 AM	44825.14	45036.85	1351.11	-211.71	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
6/24/2019 4:57:00 AM	0.14	0.10	0.04	0.04	Pass	0.63	0.72	0.09	-0.086	Pass
6/25/2019 9:11:00 AM	0.17	0.10	0.04	0.07	Pass	0.64	0.72	0.09	-0.076	Pass
Detector 1										
6/24/2019 4:57:00 AM	0.11	0.11	0.03	-0.01	Pass	0.40	0.50	0.08	-0.103	Pass
6/25/2019 4:58:00 AM	0.12	0.11	0.03	0.01	Pass	0.64	0.50	0.08	0.138	Pass
Detector 2										
6/24/2019 4:57:00 AM	0.21	0.09	0.03	0.12	**FAIL**	0.65	0.54	0.09	0.104	Pass
6/25/2019 4:58:00 AM	0.10	0.09	0.03	0.01	Pass	0.60	0.54	0.09	0.059	Pass
Detector 3										
6/24/2019 4:57:00 AM	0.27	0.08	0.02	0.18	**FAIL**	0.55	0.68	0.09	-0.137	Pass
6/25/2019 4:58:00 AM	0.18	0.08	0.02	0.10	**FAIL**	0.62	0.68	0.09	-0.062	Pass
Detector 4										
6/24/2019 4:57:00 AM	0.20	0.11	0.02	0.08	**FAIL**	0.55	0.48	0.05	0.072	Pass
6/25/2019 9:11:00 AM	0.18	0.11	0.02	0.06	Pass	0.78	0.48	0.05	0.302	**FAIL**
Detector 5										
6/24/2019 4:57:00 AM	0.15	0.09	0.03	0.05	Pass	0.54	0.47	0.07	0.070	Pass
6/25/2019 9:11:00 AM	0.15	0.09	0.03	0.05	Pass	0.38	0.47	0.07	-0.085	Pass
Detector 6										
6/24/2019 4:57:00 AM	0.28	0.16	0.06	0.12	Pass	0.61	0.52	0.06	0.088	Pass
6/25/2019 9:11:00 AM	0.27	0.16	0.06	0.11	Pass	0.54	0.52	0.06	0.023	Pass
Detector 7										
6/24/2019 4:57:00 AM	0.17	0.07	0.03	0.09	**FAIL**	0.43	0.52	0.07	-0.098	Pass
6/25/2019 9:11:00 AM	0.18	0.07	0.03	0.11	**FAIL**	0.67	0.52	0.07	0.142	Pass
Detector 8										
6/24/2019 4:57:00 AM	0.15	0.10	0.03	0.05	Pass	0.44	0.45	0.08	-0.010	Pass
6/25/2019 9:11:00 AM	0.16	0.10	0.03	0.06	Pass	0.49	0.45	0.08	0.045	Pass
Detector 9										
6/24/2019 4:57:00 AM	0.15	0.12	0.03	0.03	Pass	0.47	0.44	0.05	0.025	Pass
6/25/2019 4:58:00 AM	0.11	0.12	0.03	-0.01	Pass	0.42	0.44	0.05	-0.020	Pass
Detector 10										
6/24/2019 4:57:00 AM	0.21	0.11	0.04	0.10	Pass	0.43	0.42	0.09	0.010	Pass
6/25/2019 4:58:00 AM	0.20	0.11	0.04	0.09	Pass	0.54	0.42	0.09	0.120	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 11										
6/24/2019 4:57:00 AM	0.08	0.10	0.03	-0.02	Pass	0.44	0.47	0.06	-0.029	Pass
6/25/2019 4:58:00 AM	0.11	0.10	0.03	0.01	Pass	0.42	0.47	0.06	-0.049	Pass
Detector 12										
6/24/2019 4:57:00 AM	0.20	0.11	0.04	0.09	Pass	0.41	0.49	0.11	-0.087	Pass
6/25/2019 4:58:00 AM	0.13	0.11	0.04	0.01	Pass	0.62	0.49	0.11	0.123	Pass
Detector 13										
6/24/2019 4:57:00 AM	0.17	0.14	0.02	0.03	Pass	0.42	0.48	0.07	-0.065	Pass
6/25/2019 4:58:00 AM	0.22	0.14	0.02	0.08	**FAIL**	0.46	0.48	0.07	-0.020	Pass
6/25/2019 9:12:00 AM	0.21	0.14	0.02	0.06	**FAIL**	0.47	0.48	0.07	-0.010	Pass
Detector 14										
6/24/2019 4:57:00 AM	0.18	0.11	0.04	0.07	Pass	0.52	0.43	0.07	0.081	Pass
6/25/2019 4:58:00 AM	0.20	0.11	0.04	0.09	Pass	0.53	0.43	0.07	0.091	Pass
Detector 15										
6/24/2019 4:57:00 AM	0.30	0.15	0.02	0.15	**FAIL**	0.66	0.55	0.05	0.111	Pass
6/24/2019 8:54:00 AM	0.29	0.15	0.02	0.14	**FAIL**	0.53	0.55	0.05	-0.025	Pass
6/25/2019 4:58:00 AM	0.29	0.15	0.02	0.14	**FAIL**	0.57	0.55	0.05	0.020	Pass
6/25/2019 9:12:00 AM	0.35	0.15	0.02	0.20	**FAIL**	0.59	0.55	0.05	0.035	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

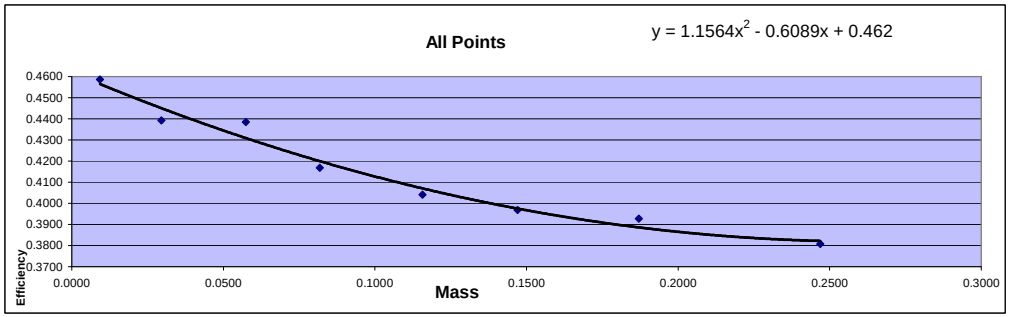
Times shown reflect the end of the count duration.

Curve is for Gross Beta
Strontium 90
and
Total Strontium

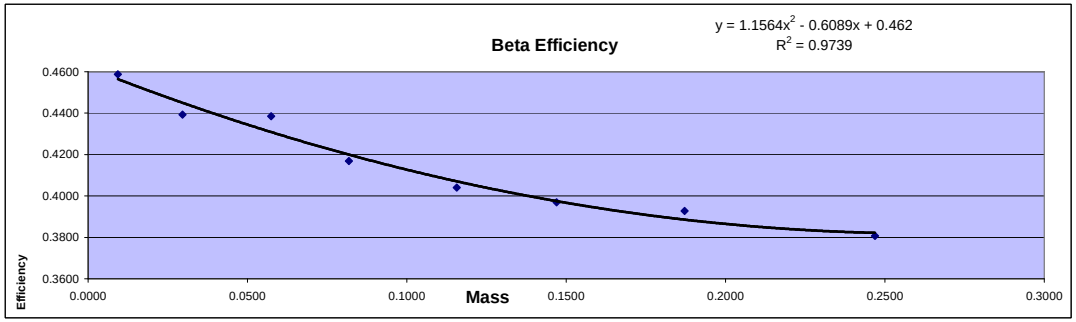
Purple 0

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 41558.018 CPM	Sr-90 Eff	Standard Aliquot
0	B1	2/3/2013 15:26	0.0093	5	95312	19062.400	0.4587	1mL
0	B2	2/3/2013 17:14	0.0296	5	91281	18256.200	0.4393	1mL
0	B3	2/3/2013 17:05	0.0574	5	91120	18224.000	0.4385	1mL
0	B4	2/3/2013 16:48	0.0818	5	86609	17321.800	0.4168	1mL
0	B5	2/3/2013 16:41	0.1157	5	83957	16791.400	0.4040	1mL
0	B6	2/3/2013 16:34	0.1470	5	82467	16493.400	0.3969	1mL
0	B7	2/3/2013 16:23	0.1871	5	81608	16321.600	0.3927	1mL
0	B8	2/3/2013 16:02	0.2469	5	79105	15821.000	0.3807	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4587	0.4564	0.49%
0.0296	0.4393	0.4450	-1.28%
0.0574	0.4385	0.4309	1.78%
0.0818	0.4168	0.4199	-0.74%
0.1157	0.4040	0.4070	-0.73%
0.1470	0.3969	0.3975	-0.15%
0.1871	0.3927	0.3886	1.08%
0.2469	0.3807	0.3822	-0.38%



Mass	Efficiency
0.0093	0.4587
0.0296	0.4393
0.0574	0.4385
0.0818	0.4168
0.1157	0.4040
0.1470	0.3969
0.1871	0.3927
0.2469	0.3807



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	2/3/2013
Elapsed Time:	1235.000 days
Half Life:	10409.625 days
Exponential Term:	0.92105537
Corrected Activity:	20779.0092 dpm/mL
Decay Activity (Sr/Y-90)	41558.0185 dpm

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-6322;B1

Repeat 28

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/3/2013 3:26:56 PM

Count Ended 2/3/2013 3:32:07 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	1,085	217.000	216.913
sd	0.000			0.009	32.939	6.588	6.588
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	95,312	19,062.400	19,061.995
sd	0.000			0.020	308.726	61.745	61.745

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-6322;B8

Repeat 28

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 4:02:02 PM

Count Ended 2/3/2013 4:07:11 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	821	164.200	164.113
sd	0.000			0.009	28.653	5.731	5.731
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	79,105	15,821.000	15,820.595
sd	0.000			0.020	281.256	56.251	56.251

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-6322;B7

Repeat 29

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 4:23:17 PM

Count Ended 2/3/2013 4:28:26 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	891	178.200	178.113
sd	0.000			0.009	29.850	5.970	5.970
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	81,608	16,321.600	16,321.195
sd	0.000			0.020	285.671	57.134	57.134

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-6322;B6

Repeat 30

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/3/2013 4:34:26 PM

Count Ended 2/3/2013 4:39:36 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	898	179.600	179.513
sd	0.000			0.009	29.967	5.993	5.993
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	82,467	16,493.400	16,492.995
sd	0.000			0.020	287.171	57.434	57.434

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-6322;B5

Repeat 31

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/3/2013 4:41:38 PM

Count Ended 2/3/2013 4:46:48 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	890	178.000	177.913
sd	0.000			0.009	29.833	5.967	5.967
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	83,957	16,791.400	16,790.995
sd	0.000			0.020	289.753	57.951	57.951

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-6322;B4

Repeat 33

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/3/2013 4:48:03 PM

Count Ended 2/3/2013 4:53:12 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	986	197.200	197.113
sd	0.000			0.009	31.401	6.280	6.280
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	86,609	17,321.800	17,321.395
sd	0.000			0.020	294.294	58.859	58.859

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-6322;B3

Repeat 34

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/3/2013 5:05:20 PM

Count Ended 2/3/2013 5:10:29 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	1,116	223.200	223.113
sd	0.000			0.009	33.407	6.681	6.681
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	91,120	18,224.000	18,223.595
sd	0.000			0.020	301.861	60.372	60.372

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-6322;B2

Repeat 35

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/3/2013 5:14:13 PM

Count Ended 2/3/2013 5:19:23 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	1,106	221.200	221.113
sd	0.000			0.009	33.257	6.651	6.651
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	91,281	18,256.200	18,255.795
sd	0.000			0.020	302.127	60.425	60.425

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

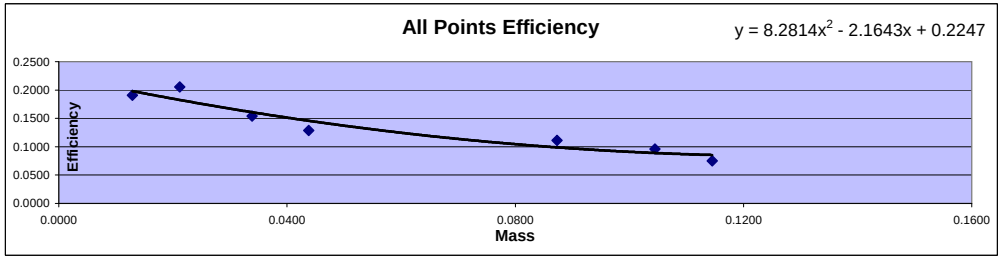
Error = .00 **x sd**

Curve is for Gross Alpha

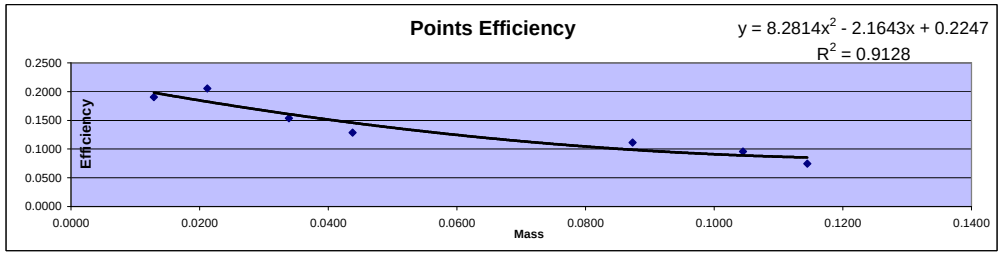
Purple 0

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
0	ICABT-51465;A1	1/16/2016 10:15	40	18103	452.575	2374.5	0.1906	1mL	0.0129
0	ICABT-51465;A2	1/16/2016 15:15	40	19498	487.450	2374.5	0.2053	1mL	0.0212
0	ICABT-51465;A3	1/16/2016 14:32	40	14616	365.400	2374.5	0.1539	1mL	0.0339
0	ICABT-51465;A4	1/16/2016 13:49	40	12219	305.475	2374.5	0.1286	1mL	0.0438
0	ICABT-51465;A6	1/16/2016 12:25	40	21130	528.250	4749.0	0.1112	2mL	0.0873
0	ICABT-51465;A7	1/16/2016 11:43	40	18214	455.350	4749.0	0.0959	2mL	0.1045
0	ICABT-51465;A8	1/16/2016 11:01	40	14219	355.475	4749.0	0.0749	2mL	0.1145

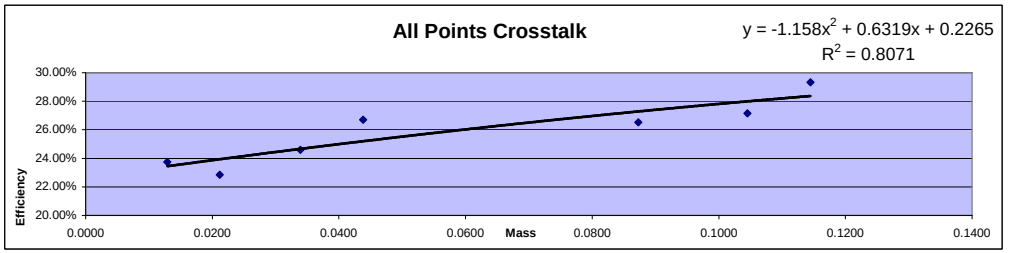
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1906	0.1982	-3.82%
0.0212	0.2053	0.1825	12.46%
0.0339	0.1539	0.1608	-4.33%
0.0438	0.1286	0.1458	-11.76%
0.0873	0.1112	0.0989	12.50%
0.1045	0.0959	0.0890	7.78%
0.1145	0.0749	0.0855	-12.41%



Mass	Efficiency
0.0129	0.1906
0.0212	0.2053
0.0339	0.1539
0.0438	0.1286
0.0873	0.1112
0.1045	0.0959
0.1145	0.0749



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
0	ICABT-51465;A1	0.0129	40.00	18103	5640	452.58	141.00	23.75%	Min
0	ICABT-51465;A2	0.0212	40.00	19498	5772	487.45	144.30	22.84%	22.84%
0	ICABT-51465;A3	0.0339	40.00	14616	4765	365.40	119.13	24.59%	
0	ICABT-51465;A4	0.0438	40.00	12219	4453	305.48	111.33	26.71%	Max
0	ICABT-51465;A6	0.0873	40.00	21130	7624	528.25	190.60	26.51%	
0	ICABT-51465;A7	0.1045	40.00	18214	6792	455.35	169.80	27.16%	Mean
0	ICABT-51465;A8	0.1145	40.00	14219	5901	355.48	147.53	29.33%	25.84%



Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-51465;A1 **Repeat** 49

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/16/2016 10:15:12 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/16/2016 10:55:18 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 40.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	18,103	452.575	452.430
sd	0.000			0.012	134.547	3.364	3.364
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	5,640	141.000	140.491
sd	0.000			0.023	75.100	1.877	1.878

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-51465;A8

Repeat 50

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/16/2016 11:01:41 AM

Count Ended 1/16/2016 11:41:47 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	14,219	355.475	355.330
sd	0.000			0.012	119.243	2.981	2.981
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	5,901	147.525	147.016
sd	0.000			0.023	76.818	1.920	1.921

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-51465;A7 **Repeat** 51

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/16/2016 11:43:26 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/16/2016 12:23:33 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 40.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	18,214	455.350	455.205
sd	0.000			0.012	134.959	3.374	3.374
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	6,792	169.800	169.291
sd	0.000			0.023	82.414	2.060	2.060

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-51465;A6 **Repeat** 129

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/16/2016 12:25:26 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/16/2016 1:05:32 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 40.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	21,130	528.250	528.105
sd	0.000			0.012	145.362	3.634	3.634
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	7,624	190.600	190.091
sd	0.000			0.023	87.316	2.183	2.183

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-51465;A5

Repeat 53

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/16/2016 1:06:35 PM

Count Ended 1/16/2016 1:46:40 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	17,802	445.050	444.905
sd	0.000			0.012	133.424	3.336	3.336
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	7,096	177.400	176.891
sd	0.000			0.023	84.238	2.106	2.106

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-51465;A4

Repeat 54

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/16/2016 1:49:23 PM

Count Ended 1/16/2016 2:29:29 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	12,219	305.475	305.330
sd	0.000			0.012	110.540	2.763	2.764
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	4,453	111.325	110.816
sd	0.000			0.023	66.731	1.668	1.668

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-51465;A3 **Repeat** 55

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/16/2016 2:32:20 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/16/2016 3:12:24 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 40.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	14,616	365.400	365.255
sd	0.000			0.012	120.897	3.022	3.022
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	4,765	119.125	118.616
sd	0.000			0.023	69.029	1.726	1.726

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICABT-51465;A2 **Repeat** 56

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/16/2016 3:15:17 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/16/2016 3:55:22 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 40.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	19,498	487.450	487.305
sd	0.000			0.012	139.635	3.491	3.491
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	5,772	144.300	143.791
sd	0.000			0.023	75.974	1.899	1.899

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

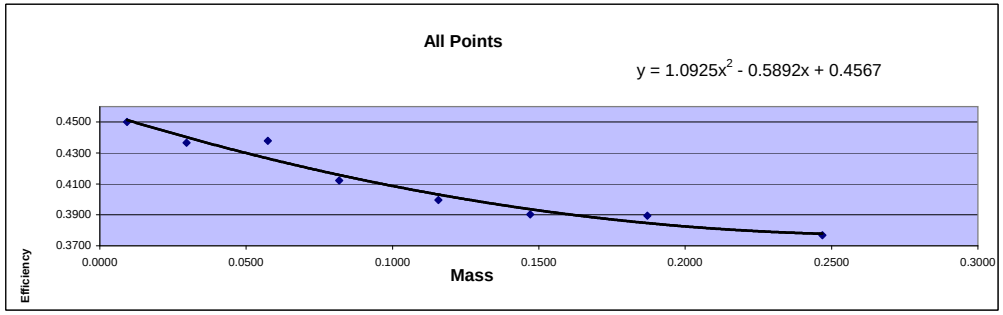
*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

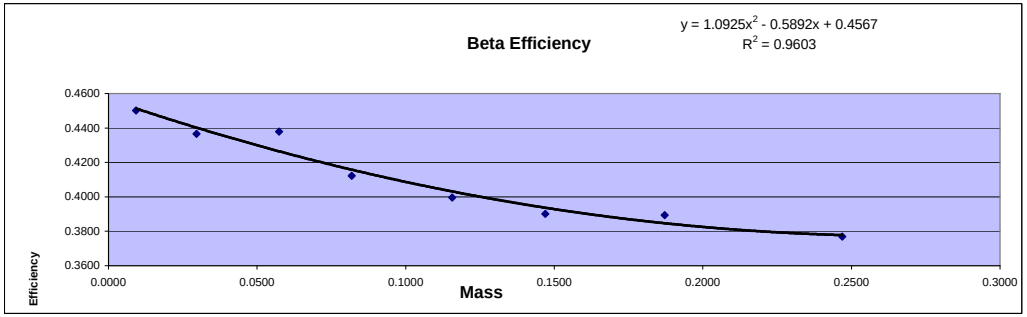
Purple 16

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 41558.018 CPM	Sr-90 Eff	Standard Aliquot
16	B1	2/3/2013 19:04	0.0093	5	93524	18704.800	0.4501	1mL
16	B2	2/3/2013 20:25	0.0296	5	90736	18147.200	0.4367	1mL
16	B3	2/3/2013 20:17	0.0574	5	90972	18194.400	0.4378	1mL
16	B4	2/3/2013 20:08	0.0818	5	85671	17134.200	0.4123	1mL
16	B5	2/3/2013 20:00	0.1157	5	83046	16609.200	0.3997	1mL
16	B6	2/3/2013 19:53	0.1470	5	81078	16215.600	0.3902	1mL
16	B7	2/3/2013 19:21	0.1871	5	80914	16182.800	0.3894	1mL
16	B8	2/3/2013 19:13	0.2469	5	78316	15663.200	0.3769	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4501	0.4513	-0.27%
0.0296	0.4367	0.4402	-0.81%
0.0574	0.4378	0.4265	2.66%
0.0818	0.4123	0.4158	-0.85%
0.1157	0.3997	0.4032	-0.87%
0.1470	0.3902	0.3937	-0.89%
0.1871	0.3894	0.3847	1.22%
0.2469	0.3769	0.3778	-0.24%



Mass	Efficiency
0.0093	0.4501
0.0296	0.4367
0.0574	0.4378
0.0818	0.4123
0.1157	0.3997
0.1470	0.3902
0.1871	0.3894
0.2469	0.3769



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	2/3/2013
Elapsed Time:	1235.000 days
Half Life:	10409.625 days
Exponential Term:	0.921055374
Corrected Activity:	20779.00924 dpm/mL
Decay Activity (Sr/Y-90)	41558.01848 dpm

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-6322;B1

Repeat 44

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 7:04:43 PM

Count Ended 2/3/2013 7:09:54 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	156	31.200	31.030
sd	0.000			0.013	12.490	2.498	2.498
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	93,524	18,704.800	18,704.403
sd	0.000			0.020	305.817	61.163	61.163

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-6322;B8

Repeat 44

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 7:13:49 PM

Count Ended 2/3/2013 7:19:00 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	117	23.400	23.230
sd	0.000			0.013	10.817	2.163	2.163
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	78,316	15,663.200	15,662.803
sd	0.000			0.020	279.850	55.970	55.970

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-6322;B7

Repeat 45

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 7:21:06 PM

Count Ended 2/3/2013 7:26:16 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	118	23.600	23.430
sd	0.000			0.013	10.863	2.173	2.173
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	80,914	16,182.800	16,182.403
sd	0.000			0.020	284.454	56.891	56.891

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-6322;B6

Repeat 46

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 7:53:17 PM

Count Ended 2/3/2013 7:58:26 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	101	20.200	20.030
sd	0.000			0.013	10.050	2.010	2.010
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	81,078	16,215.600	16,215.203
sd	0.000			0.020	284.742	56.948	56.948

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-6322;B5

Repeat 47

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 8:00:50 PM

Count Ended 2/3/2013 8:05:58 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	134	26.800	26.630
sd	0.000			0.013	11.576	2.315	2.315
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	83,046	16,609.200	16,608.803
sd	0.000			0.020	288.177	57.635	57.635

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-6322;B4

Repeat 49

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 8:08:09 PM

Count Ended 2/3/2013 8:13:17 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	155	31.000	30.830
sd	0.000			0.013	12.450	2.490	2.490
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	85,671	17,134.200	17,133.803
sd	0.000			0.020	292.696	58.539	58.539

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-6322;B3

Repeat 50

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 8:17:49 PM

Count Ended 2/3/2013 8:22:58 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	148	29.600	29.430
sd	0.000			0.013	12.166	2.433	2.433
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	90,972	18,194.400	18,194.003
sd	0.000			0.020	301.616	60.323	60.323

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-6322;B2

Repeat 51

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 8:25:21 PM

Count Ended 2/3/2013 8:30:32 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	179	35.800	35.630
sd	0.000			0.013	13.379	2.676	2.676
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	90,736	18,147.200	18,146.803
sd	0.000			0.020	301.224	60.245	60.245

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

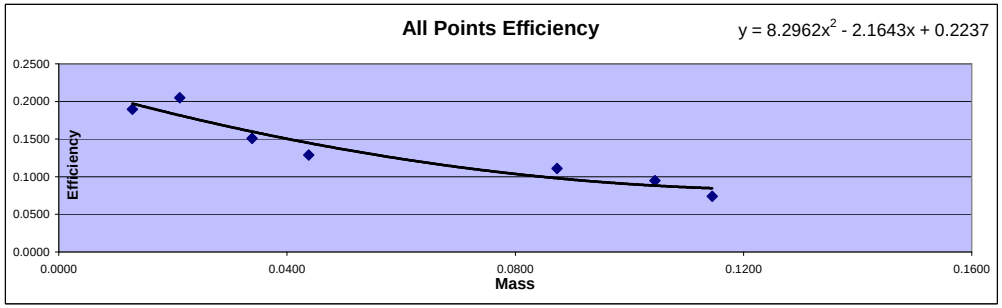
Error = .00 **x sd**

Curve is for Gross Alpha

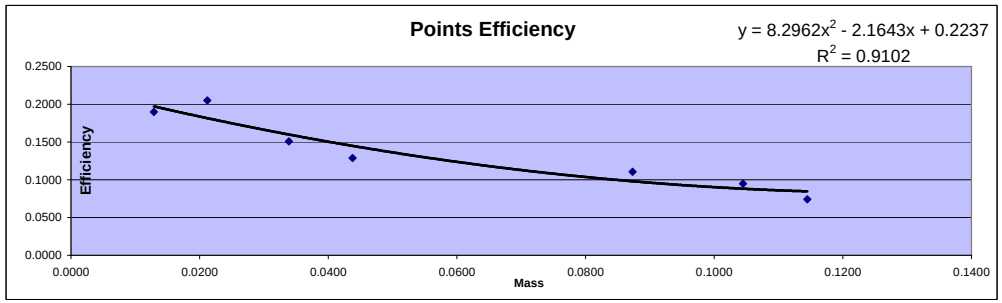
Purple 16

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
16	ICABT-51465;A1	1/18/2016 7:03	40	18030	450.750	2374.5	0.1898	1mL	0.0129
16	ICABT-51465;A2	1/18/2016 21:02	40	19479	486.975	2374.5	0.2051	1mL	0.0212
16	ICABT-51465;A3	1/18/2016 15:13	40	14328	358.200	2374.5	0.1509	1mL	0.0339
16	ICABT-51465;A4	1/18/2016 12:30	40	12241	306.025	2374.5	0.1289	1mL	0.0438
16	ICABT-51465;A6	1/18/2016 11:01	40	21041	526.025	4749.0	0.1108	2mL	0.0873
16	ICABT-51465;A7	1/18/2016 9:22	40	18041	451.025	4749.0	0.0950	2mL	0.1045
16	ICABT-51465;A8	1/18/2016 8:07	40	14064	351.600	4749.0	0.0740	2mL	0.1145

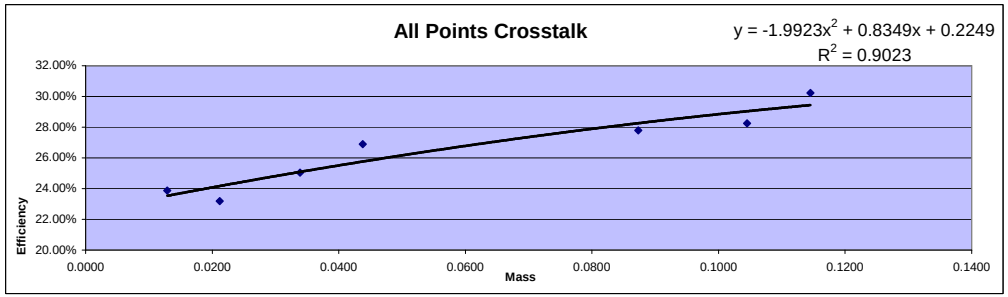
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1898	0.1972	-3.72%
0.0212	0.2051	0.1815	12.97%
0.0339	0.1509	0.1599	-5.64%
0.0438	0.1289	0.1448	-11.01%
0.0873	0.1108	0.0980	13.04%
0.1045	0.0950	0.0881	7.77%
0.1145	0.0740	0.0847	-12.54%



Mass	Efficiency
0.0129	0.1898
0.0212	0.2051
0.0339	0.1509
0.0438	0.1289
0.0873	0.1108
0.1045	0.0950
0.1145	0.0740



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
16	ICABT-51465;A1	0.0129	40.00	18030	5655	450.75	141.38	23.88%	Min
16	ICABT-51465;A2	0.0212	40.00	19479	5882	486.98	147.05	23.19%	23.19%
16	ICABT-51465;A3	0.0339	40.00	14328	4789	358.20	119.73	25.05%	
16	ICABT-51465;A4	0.0438	40.00	12241	4503	306.03	112.58	26.89%	Max
16	ICABT-51465;A6	0.0873	40.00	21041	8102	526.03	202.55	27.80%	
16	ICABT-51465;A7	0.1045	40.00	18041	7106	451.03	177.65	28.26%	Mean
16	ICABT-51465;A8	0.1145	40.00	14064	6091	351.60	152.28	30.22%	26.47%



Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-51465;A1

Repeat 65

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 7:03:12 AM

Count Ended 1/18/2016 7:43:17 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	18,030	450.750	450.705
sd	0.000			0.007	134.276	3.357	3.357
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	5,655	141.375	140.972
sd	0.000			0.020	75.200	1.880	1.880

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-51465;A8

Repeat 66

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/18/2016 8:07:17 AM

Count Ended 1/18/2016 8:47:23 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	14,064	351.600	351.555
sd	0.000			0.007	118.592	2.965	2.965
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	6,091	152.275	151.872
sd	0.000			0.020	78.045	1.951	1.951

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-51465;A7 **Repeat** 67

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 9:22:12 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/18/2016 10:02:17 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 40.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	18,041	451.025	450.980
sd	0.000			0.007	134.317	3.358	3.358
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	7,106	177.650	177.247
sd	0.000			0.020	84.297	2.107	2.108

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-51465;A6

Repeat 145

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 11:01:09 AM

Count Ended 1/18/2016 11:41:15 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	21,041	526.025	525.980
sd	0.000			0.007	145.055	3.626	3.626
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	8,102	202.550	202.147
sd	0.000			0.020	90.011	2.250	2.250

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-51465;A5

Repeat 69

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 11:45:13 AM

Count Ended 1/18/2016 12:25:18 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	17,004	425.100	425.055
sd	0.000			0.007	130.399	3.260	3.260
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	7,094	177.350	176.947
sd	0.000			0.020	84.226	2.106	2.106

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-51465;A4

Repeat 70

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/18/2016 12:30:41 PM

Count Ended 1/18/2016 1:10:46 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	12,241	306.025	305.980
sd	0.000			0.007	110.639	2.766	2.766
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	4,503	112.575	112.172
sd	0.000			0.020	67.104	1.678	1.678

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-51465;A3

Repeat 71

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 3:13:53 PM

Count Ended 1/18/2016 3:53:58 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	14,328	358.200	358.155
sd	0.000			0.007	119.700	2.992	2.992
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	4,789	119.725	119.322
sd	0.000			0.020	69.203	1.730	1.730

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICABT-51465;A2

Repeat 72

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/18/2016 9:02:59 PM

Count Ended 1/18/2016 9:43:05 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	19,479	486.975	486.930
sd	0.000			0.007	139.567	3.489	3.489
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	5,882	147.050	146.647
sd	0.000			0.020	76.694	1.917	1.917

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

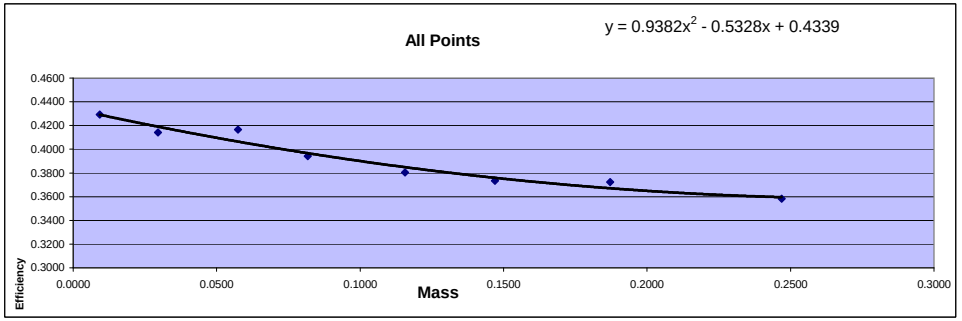
Error = .00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

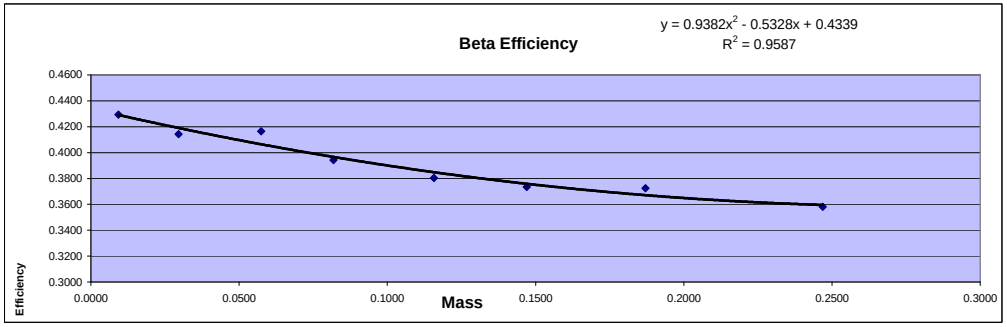
Purple 17

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 38746.51487 CPM	Sr-90 Eff	Standard Aliquot
17	ICABT-6322;B1	12/22/2015 12:04	0.0093	5	83172	16634.400	0.4293	1mL
17	ICABT-6322;B2	12/22/2015 12:09	0.0296	5	80252	16050.400	0.4142	1mL
17	ICABT-6322;B3	12/22/2015 12:15	0.0574	5	80691	16138.200	0.4165	1mL
17	ICABT-6322;B4	12/22/2015 12:57	0.0818	5	76364	15272.800	0.3942	1mL
17	ICABT-6322;B5	12/22/2015 14:52	0.1157	5	73694	14738.800	0.3804	1mL
17	ICABT-6322;B6	12/22/2015 14:58	0.1470	5	72329	14465.800	0.3733	1mL
17	ICABT-6322;B7	12/22/2015 15:10	0.1871	5	72141	14428.200	0.3724	1mL
17	ICABT-6322;B8	12/22/2015 15:18	0.2469	5	69400	13880.000	0.3582	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4293	0.4290	0.07%
0.0296	0.4142	0.4190	-1.12%
0.0574	0.4165	0.4064	2.48%
0.0818	0.3942	0.3966	-0.61%
0.1157	0.3804	0.3848	-1.15%
0.1470	0.3733	0.3759	-0.67%
0.1871	0.3724	0.3671	1.45%
0.2469	0.3582	0.3595	-0.37%



Mass	Efficiency
0.0093	0.4293
0.0296	0.4142
0.0574	0.4165
0.0818	0.3942
0.1157	0.3804
0.1470	0.3733
0.1871	0.3724
0.2469	0.3582



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

Initial Activity:	22560	dpm/mL
Reference Date:	9/17/2009	
Count Date:	12/22/2015	
Elapsed Time:	2287.000	days
Half Life:	10409.625	days
Exponential Term:	0.858743681	
Corrected Activity:	19373.25743	dpm/mL
Decay Activity (Sr/Y-90)	38746.51487	dpm

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-6322;B1

Repeat 57

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 12/22/2015 12:04:10 PM

Count Ended 12/22/2015 12:09:31 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	4,339	867.800	867.800
sd	0.000			0.000	65.871	13.174	13.174
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	83,172	16,634.400	16,633.946
sd	0.000			0.021	288.396	57.679	57.679

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-6322;B2

Repeat 57

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 12/22/2015 12:09:47 PM

Count Ended 12/22/2015 12:14:56 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	4,042	808.400	808.400
sd	0.000			0.000	63.577	12.715	12.715
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	80,252	16,050.400	16,049.946
sd	0.000			0.021	283.288	56.658	56.658

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-6322;B3

Repeat 56

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 12/22/2015 12:15:21 PM

Count Ended 12/22/2015 12:20:29 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	3,850	770.000	770.000
sd	0.000			0.000	62.048	12.410	12.410
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	80,691	16,138.200	16,137.746
sd	0.000			0.021	284.062	56.812	56.812

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-6322;B4

Repeat 56

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 12/22/2015 12:57:54 PM

Count Ended 12/22/2015 1:03:03 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	3,593	718.600	718.600
sd	0.000			0.000	59.942	11.988	11.988
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	76,364	15,272.800	15,272.346
sd	0.000			0.021	276.340	55.268	55.268

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-6322;B5

Repeat 55

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 12/22/2015 2:52:57 PM

Count Ended 12/22/2015 2:58:07 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	3,381	676.200	676.200
sd	0.000			0.000	58.146	11.629	11.629
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	73,694	14,738.800	14,738.346
sd	0.000			0.021	271.466	54.293	54.293

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-6322;B6

Repeat 55

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 12/22/2015 2:58:53 PM

Count Ended 12/22/2015 3:04:03 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	3,345	669.000	669.000
sd	0.000			0.000	57.836	11.567	11.567
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	72,329	14,465.800	14,465.346
sd	0.000			0.021	268.941	53.788	53.788

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-6322;B7

Repeat 55

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 12/22/2015 3:10:33 PM

Count Ended 12/22/2015 3:15:42 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	3,131	626.200	626.200
sd	0.000			0.000	55.955	11.191	11.191
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	72,141	14,428.200	14,427.746
sd	0.000			0.021	268.591	53.718	53.718

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-6322;B8

Repeat 55

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 12/22/2015 3:18:42 PM

Count Ended 12/22/2015 3:23:51 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	2,825	565.000	565.000
sd	0.000			0.000	53.151	10.630	10.630
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	69,400	13,880.000	13,879.546
sd	0.000			0.021	263.439	52.688	52.688

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

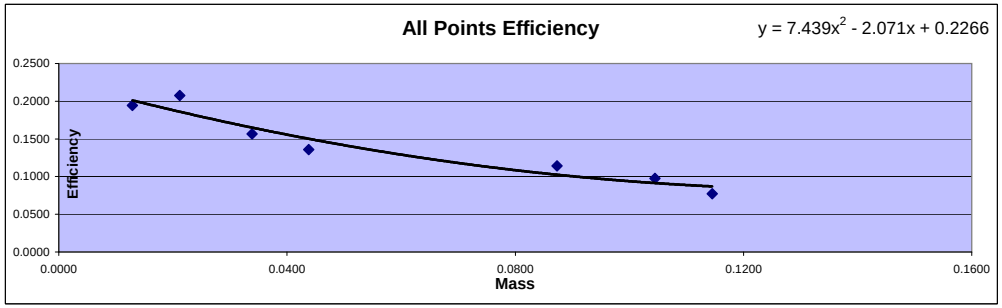
Error = .00 **x sd**

Curve is for Gross Alpha

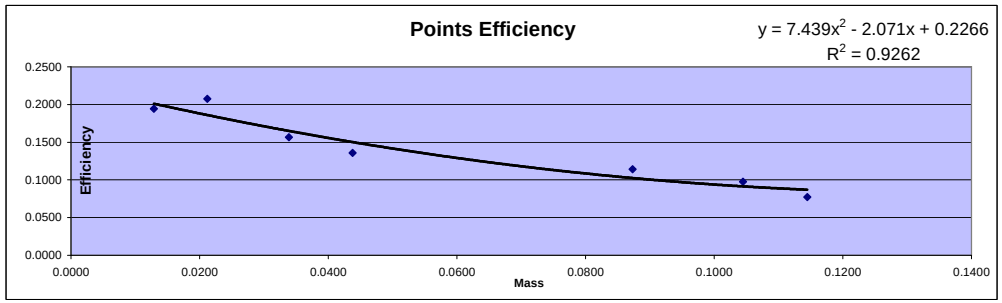
Purple 17

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
17	ICABT-51465;A1	1/18/2016 8:07	40	18468	461.700	2374.5	0.1944	1mL	0.0129
17	ICABT-51465;A2	1/18/2016 7:03	40	19699	492.475	2374.5	0.2074	1mL	0.0212
17	ICABT-51465;A3	1/18/2016 21:03	40	14888	372.200	2374.5	0.1567	1mL	0.0339
17	ICABT-51465;A4	1/18/2016 15:14	40	12882	322.050	2374.5	0.1356	1mL	0.0438
17	ICABT-51465;A6	1/18/2016 11:45	40	21662	541.550	4749.0	0.1140	2mL	0.0873
17	ICABT-51465;A7	1/18/2016 11:01	40	18567	464.175	4749.0	0.0977	2mL	0.1045
17	ICABT-51465;A8	1/18/2016 9:22	40	14673	366.825	4749.0	0.0772	2mL	0.1145

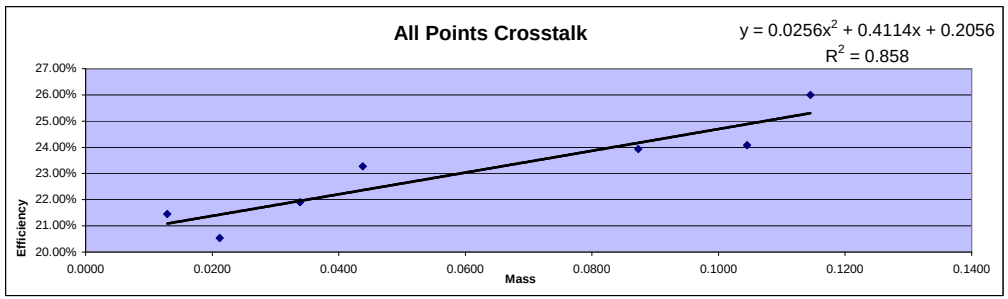
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1944	0.2011	-3.32%
0.0212	0.2074	0.1860	11.48%
0.0339	0.1567	0.1649	-4.97%
0.0438	0.1356	0.1502	-9.68%
0.0873	0.1140	0.1025	11.26%
0.1045	0.0977	0.0914	6.92%
0.1145	0.0772	0.0870	-11.21%



Mass	Efficiency
0.0129	0.1944
0.0212	0.2074
0.0339	0.1567
0.0438	0.1356
0.0873	0.1140
0.1045	0.0977
0.1145	0.0772



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
17	ICABT-51465;A1	0.0129	40.00	18468	5046	461.70	126.15	21.46%	Min
17	ICABT-51465;A2	0.0212	40.00	19699	5091	492.48	127.28	20.54%	20.54%
17	ICABT-51465;A3	0.0339	40.00	14888	4176	372.20	104.40	21.91%	
17	ICABT-51465;A4	0.0438	40.00	12882	3907	322.05	97.68	23.27%	Max
17	ICABT-51465;A6	0.0873	40.00	21662	6817	541.55	170.43	23.94%	
17	ICABT-51465;A7	0.1045	40.00	18567	5890	464.18	147.25	24.08%	Mean
17	ICABT-51465;A8	0.1145	40.00	14673	5156	366.83	128.90	26.00%	23.03%



Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-51465;A2

Repeat 65

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 7:03:21 AM

Count Ended 1/18/2016 7:43:26 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	19,699	492.475	492.368
sd	0.000			0.010	140.353	3.509	3.509
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	5,091	127.275	126.992
sd	0.000			0.017	71.351	1.784	1.784

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-51465;A1

Repeat 66

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 8:07:27 AM

Count Ended 1/18/2016 8:47:32 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	18,468	461.700	461.593
sd	0.000			0.010	135.897	3.397	3.397
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	5,046	126.150	125.867
sd	0.000			0.017	71.035	1.776	1.776

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-51465;A8

Repeat 67

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/18/2016 9:22:19 AM

Count Ended 1/18/2016 10:02:24 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	14,673	366.825	366.718
sd	0.000			0.010	121.132	3.028	3.028
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	5,156	128.900	128.617
sd	0.000			0.017	71.805	1.795	1.795

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-51465;A7

Repeat 68

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/18/2016 11:01:23 AM

Count Ended 1/18/2016 11:41:28 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	18,567	464.175	464.068
sd	0.000			0.010	136.261	3.407	3.407
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	5,890	147.250	146.967
sd	0.000			0.017	76.746	1.919	1.919

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-51465;A6

Repeat 146

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/18/2016 11:45:53 AM

Count Ended 1/18/2016 12:25:58 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	21,662	541.550	541.443
sd	0.000			0.010	147.180	3.680	3.680
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	6,817	170.425	170.142
sd	0.000			0.017	82.565	2.064	2.064

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-51465;A5

Repeat 70

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 12:30:49 PM

Count Ended 1/18/2016 1:10:55 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	17,959	448.975	448.868
sd	0.000			0.010	134.011	3.350	3.350
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	6,078	151.950	151.667
sd	0.000			0.017	77.962	1.949	1.949

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-51465;A4

Repeat 71

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 3:14:01 PM

Count Ended 1/18/2016 3:54:05 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	12,882	322.050	321.943
sd	0.000			0.010	113.499	2.837	2.837
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	3,907	97.675	97.392
sd	0.000			0.017	62.506	1.563	1.563

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICABT-51465;A3

Repeat 72

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 9:03:04 PM

Count Ended 1/18/2016 9:43:09 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	14,888	372.200	372.093
sd	0.000			0.010	122.016	3.050	3.050
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	4,176	104.400	104.117
sd	0.000			0.017	64.622	1.616	1.616

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

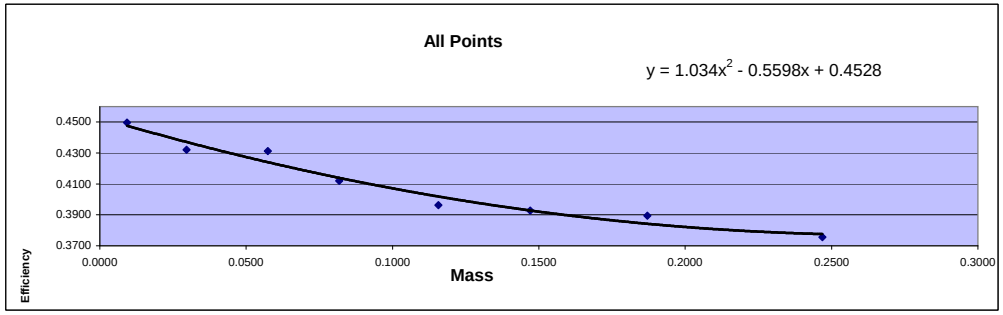
Error = .00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

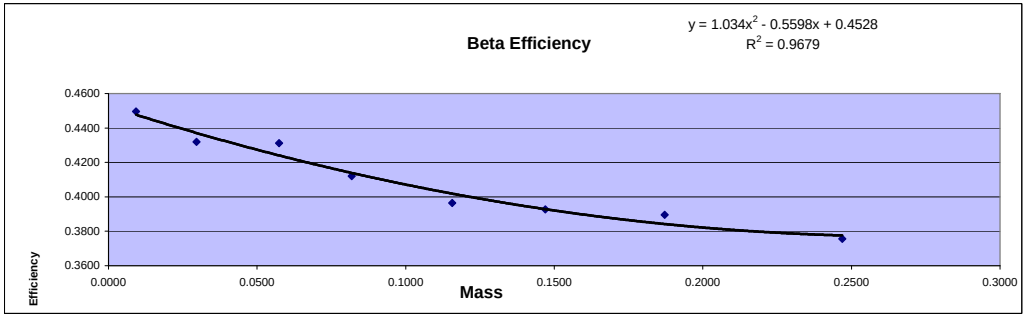
Purple 18

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 41558.018 CPM	Sr-90 Eff	Standard Aliquot
18	B1	2/3/2013 19:21	0.0093	5	93422	18684.400	0.4496	1mL
18	B2	2/3/2013 19:13	0.0296	5	89762	17952.400	0.4320	1mL
18	B3	2/3/2013 19:04	0.0574	5	89614	17922.800	0.4313	1mL
18	B4	2/3/2013 20:25	0.0818	5	85627	17125.400	0.4121	1mL
18	B5	2/3/2013 20:17	0.1157	5	82362	16472.400	0.3964	1mL
18	B6	2/3/2013 20:08	0.1470	5	81610	16322.000	0.3928	1mL
18	B7	2/3/2013 20:01	0.1871	5	80938	16187.600	0.3895	1mL
18	B8	2/3/2013 19:53	0.2469	5	78059	15611.800	0.3757	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4496	0.4477	0.43%
0.0296	0.4320	0.4371	-1.18%
0.0574	0.4313	0.4241	1.70%
0.0818	0.4121	0.4139	-0.45%
0.1157	0.3964	0.4019	-1.37%
0.1470	0.3928	0.3929	-0.03%
0.1871	0.3895	0.3843	1.37%
0.2469	0.3757	0.3776	-0.52%



Mass	Efficiency
0.0093	0.4496
0.0296	0.4320
0.0574	0.4313
0.0818	0.4121
0.1157	0.3964
0.1470	0.3928
0.1871	0.3895
0.2469	0.3757



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

Initial Activity:	22560	dpm/mL
Reference Date:	9/17/2009	
Count Date:	2/3/2013	
Elapsed Time:	1235.000	days
Half Life:	10409.625	days
Exponential Term:	0.921055374	
Corrected Activity:	20779.00924	dpm/mL
Decay Activity (Sr/Y-90)	41558.01848	dpm

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-6322;B3

Repeat 44

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 7:04:53 PM

Count Ended 2/3/2013 7:10:03 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	62	12.400	12.278
sd	0.000			0.011	7.874	1.575	1.575
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	89,614	17,922.800	17,922.342
sd	0.000			0.021	299.356	59.871	59.871

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-6322;B2

Repeat 45

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/3/2013 7:13:58 PM

Count Ended 2/3/2013 7:19:08 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	70	14.000	13.878
sd	0.000			0.011	8.367	1.673	1.673
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	89,762	17,952.400	17,951.942
sd	0.000			0.021	299.603	59.921	59.921

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-6322;B1

Repeat 46

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 7:21:15 PM

Count Ended 2/3/2013 7:26:25 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	79	15.800	15.678
sd	0.000			0.011	8.888	1.778	1.778
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	93,422	18,684.400	18,683.942
sd	0.000			0.021	305.650	61.130	61.130

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-6322;B8

Repeat 46

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 7:53:29 PM

Count Ended 2/3/2013 7:58:38 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	43	8.600	8.478
sd	0.000			0.011	6.557	1.311	1.312
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	78,059	15,611.800	15,611.342
sd	0.000			0.021	279.390	55.878	55.878

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-6322;B7

Repeat 47

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/3/2013 8:01:00 PM

Count Ended 2/3/2013 8:06:09 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	53	10.600	10.478
sd	0.000			0.011	7.280	1.456	1.456
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	80,938	16,187.600	16,187.142
sd	0.000			0.021	284.496	56.899	56.899

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-6322;B6

Repeat 48

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 8:08:19 PM

Count Ended 2/3/2013 8:13:29 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	58	11.600	11.478
sd	0.000			0.011	7.616	1.523	1.523
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	81,610	16,322.000	16,321.542
sd	0.000			0.021	285.675	57.135	57.135

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-6322;B5

Repeat 49

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 8:17:59 PM

Count Ended 2/3/2013 8:23:07 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	63	12.600	12.478
sd	0.000			0.011	7.937	1.587	1.587
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	82,362	16,472.400	16,471.942
sd	0.000			0.021	286.988	57.398	57.398

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-6322;B4

Repeat 51

Carrier No. 0

Batch ID M122627

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/3/2013 8:25:31 PM

Count Ended 2/3/2013 8:30:40 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	56	11.200	11.078
sd	0.000			0.011	7.483	1.497	1.497
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	85,627	17,125.400	17,124.942
sd	0.000			0.021	292.621	58.524	58.524

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

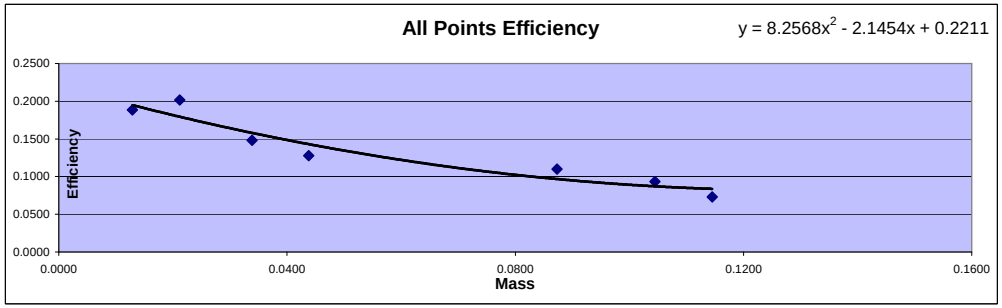
Error = .00 **x sd**

Curve is for Gross Alpha

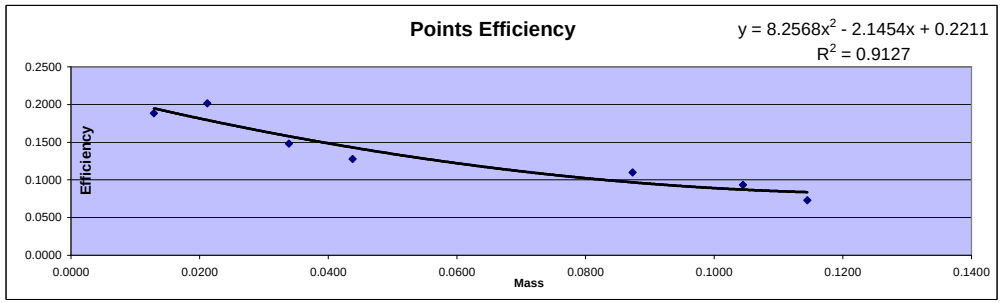
Purple 18

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
18	ICABT-51465;A1	1/18/2016 10:08	40	17900	447.500	2374.5	0.1885	1mL	0.0129
18	ICABT-51465;A2	1/18/2016 8:07	40	19165	479.125	2374.5	0.2018	1mL	0.0212
18	ICABT-51465;A3	1/18/2016 7:03	40	14072	351.800	2374.5	0.1482	1mL	0.0339
18	ICABT-51465;A4	1/18/2016 21:03	40	12133	303.325	2374.5	0.1277	1mL	0.0438
18	ICABT-51465;A6	1/18/2016 12:30	40	20882	522.050	4749.0	0.1099	2mL	0.0873
18	ICABT-51465;A7	1/18/2016 11:46	40	17768	444.200	4749.0	0.0935	2mL	0.1045
18	ICABT-51465;A8	1/18/2016 11:01	40	13896	347.400	4749.0	0.0732	2mL	0.1145

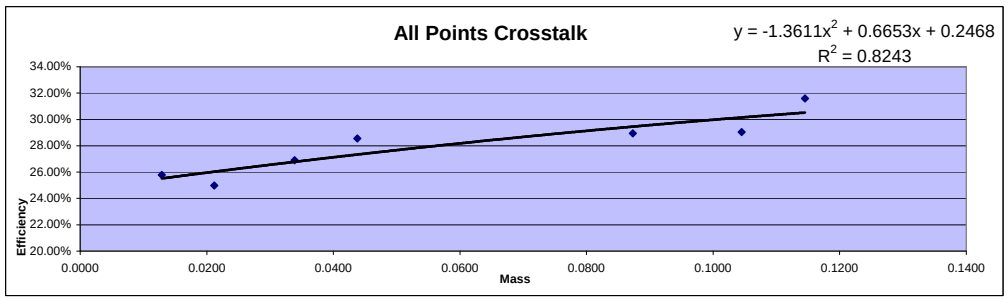
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1885	0.1948	-3.25%
0.0212	0.2018	0.1793	12.52%
0.0339	0.1482	0.1579	-6.15%
0.0438	0.1277	0.1430	-10.65%
0.0873	0.1099	0.0967	13.64%
0.1045	0.0935	0.0871	7.42%
0.1145	0.0732	0.0837	-12.60%



Mass	Efficiency
0.0129	0.1885
0.0212	0.2018
0.0339	0.1482
0.0438	0.1277
0.0873	0.1099
0.1045	0.0935
0.1145	0.0732



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
18	ICABT-51465;A1	0.0129	40.00	17900	6222	447.50	155.55	25.79%	Min
18	ICABT-51465;A2	0.0212	40.00	19165	6380	479.13	159.50	24.98%	24.98%
18	ICABT-51465;A3	0.0339	40.00	14072	5178	351.80	129.45	26.90%	
18	ICABT-51465;A4	0.0438	40.00	12133	4850	303.33	121.25	28.56%	Max
18	ICABT-51465;A6	0.0873	40.00	20882	8508	522.05	212.70	28.95%	
18	ICABT-51465;A7	0.1045	40.00	17768	7270	444.20	181.75	29.04%	Mean
18	ICABT-51465;A8	0.1145	40.00	13896	6415	347.40	160.38	31.58%	27.97%



Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-51465;A3

Repeat 65

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 7:03:54 AM

Count Ended 1/18/2016 7:43:59 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	14,072	351.800	351.762
sd	0.000			0.006	118.625	2.966	2.966
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	5,178	129.450	129.120
sd	0.000			0.018	71.958	1.799	1.799

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-51465;A2

Repeat 66

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 8:07:35 AM

Count Ended 1/18/2016 8:47:40 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	19,165	479.125	479.087
sd	0.000			0.006	138.438	3.461	3.461
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	6,380	159.500	159.170
sd	0.000			0.018	79.875	1.997	1.997

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-51465;A1

Repeat 67

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 10:08:28 AM

Count Ended 1/18/2016 10:48:33 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	17,900	447.500	447.462
sd	0.000			0.006	133.791	3.345	3.345
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	6,222	155.550	155.220
sd	0.000			0.018	78.880	1.972	1.972

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-51465;A8

Repeat 68

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 11:01:30 AM

Count Ended 1/18/2016 11:41:35 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	13,896	347.400	347.362
sd	0.000			0.006	117.881	2.947	2.947
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	6,415	160.375	160.045
sd	0.000			0.018	80.094	2.002	2.002

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-51465;A7

Repeat 69

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 11:46:00 AM

Count Ended 1/18/2016 12:26:05 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	17,768	444.200	444.162
sd	0.000			0.006	133.297	3.332	3.332
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	7,270	181.750	181.420
sd	0.000			0.018	85.264	2.132	2.132

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-51465;A6

Repeat 147

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 12:30:56 PM

Count Ended 1/18/2016 1:11:02 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	20,882	522.050	522.012
sd	0.000			0.006	144.506	3.613	3.613
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	8,508	212.700	212.370
sd	0.000			0.018	92.239	2.306	2.306

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-51465;A5

Repeat 71

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 3:14:07 PM

Count Ended 1/18/2016 3:54:12 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	16,970	424.250	424.212
sd	0.000			0.006	130.269	3.257	3.257
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	7,622	190.550	190.220
sd	0.000			0.018	87.304	2.183	2.183

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICABT-51465;A4

Repeat 72

Carrier No. 0

Batch ID m153000

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/18/2016 9:03:08 PM

Count Ended 1/18/2016 9:43:13 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 40.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	12,133	303.325	303.287
sd	0.000			0.006	110.150	2.754	2.754
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	4,850	121.250	120.920
sd	0.000			0.018	69.642	1.741	1.741

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Ra-226 Calibrations

APPROVED
By Kody Saulters at 11:22 am, Jul 24, 2019

eurofins | Environment Testing TestAmerica

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
7/23/2019 1:00:00 AM	11647.17	12736.38	382.09	-1089.21	FAIL	4428.00	4320.40	60.09	107.600	Pass
7/24/2019 12:31:00 AM	11760.44	12736.38	382.09	-975.93	FAIL	4409.00	4320.40	60.09	88.600	Pass
Detector 1										
7/23/2019 1:00:00 AM	12749.82	13519.45	405.58	-769.63	FAIL	4667.50	4449.53	44.71	217.975	**DOEF**
7/24/2019 12:31:00 AM	12770.41	13519.45	405.58	-749.04	FAIL	4587.50	4449.53	44.71	137.975	**DOEF**
Detector 2										
7/23/2019 1:00:00 AM	12902.81	14253.55	427.61	-1350.74	FAIL	4864.50	4791.68	109.59	72.825	Pass
7/24/2019 12:31:00 AM	12593.26	14253.55	427.61	-1660.29	FAIL	4795.50	4791.68	109.59	3.825	Pass
Detector 3										
7/23/2019 1:00:00 AM	12716.63	13543.80	406.31	-827.17	FAIL	4525.50	4389.20	68.69	136.300	Pass
7/24/2019 12:31:00 AM	12743.24	13543.80	406.31	-800.56	FAIL	4522.00	4389.20	68.69	132.800	Pass
Detector 4										
7/23/2019 1:01:00 AM	15906.80	16171.80	485.15	-265.00	Pass	6303.00	6539.20	127.28	-236.200	Pass
7/24/2019 12:31:00 AM	15676.91	16171.80	485.15	-494.89	FAIL	6353.00	6539.20	127.28	-186.200	Pass
7/24/2019 1:24:00 AM	15544.15	16171.80	485.15	-627.65	FAIL	6166.00	6539.20	127.28	-373.200	**WARNING**
7/24/2019 1:26:00 AM	15792.14	16171.80	485.15	-379.66	Pass	6074.00	6539.20	127.28	-465.200	**DOEF**
Detector 5										
7/23/2019 1:01:00 AM	16442.32	16459.75	493.79	-17.43	Pass	5921.50	6151.68	143.92	-230.175	Pass
7/24/2019 12:31:00 AM	16188.39	16459.75	493.79	-271.36	Pass	5946.00	6151.68	143.92	-205.675	Pass
Detector 6										
7/23/2019 1:01:00 AM	14549.66	15378.63	461.36	-828.97	FAIL	5343.00	5735.28	106.30	-392.275	**DOEF**
7/24/2019 12:31:00 AM	14682.98	15378.63	461.36	-695.64	FAIL	5374.50	5735.28	106.30	-360.775	**DOEF**
Detector 7										
7/23/2019 1:01:00 AM	14698.31	14694.35	440.83	3.96	Pass	5381.50	6293.60	174.59	-912.100	**DOEF**
7/24/2019 12:31:00 AM	14810.59	14694.35	440.83	116.24	Pass	5331.00	6293.60	174.59	-962.600	**DOEF**
Detector 8										
7/23/2019 1:05:00 AM	11609.32	12235.70	367.07	-626.38	FAIL	4386.00	4831.48	170.20	-445.475	**WARNING**
7/24/2019 12:33:00 AM	11627.90	12235.70	367.07	-607.80	FAIL	4399.50	4831.48	170.20	-431.975	**WARNING**

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 9										
7/23/2019 1:05:00 AM	12504.59	13042.63	391.28	-538.03	**FAIL**	4683.00	5136.70	130.65	-453.700	**DOEF**
7/23/2019 1:53:00 AM	12467.52	13042.63	391.28	-575.10	**FAIL**	4772.00	5136.70	130.65	-364.700	**WARNING**
7/23/2019 1:58:00 AM	12555.69	13042.63	391.28	-486.93	**FAIL**	4683.50	5136.70	130.65	-453.200	**DOEF**
7/24/2019 12:33:00 AM	12576.29	13042.63	391.28	-466.34	**FAIL**	4763.50	5136.70	130.65	-373.200	**WARNING**
Detector 10										
7/23/2019 1:05:00 AM	13034.05	13724.85	411.75	-690.80	**FAIL**	4851.00	5284.65	125.26	-433.650	**DOEF**
7/24/2019 12:33:00 AM	12973.99	13724.85	411.75	-750.86	**FAIL**	4821.00	5284.65	125.26	-463.650	**DOEF**
Detector 11										
7/23/2019 1:05:00 AM	12600.85	12965.85	388.98	-365.00	Pass	4757.50	5004.60	105.46	-247.100	**WARNING**
7/24/2019 12:33:00 AM	12688.08	12965.85	388.98	-277.77	Pass	4856.00	5004.60	105.46	-148.600	Pass
Detector 12										
7/23/2019 1:04:00 AM	15492.72	15035.28	451.06	457.44	**FAIL**	6772.00	7154.28	501.18	-382.275	Pass
7/23/2019 2:00:00 AM	15306.98	15035.28	451.06	271.70	Pass	6944.50	7154.28	501.18	-209.775	Pass
7/23/2019 3:35:00 AM	15354.04	15035.28	451.06	318.76	Pass	6803.50	7154.28	501.18	-350.775	Pass
7/24/2019 12:33:00 AM	15233.95	15035.28	451.06	198.67	Pass	6818.50	7154.28	501.18	-335.775	Pass
Detector 13										
7/23/2019 1:04:00 AM	16828.53	16877.30	506.32	-48.77	Pass	5397.00	5477.70	171.80	-80.700	Pass
7/24/2019 12:33:00 AM	16876.17	16877.30	506.32	-1.13	Pass	5382.50	5477.70	171.80	-95.200	Pass
Detector 14										
7/23/2019 1:04:00 AM	13853.04	13691.08	410.73	161.96	Pass	6292.50	6845.08	521.25	-552.575	Pass
7/24/2019 12:33:00 AM	13875.13	13691.08	410.73	184.05	Pass	6149.00	6845.08	521.25	-696.075	Pass
Detector 15										
7/23/2019 1:04:00 AM	14172.86	13998.85	419.97	174.01	Pass	6250.50	6685.98	512.86	-435.475	Pass
7/24/2019 12:33:00 AM	14145.39	13998.85	419.97	146.54	Pass	6200.00	6685.98	512.86	-485.975	Pass
Detector 16										
7/23/2019 1:08:00 AM	11727.14	12089.48	362.68	-362.34	Pass	4466.50	4618.68	103.75	-152.175	Pass
7/24/2019 12:35:00 AM	11795.28	12089.48	362.68	-294.20	Pass	4416.00	4618.68	103.75	-202.675	Pass
Detector 17										
7/23/2019 1:08:00 AM	12665.85	13119.45	393.58	-453.60	**FAIL**	4698.50	4870.55	102.70	-172.050	Pass
7/24/2019 12:35:00 AM	12846.64	13119.45	393.58	-272.81	Pass	4577.00	4870.55	102.70	-293.550	**WARNING**
7/24/2019 1:22:00 AM	12685.93	13119.45	393.58	-433.52	**FAIL**	4745.00	4870.55	102.70	-125.550	Pass
Detector 18										
7/23/2019 1:08:00 AM	13178.50	13598.40	407.95	-419.90	**FAIL**	4650.50	4892.93	110.28	-242.425	**WARNING**
7/24/2019 12:35:00 AM	13242.14	13598.40	407.95	-356.26	Pass	4681.00	4892.93	110.28	-211.925	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 19										
7/23/2019 1:08:00 AM	12637.18	12858.98	385.77	-221.79	Pass	4670.00	4846.63	121.24	-176.625	Pass
7/24/2019 12:35:00 AM	12671.78	12858.98	385.77	-187.19	Pass	4790.50	4846.63	121.24	-56.125	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
7/23/2019 12:44:00 AM	50206.56	50552.05	1516.56	-345.49	Pass	NA	NA	NA	NA	NA
7/24/2019 12:44:00 AM	50149.03	50552.05	1516.56	-403.02	Pass	NA	NA	NA	NA	NA
Detector 1										
7/23/2019 12:44:00 AM	48488.44	47641.23	1429.24	847.21	Pass	NA	NA	NA	NA	NA
7/24/2019 12:44:00 AM	48359.56	47641.23	1429.24	718.33	Pass	NA	NA	NA	NA	NA
Detector 2										
7/23/2019 12:44:00 AM	50161.71	49734.44	1492.03	427.27	Pass	NA	NA	NA	NA	NA
7/24/2019 12:44:00 AM	50316.87	49734.44	1492.03	582.43	Pass	NA	NA	NA	NA	NA
Detector 3										
7/23/2019 12:45:00 AM	59731.25	60167.98	1805.04	-436.73	Pass	NA	NA	NA	NA	NA
7/24/2019 12:44:00 AM	59282.77	60167.98	1805.04	-885.21	Pass	NA	NA	NA	NA	NA
Detector 4										
7/23/2019 12:42:00 AM	54451.76	55277.35	1658.32	-825.59	Pass	NA	NA	NA	NA	NA
7/24/2019 12:44:00 AM	55065.32	55277.35	1658.32	-212.03	Pass	NA	NA	NA	NA	NA
Detector 5										
7/23/2019 12:42:00 AM	55179.71	55004.03	1650.12	175.69	Pass	NA	NA	NA	NA	NA
7/24/2019 12:44:00 AM	55109.51	55004.03	1650.12	105.49	Pass	NA	NA	NA	NA	NA
Detector 6										
7/23/2019 12:42:00 AM	51509.18	52072.68	1562.18	-563.49	Pass	NA	NA	NA	NA	NA
7/24/2019 12:44:00 AM	51436.58	52072.68	1562.18	-636.09	Pass	NA	NA	NA	NA	NA
Detector 7										
7/23/2019 12:42:00 AM	44832.85	44302.58	1329.08	530.27	Pass	NA	NA	NA	NA	NA
7/24/2019 12:44:00 AM	45378.11	44302.58	1329.08	1075.54	Pass	NA	NA	NA	NA	NA
Detector 8										
7/23/2019 12:48:00 AM	49777.10	49959.33	1498.78	-182.23	Pass	NA	NA	NA	NA	NA
7/24/2019 12:46:00 AM	49848.50	49959.33	1498.78	-110.82	Pass	NA	NA	NA	NA	NA
Detector 9										
7/23/2019 12:48:00 AM	48668.63	47696.08	1430.88	972.55	Pass	NA	NA	NA	NA	NA
7/24/2019 12:46:00 AM	48313.55	47696.08	1430.88	617.48	Pass	NA	NA	NA	NA	NA
Detector 10										
7/23/2019 12:48:00 AM	50508.99	50136.65	1504.10	372.34	Pass	NA	NA	NA	NA	NA
7/24/2019 12:46:00 AM	50560.17	50136.65	1504.10	423.52	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
7/23/2019 12:48:00 AM	60014.80	59951.55	1798.55	63.25	Pass	NA	NA	NA	NA	NA
7/24/2019 12:46:00 AM	60240.81	59951.55	1798.55	289.26	Pass	NA	NA	NA	NA	NA
Detector 12										
7/23/2019 12:45:00 AM	56128.74	56070.40	1682.11	58.34	Pass	NA	NA	NA	NA	NA
7/24/2019 12:46:00 AM	55912.09	56070.40	1682.11	-158.31	Pass	NA	NA	NA	NA	NA
Detector 13										
7/23/2019 12:45:00 AM	54995.83	55607.20	1668.22	-611.37	Pass	NA	NA	NA	NA	NA
7/24/2019 12:46:00 AM	55074.30	55607.20	1668.22	-532.90	Pass	NA	NA	NA	NA	NA
Detector 14										
7/23/2019 12:45:00 AM	50158.99	50580.03	1517.40	-421.04	Pass	NA	NA	NA	NA	NA
7/24/2019 12:46:00 AM	50808.05	50580.03	1517.40	228.03	Pass	NA	NA	NA	NA	NA
Detector 15										
7/23/2019 12:45:00 AM	45709.82	45674.43	1370.23	35.39	Pass	NA	NA	NA	NA	NA
7/24/2019 12:46:00 AM	45427.87	45674.43	1370.23	-246.56	Pass	NA	NA	NA	NA	NA
Detector 16										
7/23/2019 12:51:00 AM	49766.09	49653.23	1489.60	112.86	Pass	NA	NA	NA	NA	NA
7/24/2019 12:49:00 AM	49897.60	49653.23	1489.60	244.38	Pass	NA	NA	NA	NA	NA
Detector 17										
7/23/2019 12:51:00 AM	48575.85	48166.13	1444.98	409.72	Pass	NA	NA	NA	NA	NA
7/24/2019 12:49:00 AM	48768.86	48166.13	1444.98	602.74	Pass	NA	NA	NA	NA	NA
Detector 18										
7/23/2019 12:51:00 AM	50345.60	49957.23	1498.72	388.37	Pass	NA	NA	NA	NA	NA
7/24/2019 12:49:00 AM	50242.74	49957.23	1498.72	285.52	Pass	NA	NA	NA	NA	NA
Detector 19										
7/23/2019 12:51:00 AM	59657.58	59167.80	1775.03	489.78	Pass	NA	NA	NA	NA	NA
7/24/2019 12:49:00 AM	59530.48	59167.80	1775.03	362.68	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
7/23/2019 4:34:00 AM	0.22	0.13	0.02	0.09	FAIL	0.53	0.48	0.09	0.045	Pass
7/24/2019 4:09:00 AM	0.24	0.13	0.02	0.11	FAIL	0.56	0.48	0.09	0.080	Pass
Detector 1										
7/23/2019 4:34:00 AM	0.28	0.14	0.02	0.14	FAIL	0.63	0.44	0.07	0.188	Pass
7/24/2019 4:09:00 AM	0.22	0.14	0.02	0.08	FAIL	0.42	0.44	0.07	-0.022	Pass
Detector 2										
7/23/2019 4:34:00 AM	0.23	0.07	0.02	0.16	FAIL	0.41	0.42	0.08	-0.015	Pass
7/24/2019 4:09:00 AM	0.13	0.07	0.02	0.05	Pass	0.42	0.42	0.08	-0.005	Pass
Detector 3										
7/23/2019 4:34:00 AM	0.32	0.06	0.02	0.26	FAIL	0.47	0.40	0.09	0.074	Pass
7/24/2019 4:09:00 AM	0.17	0.06	0.02	0.11	FAIL	0.53	0.40	0.09	0.130	Pass
Detector 4										
7/23/2019 4:34:00 AM	0.20	0.09	0.03	0.11	FAIL	0.49	0.39	0.08	0.091	Pass
7/23/2019 9:05:00 AM	0.23	0.09	0.03	0.14	FAIL	0.42	0.39	0.08	0.026	Pass
7/24/2019 6:43:00 AM	0.27	0.09	0.03	0.18	FAIL	0.48	0.39	0.08	0.086	Pass
Detector 5										
7/23/2019 4:34:00 AM	0.18	0.08	0.02	0.09	FAIL	0.41	0.42	0.08	-0.013	Pass
7/23/2019 9:05:00 AM	0.27	0.08	0.02	0.18	FAIL	0.46	0.42	0.08	0.037	Pass
7/24/2019 4:09:00 AM	0.23	0.08	0.02	0.14	FAIL	0.38	0.42	0.08	-0.038	Pass
7/24/2019 9:01:00 AM	0.15	0.08	0.02	0.06	FAIL	0.43	0.42	0.08	0.007	Pass
Detector 6										
7/23/2019 4:34:00 AM	0.17	0.05	0.02	0.12	FAIL	0.43	0.36	0.06	0.066	Pass
7/24/2019 4:09:00 AM	0.20	0.05	0.02	0.14	FAIL	0.41	0.36	0.06	0.041	Pass
Detector 7										
7/23/2019 4:34:00 AM	0.17	0.08	0.03	0.09	Pass	0.41	0.51	0.12	-0.101	Pass
7/24/2019 4:09:00 AM	0.15	0.08	0.03	0.07	Pass	0.51	0.51	0.12	-0.006	Pass
Detector 8										
7/23/2019 4:34:00 AM	0.17	0.07	0.03	0.09	FAIL	0.51	0.47	0.13	0.040	Pass
7/24/2019 4:08:00 AM	0.13	0.07	0.03	0.05	Pass	0.52	0.47	0.13	0.055	Pass
Detector 9										
7/23/2019 5:24:00 AM	0.11	0.08	0.02	0.03	Pass	0.29	0.41	0.07	-0.118	Pass
7/24/2019 4:08:00 AM	0.11	0.08	0.02	0.03	Pass	0.46	0.41	0.07	0.047	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 10										
7/23/2019 4:34:00 AM	0.12	0.07	0.03	0.05	Pass	0.34	0.35	0.08	-0.005	Pass
7/24/2019 4:09:00 AM	0.28	0.07	0.03	0.21	FAIL	0.34	0.35	0.08	-0.010	Pass
Detector 11										
7/23/2019 4:34:00 AM	0.16	0.07	0.03	0.09	FAIL	0.42	0.45	0.09	-0.034	Pass
7/23/2019 9:05:00 AM	0.15	0.07	0.03	0.08	Pass	0.41	0.45	0.09	-0.044	Pass
7/24/2019 4:09:00 AM	0.12	0.07	0.03	0.05	Pass	0.49	0.45	0.09	0.036	Pass
Detector 12										
7/23/2019 6:58:00 AM	0.20	0.10	0.03	0.10	FAIL	0.43	0.46	0.12	-0.036	Pass
7/24/2019 4:09:00 AM	0.12	0.10	0.03	0.02	Pass	0.37	0.46	0.12	-0.091	Pass
Detector 13										
7/23/2019 4:34:00 AM	0.12	0.07	0.03	0.05	Pass	0.30	0.37	0.09	-0.079	Pass
7/24/2019 4:09:00 AM	0.17	0.07	0.03	0.10	FAIL	0.41	0.37	0.09	0.031	Pass
7/24/2019 9:01:00 AM	0.14	0.07	0.03	0.07	Pass	0.26	0.37	0.09	-0.114	Pass
Detector 14										
7/23/2019 4:34:00 AM	0.12	0.07	0.03	0.05	Pass	0.33	0.37	0.09	-0.038	Pass
7/24/2019 4:09:00 AM	0.13	0.07	0.03	0.05	Pass	0.37	0.37	0.09	0.002	Pass
Detector 15										
7/23/2019 4:34:00 AM	0.14	0.07	0.03	0.07	Pass	0.43	0.47	0.09	-0.042	Pass
7/24/2019 4:09:00 AM	0.19	0.07	0.03	0.12	FAIL	0.49	0.47	0.09	0.023	Pass
7/24/2019 9:01:00 AM	0.16	0.07	0.03	0.09	FAIL	0.44	0.47	0.09	-0.032	Pass
Detector 16										
7/23/2019 4:34:00 AM	0.28	0.08	0.04	0.20	FAIL	0.54	0.61	0.46	-0.071	Pass
7/24/2019 4:09:00 AM	0.24	0.08	0.04	0.16	FAIL	0.63	0.61	0.46	0.019	Pass
7/24/2019 9:01:00 AM	0.26	0.08	0.04	0.18	FAIL	0.55	0.61	0.46	-0.056	Pass
Detector 17										
7/23/2019 4:34:00 AM	0.26	0.07	0.03	0.19	FAIL	0.46	0.38	0.20	0.082	Pass
7/24/2019 4:43:00 AM	0.26	0.07	0.03	0.19	FAIL	0.42	0.38	0.20	0.037	Pass
Detector 18										
7/23/2019 4:34:00 AM	0.92	0.05	0.03	0.86	FAIL	1.25	0.62	0.09	0.625	FAIL
7/24/2019 4:09:00 AM	1.13	0.05	0.03	1.07	FAIL	1.20	0.62	0.09	0.580	FAIL
Detector 19										
7/23/2019 4:34:00 AM	0.19	0.14	0.02	0.05	Pass	0.62	0.46	0.09	0.160	Pass
7/24/2019 4:10:00 AM	0.34	0.14	0.02	0.20	FAIL	0.64	0.46	0.09	0.180	Pass
7/24/2019 9:01:00 AM	0.32	0.14	0.02	0.18	FAIL	0.66	0.46	0.09	0.200	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Kody Saulters at 10:18 am, Jul 25, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
7/24/2019 12:31:00 AM	11760.44	12736.38	382.09	-975.93	FAIL	4409.00	4320.40	60.09	88.600	Pass
7/25/2019 12:25:00 AM	11732.44	12736.38	382.09	-1003.94	FAIL	4482.00	4320.40	60.09	161.600	WARNING
Detector 1										
7/24/2019 12:31:00 AM	12770.41	13519.45	405.58	-749.04	FAIL	4587.50	4449.53	44.71	137.975	DOEF
7/25/2019 12:26:00 AM	12771.97	13519.45	405.58	-747.48	FAIL	4650.50	4449.53	44.71	200.975	DOEF
Detector 2										
7/24/2019 12:31:00 AM	12593.26	14253.55	427.61	-1660.29	FAIL	4795.50	4791.68	109.59	3.825	Pass
7/25/2019 12:26:00 AM	12829.28	14253.55	427.61	-1424.27	FAIL	4854.50	4791.68	109.59	62.825	Pass
Detector 3										
7/24/2019 12:31:00 AM	12743.24	13543.80	406.31	-800.56	FAIL	4522.00	4389.20	68.69	132.800	Pass
7/25/2019 12:26:00 AM	12716.74	13543.80	406.31	-827.06	FAIL	4577.50	4389.20	68.69	188.300	WARNING
Detector 4										
7/24/2019 12:31:00 AM	15676.91	16171.80	485.15	-494.89	FAIL	6353.00	6539.20	127.28	-186.200	Pass
7/24/2019 1:24:00 AM	15544.15	16171.80	485.15	-627.65	FAIL	6166.00	6539.20	127.28	-373.200	WARNING
7/24/2019 1:26:00 AM	15792.14	16171.80	485.15	-379.66	Pass	6074.00	6539.20	127.28	-465.200	DOEF
7/25/2019 12:19:00 AM	15743.11	16171.80	485.15	-428.69	Pass	6288.50	6539.20	127.28	-250.700	Pass
Detector 5										
7/24/2019 12:31:00 AM	16188.39	16459.75	493.79	-271.36	Pass	5946.00	6151.68	143.92	-205.675	Pass
7/25/2019 12:19:00 AM	16126.34	16459.75	493.79	-333.41	Pass	5907.00	6151.68	143.92	-244.675	Pass
Detector 6										
7/24/2019 12:31:00 AM	14682.98	15378.63	461.36	-695.64	FAIL	5374.50	5735.28	106.30	-360.775	DOEF
7/25/2019 12:19:00 AM	14674.53	15378.63	461.36	-704.09	FAIL	5419.00	5735.28	106.30	-316.275	WARNING
Detector 7										
7/24/2019 12:31:00 AM	14810.59	14694.35	440.83	116.24	Pass	5331.00	6293.60	174.59	-962.600	DOEF
7/25/2019 1:16:00 AM	14781.10	14694.35	440.83	86.75	Pass	5378.50	6293.60	174.59	-915.100	DOEF
Detector 8										
7/24/2019 12:33:00 AM	11627.90	12235.70	367.07	-607.80	FAIL	4399.50	4831.48	170.20	-431.975	WARNING
7/25/2019 12:28:00 AM	11591.38	12235.70	367.07	-644.32	FAIL	4427.00	4831.48	170.20	-404.475	WARNING
Detector 9										
7/24/2019 12:33:00 AM	12576.29	13042.63	391.28	-466.34	FAIL	4763.50	5136.70	130.65	-373.200	WARNING
7/25/2019 12:28:00 AM	12679.55	13042.63	391.28	-363.08	Pass	4764.50	5136.70	130.65	-372.200	WARNING
7/25/2019 1:08:00 AM	12709.11	13042.63	391.28	-333.52	Pass	4814.00	5136.70	130.65	-322.700	WARNING

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 10										
7/24/2019 12:33:00 AM	12973.99	13724.85	411.75	-750.86	**FAIL**	4821.00	5284.65	125.26	-463.650	**DOEF**
7/25/2019 12:28:00 AM	12932.96	13724.85	411.75	-791.89	**FAIL**	4909.50	5284.65	125.26	-375.150	**WARNING**
Detector 11										
7/24/2019 12:33:00 AM	12688.08	12965.85	388.98	-277.77	Pass	4856.00	5004.60	105.46	-148.600	Pass
7/25/2019 1:16:00 AM	12724.20	12965.85	388.98	-241.65	Pass	4760.00	5004.60	105.46	-244.600	**WARNING**
Detector 12										
7/24/2019 12:33:00 AM	15233.95	15035.28	451.06	198.67	Pass	6818.50	7154.28	501.18	-335.775	Pass
7/25/2019 1:16:00 AM	15350.17	15035.28	451.06	314.89	Pass	6809.00	7154.28	501.18	-345.275	Pass
Detector 13										
7/24/2019 12:33:00 AM	16876.17	16877.30	506.32	-1.13	Pass	5382.50	5477.70	171.80	-95.200	Pass
7/25/2019 12:22:00 AM	16785.63	16877.30	506.32	-91.67	Pass	5377.00	5477.70	171.80	-100.700	Pass
Detector 14										
7/24/2019 12:33:00 AM	13875.13	13691.08	410.73	184.05	Pass	6149.00	6845.08	521.25	-696.075	Pass
7/25/2019 12:22:00 AM	13765.55	13691.08	410.73	74.47	Pass	6137.00	6845.08	521.25	-708.075	Pass
Detector 15										
7/24/2019 12:33:00 AM	14145.39	13998.85	419.97	146.54	Pass	6200.00	6685.98	512.86	-485.975	Pass
7/25/2019 12:22:00 AM	14269.61	13998.85	419.97	270.76	Pass	6065.00	6685.98	512.86	-620.975	Pass
Detector 16										
7/24/2019 12:35:00 AM	11795.28	12089.48	362.68	-294.20	Pass	4416.00	4618.68	103.75	-202.675	Pass
7/25/2019 12:32:00 AM	11724.23	12089.48	362.68	-365.24	**FAIL**	4466.00	4618.68	103.75	-152.675	Pass
7/25/2019 1:05:00 AM	11610.59	12089.48	362.68	-478.89	**FAIL**	4519.00	4618.68	103.75	-99.675	Pass
7/25/2019 1:08:00 AM	11644.63	12089.48	362.68	-444.84	**FAIL**	4427.50	4618.68	103.75	-191.175	Pass
Detector 17										
7/24/2019 12:35:00 AM	12846.64	13119.45	393.58	-272.81	Pass	4577.00	4870.55	102.70	-293.550	**WARNING**
7/24/2019 1:22:00 AM	12685.93	13119.45	393.58	-433.52	**FAIL**	4745.00	4870.55	102.70	-125.550	Pass
7/25/2019 12:32:00 AM	12730.54	13119.45	393.58	-388.91	Pass	4735.50	4870.55	102.70	-135.050	Pass
7/25/2019 1:05:00 AM	12725.04	13119.45	393.58	-394.41	**FAIL**	4679.00	4870.55	102.70	-191.550	Pass
Detector 18										
7/24/2019 12:35:00 AM	13242.14	13598.40	407.95	-356.26	Pass	4681.00	4892.93	110.28	-211.925	Pass
7/25/2019 12:19:00 AM	1.00	13598.40	407.95	-13597.40	**FAIL**	0.00	4892.93	110.28	-4892.925	**DOEF**
7/25/2019 12:32:00 AM	13127.55	13598.40	407.95	-470.85	**FAIL**	4633.50	4892.93	110.28	-259.425	**WARNING**
Detector 19										
7/24/2019 12:35:00 AM	12671.78	12858.98	385.77	-187.19	Pass	4790.50	4846.63	121.24	-56.125	Pass
7/25/2019 12:32:00 AM	12628.28	12858.98	385.77	-230.69	Pass	4633.50	4846.63	121.24	-213.125	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
7/24/2019 12:44:00 AM	50149.03	50552.05	1516.56	-403.02	Pass	NA	NA	NA	NA	NA
7/25/2019 12:29:00 AM	50396.25	50552.05	1516.56	-155.80	Pass	NA	NA	NA	NA	NA
Detector 1										
7/24/2019 12:44:00 AM	48359.56	47641.23	1429.24	718.33	Pass	NA	NA	NA	NA	NA
7/25/2019 12:30:00 AM	48613.41	47641.23	1429.24	972.19	Pass	NA	NA	NA	NA	NA
Detector 2										
7/24/2019 12:44:00 AM	50316.87	49734.44	1492.03	582.43	Pass	NA	NA	NA	NA	NA
7/25/2019 12:30:00 AM	50388.84	49734.44	1492.03	654.40	Pass	NA	NA	NA	NA	NA
Detector 3										
7/24/2019 12:44:00 AM	59282.77	60167.98	1805.04	-885.21	Pass	NA	NA	NA	NA	NA
7/25/2019 12:30:00 AM	59494.19	60167.98	1805.04	-673.79	Pass	NA	NA	NA	NA	NA
Detector 4										
7/24/2019 12:44:00 AM	55065.32	55277.35	1658.32	-212.03	Pass	NA	NA	NA	NA	NA
7/25/2019 12:30:00 AM	55346.13	55277.35	1658.32	68.78	Pass	NA	NA	NA	NA	NA
Detector 5										
7/24/2019 12:44:00 AM	55109.51	55004.03	1650.12	105.49	Pass	NA	NA	NA	NA	NA
7/25/2019 12:30:00 AM	54538.52	55004.03	1650.12	-465.51	Pass	NA	NA	NA	NA	NA
Detector 6										
7/24/2019 12:44:00 AM	51436.58	52072.68	1562.18	-636.09	Pass	NA	NA	NA	NA	NA
7/25/2019 12:30:00 AM	51767.78	52072.68	1562.18	-304.90	Pass	NA	NA	NA	NA	NA
Detector 7										
7/24/2019 12:44:00 AM	45378.11	44302.58	1329.08	1075.54	Pass	NA	NA	NA	NA	NA
7/25/2019 1:19:00 AM	45385.25	44302.58	1329.08	1082.67	Pass	NA	NA	NA	NA	NA
Detector 8										
7/24/2019 12:46:00 AM	49848.50	49959.33	1498.78	-110.82	Pass	NA	NA	NA	NA	NA
7/25/2019 12:32:00 AM	49934.48	49959.33	1498.78	-24.85	Pass	NA	NA	NA	NA	NA
Detector 9										
7/24/2019 12:46:00 AM	48313.55	47696.08	1430.88	617.48	Pass	NA	NA	NA	NA	NA
7/25/2019 12:32:00 AM	48507.60	47696.08	1430.88	811.53	Pass	NA	NA	NA	NA	NA
Detector 10										
7/24/2019 12:46:00 AM	50560.17	50136.65	1504.10	423.52	Pass	NA	NA	NA	NA	NA
7/25/2019 12:32:00 AM	48708.02	50136.65	1504.10	-1428.63	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
7/24/2019 12:46:00 AM	60240.81	59951.55	1798.55	289.26	Pass	NA	NA	NA	NA	NA
7/25/2019 1:19:00 AM	59824.59	59951.55	1798.55	-126.96	Pass	NA	NA	NA	NA	NA
Detector 12										
7/24/2019 12:46:00 AM	55912.09	56070.40	1682.11	-158.31	Pass	NA	NA	NA	NA	NA
7/25/2019 1:19:00 AM	56270.53	56070.40	1682.11	200.13	Pass	NA	NA	NA	NA	NA
Detector 13										
7/24/2019 12:46:00 AM	55074.30	55607.20	1668.22	-532.90	Pass	NA	NA	NA	NA	NA
7/25/2019 12:32:00 AM	54971.61	55607.20	1668.22	-635.59	Pass	NA	NA	NA	NA	NA
Detector 14										
7/24/2019 12:46:00 AM	50808.05	50580.03	1517.40	228.03	Pass	NA	NA	NA	NA	NA
7/25/2019 12:32:00 AM	50924.46	50580.03	1517.40	344.44	Pass	NA	NA	NA	NA	NA
Detector 15										
7/24/2019 12:46:00 AM	45427.87	45674.43	1370.23	-246.56	Pass	NA	NA	NA	NA	NA
7/25/2019 12:32:00 AM	45401.23	45674.43	1370.23	-273.20	Pass	NA	NA	NA	NA	NA
Detector 16										
7/24/2019 12:49:00 AM	49897.60	49653.23	1489.60	244.38	Pass	NA	NA	NA	NA	NA
7/25/2019 12:36:00 AM	49811.44	49653.23	1489.60	158.22	Pass	NA	NA	NA	NA	NA
Detector 17										
7/24/2019 12:49:00 AM	48768.86	48166.13	1444.98	602.74	Pass	NA	NA	NA	NA	NA
7/25/2019 12:36:00 AM	48726.84	48166.13	1444.98	560.71	Pass	NA	NA	NA	NA	NA
Detector 18										
7/24/2019 12:49:00 AM	50242.74	49957.23	1498.72	285.52	Pass	NA	NA	NA	NA	NA
7/25/2019 12:36:00 AM	50013.48	49957.23	1498.72	56.25	Pass	NA	NA	NA	NA	NA
Detector 19										
7/24/2019 12:49:00 AM	59530.48	59167.80	1775.03	362.68	Pass	NA	NA	NA	NA	NA
7/25/2019 12:36:00 AM	59426.24	59167.80	1775.03	258.44	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
7/24/2019 4:09:00 AM	0.24	0.13	0.02	0.11	FAIL	0.56	0.48	0.09	0.080	Pass
7/25/2019 3:54:00 AM	0.23	0.13	0.02	0.10	FAIL	0.49	0.48	0.09	0.010	Pass
Detector 1										
7/24/2019 4:09:00 AM	0.22	0.14	0.02	0.08	FAIL	0.42	0.44	0.07	-0.022	Pass
7/25/2019 3:54:00 AM	0.38	0.14	0.02	0.24	FAIL	0.59	0.44	0.07	0.148	Pass
Detector 2										
7/24/2019 4:09:00 AM	0.13	0.07	0.02	0.05	Pass	0.42	0.42	0.08	-0.005	Pass
7/25/2019 3:54:00 AM	0.19	0.07	0.02	0.11	FAIL	0.36	0.42	0.08	-0.065	Pass
Detector 3										
7/24/2019 4:09:00 AM	0.17	0.06	0.02	0.11	FAIL	0.53	0.40	0.09	0.130	Pass
7/25/2019 3:54:00 AM	0.19	0.06	0.02	0.13	FAIL	0.44	0.40	0.09	0.044	Pass
Detector 4										
7/24/2019 6:43:00 AM	0.27	0.09	0.03	0.18	FAIL	0.48	0.39	0.08	0.086	Pass
7/25/2019 3:54:00 AM	0.16	0.09	0.03	0.07	Pass	0.40	0.39	0.08	0.001	Pass
Detector 5										
7/24/2019 4:09:00 AM	0.23	0.08	0.02	0.14	FAIL	0.38	0.42	0.08	-0.038	Pass
7/24/2019 9:01:00 AM	0.15	0.08	0.02	0.06	FAIL	0.43	0.42	0.08	0.007	Pass
7/25/2019 3:54:00 AM	0.24	0.08	0.02	0.15	FAIL	0.43	0.42	0.08	0.012	Pass
7/25/2019 8:52:00 AM	0.23	0.08	0.02	0.14	FAIL	0.45	0.42	0.08	0.032	Pass
Detector 6										
7/24/2019 4:09:00 AM	0.20	0.05	0.02	0.14	FAIL	0.41	0.36	0.06	0.041	Pass
7/25/2019 3:54:00 AM	0.15	0.05	0.02	0.09	FAIL	0.39	0.36	0.06	0.026	Pass
Detector 7										
7/24/2019 4:09:00 AM	0.15	0.08	0.03	0.07	Pass	0.51	0.51	0.12	-0.006	Pass
7/25/2019 4:41:00 AM	0.12	0.08	0.03	0.04	Pass	0.49	0.51	0.12	-0.021	Pass
Detector 8										
7/24/2019 4:08:00 AM	0.13	0.07	0.03	0.05	Pass	0.52	0.47	0.13	0.055	Pass
7/25/2019 3:54:00 AM	0.15	0.07	0.03	0.08	Pass	0.69	0.47	0.13	0.225	Pass
Detector 9										
7/24/2019 4:08:00 AM	0.11	0.08	0.02	0.03	Pass	0.46	0.41	0.07	0.047	Pass
7/25/2019 4:29:00 AM	0.16	0.08	0.02	0.08	FAIL	0.46	0.41	0.07	0.052	Pass
7/25/2019 8:52:00 AM	0.20	0.08	0.02	0.12	FAIL	0.46	0.41	0.07	0.047	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 10										
7/24/2019 4:09:00 AM	0.28	0.07	0.03	0.21	FAIL	0.34	0.35	0.08	-0.010	Pass
7/25/2019 3:54:00 AM	0.33	0.07	0.03	0.26	FAIL	0.45	0.35	0.08	0.100	Pass
Detector 11										
7/24/2019 4:09:00 AM	0.12	0.07	0.03	0.05	Pass	0.49	0.45	0.09	0.036	Pass
7/25/2019 4:41:00 AM	0.18	0.07	0.03	0.11	FAIL	0.60	0.45	0.09	0.146	Pass
7/25/2019 8:52:00 AM	0.17	0.07	0.03	0.10	FAIL	0.54	0.45	0.09	0.091	Pass
Detector 12										
7/24/2019 4:09:00 AM	0.12	0.10	0.03	0.02	Pass	0.37	0.46	0.12	-0.091	Pass
7/25/2019 4:41:00 AM	0.11	0.10	0.03	0.01	Pass	0.41	0.46	0.12	-0.051	Pass
Detector 13										
7/24/2019 4:09:00 AM	0.17	0.07	0.03	0.10	FAIL	0.41	0.37	0.09	0.031	Pass
7/24/2019 9:01:00 AM	0.14	0.07	0.03	0.07	Pass	0.26	0.37	0.09	-0.114	Pass
7/25/2019 3:54:00 AM	0.13	0.07	0.03	0.06	Pass	0.47	0.37	0.09	0.091	Pass
Detector 14										
7/24/2019 4:09:00 AM	0.13	0.07	0.03	0.05	Pass	0.37	0.37	0.09	0.002	Pass
7/25/2019 3:54:00 AM	0.11	0.07	0.03	0.04	Pass	0.50	0.37	0.09	0.127	Pass
Detector 15										
7/24/2019 4:09:00 AM	0.19	0.07	0.03	0.12	FAIL	0.49	0.47	0.09	0.023	Pass
7/24/2019 9:01:00 AM	0.16	0.07	0.03	0.09	FAIL	0.44	0.47	0.09	-0.032	Pass
7/25/2019 3:55:00 AM	0.17	0.07	0.03	0.10	FAIL	0.43	0.47	0.09	-0.037	Pass
7/25/2019 8:52:00 AM	0.20	0.07	0.03	0.13	FAIL	0.52	0.47	0.09	0.053	Pass
Detector 16										
7/24/2019 4:09:00 AM	0.24	0.08	0.04	0.16	FAIL	0.63	0.61	0.46	0.019	Pass
7/24/2019 9:01:00 AM	0.26	0.08	0.04	0.18	FAIL	0.55	0.61	0.46	-0.056	Pass
7/25/2019 4:29:00 AM	0.28	0.08	0.04	0.20	FAIL	0.62	0.61	0.46	0.014	Pass
Detector 17										
7/24/2019 4:43:00 AM	0.26	0.07	0.03	0.19	FAIL	0.42	0.38	0.20	0.037	Pass
7/25/2019 4:27:00 AM	0.19	0.07	0.03	0.12	FAIL	0.47	0.38	0.20	0.087	Pass
Detector 18										
7/24/2019 4:09:00 AM	1.13	0.05	0.03	1.07	FAIL	1.20	0.62	0.09	0.580	FAIL
7/25/2019 3:57:00 AM	0.99	0.05	0.03	0.94	FAIL	1.22	0.62	0.09	0.595	FAIL

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 19										
7/24/2019 4:10:00 AM	0.34	0.14	0.02	0.20	FAIL	0.64	0.46	0.09	0.180	Pass
7/24/2019 9:01:00 AM	0.32	0.14	0.02	0.18	FAIL	0.66	0.46	0.09	0.200	Pass
7/25/2019 3:57:00 AM	0.20	0.14	0.02	0.06	Pass	0.61	0.46	0.09	0.145	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

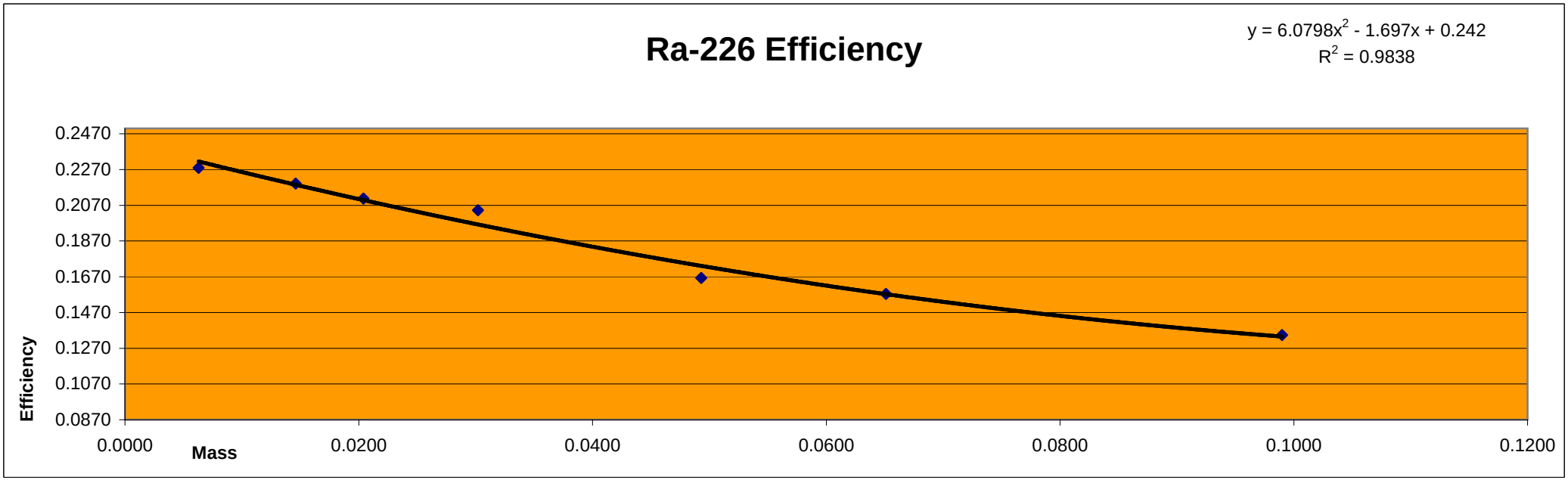
The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

Ra-226 Calibration 2017

Orange 12

Std #	Mass	Count Time	Sample Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency
R2	0.0063	15.00	2/15/2017 0:23	19595	1306.3333	2/13/2017 13:30	1.6949	0.4487	1717.6325	7534.6	0.2280
R3	0.0146	15.00	2/15/2017 0:05	29008	1933.8667	2/13/2017 13:30	1.6897	0.6933	1650.8645	7534.6	0.2191
R4	0.0204	15.00	2/14/2017 23:47	29154	1943.6000	2/13/2017 13:30	1.6846	0.7265	1588.0805	7534.6	0.2108
R5	0.0302	15.00	2/14/2017 23:23	33307	2220.4667	2/13/2017 13:30	1.6776	0.8604	1538.3803	7534.6	0.2042
R6	0.0493	15.00	2/14/2017 23:07	29435	1962.3333	2/13/2017 13:30	1.6728	0.9364	1252.8111	7534.6	0.1663
R7	0.0651	15.00	2/15/2017 1:18	28212	1880.8000	2/13/2017 13:30	1.7109	0.9274	1185.4411	7534.6	0.1573
R8	0.0990	15.00	2/15/2017 1:01	24373	1624.8667	2/13/2017 13:30	1.7061	0.9402	1012.9831	7534.6	0.1344



Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID ICRa6-986404;-6-A

Repeat 9

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/14/2017 11:07:22 PM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 2/14/2017 11:22:29 PM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.150	29,435	1,962.333	1,962.183
sd	0.000			0.012	171.566	11.438	11.438
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.487	23,067	1,537.800	1,537.313
sd	0.000			0.022	151.878	10.125	10.125

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID ICRa6-986404;-5-A

Repeat 10

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 *l* **sd** 0 *l*

Residual Wt 0 *mg* **sd** 0 *mg*

Count Began 2/14/2017 11:23:43 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 *days*

Count Ended 2/14/2017 11:38:51 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 *mins* **Background Count Time** 1,000.00 *mins*

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.150	33,307	2,220.467	2,220.317
sd	0.000			0.012	182.502	12.167	12.167
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.487	22,065	1,471.000	1,470.513
sd	0.000			0.022	148.543	9.903	9.903

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID ICRa6-986404;-4-A

Repeat 11

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 *l* **sd** 0 *l*

Residual Wt 0 *mg* **sd** 0 *mg*

Count Began 2/14/2017 11:47:50 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 *days*

Count Ended 2/15/2017 12:02:57 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 *mins* **Background Count Time** 1,000.00 *mins*

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.150	29,154	1,943.600	1,943.450
sd	0.000			0.012	170.745	11.383	11.383
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.487	19,122	1,274.800	1,274.313
sd	0.000			0.022	138.282	9.219	9.219

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID ICRa6-986404;-3-A

Repeat 12

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:05:27 AM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 2/15/2017 12:20:33 AM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.150	29,008	1,933.867	1,933.717
sd	0.000			0.012	170.317	11.354	11.354
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.487	18,340	1,222.667	1,222.180
sd	0.000			0.022	135.425	9.028	9.028

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID ICRa6-986404;-2-A

Repeat 13

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:23:17 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/15/2017 12:38:23 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.150	19,595	1,306.333	1,306.183
sd	0.000			0.012	139.982	9.332	9.332
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.487	11,990	799.333	798.846
sd	0.000			0.022	109.499	7.300	7.300

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID ICRa6-986404;-8-A

Repeat 15

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 1:01:59 AM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 2/15/2017 1:17:18 AM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.150	24,373	1,624.867	1,624.717
sd	0.000			0.012	156.119	10.408	10.408
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.487	23,590	1,572.667	1,572.180
sd	0.000			0.022	153.590	10.239	10.239

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID ICRa6-986404;-7-A

Repeat 16

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 *l* **sd** 0 *l*

Residual Wt 0 *mg* **sd** 0 *mg*

Count Began 2/15/2017 1:18:29 AM

Count Ended 2/15/2017 1:33:41 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 *days*

Decay Factor 1.000

Sample Count Time 15.00 *mins*

Background Count Time 1,000.00 *mins*

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.150	28,212	1,880.800	1,880.650
sd	0.000			0.012	167.964	11.198	11.198
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.487	23,056	1,537.067	1,536.580
sd	0.000			0.022	151.842	10.123	10.123

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

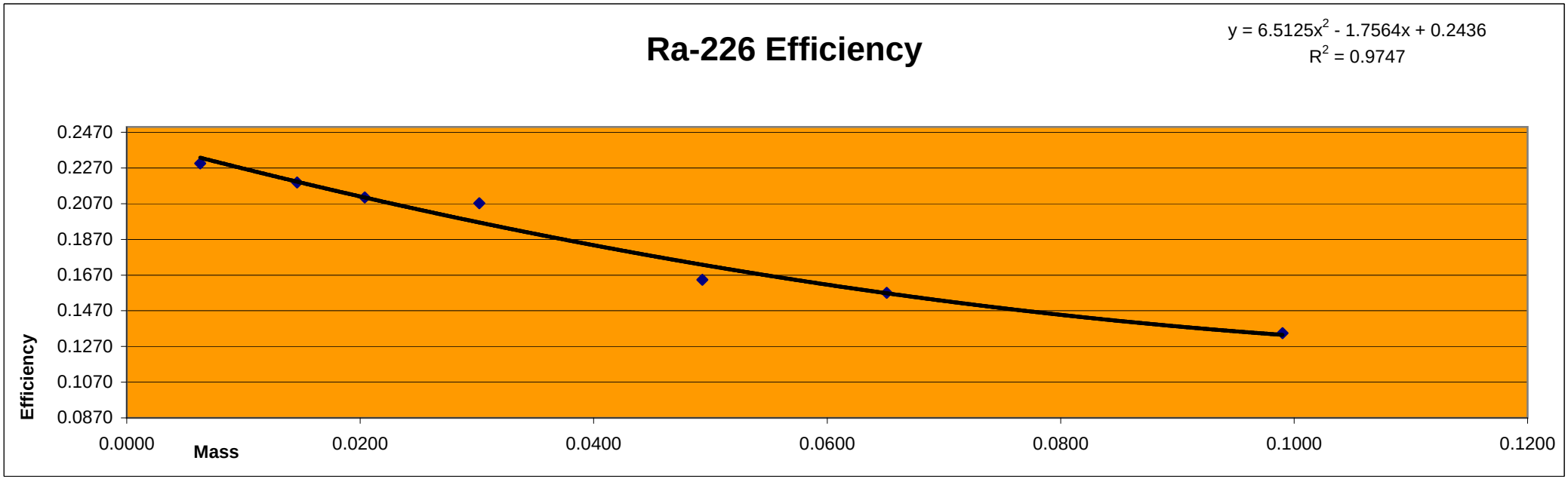
MDC Method Tb = Ts < 10

Error = .00 **x sd**

Ra-226 Calibration 2017

Orange 13

Std #	Mass	Count Time	Sample Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency
R2	0.0063	15.00	2/15/2017 0:40	19788	1319.2000	2/13/2017 13:30	1.6999	0.4487	1729.4240	7534.6	0.2295
R3	0.0146	15.00	2/15/2017 0:23	29069	1937.9333	2/13/2017 13:30	1.6950	0.6933	1649.2140	7534.6	0.2189
R4	0.0204	15.00	2/15/2017 0:05	29208	1947.2000	2/13/2017 13:30	1.6898	0.7265	1586.1792	7534.6	0.2105
R5	0.0302	15.00	2/14/2017 23:47	33960	2264.0000	2/13/2017 13:30	1.6846	0.8604	1561.9684	7534.6	0.2073
R6	0.0493	15.00	2/14/2017 23:23	29177	1945.1333	2/13/2017 13:30	1.6776	0.9364	1238.2774	7534.6	0.1643
R7	0.0651	15.00	2/14/2017 23:07	27545	1836.3333	2/13/2017 13:30	1.6728	0.9274	1183.7688	7534.6	0.1571
R8	0.0990	15.00	2/15/2017 1:18	24455	1630.3333	2/13/2017 13:30	1.7109	0.9402	1013.5552	7534.6	0.1345



Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID ICRa6-986404;-7-A

Repeat 9

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/14/2017 11:07:23 PM

Count Ended 2/14/2017 11:22:29 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.098	27,545	1,836.333	1,836.235
sd	0.000			0.010	165.967	11.064	11.064
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.464	21,584	1,438.933	1,438.469
sd	0.000			0.022	146.915	9.794	9.794

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID ICRa6-986404;-6-A

Repeat 10

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/14/2017 11:23:46 PM

Count Ended 2/14/2017 11:39:04 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.098	29,177	1,945.133	1,945.035
sd	0.000			0.010	170.813	11.388	11.388
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.464	22,484	1,498.933	1,498.469
sd	0.000			0.022	149.947	9.996	9.996

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID ICRa6-986404;5-A

Repeat 11

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/14/2017 11:47:54 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/15/2017 12:03:02 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.098	33,960	2,264.000	2,263.902
sd	0.000			0.010	184.282	12.285	12.285
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.464	21,712	1,447.467	1,447.003
sd	0.000			0.022	147.350	9.823	9.823

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID ICRa6-986404;-4-A

Repeat 12

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:05:30 AM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 2/15/2017 12:20:36 AM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.098	29,208	1,947.200	1,947.102
sd	0.000			0.010	170.903	11.394	11.394
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.464	19,009	1,267.267	1,266.803
sd	0.000			0.022	137.873	9.192	9.192

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID ICRa6-986404;-3-A

Repeat 13

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:23:31 AM

Count Ended 2/15/2017 12:38:37 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.098	29,069	1,937.933	1,937.835
sd	0.000			0.010	170.496	11.366	11.366
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.464	17,949	1,196.600	1,196.136
sd	0.000			0.022	133.974	8.932	8.932

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID ICRa6-986404;-2-A

Repeat 14

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:40:37 AM

Count Ended 2/15/2017 12:55:44 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.098	19,788	1,319.200	1,319.102
sd	0.000			0.010	140.670	9.378	9.378
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.464	11,871	791.400	790.936
sd	0.000			0.022	108.954	7.264	7.264

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID ICRa6-986404;-8-A

Repeat 16

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 1:18:32 AM

Count Ended 2/15/2017 1:33:41 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.098	24,455	1,630.333	1,630.235
sd	0.000			0.010	156.381	10.425	10.425
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.464	23,679	1,578.600	1,578.136
sd	0.000			0.022	153.880	10.259	10.259

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

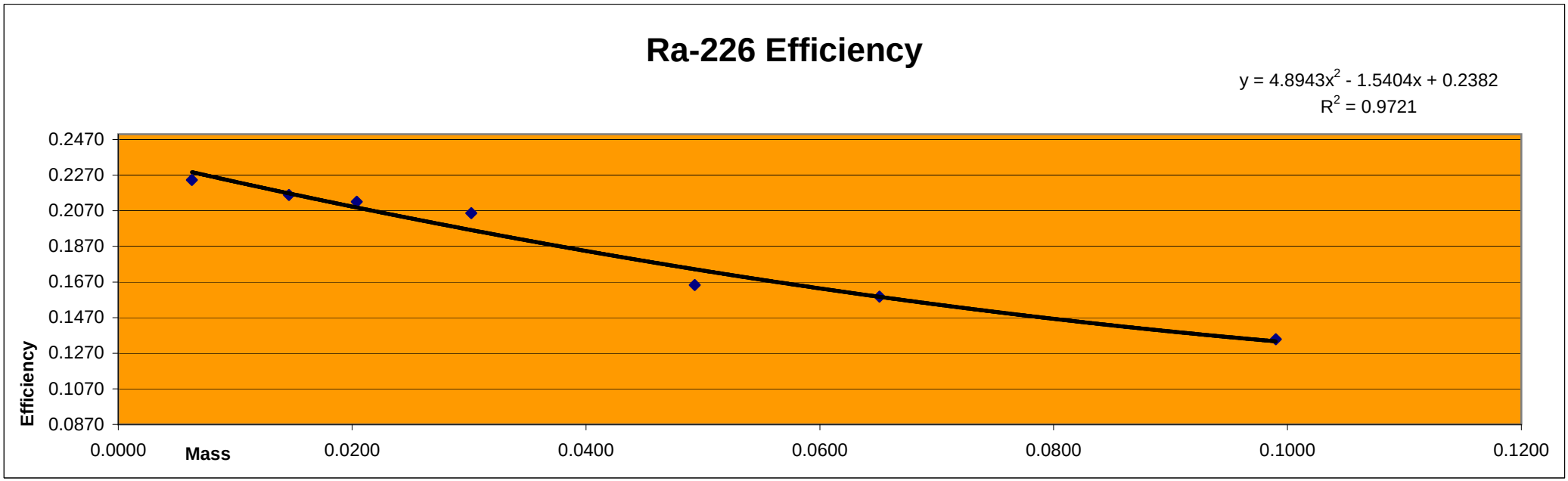
MDC Method Tb = Ts < 10

Error = .00 **x sd**

Ra-226 Calibration 2017

Orange 20

Std #	Mass	Count Time	Sample Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency
R2	0.0063	15.00	2/15/2017 8:29	20842	1389.4667	2/13/2017 13:30	1.8318	0.4487	1690.4106	7534.6	0.2244
R3	0.0146	15.00	2/15/2017 8:09	30890	2059.3333	2/13/2017 13:30	1.8262	0.6933	1626.6264	7534.6	0.2159
R4	0.0204	15.00	2/15/2017 7:51	31721	2114.7333	2/13/2017 13:30	1.8213	0.7265	1598.2672	7534.6	0.2121
R5	0.0302	15.00	2/15/2017 7:24	36283	2418.8667	2/13/2017 13:30	1.8140	0.8604	1549.7854	7534.6	0.2057
R6	0.0493	15.00	2/15/2017 7:05	31651	2110.0667	2/13/2017 13:30	1.8086	0.9364	1245.9739	7534.6	0.1654
R7	0.0651	15.00	2/15/2017 10:11	30936	2062.4000	2/13/2017 13:30	1.8593	0.9274	1196.1049	7534.6	0.1587
R8	0.0990	15.00	2/15/2017 9:18	26440	1762.6667	2/13/2017 13:30	1.8452	0.9402	1016.0890	7534.6	0.1349



Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID ICRa6-986404;-6-A

Repeat 17

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 7:05:02 AM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 2/15/2017 7:20:08 AM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.135	31,651	2,110.067	2,109.932
sd	0.000			0.012	177.907	11.860	11.860
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.381	27,143	1,809.533	1,809.152
sd	0.000			0.020	164.751	10.983	10.983

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID ICRa6-986404;-5-A

Repeat 18

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 7:24:43 AM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 2/15/2017 7:39:50 AM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.135	36,283	2,418.867	2,418.732
sd	0.000			0.012	190.481	12.699	12.699
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.381	25,994	1,732.933	1,732.552
sd	0.000			0.020	161.227	10.748	10.748

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID ICRa6-986404;-4-A

Repeat 19

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 7:51:05 AM

Count Ended 2/15/2017 8:06:12 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.135	31,721	2,114.733	2,114.598
sd	0.000			0.012	178.104	11.874	11.874
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.381	22,715	1,514.333	1,513.952
sd	0.000			0.020	150.715	10.048	10.048

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID ICRa6-986404;-3-A

Repeat 20

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 8:09:03 AM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 2/15/2017 8:24:10 AM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.135	30,890	2,059.333	2,059.198
sd	0.000			0.012	175.756	11.717	11.717
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.381	21,254	1,416.933	1,416.552
sd	0.000			0.020	145.788	9.719	9.719

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID ICRa6-986404;2-A

Repeat 21

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 8:29:40 AM

Count Ended 2/15/2017 8:44:45 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.135	20,842	1,389.467	1,389.332
sd	0.000			0.012	144.368	9.625	9.625
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.381	13,874	924.933	924.552
sd	0.000			0.020	117.788	7.853	7.853

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID ICRa6-986404;8-A

Repeat 23

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 9:18:42 AM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 2/15/2017 9:33:48 AM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.135	26,440	1,762.667	1,762.532
sd	0.000			0.012	162.604	10.840	10.840
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.381	27,564	1,837.600	1,837.219
sd	0.000			0.020	166.024	11.068	11.068

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID ICRa6-986404;7-A

Repeat 24

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 10:11:12 AM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 2/15/2017 10:26:18 AM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.135	30,936	2,062.400	2,062.265
sd	0.000			0.012	175.886	11.726	11.726
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.381	27,438	1,829.200	1,828.819
sd	0.000			0.020	165.644	11.043	11.043

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

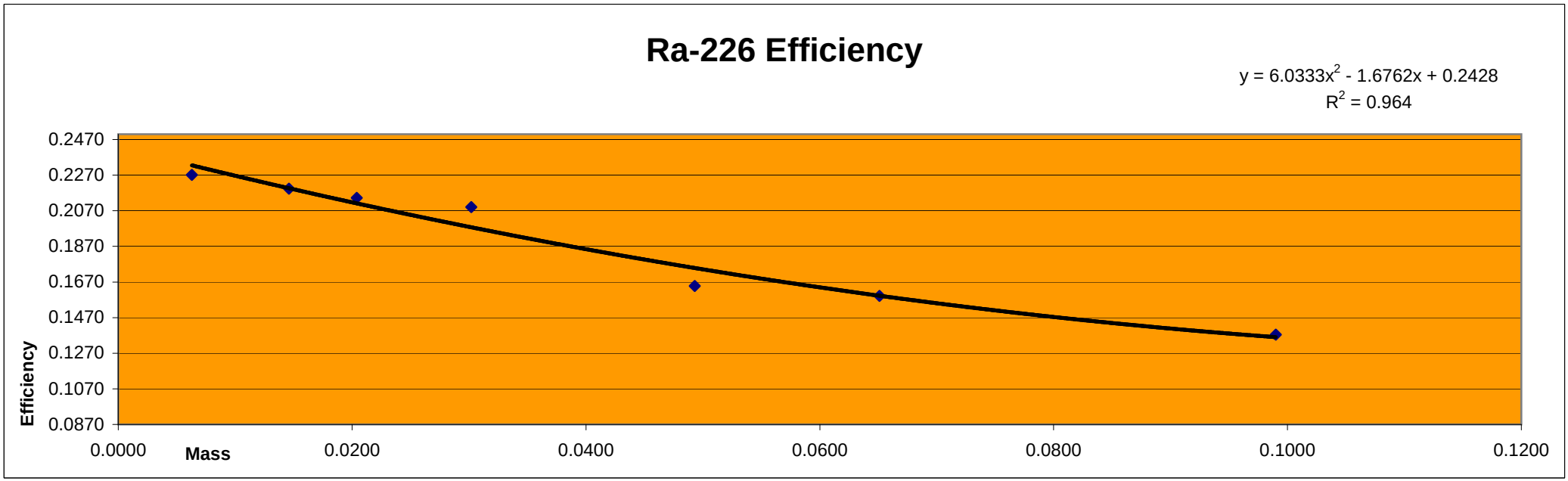
MDC Method Tb = Ts < 10

Error = .00 **x sd**

Ra-226 Calibration 2017

Orange 21

Std #	Mass	Count Time	Sample Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency
R2	0.0063	15.00	2/15/2017 8:58	21195	1413.0000	2/13/2017 13:30	1.8396	0.4487	1711.7937	7534.6	0.2272
R3	0.0146	15.00	2/15/2017 8:29	31483	2098.8667	2/13/2017 13:30	1.8318	0.6933	1652.7375	7534.6	0.2194
R4	0.0204	15.00	2/15/2017 8:09	32134	2142.2667	2/13/2017 13:30	1.8262	0.7265	1614.7126	7534.6	0.2143
R5	0.0302	15.00	2/15/2017 7:51	37026	2468.4000	2/13/2017 13:30	1.8213	0.8604	1575.2162	7534.6	0.2091
R6	0.0493	15.00	2/15/2017 7:24	31623	2108.2000	2/13/2017 13:30	1.8140	0.9364	1241.1345	7534.6	0.1647
R7	0.0651	15.00	2/15/2017 7:05	30171	2011.4000	2/13/2017 13:30	1.8086	0.9274	1199.2464	7534.6	0.1592
R8	0.0990	15.00	2/15/2017 10:11	27154	1810.2667	2/13/2017 13:30	1.8594	0.9402	1035.5547	7534.6	0.1374



TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Total Alpha-Emitting Radium

Batch: 291970 **Operator:**

SampID / Analyte	WRKNO	Ts	Aliquot Tb	Cs	Ba Mass Cb	Ba Yield CPMs	Trunc Yield CPMb	Ingrowth	Activity	Ba Precip Time UncCount	InstrID UncTotal	Eff MDA	Cal Type DLC	Cnt Date Time MQO	Sigma
160-21018-A-1-A	160-21018-A-1-A		1.0000mL		0.0133	63.15%	False		1.8957	2/13/17 13:30	Orange21	0.2216	2	2/15/17 12:24	1.00
Total Alpha Emitting		5.00	1000.00	9996	84	1999.20	0.08		3.395E+003pCi/mL	3.396E+001	1.565E+002	1.745E+000	3.630E-001	156.5056	
160-21018-A-2-A	160-21018-A-2-A		1.0000mL		0.0276	78.63%	False		1.8941	2/13/17 13:30	Orange21	0.2011	2	2/15/17 12:18	1.00
Total Alpha Emitting		5.00	1000.00	12425	84	2485.00	0.08		3.737E+003pCi/mL	3.353E+001	1.715E+002	1.545E+000	3.214E-001	171.4695	
160-21018-A-3-A	160-21018-A-3-A		1.0000mL		0.0487	92.50%	False		1.8923	2/13/17 13:30	Orange21	0.1755	2	2/15/17 12:11	1.00
Total Alpha Emitting		5.00	1000.00	11401	84	2280.20	0.08		3.344E+003pCi/mL	3.132E+001	1.537E+002	1.507E+000	3.135E-001	153.7164	

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

SampID	SampDupID	Analyte	Activity	DupActivity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	WRKNO	Analyte	Activity	MSActivity	StdAdded	Recovery	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal

Ra226 ICV

Orange Ra226 ICV 2017				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
21	89.62%	98.65%	88.27%	92.18%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3788.19152 pCi/mL

Prep Batch: 291970

Detector	1	Activity	Units
21	Low Mass (0.0133g)	3.395E+03	pCi/mL

2	Activity	Units
Medium Mass (0.0276g)	3.737E+03	pCi/mL

3	Activity	Units
High Mass (0.0487g)	3.344E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID ICRa6-986404;-7-A

Repeat 17

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 *l* **sd** 0 *l*

Residual Wt 0 *mg* **sd** 0 *mg*

Count Began 2/15/2017 7:05:08 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 *days*

Count Ended 2/15/2017 7:20:14 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 *mins* **Background Count Time** 1,000.00 *mins*

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.084	30,171	2,011.400	2,011.316
sd	0.000			0.009	173.698	11.580	11.580
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.348	26,073	1,738.200	1,737.852
sd	0.000			0.019	161.471	10.765	10.765

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID ICRa6-986404;-6-A

Repeat 18

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 7:24:48 AM

Count Ended 2/15/2017 7:39:55 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.084	31,623	2,108.200	2,108.116
sd	0.000			0.009	177.829	11.855	11.855
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.348	27,447	1,829.800	1,829.452
sd	0.000			0.019	165.671	11.045	11.045

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID ICRa6-986404;-5-A

Repeat 19

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 *l* **sd** 0 *l*

Residual Wt 0 *mg* **sd** 0 *mg*

Count Began 2/15/2017 7:51:09 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 *days*

Count Ended 2/15/2017 8:06:16 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 *mins* **Background Count Time** 1,000.00 *mins*

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.084	37,026	2,468.400	2,468.316
sd	0.000			0.009	192.421	12.828	12.828
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.348	26,284	1,752.267	1,751.919
sd	0.000			0.019	162.123	10.808	10.808

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID ICRa6-986404;-4-A

Repeat 20

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 8:09:03 AM

Count Ended 2/15/2017 8:24:10 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.084	32,134	2,142.267	2,142.183
sd	0.000			0.009	179.260	11.951	11.951
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.348	23,032	1,535.467	1,535.119
sd	0.000			0.019	151.763	10.118	10.118

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID ICRa6-986404;-3-A

Repeat 21

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 8:29:44 AM

Count Ended 2/15/2017 8:44:51 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.084	31,483	2,098.867	2,098.783
sd	0.000			0.009	177.434	11.829	11.829
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.348	21,720	1,448.000	1,447.652
sd	0.000			0.019	147.377	9.825	9.825

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID ICRa6-986404;2-A

Repeat 22

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 8:58:08 AM

Count Ended 2/15/2017 9:13:13 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.084	21,195	1,413.000	1,412.916
sd	0.000			0.009	145.585	9.706	9.706
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.348	14,083	938.867	938.519
sd	0.000			0.019	118.672	7.911	7.911

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID ICRa6-986404;-8-A

Repeat 24

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 *l* **sd** 0 *l*

Residual Wt 0 *mg* **sd** 0 *mg*

Count Began 2/15/2017 10:11:15 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 *days*

Count Ended 2/15/2017 10:26:22 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 *mins* **Background Count Time** 1,000.00 *mins*

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.084	27,154	1,810.267	1,810.183
sd	0.000			0.009	164.785	10.986	10.986
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.348	28,086	1,872.400	1,872.052
sd	0.000			0.019	167.589	11.173	11.173

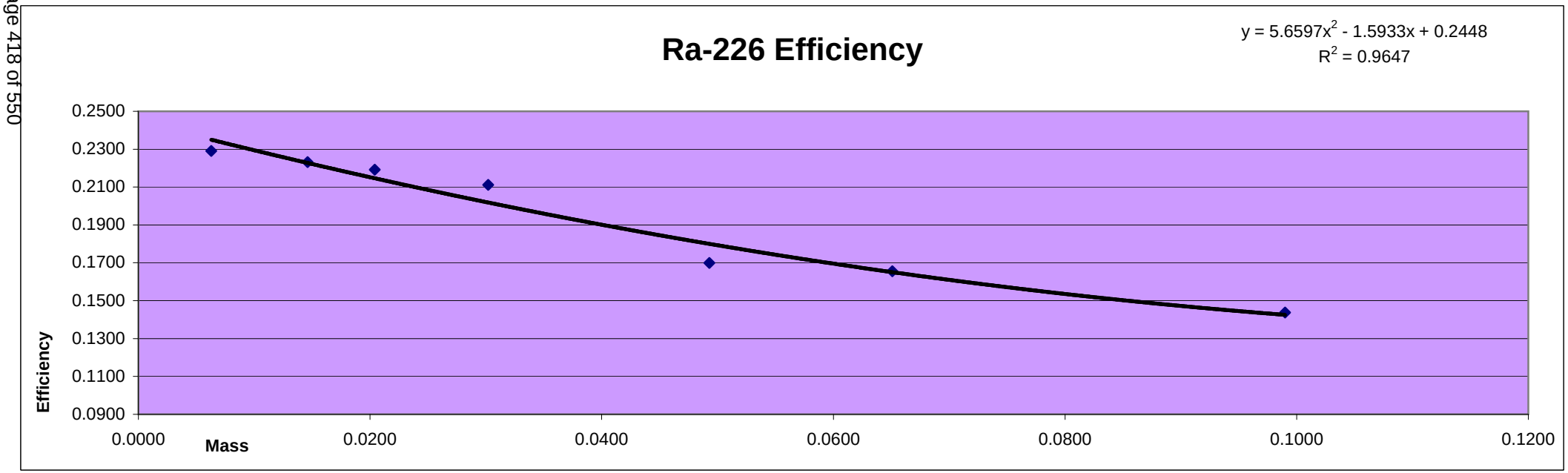
	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Ra-226 Calibration 2017

Purple 4

Std #	Mass	Count Time	Sample Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency
R2	0.0063	15.00	2/17/2017 2:29	28129	1875.2667	2/13/2017 13:30	2.4211	0.4487	1726.1274	7534.6	0.2291
R3	0.0146	15.00	2/17/2017 2:12	42276	2818.4000	2/13/2017 13:30	2.4177	0.6933	1681.5054	7534.6	0.2232
R4	0.0204	15.00	2/17/2017 1:55	43445	2896.3333	2/13/2017 13:30	2.4143	0.7265	1651.2885	7534.6	0.2192
R5	0.0302	15.00	2/17/2017 1:32	49478	3298.5333	2/13/2017 13:30	2.4099	0.8604	1590.8465	7534.6	0.2111
R6	0.0493	15.00	2/17/2017 1:15	43282	2885.4667	2/13/2017 13:30	2.4065	0.9364	1280.5309	7534.6	0.1700
R7	0.0651	15.00	2/17/2017 3:21	42177	2811.8000	2/13/2017 13:30	2.4315	0.9274	1247.0214	7534.6	0.1655
R8	0.0990	15.00	2/17/2017 3:04	37097	2473.1333	2/13/2017 13:30	2.4281	0.9402	1083.3858	7534.6	0.1438



Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID ICRa6-986404;6-A

Repeat 17

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/17/2017 1:15:59 AM

Count Ended 2/17/2017 1:31:09 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	43,282	2,885.467	2,885.289
sd	0.000			0.013	208.043	13.870	13.870
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.495	46,440	3,096.000	3,095.505
sd	0.000			0.022	215.499	14.367	14.367

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID ICRa6-986404;5-A

Repeat 18

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/17/2017 1:32:58 AM

Count Ended 2/17/2017 1:48:14 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	49,478	3,298.533	3,298.355
sd	0.000			0.013	222.437	14.829	14.829
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.495	44,558	2,970.533	2,970.038
sd	0.000			0.022	211.088	14.073	14.073

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID ICRa6-986404;4-A

Repeat 19

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/17/2017 1:55:08 AM

Count Ended 2/17/2017 2:10:19 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	43,445	2,896.333	2,896.155
sd	0.000			0.013	208.435	13.896	13.896
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.495	38,952	2,596.800	2,596.305
sd	0.000			0.022	197.363	13.158	13.158

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID ICRa6-986404;3-A

Repeat 20

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/17/2017 2:12:23 AM

Count Ended 2/17/2017 2:27:32 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	42,276	2,818.400	2,818.222
sd	0.000			0.013	205.611	13.707	13.707
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.495	36,761	2,450.733	2,450.238
sd	0.000			0.022	191.732	12.782	12.782

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID ICRa6-986404;2-A

Repeat 21

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/17/2017 2:29:22 AM

Count Ended 2/17/2017 2:44:34 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	28,129	1,875.267	1,875.089
sd	0.000			0.013	167.717	11.181	11.181
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.495	23,513	1,567.533	1,567.038
sd	0.000			0.022	153.339	10.223	10.223

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID ICRa6-986404;8-A

Repeat 23

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/17/2017 3:04:22 AM

Count Ended 2/17/2017 3:19:37 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	37,097	2,473.133	2,472.955
sd	0.000			0.013	192.606	12.840	12.840
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.495	46,712	3,114.133	3,113.638
sd	0.000			0.022	216.130	14.409	14.409

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID ICRa6-986404;7-A

Repeat 24

Carrier No. 0

Batch ID 291968

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/17/2017 3:21:36 AM

Count Ended 2/17/2017 3:36:47 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	42,177	2,811.800	2,811.622
sd	0.000			0.013	205.370	13.691	13.691
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.495	45,418	3,027.867	3,027.372
sd	0.000			0.022	213.115	14.208	14.208

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha Beta Calibration Verifications

ICV is for Gross Alpha

Blue - Alpha ICV 2017				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
0	107.30%	103.06%	102.84%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: 281207

	Low Mass	Medium Mass	High Mass
	0.0161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
0	5.39E+00	5.17E+00	5.16E+00

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Blue - Beta ICV 2017				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
0	98.34%	96.97%	97.96%	97.76%

Beta Activity 1815.077 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Count Date:	3/31/2017		(or date at which you wish to determine activity)
Elapsed Time:	1583.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.899957764		
Corrected Activity:	2014.735445	dpm	
Decay Activity (Sr/Y-90)	4029.47089	dpm	1815.077 pCi

Prep Batch: 239589

Detector	Beta 1	Activity	Units
0	Low Mass	1.785E+03	pCi/mL

Beta 2	Activity	Units
Medium Mass	1.760E+03	pCi/mL

Beta 3	Activity	Units
High Mass	1.778E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICVABT-51512;Beta1 **Repeat** 1

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 12:09:35 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:14:39 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.026	87	17.400	17.400
sd	0.000			0.000	9.327	1.865	1.865
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.350	8,534	1,706.800	1,706.800
sd	0.000			0.000	92.380	18.476	18.476

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICVABT-51512;Beta3 **Repeat** 3

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 12:27:24 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:32:26 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.026	78	15.600	15.600
sd	0.000			0.000	8.832	1.766	1.766
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.350	7,590	1,518.000	1,518.000
sd	0.000			0.000	87.121	17.424	17.424

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICVABT-51512;Beta2 **Repeat** 4

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 12:43:28 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:48:30 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.026	58	11.600	11.600
sd	0.000			0.000	7.616	1.523	1.523
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.350	7,918	1,583.600	1,583.600
sd	0.000			0.000	88.983	17.797	17.797

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICVABT-181198;Alpha1 **Repeat** 1

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 1:14:58 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 1:45:02 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.026	13,094	436.467	436.467
sd	0.000			0.000	114.429	3.814	3.814
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.350	4,427	147.567	147.567
sd	0.000			0.000	66.536	2.218	2.218

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICVABT-181198;Alpha3 **Repeat** 3

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 3:21:17 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 3:51:20 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.026	7,038	234.600	234.600
sd	0.000			0.000	83.893	2.796	2.796
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.350	2,927	97.567	97.567
sd	0.000			0.000	54.102	1.803	1.803

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - A

Addr: 0

Sample ID ICVABT-181198;Alpha2 **Repeat** 4

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 4:04:05 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 4:34:08 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.026	8,712	290.400	290.400
sd	0.000			0.000	93.338	3.111	3.111
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.350	3,247	108.233	108.233
sd	0.000			0.000	56.982	1.899	1.899

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Alpha

Blue - Alpha ICV 2017				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
1	109.30%	105.49%	104.89%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: 281207

	Low Mass	Medium Mass	High Mass
	0.0161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
1	5.49E+00	5.29E+00	5.26E+00

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Blue - Beta ICV 2017				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
1	96.75%	95.64%	97.30%	96.56%

Beta Activity 1815.077 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/31/2017		(or date at which you wish to determine activity)
Elapsed Time:	1583.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.899957764		
Corrected Activity:	2014.735445	dpm	
Decay Activity (Sr/Y-90)	4029.47089	dpm	1815.077 pCi

Prep Batch: 239589

Detector	Beta 1	Activity	Units
1	Low Mass	1.756E+03	pCi/mL

Beta 2	Activity	Units
Medium Mass	1.736E+03	pCi/mL

Beta 3	Activity	Units
High Mass	1.766E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICVABT-51512;Beta2 **Repeat** 1

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 12:09:40 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:14:43 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.029	86	17.200	17.200
sd	0.000			0.000	9.274	1.855	1.855
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.192	7,681	1,536.200	1,536.200
sd	0.000			0.000	87.641	17.528	17.528

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICVABT-51512;Beta1 **Repeat** 2

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 12:18:23 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:23:28 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.029	77	15.400	15.400
sd	0.000			0.000	8.775	1.755	1.755
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.192	8,239	1,647.800	1,647.800
sd	0.000			0.000	90.769	18.154	18.154

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICVABT-51512;Beta3 **Repeat** 4

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 12:43:36 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:48:42 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.029	86	17.200	17.200
sd	0.000			0.000	9.274	1.855	1.855
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.192	7,437	1,487.400	1,487.400
sd	0.000			0.000	86.238	17.248	17.248

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICVABT-181198;Alpha2 **Repeat** 1

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 1:15:03 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 1:45:10 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.029	8,553	285.100	285.100
sd	0.000			0.000	92.482	3.083	3.083
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.192	3,189	106.300	106.300
sd	0.000			0.000	56.471	1.882	1.882

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICVABT-181198;Alpha1 **Repeat** 2

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 1:51:12 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 2:44:13 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.029	12,908	430.267	430.267
sd	0.000			0.000	113.613	3.787	3.787
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.192	4,139	137.967	137.967
sd	0.000			0.000	64.335	2.145	2.145

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - B

Addr: 1

Sample ID ICVABT-181198;Alpha3 **Repeat** 4

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample*** **sd**	0 ***Sample***	
Residual Wt	0 ***mg*** **sd**	0 ***mg***	

Count Began 3/31/2017 4:04:10 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 4:34:16 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.029	6,897	229.900	229.900
sd	0.000			0.000	83.048	2.768	2.768
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.192	2,794	93.133	93.133
sd	0.000			0.000	52.858	1.762	1.762

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Alpha

Blue - Alpha ICV 2017				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
2	110.13%	107.26%	105.07%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: 281207

	Low Mass	Medium Mass	High Mass
	0.0161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
2	5.53E+00	5.38E+00	5.27E+00

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Blue - Beta ICV 2017				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
2	97.79%	95.37%	99.11%	97.42%

Beta Activity 1815.077 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/31/2017		(or date at which you wish to determine activity)
Elapsed Time:	1583.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.899957764		
Corrected Activity:	2014.735445	dpm	
Decay Activity (Sr/Y-90)	4029.47089	dpm	1815.077 pCi

Prep Batch: 239589

Detector	Beta 1	Activity	Units
2	Low Mass	1.775E+03	pCi/mL

Beta 2	Activity	Units
Medium Mass	1.731E+03	pCi/mL

Beta 3	Activity	Units
High Mass	1.799E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICVABT-51512;Beta3 **Repeat** 1

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample*** **sd**	0 ***Sample***	
Residual Wt	0 ***mg*** **sd**	0 ***mg***	

Count Began 3/31/2017 12:09:45 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:14:51 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.021	85	17.000	17.000
sd	0.000			0.000	9.220	1.844	1.844
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.325	7,676	1,535.200	1,535.200
sd	0.000			0.000	87.613	17.523	17.523

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICVABT-51512;Beta2 **Repeat** 2

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 12:18:31 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:23:36 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.021	81	16.200	16.200
sd	0.000			0.000	9.000	1.800	1.800
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.325	7,793	1,558.600	1,558.600
sd	0.000			0.000	88.278	17.656	17.656

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICVABT-51512;Beta1 **Repeat** 3

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 12:27:33 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:32:39 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.021	128	25.600	25.600
sd	0.000			0.000	11.314	2.263	2.263
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.325	8,460	1,692.000	1,692.000
sd	0.000			0.000	91.978	18.396	18.396

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICVABT-181198;Alpha3 **Repeat** 1

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 1:15:09 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 1:45:17 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.021	6,912	230.400	230.400
sd	0.000			0.000	83.138	2.771	2.771
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.325	2,918	97.267	97.267
sd	0.000			0.000	54.019	1.801	1.801

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICVABT-181198;Alpha2 **Repeat** 2

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 1:51:18 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 2:21:25 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.021	8,699	289.967	289.967
sd	0.000			0.000	93.268	3.109	3.109
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.325	3,347	111.567	111.567
sd	0.000			0.000	57.853	1.928	1.928

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICVABT-181198;Alpha1 **Repeat** 3

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 3:21:04 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 3:51:13 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.021	13,041	434.700	434.700
sd	0.000			0.000	114.197	3.807	3.807
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.325	4,348	144.933	144.933
sd	0.000			0.000	65.939	2.198	2.198

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Alpha

Blue - Alpha ICV 2017				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
3	107.48%	102.76%	102.62%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: 281207

	Low Mass	Medium Mass	High Mass
	0.0161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
3	5.39E+00	5.16E+00	5.15E+00

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Blue - Beta ICV 2017				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
3	96.69%	94.93%	98.12%	96.58%

Beta Activity 1815.077 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/31/2017		(or date at which you wish to determine activity)
Elapsed Time:	1583.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.899957764		
Corrected Activity:	2014.735445	dpm	
Decay Activity (Sr/Y-90)	4029.47089	dpm	1815.077 pCi

Prep Batch: 239589

Detector	Beta 1	Activity	Units
3	Low Mass	1.755E+03	pCi/mL

Beta 2	Activity	Units
Medium Mass	1.723E+03	pCi/mL

Beta 3	Activity	Units
High Mass	1.781E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICVABT-51512;Beta3 **Repeat** 2

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample*** **sd**	0 ***Sample***	
Residual Wt	0 ***mg*** **sd**	0 ***mg***	

Count Began 3/31/2017 12:18:37 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:23:40 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.028	70	14.000	14.000
sd	0.000			0.000	8.367	1.673	1.673
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.399	7,615	1,523.000	1,523.000
sd	0.000			0.000	87.264	17.453	17.453

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICVABT-51512;Beta2 **Repeat** 3

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample*** **sd**	0 ***Sample***	
Residual Wt	0 ***mg*** **sd**	0 ***mg***	

Count Began 3/31/2017 12:27:41 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:32:47 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.028	54	10.800	10.800
sd	0.000			0.000	7.348	1.470	1.470
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.399	7,770	1,554.000	1,554.000
sd	0.000			0.000	88.148	17.630	17.630

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICVABT-51512;Beta1 **Repeat** 4

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 12:43:41 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 12:48:46 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.028	96	19.200	19.200
sd	0.000			0.000	9.798	1.960	1.960
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.399	8,401	1,680.200	1,680.200
sd	0.000			0.000	91.657	18.331	18.331

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICVABT-181198;Alpha3 **Repeat** 2

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 1:51:23 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 2:21:29 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.028	7,173	239.100	239.100
sd	0.000			0.000	84.694	2.823	2.823
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.399	2,909	96.967	96.967
sd	0.000			0.000	53.935	1.798	1.798

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICVABT-181198;Alpha2 **Repeat** 3

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 3:21:12 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 3:51:17 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.028	8,793	293.100	293.100
sd	0.000			0.000	93.771	3.126	3.126
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.399	3,197	106.567	106.567
sd	0.000			0.000	56.542	1.885	1.885

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - D

Addr: 3

Sample ID ICVABT-181198;Alpha1 **Repeat** 4

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1575

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 4:03:58 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 4:34:06 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.028	13,136	437.867	437.867
sd	0.000			0.000	114.612	3.820	3.820
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.399	4,318	143.933	143.933
sd	0.000			0.000	65.711	2.190	2.190

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Alpha

Blue - Alpha ICV 2017				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
8	108.06%	106.31%	103.64%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: 281207

	Low Mass	Medium Mass	High Mass
	0.0161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
8	5.42E+00	5.34E+00	5.20E+00

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Blue - Beta ICV 2017				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
8	95.26%	94.32%	95.20%	94.93%

Beta Activity 1815.077 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/31/2017		(or date at which you wish to determine activity)
Elapsed Time:	1583.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.899957764		
Corrected Activity:	2014.735445	dpm	
Decay Activity (Sr/Y-90)	4029.47089	dpm	1815.077 pCi

Prep Batch: 239589

Detector	Beta 1	Activity	Units
8	Low Mass	1.729E+03	pCi/mL

Beta 2	Activity	Units
Medium Mas	1.712E+03	pCi/mL

Beta 3	Activity	Units
High Mass	1.728E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICVABT-51512;Beta1 **Repeat** 5

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 12:57:33 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 1:02:37 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.025	2	0.400	0.400
sd	0.000			0.000	1.414	0.283	0.283
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.317	8,267	1,653.400	1,653.400
sd	0.000			0.000	90.923	18.185	18.185

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICVABT-51512;Beta3 **Repeat** 7

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 1:35:00 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 1:40:04 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.025	1	0.200	0.200
sd	0.000			0.000	1.000	0.200	0.200
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.317	7,361	1,472.200	1,472.200
sd	0.000			0.000	85.796	17.159	17.159

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICVABT-51512;Beta2 **Repeat** 8

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 1:50:25 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 1:55:30 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.025	0	0.000	0.000
sd	0.000			0.000	0.000	0.000	0.000
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.317	7,709	1,541.800	1,541.800
sd	0.000			0.000	87.801	17.560	17.560

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICVABT-181198;Alpha1 **Repeat** 9

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 4/8/2017 1:47:44 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/8/2017 2:17:51 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	12,361	412.033	412.002
sd	0.000			0.006	111.180	3.706	3.706
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	4,944	164.800	164.422
sd	0.000			0.019	70.314	2.344	2.344

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICVABT-181198;Alpha3 **Repeat** 11

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/8/2017 2:58:47 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/8/2017 3:28:51 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	6,465	215.500	215.469
sd	0.000			0.006	80.405	2.680	2.680
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	3,274	109.133	108.755
sd	0.000			0.019	57.219	1.907	1.907

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - A

Addr: 8

Sample ID ICVABT-181198;Alpha2 **Repeat** 12

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 4/8/2017 3:44:05 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/8/2017 4:14:10 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	8,213	273.767	273.736
sd	0.000			0.006	90.626	3.021	3.021
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	3,706	123.533	123.155
sd	0.000			0.019	60.877	2.029	2.029

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Alpha

Blue - Alpha ICV 2017				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
9	106.17%	101.80%	101.72%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: 281207

	Low Mass	Medium Mass	High Mass
	0.0161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
9	5.33E+00	5.11E+00	5.11E+00

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Blue - Beta ICV 2017				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
9	95.04%	94.71%	94.98%	94.91%

Beta Activity 1815.077 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/31/2017		(or date at which you wish to determine activity)
Elapsed Time:	1583.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.899957764		
Corrected Activity:	2014.735445	dpm	
Decay Activity (Sr/Y-90)	4029.47089	dpm	1815.077 pCi

Prep Batch: 239589

Detector	Beta 1	Activity	Units
9	Low Mass	1.725E+03	pCi/mL

Beta 2	Activity	Units
Medium Mas	1.719E+03	pCi/mL

Beta 3	Activity	Units
High Mass	1.724E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICVABT-51512;Beta2 **Repeat** 5

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/31/2017 12:57:38 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 1:02:41 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.028	3	0.600	0.600
sd	0.000			0.000	1.732	0.346	0.346
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.245	7,707	1,541.400	1,541.400
sd	0.000			0.000	87.790	17.558	17.558

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICVABT-51512;Beta1 **Repeat** 6

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 1:15:38 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 1:20:43 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.028	2	0.400	0.400
sd	0.000			0.000	1.414	0.283	0.283
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.245	8,177	1,635.400	1,635.400
sd	0.000			0.000	90.427	18.085	18.085

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICVABT-51512;Beta3 **Repeat** 8

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample*** **sd**	0 ***Sample***	
Residual Wt	0 ***mg*** **sd**	0 ***mg***	

Count Began 3/31/2017 1:50:32 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 1:55:38 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.028	0	0.000	0.000
sd	0.000			0.000	0.000	0.000	0.000
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.245	7,344	1,468.800	1,468.800
sd	0.000			0.000	85.697	17.139	17.139

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICVABT-181198;Alpha2 **Repeat** 9

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/8/2017 1:47:52 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/8/2017 2:18:00 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	7,817	260.567	260.534
sd	0.000			0.006	88.414	2.947	2.947
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.247	3,861	128.700	128.453
sd	0.000			0.016	62.137	2.071	2.071

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICVABT-181198;Alpha1 **Repeat** 10

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/8/2017 2:21:50 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/8/2017 2:51:56 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	12,097	403.233	403.200
sd	0.000			0.006	109.986	3.666	3.666
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.247	4,896	163.200	162.953
sd	0.000			0.016	69.971	2.332	2.332

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 8-11 - B

Addr: 9

Sample ID ICVABT-181198;Alpha3

Repeat 12

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 4/8/2017 3:44:11 PM

Count Ended 4/8/2017 4:14:19 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 30.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	6,292	209.733	209.700
sd	0.000			0.006	79.322	2.644	2.644
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.247	3,256	108.533	108.286
sd	0.000			0.016	57.061	1.902	1.902

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Purple Beta ICV 2013				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
0	97.22%	100.50%	100.16%	99.29%

Beta Activity 2007.869 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Count Date:	2/4/2013		(or date at which you wish to determine activity)
Elapsed Time:	67.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.995548598		
Corrected Activity:	2228.734647	dpm	
Decay Activity (Sr/Y-90)	4457.469295	dpm	2007.869 pCi

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICVABT-51512;Beta 1 **Repeat** 19

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/4/2013 10:27:35 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/4/2013 10:32:38 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	107	21.400	21.313
sd	0.000			0.009	10.344	2.069	2.069
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	9,402	1,880.400	1,879.995
sd	0.000			0.020	96.964	19.393	19.393

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICVABT-51512;Beta 3 **Repeat** 43

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/4/2013 11:10:35 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/4/2013 11:15:40 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	104	20.800	20.713
sd	0.000			0.009	10.198	2.040	2.040
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	8,700	1,740.000	1,739.595
sd	0.000			0.020	93.274	18.655	18.655

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICVABT-51512;Beta 2 **Repeat** 26

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/4/2013 11:19:39 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/4/2013 11:24:41 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.087	90	18.000	17.913
sd	0.000			0.009	9.487	1.897	1.897
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.405	9,154	1,830.800	1,830.395
sd	0.000			0.020	95.677	19.135	19.135

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Alpha

Purple Alpha ICV 2016

	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
0	96.20%	96.68%	95.70%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: M163021
Date counted: 1/17/16

	Low Mass	Medium Mass	High Mass
	0.161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
0	5.22E+00	5.19E+00	5.24E+00

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICVABT-181198;A1 **Repeat** 1

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/17/2016 5:23:51 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/17/2016 5:53:56 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	13,346	444.867	444.722
sd	0.000			0.012	115.525	3.851	3.851
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	4,118	137.267	136.758
sd	0.000			0.023	64.172	2.139	2.139

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICVABT-181198;A3 **Repeat** 7

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/17/2016 10:54:54 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/17/2016 11:24:57 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	7,446	248.200	248.055
sd	0.000			0.012	86.290	2.876	2.876
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	2,702	90.067	89.558
sd	0.000			0.023	51.981	1.733	1.733

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 0-3 - A

Addr: 0

Sample ID ICVABT-181198;A2 **Repeat** 8

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/17/2016 11:37:46 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/18/2016 12:07:49 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	9,026	300.867	300.722
sd	0.000			0.012	95.005	3.167	3.167
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.509	3,022	100.733	100.224
sd	0.000			0.023	54.973	1.832	1.833

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Purple Beta ICV 2013						
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery	Beta Activity	2007.869 pCi
16	97.67%	100.06%	98.26%	98.66%		

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	2/4/2013		(or date at which you wish to determine activity)
Elapsed Time:	67.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.995548598		
Corrected Activity:	2228.734647	dpm	
Decay Activity (Sr/Y-90)	4457.469295	dpm	2007.869 pCi

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICVABT-51512;Beta 1

Repeat 11

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/4/2013 8:45:31 PM

Count Ended 2/4/2013 8:50:33 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	21	4.200	4.030
sd	0.000			0.013	4.583	0.917	0.917
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	9,346	1,869.200	1,868.803
sd	0.000			0.020	96.675	19.335	19.335

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICVABT-51512;Beta 3

Repeat 35

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/4/2013 9:41:48 PM

Count Ended 2/4/2013 9:46:50 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	12	2.400	2.230
sd	0.000			0.013	3.464	0.693	0.693
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	8,452	1,690.400	1,690.003
sd	0.000			0.020	91.935	18.387	18.387

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICVABT-51512;Beta 2

Repeat 18

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/4/2013 9:47:37 PM

Count Ended 2/4/2013 9:52:39 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	10	2.000	1.830
sd	0.000			0.013	3.162	0.632	0.633
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.397	9,024	1,804.800	1,804.403
sd	0.000			0.020	94.995	18.999	18.999

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

ICV is for Gross Alpha

Purple Alpha ICV 2016				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
16	95.32%	94.46%	95.10%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: M163021
Date counted: 1/19/16

	Low Mass	Medium Mass	High Mass
	0.161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
16	5.27E+00	5.31E+00	5.28E+00

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICVABT-181198;A1

Repeat 17

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/19/2016 9:38:57 AM

Count Ended 1/19/2016 10:09:02 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 30.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	13,397	446.567	446.522
sd	0.000			0.007	115.745	3.858	3.858
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	4,223	140.767	140.364
sd	0.000			0.020	64.985	2.166	2.166

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICVABT-181198;A3

Repeat 23

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/20/2016 12:42:15 AM

Count Ended 1/20/2016 1:12:18 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 30.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	7,426	247.533	247.488
sd	0.000			0.007	86.174	2.872	2.872
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	2,796	93.200	92.797
sd	0.000			0.020	52.877	1.763	1.763

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - A

Addr: 16

Sample ID ICVABT-181198;A2 **Repeat** 24

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/20/2016 1:28:36 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/20/2016 1:58:40 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	9,167	305.567	305.522
sd	0.000			0.007	95.744	3.191	3.191
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.403	3,121	104.033	103.630
sd	0.000			0.020	55.866	1.862	1.862

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Purple Beta ICV 2013				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
17	96.89%	95.77%	98.07%	96.91%

Beta Activity 12/22/2015 1872.1564 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Count Date:	12/22/2015		(or date at which you wish to determine activity)
Elapsed Time:	1118.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.928259061		
Corrected Activity:	2078.093559	dpm	
Decay Activity (Sr/Y-90)	4156.187118	dpm	1872.156 pCi

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICVABT-51512; B1 **Repeat** 10

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 12/22/2015 3:29:34 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 12/22/2015 3:34:38 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	446	89.200	89.200
sd	0.000			0.000	21.119	4.224	4.224
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	8,239	1,647.800	1,647.346
sd	0.000			0.021	90.769	18.154	18.154

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICVABT-51512; B2 **Repeat** 11

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 12/22/2015 4:45:01 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 12/22/2015 4:50:02 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	390	78.000	78.000
sd	0.000			0.000	19.748	3.950	3.950
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	7,687	1,537.400	1,536.946
sd	0.000			0.021	87.676	17.535	17.535

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICVABT-51512;B3 **Repeat** 27

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 12/22/2015 5:21:27 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 12/22/2015 5:26:28 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.000	361	72.200	72.200
sd	0.000			0.000	19.000	3.800	3.800
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.454	7,504	1,500.800	1,500.346
sd	0.000			0.021	86.626	17.325	17.325

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Alpha

Purple Alpha ICV 2016				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
17	96.31%	97.86%	96.31%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: M163021
Date counted: 1/19/16

	Low Mass	Medium Mass	High Mass
	0.161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
17	5.21E+00	5.13E+00	5.21E+00

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICVABT-181198;A2

Repeat 17

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/19/2016 9:39:02 AM

Count Ended 1/19/2016 10:09:06 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 30.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	9,221	307.367	307.260
sd	0.000			0.010	96.026	3.201	3.201
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	2,729	90.967	90.684
sd	0.000			0.017	52.240	1.741	1.741

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICVABT-181198;A1 **Repeat** 18

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/19/2016 11:09:28 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/19/2016 11:39:32 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	13,550	451.667	451.560
sd	0.000			0.010	116.404	3.880	3.880
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	3,709	123.633	123.350
sd	0.000			0.017	60.902	2.030	2.030

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - B

Addr: 17

Sample ID ICVABT-181198;A3

Repeat 24

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/20/2016 1:28:39 AM

Count Ended 1/20/2016 1:58:42 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 30.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.107	7,680	256.000	255.893
sd	0.000			0.010	87.636	2.921	2.921
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.283	2,428	80.933	80.650
sd	0.000			0.017	49.275	1.642	1.643

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Purple Beta ICV 2013						
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery	Beta Activity	2007.869 pCi
18	99.11%	97.62%	97.91%	98.21%		

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	2/4/2013		(or date at which you wish to determine activity)
Elapsed Time:	67.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.995548598		
Corrected Activity:	2228.734647	dpm	
Decay Activity (Sr/Y-90)	4457.469295	dpm	2007.869 pCi

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICVABT-51512;Beta 3 **Repeat** 29

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/4/2013 8:45:40 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/4/2013 8:50:43 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	9	1.800	1.678
sd	0.000			0.011	3.000	0.600	0.600
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	8,412	1,682.400	1,681.942
sd	0.000			0.021	91.717	18.343	18.343

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICVABT-51512;Beta 2

Repeat 12

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/4/2013 8:54:49 PM

Count Ended 2/4/2013 8:59:52 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	6	1.200	1.078
sd	0.000			0.011	2.449	0.490	0.490
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	8,774	1,754.800	1,754.342
sd	0.000			0.021	93.670	18.734	18.734

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICVABT-51512;Beta 1 **Repeat** 13

Carrier No. 0

Batch ID m122640

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/4/2013 9:00:37 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/4/2013 9:05:39 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.122	10	2.000	1.878
sd	0.000			0.011	3.162	0.632	0.633
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.458	9,428	1,885.600	1,885.142
sd	0.000			0.021	97.098	19.420	19.420

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Alpha

Purple Alpha ICV 2016				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
18	95.66%	95.96%	96.36%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: M163021
Date counted: 1/19/16

	Low Mass	Medium Mass	High Mass
	0.161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
18	5.25E+00	5.23E+00	5.21E+00

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICVABT-181198;A3 **Repeat** 17

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/19/2016 9:39:06 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/19/2016 10:09:10 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	7,233	241.100	241.062
sd	0.000			0.006	85.047	2.835	2.835
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	3,022	100.733	100.403
sd	0.000			0.018	54.973	1.832	1.833

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICVABT-181198;A2

Repeat 18

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 1/19/2016 11:09:32 AM

Count Ended 1/19/2016 11:39:35 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 30.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	8,906	296.867	296.829
sd	0.000			0.006	94.372	3.146	3.146
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	3,332	111.067	110.737
sd	0.000			0.018	57.723	1.924	1.924

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 16-19 - C

Addr: 18

Sample ID ICVABT-181198;A1 **Repeat** 19

Carrier No. 0

Batch ID m163021

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 1/19/2016 12:08:03 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 1/19/2016 12:38:08 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.038	13,187	439.567	439.529
sd	0.000			0.006	114.835	3.828	3.828
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.330	4,404	146.800	146.470
sd	0.000			0.018	66.363	2.212	2.212

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra-226 Calibration Verifications

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Total Alpha-Emitting Radium

Batch: 291970 **Operator:**

SampID / Analyte	WRKNO	Ts	Aliquot Tb	Cs	Ba Mass Cb	CPMs	Ba Yield / CPMb	Trunc Yield	Ingrowth / Activity	Ba Precip Time / UncCount	InstrID / UncTotal	Eff / MDA	Cal Type / DLC	Cnt Date Time / MQO	Sigma
160-21018-A-1-A	160-21018-A-1-A		1.0000mL		0.0133		63.15%	False	1.8775	2/13/17 13:30	Orange12	0.2205	2	2/15/17 11:16	1.00
Total Alpha Emitting		5.00	1000.00	9949	150	1989.80	0.15		**3.428E+003**pCi/mL	3.437E+001	1.581E+002	2.018E+000	4.921E-001	158.0512	
160-21018-A-2-A	160-21018-A-2-A		1.0000mL		0.0276		78.63%	False	1.8756	2/13/17 13:30	Orange12	0.1998	2	2/15/17 11:09	1.00
Total Alpha Emitting		5.00	1000.00	12145	150	2429.00	0.15		**3.713E+003**pCi/mL	3.370E+001	1.705E+002	1.791E+000	4.367E-001	170.4608	
160-21018-A-3-A	160-21018-A-3-A		1.0000mL		0.0487		92.50%	False	1.8737	2/13/17 13:30	Orange12	0.1738	2	2/15/17 11:01	1.00
Total Alpha Emitting		5.00	1000.00	11486	150	2297.20	0.15		**3.436E+003**pCi/mL	3.206E+001	1.579E+002	1.752E+000	4.272E-001	157.9049	

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

SampID	SampDupID	Analyte	Activity	DupActivity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	WRKNO	Analyte	Activity	MSActivity	StdAdded	Recovery	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal

Ra226 ICV

Orange Ra226 ICV 2017				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
12	90.49%	98.02%	90.70%	93.07%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3788.19152 pCi/mL

Prep Batch: 291970

Detector	1	Activity	Units
12	Low Mass (0.0133g)	3.428E+03	pCi/mL

2	Activity	Units
Medium Mass (0.0276g)	3.713E+03	pCi/mL

3	Activity	Units
High Mass (0.0487g)	3.436E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID ICVRa6-1063071;3-A

Repeat 11

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 *l* **sd** 0 *l*

Residual Wt 0 *mg* **sd** 0 *mg*

Count Began 2/15/2017 11:01:53 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 *days*

Count Ended 2/15/2017 11:06:56 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 *mins* **Background Count Time** 1,000.00 *mins*

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.150	11,486	2,297.200	2,297.050
sd	0.000			0.012	107.173	21.435	21.435
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.487	10,270	2,054.000	2,053.513
sd	0.000			0.022	101.341	20.268	20.268

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID ICVRa6-1063071;2-A

Repeat 12

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 11:09:08 AM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 2/15/2017 11:14:11 AM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.150	12,145	2,429.000	2,428.850
sd	0.000			0.012	110.204	22.041	22.041
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.487	8,975	1,795.000	1,794.513
sd	0.000			0.022	94.736	18.947	18.947

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - A

Addr: 12

Sample ID ICVRa6-1063071;1-A

Repeat 13

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 *l* **sd** 0 *l*

Residual Wt 0 *mg* **sd** 0 *mg*

Count Began 2/15/2017 11:16:15 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 *days*

Count Ended 2/15/2017 11:21:17 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 *mins* **Background Count Time** 1,000.00 *mins*

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.150	9,949	1,989.800	1,989.650
sd	0.000			0.012	99.745	19.949	19.949
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.487	7,305	1,461.000	1,460.513
sd	0.000			0.022	85.469	17.094	17.094

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Total Alpha-Emitting Radium

Batch: 291970 **Operator:**

SampID / Analyte	WRKNO	Ts	Aliquot Tb	Cs	Ba Mass Cb	Ba Yield CPMs	Trunc Yield CPMb	Ingrowth	Ba Precip Time	InstrID	Eff	Cal Type	Cnt Date Time	Sigma
								Activity	UncCount	UncTotal	MDA	DLC	MQO	
160-21018-A-1-A	160-21018-A-1-A		1.0000mL		0.0133	63.15%	False	1.8797	2/13/17 13:30	Orange13	0.2214	2	2/15/17 11:24	1.00
Total Alpha Emitting		5.00	1000.00	9805	98	1961.00	0.10	3.361E+003pCi/mL	3.395E+001	1.550E+002	1.820E+000	3.958E-001	155.0203	
160-21018-A-2-A	160-21018-A-2-A		1.0000mL		0.0276	78.63%	False	1.8775	2/13/17 13:30	Orange13	0.2001	2	2/15/17 11:16	1.00
Total Alpha Emitting		5.00	1000.00	11996	98	2399.20	0.10	3.659E+003pCi/mL	3.341E+001	1.680E+002	1.619E+000	3.521E-001	167.9975	
160-21018-A-3-A	160-21018-A-3-A		1.0000mL		0.0487	92.50%	False	1.8756	2/13/17 13:30	Orange13	0.1735	2	2/15/17 11:09	1.00
Total Alpha Emitting		5.00	1000.00	11405	98	2281.00	0.10	3.413E+003pCi/mL	3.196E+001	1.569E+002	1.589E+000	3.455E-001	156.8961	

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

SampID	SampDupID	Analyte	Activity	DupActivity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	WRKNO	Analyte	Activity	MSActivity	StdAdded	Recovery	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal

Ra226 ICV

Orange Ra226 ICV 2017				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
13	88.72%	96.59%	90.10%	91.80%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3788.19152 pCi/mL

Prep Batch: 291970

Detector	1	Activity	Units
13	Low Mass (0.0133g)	3.361E+03	pCi/mL

2	Activity	Units
Medium Mass (0.0276g)	3.659E+03	pCi/mL

3	Activity	Units
High Mass (0.0487g)	3.413E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID ICVRa6-1063071;-3-A

Repeat 12

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 11:09:08 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/15/2017 11:14:11 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.098	11,405	2,281.000	2,280.902
sd	0.000			0.010	106.794	21.359	21.359
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.464	10,108	2,021.600	2,021.136
sd	0.000			0.022	100.539	20.108	20.108

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID ICVRa6-1063071;-2-A

Repeat 13

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 11:16:19 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/15/2017 11:21:23 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.098	11,996	2,399.200	2,399.102
sd	0.000			0.010	109.526	21.905	21.905
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.464	8,837	1,767.400	1,766.936
sd	0.000			0.022	94.005	18.801	18.801

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 12-15 - B

Addr: 13

Sample ID ICVRa6-1063071;1-A

Repeat 14

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 11:24:17 AM

Count Ended 2/15/2017 11:29:20 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.098	9,805	1,961.000	1,960.902
sd	0.000			0.010	99.020	19.804	19.804
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.464	7,114	1,422.800	1,422.336
sd	0.000			0.022	84.345	16.869	16.869

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Tb = Ts < 10

Error = .00 **x sd**

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Total Alpha-Emitting Radium

Batch: 291970 **Operator:**

SampID / Analyte	WRKNO	Ts	Aliquot Tb	Cs	Ba Mass Cb	Ba Yield CPMs	Trunc Yield CPMb	Ingrowth	Ba Precip Time	InstrID	Eff	Cal Type	Cnt Date Time	Sigma
								Activity	UncCount	UncTotal	MDA	DLC	MQO	
160-21018-A-1-A	160-21018-A-1-A		1.0000mL		0.0133	63.15%	False	1.8941	2/13/17 13:30	Orange20	0.2186	2	2/15/17 12:18	1.00
Total Alpha Emitting		5.00	1000.00	9701	135	1940.20	0.14	3.343E+003pCi/mL	3.394E+001	1.542E+002	1.968E+000	4.669E-001	154.2056	
160-21018-A-2-A	160-21018-A-2-A		1.0000mL		0.0276	78.63%	False	1.8923	2/13/17 13:30	Orange20	0.1994	2	2/15/17 12:11	1.00
Total Alpha Emitting		5.00	1000.00	12075	135	2415.00	0.14	3.666E+003pCi/mL	3.337E+001	1.683E+002	1.734E+000	4.114E-001	168.3273	
160-21018-A-3-A	160-21018-A-3-A		1.0000mL		0.0487	92.50%	False	1.8898	2/13/17 13:30	Orange20	0.1748	2	2/15/17 12:02	1.00
Total Alpha Emitting		5.00	1000.00	11327	135	2265.40	0.14	3.340E+003pCi/mL	3.138E+001	1.535E+002	1.684E+000	3.995E-001	153.5372	

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

SampID	SampDupID	Analyte	Activity	DupActivity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	WRKNO	Analyte	Activity	MSActivity	StdAdded	Recovery	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal

Ra226 ICV

Orange Ra226 ICV 2017				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
20	88.25%	96.77%	88.17%	91.06%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3788.19152 pCi/mL

Prep Batch: 291970

Detector	1	Activity	Units
20	Low Mass (0.0133g)	3.343E+03	pCi/mL

2	Activity	Units
Medium Mass (0.0276g)	3.666E+03	pCi/mL

3	Activity	Units
High Mass (0.0487g)	3.340E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID ICVRa6-1063071;-3-A

Repeat 19

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:02:27 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/15/2017 12:07:30 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.135	11,327	2,265.400	2,265.265
sd	0.000			0.012	106.428	21.286	21.286
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.381	10,272	2,054.400	2,054.019
sd	0.000			0.020	101.351	20.270	20.270

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID ICVRa6-1063071;-2-A

Repeat 20

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:11:40 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/15/2017 12:16:53 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.135	12,075	2,415.000	2,414.865
sd	0.000			0.012	109.886	21.977	21.977
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.381	9,043	1,808.600	1,808.219
sd	0.000			0.020	95.095	19.019	19.019

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - A

Addr: 20

Sample ID ICVRa6-1063071;-1-A

Repeat 21

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:18:26 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/15/2017 12:23:33 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.135	9,701	1,940.200	1,940.065
sd	0.000			0.012	98.494	19.699	19.699
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.381	7,256	1,451.200	1,450.819
sd	0.000			0.020	85.182	17.036	17.036

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Ra226 ICV

Orange Ra226 ICV 2017				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
21	89.62%	98.65%	88.27%	92.18%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3788.19152 pCi/mL

Prep Batch: 291970

Detector	Beta 1	Activity	Units
21	Low Mass	3.395E+03	pCi/mL

Beta 2	Activity	Units
Medium Mass	3.737E+03	pCi/mL

Beta 3	Activity	Units
High Mass	3.344E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID ICVRa6-1063071;-3-A

Repeat 20

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:11:44 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/15/2017 12:16:49 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.084	11,401	2,280.200	2,280.116
sd	0.000			0.009	106.775	21.355	21.355
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.348	10,406	2,081.200	2,080.852
sd	0.000			0.019	102.010	20.402	20.402

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID ICVRa6-1063071;2-A

Repeat 21

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:18:31 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/15/2017 12:23:44 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.084	12,425	2,485.000	2,484.916
sd	0.000			0.009	111.467	22.293	22.293
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.348	9,143	1,828.600	1,828.252
sd	0.000			0.019	95.619	19.124	19.124

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Orange 20-23 - B

Addr: 21

Sample ID ICVRa6-1063071;-1-A

Repeat 22

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***l***	**sd**	0 ***l***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/15/2017 12:24:31 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 2/15/2017 12:29:34 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.084	9,996	1,999.200	1,999.116
sd	0.000			0.009	99.980	19.996	19.996
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.348	7,471	1,494.200	1,493.852
sd	0.000			0.019	86.435	17.287	17.287

	Net Activity dpm	LLD dpm	MDC pCi/l	MPC pCi/l	Net Concentration * pCi/l	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	1.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Tb = Ts < 10 **Error =** .00 **x sd**

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Total Alpha-Emitting Radium

Batch: 291970 **Operator:**

SampID / Analyte	WRKNO	Ts	Aliquot Tb	Cs	Ba Mass Cb	CPMs	Ba Yield CPMb	Trunc Yield	Ingrowth Activity	Ba Precip Time UncCount	InstrID UncTotal	Eff MDA	Cal Type DLC	Cnt Date Time MQO	Sigma
ICVRa6-1063071;1-A	160-21018-A-1-A		1.0000mL		0.0133		63.15%	False	3.3263	2/13/17 13:30	Purple4	0.2246	2	2/21/17 19:11	1.00
Total Alpha Emitting		5.00	1000.00	17013	178	3402.60	0.18		**3.249E+003**pCi/mL	2.491E+001	1.483E+002	1.167E+000	2.971E-001	148.2927	
ICVRa6-1063071;2-A	160-21018-A-2-A		1.0000mL		0.0276		78.63%	False	3.3250	2/13/17 13:30	Purple4	0.2051	2	2/21/17 18:57	1.00
Total Alpha Emitting		5.00	1000.00	21399	178	4279.80	0.18		**3.595E+003**pCi/mL	2.457E+001	1.636E+002	1.027E+000	2.613E-001	163.6134	
ICVRa6-1063071;3-A	160-21018-A-3-A		1.0000mL		0.0487		92.50%	False	3.3021	2/13/17 13:30	Purple4	0.1806	2	2/21/17 14:32	1.00
Total Alpha Emitting		5.00	1000.00	20414	178	4082.80	0.18		**3.334E+003**pCi/mL	2.333E+001	1.518E+002	9.980E-001	2.541E-001	151.8149	

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

SampID	SampDupID	Analyte	Activity	DupActivity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	WRKNO	Analyte	Activity	MSActivity	StdAdded	Recovery	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal

Ra-226 ICV

Purple Ra-226 ICV 2017				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
4	85.77%	94.90%	88.01%	89.56%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3788.19152 pCi/mL

Prep Batch: 291970

Detector	1	Activity	Units
4	Low Mass (0.0133g)	3.249E+03	pCi/mL

2	Activity	Units
Medium Mass (0.0276g)	3.595E+03	pCi/mL

3	Activity	Units
High Mass (0.0487g)	3.334E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID ICVRa6-1063071;3-A

Repeat 29

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/21/2017 2:32:22 PM

Count Ended 2/21/2017 2:37:28 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	20,414	4,082.800	4,082.622
sd	0.000			0.013	142.878	28.576	28.576
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.495	25,891	5,178.200	5,177.705
sd	0.000			0.022	160.907	32.181	32.181

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID ICVRa6-1063071;2-A

Repeat 30

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 2/21/2017 6:57:18 PM

Count Ended 2/21/2017 7:02:29 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	21,399	4,279.800	4,279.622
sd	0.000			0.013	146.284	29.257	29.257
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.495	22,931	4,586.200	4,585.705
sd	0.000			0.022	151.430	30.286	30.286

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Purple 4-7 - A

Addr: 4

Sample ID ICVRa6-1063071;1-A

Repeat 31

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 2/21/2017 7:11:59 PM

Count Ended 2/21/2017 7:17:06 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	17,013	3,402.600	3,402.422
sd	0.000			0.013	130.434	26.087	26.087
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.495	18,401	3,680.200	3,679.705
sd	0.000			0.022	135.650	27.130	27.130

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Monthly Backgrounds

Run Logs

Gas Flow Proportional Counter Run Log

Detector: Blue0 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/19/17 14:32	5	ICABT 160-302991/1		302991			JLW
03/19/17 14:40	5	ICABT 160-302991/2		302991			JLW
03/19/17 14:48	50	ICABT 160-302991/3		302991			JLW
03/20/17 00:22	5	ICABT 160-302991/4		302991			JLW
03/20/17 00:37	5	ICABT 160-302991/5		302991			JLW
03/20/17 00:59	5	ICABT 160-302991/6		302991			JLW
03/20/17 01:50	5	ICABT 160-302991/7		302991			JLW
03/20/17 03:22	5	ICABT 160-302991/8		302991			JLW
03/20/17 03:28	5	ICABT 160-302991/9		302991			JLW
03/20/17 03:37	50	ICABT 160-302991/10		302991			JLW
03/20/17 04:38	50	ICABT 160-302991/11		302991			JLW
03/20/17 05:44	50	ICABT 160-302991/12		302991			JLW
03/20/17 06:39	50	ZZZZZ		302991			
03/20/17 12:45	50	ZZZZZ		302991			
03/29/17 10:24	50	ZZZZZ		302991			
03/29/17 11:58	50	ZZZZZ		302991			
03/29/17 14:09	50	ICABT 160-302991/17		302991			JLW
03/30/17 09:08	50	ICABT 160-302991/18		302991			JLW
03/30/17 10:04	50	ICABT 160-302991/19		302991			JLW
03/30/17 11:11	50	ZZZZZ		302991			
03/31/17 12:09	5	ICVABT 160-302991/21		302991			JLW
03/31/17 12:27	5	ICVABT 160-302991/22		302991			JLW
03/31/17 12:43	5	ICVABT 160-302991/23		302991			JLW
03/31/17 13:14	30	ICVABT 160-302991/24		302991			JLW
03/31/17 15:21	30	ICVABT 160-302991/25		302991			JLW
03/31/17 16:04	30	ICVABT 160-302991/26		302991			JLW
07/06/19 17:30	1000	ICB 160-433952/1		433952			PS
07/16/19 01:18	2	CCVB 160-434918/1		434918			CDR
07/16/19 01:31	2	CCVA 160-434918/28		434918			CDR
07/16/19 01:44	200	CCB 160-434918/42		434918			CDR
07/16/19 08:06	200	ZZZZZ		434918			
07/16/19 12:40	200	400-169314-3	AES-MW3-042319	434918	430233	9320	CDR

Detector: Blue1 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/19/17 14:32	5	ICABT 160-302992/1		302992			JLW
03/19/17 14:40	5	ICABT 160-302992/2		302992			JLW
03/19/17 14:48	50	ICABT 160-302992/3		302992			JLW
03/19/17 23:09	5	ICABT 160-302992/4		302992			JLW
03/20/17 00:22	5	ICABT 160-302992/5		302992			JLW
03/20/17 00:37	5	ICABT 160-302992/6		302992			JLW
03/20/17 00:59	5	ICABT 160-302992/7		302992			JLW
03/20/17 01:50	5	ICABT 160-302992/8		302992			JLW
03/20/17 03:22	5	ICABT 160-302992/9		302992			JLW
03/20/17 03:36	50	ICABT 160-302992/10		302992			JLW
03/20/17 04:38	50	ICABT 160-302992/11		302992			JLW
03/20/17 05:44	50	ICABT 160-302992/12		302992			JLW
03/20/17 06:39	50	ICABT 160-302992/13		302992			JLW
03/20/17 12:45	50	ZZZZZ		302992			
03/29/17 10:24	50	ICABT 160-302992/15		302992			JLW
03/29/17 11:58	50	ICABT 160-302992/16		302992			JLW
03/31/17 12:09	5	ICVABT 160-302992/17		302992			JLW

Gas Flow Proportional Counter Run Log

Detector: Blue1 (Continued) — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/31/17 12:18	5	ICVABT 160-302992/18		302992			JLW
03/31/17 12:43	5	ICVABT 160-302992/19		302992			JLW
03/31/17 13:15	30	ICVABT 160-302992/20		302992			JLW
03/31/17 13:51	30	ICVABT 160-302992/21		302992			JLW
03/31/17 16:04	30	ICVABT 160-302992/22		302992			JLW
07/06/19 17:30	1000	ICB 160-433953/1		433953			PS
07/16/19 01:18	2	CCVB 160-434918/2		434918			CDR
07/16/19 01:31	2	CCVA 160-434918/29		434918			CDR
07/16/19 01:44	200	CCB 160-434918/41		434918			CDR
07/16/19 08:06	200	ZZZZZ		434918			
07/16/19 12:40	200	400-169314-4	AES-FB-042319	434918	430233	9320	CDR

Detector: Blue2 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/19/17 14:32	5	ICABT 160-302993/1		302993			JLW
03/19/17 14:40	5	ICABT 160-302993/2		302993			JLW
03/19/17 14:49	50	ICABT 160-302993/3		302993			JLW
03/19/17 23:09	5	ICABT 160-302993/4		302993			JLW
03/19/17 23:27	5	ICABT 160-302993/5		302993			JLW
03/20/17 00:22	5	ICABT 160-302993/6		302993			JLW
03/20/17 00:37	5	ICABT 160-302993/7		302993			JLW
03/20/17 00:59	5	ICABT 160-302993/8		302993			JLW
03/20/17 01:50	5	ICABT 160-302993/9		302993			JLW
03/20/17 03:36	50	ICABT 160-302993/10		302993			JLW
03/20/17 04:37	50	ICABT 160-302993/11		302993			JLW
03/20/17 05:44	50	ICABT 160-302993/12		302993			JLW
03/20/17 06:39	50	ICABT 160-302993/13		302993			JLW
03/20/17 12:45	50	ICABT 160-302993/14		302993			JLW
03/29/17 10:24	50	ZZZZZ		302993			
03/29/17 11:58	50	ICABT 160-302993/16		302993			JLW
03/31/17 12:09	5	ICVABT 160-302993/17		302993			JLW
03/31/17 12:18	5	ICVABT 160-302993/18		302993			JLW
03/31/17 12:27	5	ICVABT 160-302993/19		302993			JLW
03/31/17 13:15	30	ICVABT 160-302993/20		302993			JLW
03/31/17 13:51	30	ICVABT 160-302993/21		302993			JLW
03/31/17 15:21	30	ICVABT 160-302993/22		302993			JLW
07/06/19 17:30	1000	ICB 160-433954/1		433954			PS
07/16/19 01:18	2	CCVB 160-434918/3		434918			CDR
07/16/19 01:31	2	CCVA 160-434918/30		434918			CDR
07/16/19 01:44	200	CCB 160-434918/40		434918			CDR
07/16/19 08:06	200	ZZZZZ		434918			
07/16/19 12:40	200	400-169314-5	AES-MW4-042419	434918	430233	9320	CDR

Detector: Blue3 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/19/17 14:32	5	ICABT 160-302994/1		302994			JLW
03/19/17 14:40	5	ICABT 160-302994/2		302994			JLW
03/19/17 14:49	50	ZZZZZ		302994			
03/19/17 23:09	5	ICABT 160-302994/4		302994			JLW
03/19/17 23:27	5	ICABT 160-302994/5		302994			JLW

Gas Flow Proportional Counter Run Log

Detector: Blue3 (Continued) — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/19/17 23:56	5	ICABT 160-302994/6		302994			JLW
03/20/17 00:22	5	ICABT 160-302994/7		302994			JLW
03/20/17 00:38	5	ICABT 160-302994/8		302994			JLW
03/20/17 00:59	5	ICABT 160-302994/9		302994			JLW
03/20/17 03:37	50	ZZZZZ		302994			
03/20/17 04:38	50	ZZZZZ		302994			
03/20/17 05:44	50	ZZZZZ		302994			
03/20/17 06:39	50	ZZZZZ		302994			
03/20/17 12:45	50	ZZZZZ		302994			
03/29/17 10:25	50	ZZZZZ		302994			
03/29/17 11:58	50	ZZZZZ		302994			
03/29/17 14:09	50	ICABT 160-302994/17		302994			JLW
03/30/17 09:09	50	ICABT 160-302994/18		302994			JLW
03/30/17 10:04	50	ICABT 160-302994/19		302994			JLW
03/30/17 11:12	50	ICABT 160-302994/20		302994			JLW
03/30/17 13:05	50	ICABT 160-302994/21		302994			JLW
03/30/17 14:03	50	ICABT 160-302994/22		302994			JLW
03/31/17 08:28	50	ICABT 160-302994/23		302994			JLW
03/31/17 09:53	50	ZZZZZ		302994			
03/31/17 12:18	5	ICVABT 160-302994/25		302994			JLW
03/31/17 12:27	5	ICVABT 160-302994/26		302994			JLW
03/31/17 12:43	5	ICVABT 160-302994/27		302994			JLW
03/31/17 13:51	30	ICVABT 160-302994/28		302994			JLW
03/31/17 15:21	30	ICVABT 160-302994/29		302994			JLW
03/31/17 16:03	30	ICVABT 160-302994/30		302994			JLW
07/06/19 17:30	1000	ICB 160-433955/1		433955			PS
07/16/19 01:18	2	CCVB 160-434918/4		434918			CDR
07/16/19 01:32	2	CCVA 160-434918/31		434918			CDR
07/16/19 01:44	200	CCB 160-434918/39		434918			CDR
07/16/19 08:06	200	ZZZZZ		434918			
07/16/19 12:41	200	400-169314-6	AES-MW4-DUP-042419	434918	430233	9320	CDR

Detector: Blue8 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/19/17 13:52	5	ICABT 160-303000/1		303000			PS
03/19/17 13:58	5	ICABT 160-303000/2		303000			PS
03/19/17 14:05	5	ICABT 160-303000/3		303000			PS
03/19/17 14:11	5	ICABT 160-303000/4		303000			PS
03/20/17 03:38	5	ICABT 160-303000/5		303000			PS
03/20/17 03:47	5	ICABT 160-303000/6		303000			PS
03/20/17 04:26	5	ICABT 160-303000/7		303000			PS
03/20/17 04:34	5	ICABT 160-303000/8		303000			PS
03/31/17 12:57	5	ICVABT 160-303000/9		303000			PS
03/31/17 13:35	5	ICVABT 160-303000/10		303000			PS
03/31/17 13:50	5	ICVABT 160-303000/11		303000			PS
03/31/17 14:00	50	ICABT 160-303000/12		303000			PS
03/31/17 15:18	50	ICABT 160-303000/13		303000			PS
03/31/17 17:27	50	ICABT 160-303000/14		303000			PS
04/01/17 11:35	50	ICABT 160-303000/15		303000			PS
04/01/17 13:35	50	ICABT 160-303000/16		303000			PS
04/01/17 14:29	50	ICABT 160-303000/17		303000			PS
04/01/17 15:27	50	ICABT 160-303000/18		303000			PS

Gas Flow Proportional Counter Run Log

Detector: Blue8 (Continued) — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
04/08/17 13:47	30	ICVABT 160-303000/19		303000			PS
04/08/17 14:58	30	ICVABT 160-303000/20		303000			PS
04/08/17 15:44	30	ICVABT 160-303000/21		303000			PS
07/06/19 17:30	1000	ICB 160-433962/1		433962			PS
07/16/19 01:18	2	CCVB 160-434918/9		434918			CDR
07/16/19 01:34	2	CCVA 160-434918/32		434918			CDR
07/16/19 01:44	200	CCB 160-434918/44		434918			CDR
07/16/19 08:07	200	ZZZZZ		434918			
07/16/19 12:41	200	400-169314-7	AES-MW5-042419	434918	430233	9320	CDR

Detector: Blue9 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/19/17 13:52	5	ICABT 160-303001/1		303001			PS
03/19/17 13:58	5	ICABT 160-303001/2		303001			PS
03/19/17 14:05	5	ICABT 160-303001/3		303001			PS
03/19/17 14:11	5	ICABT 160-303001/4		303001			PS
03/20/17 03:38	5	ICABT 160-303001/5		303001			PS
03/20/17 03:46	5	ICABT 160-303001/6		303001			PS
03/20/17 04:26	5	ICABT 160-303001/7		303001			PS
03/20/17 04:34	5	ICABT 160-303001/8		303001			PS
03/31/17 12:57	5	ICVABT 160-303001/9		303001			PS
03/31/17 13:15	5	ICVABT 160-303001/10		303001			PS
03/31/17 13:50	5	ICVABT 160-303001/11		303001			PS
03/31/17 14:00	50	ICABT 160-303001/12		303001			PS
03/31/17 15:18	50	ICABT 160-303001/13		303001			PS
03/31/17 17:27	50	ICABT 160-303001/14		303001			PS
04/01/17 11:35	50	ICABT 160-303001/15		303001			PS
04/01/17 12:38	50	ICABT 160-303001/16		303001			PS
04/01/17 14:29	50	ICABT 160-303001/17		303001			PS
04/01/17 15:27	50	ICABT 160-303001/18		303001			PS
04/08/17 13:47	30	ICVABT 160-303001/19		303001			PS
04/08/17 14:21	30	ICVABT 160-303001/20		303001			PS
04/08/17 15:44	30	ICVABT 160-303001/21		303001			PS
07/06/19 17:30	1000	ICB 160-433963/1		433963			PS
07/16/19 01:18	2	CCVB 160-434918/10		434918			CDR
07/16/19 01:34	2	CCVA 160-434918/33		434918			CDR
07/16/19 01:44	200	CCB 160-434918/45		434918			CDR
07/16/19 08:07	200	ZZZZZ		434918			
07/16/19 12:41	200	400-169314-8	AES-FB-042419	434918	430233	9320	CDR

Detector: Blue12 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/06/19 17:30	1000	ICB 160-433964/1		433964			PS
07/24/19 00:24	2	CCVA 160-436187/13		436187			
07/24/19 00:35	2	CCVB 160-436187/33		436187			
07/24/19 00:48	200	CCB 160-436187/54		436187			
07/24/19 06:14	100	ZZZZZ		436187			
07/24/19 09:29	100	ZZZZZ		436187			
07/24/19 13:40	15	ICRA6 160-436187/96		436187			CDR
07/24/19 13:58	15	ICRA6 160-436187/104		436187			CDR

Gas Flow Proportional Counter Run Log

Detector: Blue12 (Continued) — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/24/19 14:34	15	ICRA6 160-436187/115		436187			CDR
07/24/19 15:17	15	ICRA6 160-436187/123		436187			CDR
07/24/19 15:48	15	ICRA6 160-436187/131		436187			CDR
07/24/19 16:26	15	ICRA6 160-436187/139		436187			CDR
07/24/19 16:50	15	ICRA6 160-436187/147		436187			CDR
07/24/19 17:07	15	ICRA6 160-436187/155		436187			CDR
07/24/19 18:58	100	ZZZZZ		436187			
07/24/19 20:58	100	ZZZZZ		436187			
07/24/19 23:32	100	ZZZZZ		436187			
08/01/19 00:51	2	CCVB 160-437593/11		437593			CDR
08/01/19 01:01	2	CCVA 160-437593/35		437593			CDR
08/01/19 01:22	200	CCB 160-437593/53		437593			CDR
08/01/19 09:26	100	ZZZZZ		437593			
08/01/19 11:24	100	400-169314-2	AES-MW2-042319	437593	430215	9315	CDR
08/01/19 13:12	100	400-169314-6	AES-MW4-DUP-042419	437593	430215	9315	CDR
08/01/19 15:06	100	ZZZZZ		437593			
08/01/19 18:06	100	ZZZZZ		437593			
08/01/19 20:14	100	ZZZZZ		437593			
08/01/19 22:23	100	ZZZZZ		437593			

Detector: Orange12

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/14/17 23:07	15	ICRA6 160-292941/1		292941			PS
02/14/17 23:23	15	ICRA6 160-292941/2		292941			PS
02/14/17 23:47	15	ICRA6 160-292941/3		292941			PS
02/15/17 00:05	15	ICRA6 160-292941/4		292941			PS
02/15/17 00:23	15	ICRA6 160-292941/5		292941			PS
02/15/17 01:01	15	ICRA6 160-292941/6		292941			PS
02/15/17 01:18	15	ICRA6 160-292941/7		292941			PS
02/15/17 11:01	5	ICVRA6 160-292941/8		292941			PS
02/15/17 11:09	5	ICVRA6 160-292941/9		292941			PS
02/15/17 11:16	5	ICVRA6 160-292941/10		292941			PS
07/06/19 16:18	1000	ICB 160-433918/1		433918			PS
08/01/19 00:43	2	CCVA 160-437612/13		437612			CDR
08/01/19 01:05	2	CCVB 160-437612/36		437612			CDR
08/01/19 01:19	200	CCB 160-437612/56		437612			CDR
08/01/19 09:22	100	LCS 160-430215/1-A		437612	430215	9315	CDR
08/01/19 11:22	100	ZZZZZ		437612			
08/01/19 13:09	100	400-169314-2 MSD	AES-MW2-042319 MSD	437612	430215	9315	CDR
08/01/19 15:06	100	400-169314-7	AES-MW5-042419	437612	430215	9315	CDR
08/01/19 17:57	100	MB 160-430215/24-A		437612	430215	9315	CDR
08/01/19 20:16	100	ZZZZZ		437612			
08/01/19 22:22	100	ZZZZZ		437612			

Detector: Orange13

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/14/17 23:07	15	ICRA6 160-292942/1		292942			PS
02/14/17 23:23	15	ICRA6 160-292942/2		292942			PS
02/14/17 23:47	15	ICRA6 160-292942/3		292942			PS
02/15/17 00:05	15	ICRA6 160-292942/4		292942			PS

Gas Flow Proportional Counter Run Log

Detector: Orange13 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/15/17 00:23	15	ICRA6 160-292942/5		292942			PS
02/15/17 00:40	15	ICRA6 160-292942/6		292942			PS
02/15/17 01:18	15	ICRA6 160-292942/7		292942			PS
02/15/17 11:09	5	ICVRA6 160-292942/8		292942			PS
02/15/17 11:16	5	ICVRA6 160-292942/9		292942			PS
02/15/17 11:24	5	ICVRA6 160-292942/10		292942			PS
07/06/19 16:18	1000	ICB 160-433919/1		433919			PS
08/01/19 00:44	2	CCVA 160-437612/14		437612			CDR
08/01/19 01:05	2	CCVB 160-437612/35		437612			CDR
08/01/19 01:19	200	CCB 160-437612/57		437612			CDR
08/01/19 09:22	100	ZZZZZ		437612			
08/01/19 11:23	100	ZZZZZ		437612			
08/01/19 13:10	100	400-169314-3	AES-MW3-042319	437612	430215	9315	CDR
08/01/19 15:07	100	400-169314-8	AES-FB-042419	437612	430215	9315	CDR
08/01/19 18:04	100	ZZZZZ		437612			
08/01/19 20:16	100	ZZZZZ		437612			
08/01/19 22:22	100	ZZZZZ		437612			

Detector: Orange20

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/15/17 07:05	15	ICRA6 160-292949/1		292949			PS
02/15/17 07:24	15	ICRA6 160-292949/2		292949			PS
02/15/17 07:51	15	ICRA6 160-292949/3		292949			PS
02/15/17 08:09	15	ICRA6 160-292949/4		292949			PS
02/15/17 08:29	15	ICRA6 160-292949/5		292949			PS
02/15/17 09:18	15	ICRA6 160-292949/6		292949			PS
02/15/17 10:11	15	ICRA6 160-292949/7		292949			PS
02/15/17 12:02	5	ICVRA6 160-292949/8		292949			PS
02/15/17 12:11	5	ICVRA6 160-292949/9		292949			PS
02/15/17 12:18	5	ICVRA6 160-292949/10		292949			PS
07/06/19 16:19	1000	ICB 160-433927/1		433927			PS
08/01/19 00:45	2	CCVA 160-437612/21		437612			CDR
08/01/19 01:04	2	CCVB 160-437612/28		437612			CDR
08/01/19 01:20	200	CCB 160-437612/64		437612			CDR
08/01/19 09:24	100	ZZZZZ		437612			
08/01/19 11:23	100	ZZZZZ		437612			
08/01/19 13:10	100	400-169314-4	AES-FB-042319	437612	430215	9315	CDR
08/01/19 15:07	100	ZZZZZ		437612			
08/01/19 18:05	100	ZZZZZ		437612			
08/01/19 20:16	100	ZZZZZ		437612			
08/01/19 22:22	100	ZZZZZ		437612			

Detector: Orange21

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/15/17 07:05	15	ICRA6 160-292950/1		292950			PS
02/15/17 07:24	15	ICRA6 160-292950/2		292950			PS
02/15/17 07:51	15	ICRA6 160-292950/3		292950			PS
02/15/17 08:09	15	ICRA6 160-292950/4		292950			PS
02/15/17 08:29	15	ICRA6 160-292950/5		292950			PS
02/15/17 08:58	15	ICRA6 160-292950/6		292950			PS

Gas Flow Proportional Counter Run Log

Detector: Orange21 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/15/17 10:11	15	ICRA6 160-292950/7		292950			PS
02/15/17 12:11	5	ICVRA6 160-292950/8		292950			PS
02/15/17 12:18	5	ICVRA6 160-292950/9		292950			PS
02/15/17 12:24	5	ICVRA6 160-292950/10		292950			PS
07/06/19 16:19	1000	ICB 160-433928/1		433928			PS
08/01/19 00:45	2	CCVA 160-437612/22		437612			CDR
08/01/19 01:04	2	CCVB 160-437612/27		437612			CDR
08/01/19 01:20	200	CCB 160-437612/65		437612			CDR
08/01/19 09:24	100	ZZZZZ		437612			
08/01/19 12:51	100	400-169314-2 MS	AES-MW2-042319 MS	437612	430215	9315	CDR
08/01/19 15:07	100	ZZZZZ		437612			
08/01/19 18:05	100	ZZZZZ		437612			
08/01/19 20:16	100	ZZZZZ		437612			
08/01/19 22:23	100	ZZZZZ		437612			

Detector: Protean1

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
06/25/19 00:47	2	CCVA 160-433136/2		433136			
06/25/19 00:50	2	CCVB 160-433136/18		433136			
06/25/19 00:56	200	CCB 160-433136/38		433136			
06/25/19 09:55	40	ICABT 160-433136/48		433136			KLS
06/25/19 11:21	40	ICABT 160-433136/61		433136			KLS
06/25/19 12:21	40	ICABT 160-433136/69		433136			KLS
06/25/19 13:41	40	ICABT 160-433136/82		433136			KLS
06/25/19 15:05	40	ICABT 160-433136/90		433136			KLS
06/25/19 16:32	40	ICABT 160-433136/98		433136			KLS
07/06/19 17:33	1000	ICB 160-433977/1		433977			PS
07/16/19 01:49	2	CCVA 160-435021/9		435021			CDR
07/16/19 01:54	2	CCVB 160-435021/18		435021			CDR
07/16/19 02:00	200	CCB 160-435021/34		435021			CDR
07/16/19 08:16	200	ZZZZZ		435021			
07/16/19 12:32	200	MB 160-430233/24-A		435021	430233	9320	CDR
07/16/19 23:36	15	ICRA6 160-435021/84		435021			

Detector: Protean2

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
06/25/19 00:47	2	CCVA 160-433136/3		433136			
06/25/19 00:50	2	CCVB 160-433136/19		433136			
06/25/19 00:56	200	CCB 160-433136/37		433136			
06/25/19 09:56	40	ICABT 160-433136/49		433136			KLS
06/25/19 11:21	40	ICABT 160-433136/62		433136			KLS
06/25/19 12:21	40	ICABT 160-433136/70		433136			KLS
06/25/19 13:41	40	ICABT 160-433136/83		433136			KLS
06/25/19 15:05	40	ICABT 160-433136/91		433136			KLS
06/25/19 16:32	40	ICABT 160-433136/99		433136			KLS
07/06/19 17:33	1000	ICB 160-433978/1		433978			PS
07/16/19 01:49	2	CCVA 160-435021/11		435021			CDR
07/16/19 01:54	2	CCVB 160-435021/19		435021			CDR
07/16/19 02:00	200	CCB 160-435021/35		435021			CDR
07/16/19 08:16	200	ZZZZZ		435021			

Gas Flow Proportional Counter Run Log

Detector: Protean2 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/16/19 12:32	200	400-169314-2 MSD	AES-MW2-042319 MSD	435021	430233	9320	CDR
07/16/19 23:37	15	ICRA6 160-435021/85		435021			

Detector: Purple0

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/03/13 15:26	5	ICABT 160-233497/12		233497			JLW
02/03/13 16:02	5	ICABT 160-233497/13		233497			JLW
02/03/13 16:23	5	ICABT 160-233497/14		233497			JLW
02/03/13 16:34	5	ICABT 160-233497/15		233497			JLW
02/03/13 16:41	5	ICABT 160-233497/16		233497			JLW
02/03/13 16:48	5	ICABT 160-233497/17		233497			JLW
02/03/13 17:05	5	ICABT 160-233497/18		233497			JLW
02/03/13 17:14	5	ICABT 160-233497/19		233497			JLW
02/04/13 22:27	5	ICVABT 160-233497/20		233497			JLW
02/04/13 23:10	5	ICVABT 160-233497/21		233497			JLW
02/04/13 23:19	5	ICVABT 160-233497/22		233497			JLW
01/16/16 10:15	40	ICABT 160-233497/1		233497			JLW
01/16/16 11:01	40	ICABT 160-233497/2		233497			JLW
01/16/16 11:43	40	ICABT 160-233497/3		233497			JLW
01/16/16 12:25	40	ICABT 160-233497/4		233497			JLW
01/16/16 13:06	40	ICABT 160-233497/5		233497			JLW
01/16/16 13:49	40	ICABT 160-233497/6		233497			JLW
01/16/16 14:32	40	ICABT 160-233497/7		233497			JLW
01/16/16 15:15	40	ICABT 160-233497/8		233497			JLW
01/17/16 17:23	30	ICVABT 160-233497/9		233497			JLW
01/17/16 22:54	30	ICVABT 160-233497/10		233497			JLW
01/17/16 23:37	30	ICVABT 160-233497/11		233497			JLW
07/06/19 16:16	1000	ICB 160-433931/1		433931			PS
07/16/19 01:16	2	CCVB 160-435022/1		435022			CDR
07/16/19 01:24	2	CCVA 160-435022/17		435022			CDR
07/16/19 01:34	200	CCB 160-435022/38		435022			CDR
07/16/19 08:10	200	ZZZZZ		435022			
07/16/19 12:35	200	LCS 160-430233/1-A		435022	430233	9320	CDR

Detector: Purple4

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/17/17 01:15	15	ICRA6 160-293742/1		293742			PS
02/17/17 01:32	15	ICRA6 160-293742/2		293742			PS
02/17/17 01:55	15	ICRA6 160-293742/3		293742			PS
02/17/17 02:12	15	ICRA6 160-293742/4		293742			PS
02/17/17 02:29	15	ICRA6 160-293742/5		293742			PS
02/17/17 03:04	15	ICRA6 160-293742/6		293742			PS
02/17/17 03:21	15	ICRA6 160-293742/7		293742			PS
02/21/17 14:32	5	ICVRA6 160-293742/8		293742			PS
02/21/17 18:57	5	ICVRA6 160-293742/9		293742			PS
02/21/17 19:11	5	ICVRA6 160-293742/10		293742			PS
07/06/19 16:17	1000	ICB 160-433937/1		433937			PS
08/01/19 00:00	2	CCVB 160-437587/9		437587			CDR
08/01/19 00:33	2	CCVA 160-437587/19		437587			CDR
08/01/19 00:38	200	CCB 160-437587/26		437587			CDR

Gas Flow Proportional Counter Run Log

Detector: Purple4 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
08/01/19 09:25	100	ZZZZZ		437587			
08/01/19 11:23	100	400-169314-1	AES-MW1-042319	437587	430215	9315	CDR
08/01/19 13:11	100	400-169314-5	AES-MW4-042419	437587	430215	9315	CDR
08/01/19 15:05	100	ZZZZZ		437587			
08/01/19 18:06	100	ZZZZZ		437587			
08/01/19 20:15	100	ZZZZZ		437587			
08/01/19 22:21	100	ZZZZZ		437587			

Detector: Purple6

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/03/13 15:27	5	ICABT 160-233503/12		233503			PS
02/03/13 16:02	5	ICABT 160-233503/13		233503			PS
02/03/13 16:23	5	ICABT 160-233503/14		233503			PS
02/03/13 16:35	5	ICABT 160-233503/15		233503			PS
02/03/13 16:42	5	ICABT 160-233503/16		233503			PS
02/03/13 16:48	5	ICABT 160-233503/17		233503			PS
02/03/13 17:05	5	ICABT 160-233503/18		233503			PS
02/03/13 17:14	5	ICABT 160-233503/19		233503			PS
02/04/13 22:57	5	ICVABT 160-233503/20		233503			PS
02/04/13 23:03	5	ICVABT 160-233503/21		233503			PS
02/04/13 23:10	5	ICVABT 160-233503/22		233503			PS
01/16/16 10:15	40	ICABT 160-233503/1		233503			PS
01/16/16 11:02	40	ICABT 160-233503/2		233503			PS
01/16/16 11:43	40	ICABT 160-233503/3		233503			PS
01/16/16 12:25	40	ICABT 160-233503/4		233503			PS
01/16/16 13:06	40	ICABT 160-233503/5		233503			PS
01/16/16 13:49	40	ICABT 160-233503/6		233503			PS
01/16/16 14:32	40	ICABT 160-233503/7		233503			PS
01/16/16 15:15	40	ICABT 160-233503/8		233503			PS
01/17/16 20:44	30	ICVABT 160-233503/9		233503			PS
01/17/16 21:40	30	ICVABT 160-233503/10		233503			PS
01/17/16 22:54	30	ICVABT 160-233503/11		233503			PS
07/06/19 16:17	1000	ICB 160-433939/1		433939			PS
07/16/19 01:16	2	CCVB 160-435022/7		435022			CDR
07/16/19 01:25	2	CCVA 160-435022/23		435022			CDR
07/16/19 01:34	200	CCB 160-435022/40		435022			CDR
07/16/19 08:11	200	ZZZZZ		435022			
07/16/19 12:36	200	ZZZZZ		435022			

Detector: Purple16

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/03/13 19:04	5	ICABT 160-233531/12		233531			PS
02/03/13 19:13	5	ICABT 160-233531/13		233531			PS
02/03/13 19:21	5	ICABT 160-233531/14		233531			PS
02/03/13 19:53	5	ICABT 160-233531/15		233531			PS
02/03/13 20:00	5	ICABT 160-233531/16		233531			PS
02/03/13 20:08	5	ICABT 160-233531/17		233531			PS
02/03/13 20:17	5	ICABT 160-233531/18		233531			PS
02/03/13 20:25	5	ICABT 160-233531/19		233531			PS
02/04/13 20:45	5	ICVABT 160-233531/20		233531			PS

Gas Flow Proportional Counter Run Log

Detector: Purple16 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/04/13 21:41	5	ICVABT 160-233531/21		233531			PS
02/04/13 21:47	5	ICVABT 160-233531/22		233531			PS
01/18/16 07:03	40	ICABT 160-233531/1		233531			PS
01/18/16 08:07	40	ICABT 160-233531/2		233531			PS
01/18/16 09:22	40	ICABT 160-233531/3		233531			PS
01/18/16 11:01	40	ICABT 160-233531/4		233531			PS
01/18/16 11:45	40	ICABT 160-233531/5		233531			PS
01/18/16 12:30	40	ICABT 160-233531/6		233531			PS
01/18/16 15:13	40	ICABT 160-233531/7		233531			PS
01/18/16 21:02	40	ICABT 160-233531/8		233531			PS
01/19/16 09:38	30	ICVABT 160-233531/9		233531			PS
01/20/16 00:42	30	ICVABT 160-233531/10		233531			PS
01/20/16 01:28	30	ICVABT 160-233531/11		233531			PS
07/06/19 16:17	1000	ICB 160-433948/1		433948			PS
07/16/19 01:17	2	CCVB 160-435022/13		435022			CDR
07/16/19 01:29	2	CCVA 160-435022/29		435022			CDR
07/16/19 01:37	200	CCB 160-435022/46		435022			CDR
07/16/19 08:12	200	ZZZZZ		435022			
07/16/19 12:37	200	400-169314-1	AES-MW1-042319	435022	430233	9320	CDR

Detector: Purple17

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
12/22/15 12:04	5	ICABT 160-233514/12		233514			PS
12/22/15 12:09	5	ICABT 160-233514/13		233514			PS
12/22/15 12:15	5	ICABT 160-233514/14		233514			PS
12/22/15 12:57	5	ICABT 160-233514/15		233514			PS
12/22/15 14:52	5	ICABT 160-233514/16		233514			PS
12/22/15 14:58	5	ICABT 160-233514/17		233514			PS
12/22/15 15:10	5	ICABT 160-233514/18		233514			PS
12/22/15 15:18	5	ICABT 160-233514/19		233514			PS
12/22/15 15:29	5	ICVABT 160-233514/21		233514			PS
12/22/15 16:45	5	ICVABT 160-233514/22		233514			PS
12/22/15 17:21	5	ICVABT 160-233514/20		233514			PS
01/18/16 07:03	40	ICABT 160-233514/1		233514			PS
01/18/16 08:07	40	ICABT 160-233514/2		233514			PS
01/18/16 09:22	40	ICABT 160-233514/3		233514			PS
01/18/16 11:01	40	ICABT 160-233514/4		233514			PS
01/18/16 11:45	40	ICABT 160-233514/5		233514			PS
01/18/16 12:30	40	ICABT 160-233514/6		233514			PS
01/18/16 15:14	40	ICABT 160-233514/7		233514			PS
01/18/16 21:03	40	ICABT 160-233514/8		233514			PS
01/19/16 09:39	30	ICVABT 160-233514/9		233514			PS
01/19/16 11:09	30	ICVABT 160-233514/10		233514			PS
01/20/16 01:28	30	ICVABT 160-233514/11		233514			PS
07/06/19 16:17	1000	ICB 160-433949/1		433949			PS
07/16/19 01:17	2	CCVB 160-435022/14		435022			CDR
07/16/19 01:29	2	CCVA 160-435022/30		435022			CDR
07/16/19 01:37	200	CCB 160-435022/45		435022			CDR
07/16/19 08:12	200	ZZZZZ		435022			
07/16/19 12:37	200	400-169314-2	AES-MW2-042319	435022	430233	9320	CDR

Gas Flow Proportional Counter Run Log

Detector: Purple18

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/03/13 19:04	5	ICABT 160-233549/12		233549			PS
02/03/13 19:13	5	ICABT 160-233549/13		233549			PS
02/03/13 19:21	5	ICABT 160-233549/14		233549			PS
02/03/13 19:53	5	ICABT 160-233549/15		233549			PS
02/03/13 20:01	5	ICABT 160-233549/16		233549			PS
02/03/13 20:08	5	ICABT 160-233549/17		233549			PS
02/03/13 20:17	5	ICABT 160-233549/18		233549			PS
02/03/13 20:25	5	ICABT 160-233549/19		233549			PS
02/04/13 20:45	5	ICVABT 160-233549/20		233549			PS
02/04/13 20:54	5	ICVABT 160-233549/21		233549			PS
02/04/13 21:00	5	ICVABT 160-233549/22		233549			PS
01/18/16 07:03	40	ICABT 160-233549/2		233549			PS
01/18/16 08:07	40	ICABT 160-233549/1		233549			PS
01/18/16 10:08	40	ICABT 160-233549/3		233549			PS
01/18/16 11:01	40	ICABT 160-233549/4		233549			PS
01/18/16 11:46	40	ICABT 160-233549/5		233549			PS
01/18/16 12:30	40	ICABT 160-233549/6		233549			PS
01/18/16 15:14	40	ICABT 160-233549/7		233549			PS
01/18/16 21:03	40	ICABT 160-233549/8		233549			PS
01/19/16 09:39	30	ICVABT 160-233549/9		233549			PS
01/19/16 11:09	30	ICVABT 160-233549/10		233549			PS
01/19/16 12:08	30	ICVABT 160-233549/11		233549			PS
07/06/19 16:17	1000	ICB 160-433950/1		433950			PS
07/16/19 01:17	2	CCVB 160-435022/15		435022			CDR
07/16/19 01:29	2	CCVA 160-435022/31		435022			CDR
07/16/19 01:37	200	CCB 160-435022/44		435022			CDR
07/16/19 08:13	200	ZZZZZ		435022			
07/16/19 12:37	200	400-169314-2 MS	AES-MW2-042319 MS	435022	430233	9320	CDR

Shipping and Receiving Documents

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: RAFAEL DIAZ	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-75000-29494.1
Client Contact: Alberto Melendez	Phone: 787-209-6386	E-Mail: eric.lang@testamericainc.com		Page: Page 1 of 1
Company: DNA-Environment, LLC				Job #:

Address: 35 Calle Juan C Borbon Ste 67-227	Due Date Requested:
City: Guaynabo	TAT Requested (days): 10 DAYS (REGULAR TAT)
State, Zip: PR, 00969-5375	
Phone: 787-209-6386	PO #: 555
Email: alberto.melendez@dnaenv.com	WO #:
Project Name: CCR Groundwater Monitoring	Project #: 40008317
Site: AES Puerto Rico LP, Guayama, PR	SSOW#:

Analysis Requested

400-169314 COC

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Radium-226 & Radium-228	SM4500_Cl_E-Chloride, Field pH, SM4500_SO4_E-Sulfate, 4500_F_C - Fluoride, SM2540C - TDS, SM2320B - Alkalinity	6020 - Total Metals, 7470A - Total Mercury	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
AES-MW1-042319	4-23-19	1010	G	Water	N		X	X	X	3	(*) pH = 7.61
AES-MW2-042319		1155		Water	N		X	X	X	3	pH = 7.22
AES-MW2-042319 MS		1214		Water	N	Y	X	X	X	3	
AES-MW2-042319 MSD		1232		Water	N	Y	X	X	X	3	
AES-MW3-042319		1510		Water	N		X	X	X	3	pH = 7.56
AES-FB-042319		1532		Water	N		X	X	X	3	
AES-MW4-042419	4-24-19	1025		Water	N		X	X	X	3	pH = 7.43
AES-MW4-DUP-042419		1042		Water	N		X	X	X	3	
AES-MW5-042419		1237		Water	N		X	X	X	3	pH = 6.77
AES-FB-042419		1256		Water	N		X	X	X	3	
											(*) FIELD pH

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For Months

Deliverable Requested: I, II, III, IV, Other (specify): LEVEL IV

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 4/25/19 15:20	Company: DNA	Received by:	Date/Time: 4-24-19 / 1520	Company: DNA
Relinquished by:	Date/Time: 4-24-19 / 1735	Company: DNA	Received by:	Date/Time: 4-25-19 908	Company: TA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 4.0, 3.4°C IR 8

Ver: 08/04/2016

Eurofins TestAmerica, Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-208947.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eric.lang@testamericainc.com	State of Origin: Puerto Rico	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Florida		Job #: 400-169314-2
Address: 13715 Rider Trail North,	Due Date Requested: 5/7/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR GW Monitoring, AES Puerto Rico, LP	Project #: 40008317			
Site:	SSOW#:			

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Ra226Ra228_GFPC/ Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
AES-MW1-042319 (400-169314-1)	4/23/19	10:10 Atlantic		Water			X	X	X	1	
AES-MW2-042319 (400-169314-2)	4/23/19	11:55 Atlantic		Water			X	X	X	1	
AES-MW2-042319 (400-169314-2MS)	4/23/19	12:14 Atlantic	MS	Water			X	X	X	1	
AES-MW2-042319 (400-169314-2MSD)	4/23/19	12:32 Atlantic	MSD	Water			X	X	X	1	
AES-MW3-042319 (400-169314-3)	4/23/19	15:10 Atlantic		Water			X	X	X	1	
AES-FB-042319 (400-169314-4)	4/23/19	15:32 Atlantic		Water			X	X	X	1	
AES-MW4-042419 (400-169314-5)	4/24/19	10:25 Atlantic		Water			X	X	X	1	
AES-MW4-DUP-042419 (400-169314-6)	4/24/19	10:42 Atlantic		Water			X	X	X	1	
AES-MW5-042419 (400-169314-7)	4/24/19	12:37 Atlantic		Water			X	X	X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4-26-19 1630	TA	[signature]	4-27-19 0812S	TASL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica, Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-208947.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: eric.lang@testamericainc.com	State of Origin: Puerto Rico	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Florida		Job #: 400-169314-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 5/7/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR GW Monitoring, AES Puerto Rico, LP	Project #: 40008317			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Ra226Ra228_GFPC/ Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
AES-FB-042419 (400-169314-8)	4/24/19	12:56 Atlantic		Water			X	X	X	1	

400-169314 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	4/26/19 1630	TA	[signature]	4-27-19 0825	TA STL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-169314-2

Login Number: 169314
List Number: 1
Creator: Brown, Nathan

List Source: Eurofins TestAmerica, Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.0°C, 3.4°C IR8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-169314-2

Login Number: 169314
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 05/01/19 01:09 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Job Number: 400-171203-1

Job Description: CCR GW Monitoring, AES Puerto Rico, LP

For:
DNA-Environment, LLC
35 Calle Juan C Borbon
Ste 67-227
Guaynabo, PR 00969-5375

Attention: Alberto Melendez

Approved for release.
Therese M Hargraves
Project Manager I
11/29/2019 9:29 AM

Designee for
Eric A. Lang, Manager of Project Management
2417 Bond Street, University Park, IL, 60484
(708)534-5200
eric.lang@testamericainc.com
11/29/2019
Revision: 1

The test results in this report meet all NELAP requirements for accredited parameters, unless otherwise noted, and relate only to the referenced samples. Pursuant to NELAP, this report may not be reproduced, except in full, without written approval from the laboratory. For questions please contact the Project Manager at the e-mail address listed on this page, or the telephone number at the bottom of the page. TestAmerica Pensacola Certifications and Approvals: Alabama (40150), Arizona (AZ0710), Arkansas (88-0689), Florida (E81010), Illinois (200041), Iowa (367), Kansas (E-10253), Kentucky UST (53), Louisiana (30748), Maryland (233), Massachusetts (M-FL094), Michigan (9912), New Hampshire (250510), New Jersey (FL006), North Carolina (314), Oklahoma (9810), Pennsylvania (68-00467), Rhode Island (LAO00307), South Carolina (96026), Tennessee (TN02907), Texas (T104704286-10-2), Virginia (00008), Washington (C2043), West Virginia (136), USDA Foreign Soil Permit (P330-08-00006).

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Eurofins TestAmerica, Pensacola
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Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD Recovery is outside acceptance limits.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
V	Serial Dilution exceeds the control limits

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job Narrative
400-171203-1

Comments
Revised Report - Additional QA/QC supporting documents were included and irrelevant supporting documents excluded for clarity.

No additional comments.

Receipt
The samples were received on 6/6/2019 9:24 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.7º C and 2.8º C.

Metals
Due to the ICP/MS instrument at the Eurofins TestAmerica Pensacola laboratory needing repair for an extended period of time, the metals analyses (EPA Method 6020) were performed by the Eurofins TestAmerica Chicago laboratory.

Method 6020: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following samples: AES-TW101-060319 (400-171203-1), AES-MW3-060319 (400-171203-2), AES-TW102-060319 (400-171203-3), AES-MW4-060319 (400-171203-4), AES-MW4-DUP-060319 (400-171203-5), AES-TW103-060319 (400-171203-6), AES-MW5-060319 (400-171203-7), AES-FB-060319 (400-171203-8), AES-TW104-060419 (400-171203-9), AES-TW105-060419 (400-171203-10), AES-TW106-060419 (400-171203-11), AES-TW107-060419 (400-171203-12), AES-TW108-060419 (400-171203-13), AES-TW109-060419 (400-171203-14), AES-TW109-060419 (400-171203-14[MS]), AES-TW109-060419 (400-171203-14[MSD]), AES-FB-060419 (400-171203-15), (400-171203-C-14-B DU ^5) and (400-171203-C-14-A SD ^25). Select elements on several samples are reported with elevated reporting limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Field Service / Mobile Lab
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
General chemistry analyses were performed by the Eurofins TestAmerica Pensacola laboratory.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: DNA-Environment, LLC
Job ID: 400-171203-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-TW101-060319
Lab Sample ID: 400-171203-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	1800		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	10		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.0048	J	0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	950		1.0	0.22	mg/L	5		6020	Total Recoverable
Molybdenum	0.0067		0.0050	0.0025	mg/L	1		6020	Total Recoverable
Iron	45		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	840		1.0	0.25	mg/L	5		6020	Total Recoverable
Manganese	7.6		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	0.77		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	650		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	650		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	16000		250	170	mg/L	1		SM 2540C	Total/NA
Chloride	4700		200	140	mg/L	100		SM 4500 Cl- E	Total/NA
Fluoride	0.96		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	620		300	84	mg/L	60		SM 4500 SO4 E	Total/NA
Field pH	6.81				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-MW3-060319
Lab Sample ID: 400-171203-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	2700		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	23		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.0035	J	0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	310		1.0	0.22	mg/L	5		6020	Total Recoverable
Molybdenum	0.17		0.0050	0.0025	mg/L	1		6020	Total Recoverable
Iron	0.83		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	480		1.0	0.25	mg/L	5		6020	Total Recoverable
Selenium	0.11		0.013	0.0049	mg/L	5		6020	Total Recoverable
Manganese	1.2		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	1.1		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	550		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	550		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	8700		130	85	mg/L	1		SM 2540C	Total/NA
Chloride	4100		200	140	mg/L	100		SM 4500 Cl- E	Total/NA
Fluoride	1.6		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	1900		300	84	mg/L	60		SM 4500 SO4 E	Total/NA
Field pH	7.00				SU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: DNA-Environment, LLC
Job ID: 400-171203-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-TW102-060319
Lab Sample ID: 400-171203-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	11000		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	1100		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	1.1		0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	590		1.0	0.22	mg/L	5		6020	Total Recoverable
Molybdenum	1.4		0.0050	0.0025	mg/L	1		6020	Total Recoverable
Magnesium	290		1.0	0.25	mg/L	5		6020	Total Recoverable
Selenium	0.98		0.013	0.0049	mg/L	5		6020	Total Recoverable
Manganese	4.0		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	2.8		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	350		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	350		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	41000		1000	680	mg/L	1		SM 2540C	Total/NA
Chloride	9000		600	420	mg/L	300		SM 4500 Cl- E	Total/NA
Fluoride	0.74		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	11000		3000	840	mg/L	600		SM 4500 SO4 E	Total/NA
Field pH	6.93				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-MW4-060319
Lab Sample ID: 400-171203-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	5900		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	900		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.38		0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	280		1.0	0.22	mg/L	5		6020	Total Recoverable
Molybdenum	0.51		0.0050	0.0025	mg/L	1		6020	Total Recoverable
Iron	13		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	68		1.0	0.25	mg/L	5		6020	Total Recoverable
Manganese	2.2		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	1.6		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	800		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	800		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	16000		1000	680	mg/L	1		SM 2540C	Total/NA
Chloride	4400		200	140	mg/L	100		SM 4500 Cl- E	Total/NA
Fluoride	0.78		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	4500		1500	420	mg/L	300		SM 4500 SO4 E	Total/NA
Field pH	7.16				SU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: DNA-Environment, LLC
Job ID: 400-171203-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW4-DUP-060319 — Lab Sample ID: 400-171203-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	5700		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	860		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.37		0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	270		1.0	0.22	mg/L	5		6020	Total Recoverable
Molybdenum	0.51		0.0050	0.0025	mg/L	1		6020	Total Recoverable
Iron	10		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	66		1.0	0.25	mg/L	5		6020	Total Recoverable
Manganese	2.1		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	1.6		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	810		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	810		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	13000		1000	680	mg/L	1		SM 2540C	Total/NA
Chloride	4500		200	140	mg/L	100		SM 4500 Cl- E	Total/NA
Fluoride	0.79		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	4300		1500	420	mg/L	300		SM 4500 SO4 E	Total/NA

Client Sample ID: AES-TW103-060319 — Lab Sample ID: 400-171203-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	11000		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	1000		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.60		0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	590		1.0	0.22	mg/L	5		6020	Total Recoverable
Molybdenum	1.4		0.0050	0.0025	mg/L	1		6020	Total Recoverable
Iron	1.3		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	180		1.0	0.25	mg/L	5		6020	Total Recoverable
Selenium	0.70		0.013	0.0049	mg/L	5		6020	Total Recoverable
Manganese	6.9		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	2.0		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	320		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	320		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	32000		1000	680	mg/L	1		SM 2540C	Total/NA
Chloride	5200		600	420	mg/L	300		SM 4500 Cl- E	Total/NA
Fluoride	0.74		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	10000		1500	420	mg/L	300		SM 4500 SO4 E	Total/NA
Field pH	7.09				SU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: DNA-Environment, LLC
Job ID: 400-171203-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW5-060319 — Lab Sample ID: 400-171203-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	2600		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	7.4		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.0043	J	0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	680		1.0	0.22	mg/L	5		6020	Total Recoverable
Molybdenum	0.0035	J	0.0050	0.0025	mg/L	1		6020	Total Recoverable
Iron	10		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	380		1.0	0.25	mg/L	5		6020	Total Recoverable
Manganese	11		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	0.43		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	500		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	500		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	9900		130	85	mg/L	1		SM 2540C	Total/NA
Chloride	3800		200	140	mg/L	100		SM 4500 Cl- E	Total/NA
Fluoride	0.42		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	2300		500	140	mg/L	100		SM 4500 SO4 E	Total/NA
Field pH	6.56				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-FB-060319 — Lab Sample ID: 400-171203-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	0.0083	J	0.013	0.0040	mg/L	5		6020	Total Recoverable
Sulfate	1.6	J	5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA

Client Sample ID: AES-TW104-060419 — Lab Sample ID: 400-171203-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	2600		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	21		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.0027	J	0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	630		1.0	0.22	mg/L	5		6020	Total Recoverable
Iron	1.5		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	650		1.0	0.25	mg/L	5		6020	Total Recoverable
Manganese	12		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	0.78		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	600		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	600		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	13000		130	85	mg/L	1		SM 2540C	Total/NA
Chloride	4800		200	140	mg/L	100		SM 4500 Cl- E	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: AES-TW104-060419 (Continued)
Lab Sample ID: 400-171203-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.78		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	1800		300	84	mg/L	60		SM 4500 SO4 E	Total/NA
Field pH	7.00				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-TW105-060419
Lab Sample ID: 400-171203-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	2900		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	30		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.0026	J	0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	420		1.0	0.22	mg/L	5		6020	Total Recoverable
Iron	1.5		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	460		1.0	0.25	mg/L	5		6020	Total Recoverable
Manganese	8.2		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	0.79		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	820		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	820		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	12000		130	85	mg/L	1		SM 2540C	Total/NA
Chloride	3600		200	140	mg/L	100		SM 4500 Cl- E	Total/NA
Fluoride	1.2		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	3000		500	140	mg/L	100		SM 4500 SO4 E	Total/NA
Field pH	7.14				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-TW106-060419
Lab Sample ID: 400-171203-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	5600		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	89		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.0048	J	0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	810		1.0	0.22	mg/L	5		6020	Total Recoverable
Molybdenum	0.013	J	0.025	0.012	mg/L	5		6020	Total Recoverable
Iron	6.7		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	810		1.0	0.25	mg/L	5		6020	Total Recoverable
Manganese	16		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	1.1		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	830		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	830		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	50000		1000	680	mg/L	1		SM 2540C	Total/NA
Chloride	6300		600	420	mg/L	300		SM 4500 Cl- E	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: AES-TW106-060419 (Continued)
Lab Sample ID: 400-171203-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.98		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	4400		1500	420	mg/L	300		SM 4500 SO4 E	Total/NA
Field pH	6.93				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-TW107-060419
Lab Sample ID: 400-171203-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	8900		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	170		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.016		0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	570		1.0	0.22	mg/L	5		6020	Total Recoverable
Iron	4.9		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	580		1.0	0.25	mg/L	5		6020	Total Recoverable
Manganese	16		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	1.1		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	510		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	510		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	39000		1000	680	mg/L	1		SM 2540C	Total/NA
Chloride	7000		600	420	mg/L	300		SM 4500 Cl- E	Total/NA
Fluoride	0.61		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	7800		1500	420	mg/L	300		SM 4500 SO4 E	Total/NA
Field pH	7.18				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-TW108-060419
Lab Sample ID: 400-171203-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	5200		20	7.7	mg/L	100		6020	Total Recoverable
Potassium	10		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.0041	J	0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	700		1.0	0.22	mg/L	5		6020	Total Recoverable
Iron	5.7		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	640		1.0	0.25	mg/L	5		6020	Total Recoverable
Manganese	18		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	0.66		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	530		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	530		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	26000		1000	680	mg/L	1		SM 2540C	Total/NA
Chloride	6300		600	420	mg/L	300		SM 4500 Cl- E	Total/NA
Fluoride	0.71		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	4200		1500	420	mg/L	300		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: AES-TW108-060419 (Continued)
Lab Sample ID: 400-171203-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Field pH	6.91				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-TW109-060419
Lab Sample ID: 400-171203-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	2100	V	20	7.7	mg/L	100		6020	Total Recoverable
Potassium	4.7		2.5	0.56	mg/L	5		6020	Total Recoverable
Lithium	0.0041	J F1	0.010	0.0025	mg/L	5		6020	Total Recoverable
Calcium	970		1.0	0.22	mg/L	5		6020	Total Recoverable
Iron	13		0.50	0.23	mg/L	5		6020	Total Recoverable
Magnesium	570		1.0	0.25	mg/L	5		6020	Total Recoverable
Manganese	14		0.013	0.0040	mg/L	5		6020	Total Recoverable
Boron	0.43		0.25	0.064	mg/L	5		6020	Total Recoverable
Alkalinity, Total	500		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	500		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	13000		250	170	mg/L	1		SM 2540C	Total/NA
Chloride	4000		200	140	mg/L	100		SM 4500 Cl- E	Total/NA
Fluoride	0.66		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	2300		500	140	mg/L	100		SM 4500 SO4 E	Total/NA
Field pH	6.76				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-FB-060419
Lab Sample ID: 400-171203-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	0.53	J	1.0	0.39	mg/L	5		6020	Total Recoverable
Sulfate	1.6	J	5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: AES-TW101-060319
Lab Sample ID: 400-171203-1

Date Collected: 06/03/19 09:25
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**1800**		20	7.7	mg/L		07/05/19 16:17	07/08/19 12:32	100
Potassium	**10**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 14:19	5
Lithium	**0.0048**	**J**	0.010	0.0025	mg/L		07/05/19 16:17	07/08/19 14:19	5
Calcium	**950**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 14:19	5
Molybdenum	**0.0067**		0.0050	0.0025	mg/L		07/05/19 16:17	07/07/19 13:46	1
Iron	**45**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 14:19	5
Magnesium	**840**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 14:19	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 14:19	5
Manganese	**7.6**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 14:19	5
Boron	**0.77**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 14:19	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**650**		1.0	0.98	mg/L			06/07/19 14:53	1
Bicarbonate Alkalinity as CaCO3	**650**		1.0	0.98	mg/L			06/07/19 14:53	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 14:53	1
Total Dissolved Solids	**16000**		250	170	mg/L			06/10/19 14:06	1
Chloride	**4700**		200	140	mg/L			06/11/19 11:04	100
Fluoride	**0.96**		0.10	0.032	mg/L			06/21/19 15:14	1
Sulfate	**620**		300	84	mg/L			06/11/19 20:09	60

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**6.81**				SU			06/03/19 07:25	1

Client Sample ID: AES-MW3-060319
Lab Sample ID: 400-171203-2

Date Collected: 06/03/19 10:36
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**2700**		20	7.7	mg/L		07/05/19 16:17	07/08/19 12:36	100
Potassium	**23**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 14:22	5
Lithium	**0.0035**	**J**	0.010	0.0025	mg/L		07/05/19 16:17	07/08/19 14:22	5
Calcium	**310**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 14:22	5
Molybdenum	**0.17**		0.0050	0.0025	mg/L		07/05/19 16:17	07/07/19 13:50	1
Iron	**0.83**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 14:22	5
Magnesium	**480**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 14:22	5
Selenium	**0.11**		0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 14:22	5
Manganese	**1.2**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 14:22	5
Boron	**1.1**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 14:22	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**550**		1.0	0.98	mg/L			06/07/19 15:01	1
Bicarbonate Alkalinity as CaCO3	**550**		1.0	0.98	mg/L			06/07/19 15:01	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 15:01	1
Total Dissolved Solids	**8700**		130	85	mg/L			06/10/19 14:06	1
Chloride	**4100**		200	140	mg/L			06/11/19 15:11	100
Fluoride	**1.6**		0.10	0.032	mg/L			06/21/19 15:16	1
Sulfate	**1900**		300	84	mg/L			06/11/19 20:09	60

Client Sample ID: AES-MW3-060319
Lab Sample ID: 400-171203-2
Date Collected: 06/03/19 10:36
Matrix: Water
Date Received: 06/06/19 09:24

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.00**				SU			06/03/19 08:36	1

Client Sample ID: AES-TW102-060319
Lab Sample ID: 400-171203-3
Date Collected: 06/03/19 11:27
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**11000**		20	7.7	mg/L		07/05/19 16:17	07/08/19 12:40	100
Potassium	**1100**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 14:26	5
Lithium	**1.1**		0.010	0.0025	mg/L		07/05/19 16:17	07/08/19 14:26	5
Calcium	**590**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 14:26	5
Molybdenum	**1.4**		0.0050	0.0025	mg/L		07/05/19 16:17	07/07/19 13:54	1
Iron	0.23	U	0.50	0.23	mg/L		07/05/19 16:17	07/08/19 14:26	5
Magnesium	**290**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 14:26	5
Selenium	**0.98**		0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 14:26	5
Manganese	**4.0**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 14:26	5
Boron	**2.8**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 14:26	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**350**		1.0	0.98	mg/L			06/07/19 15:08	1
Bicarbonate Alkalinity as CaCO3	**350**		1.0	0.98	mg/L			06/07/19 15:08	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 15:08	1
Total Dissolved Solids	**41000**		1000	680	mg/L			06/10/19 14:06	1
Chloride	**9000**		600	420	mg/L			06/11/19 15:54	300
Fluoride	**0.74**		0.10	0.032	mg/L			06/21/19 15:20	1
Sulfate	**11000**		3000	840	mg/L			06/11/19 21:10	600

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**6.93**				SU			06/03/19 09:27	1

Client Sample ID: AES-MW4-060319
Lab Sample ID: 400-171203-4
Date Collected: 06/03/19 13:52
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**5900**		20	7.7	mg/L		07/05/19 16:17	07/08/19 12:43	100
Potassium	**900**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 18:45	5
Lithium	**0.38**		0.010	0.0025	mg/L		07/05/19 16:17	07/09/19 11:47	5
Calcium	**280**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 18:45	5
Molybdenum	**0.51**		0.0050	0.0025	mg/L		07/05/19 16:17	07/07/19 13:58	1
Iron	**13**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 18:45	5
Magnesium	**68**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 18:45	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 14:30	5
Manganese	**2.2**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 18:45	5
Boron	**1.6**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 18:45	5

Client Sample ID: AES-MW4-060319
Lab Sample ID: 400-171203-4

Date Collected: 06/03/19 13:52
Matrix: Water
Date Received: 06/06/19 09:24

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**800**		1.0	0.98	mg/L			06/07/19 15:30	1
Bicarbonate Alkalinity as CaCO3	**800**		1.0	0.98	mg/L			06/07/19 15:30	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 15:30	1
Total Dissolved Solids	**16000**		1000	680	mg/L			06/10/19 14:06	1
Chloride	**4400**		200	140	mg/L			06/11/19 15:14	100
Fluoride	**0.78**		0.10	0.032	mg/L			06/21/19 15:22	1
Sulfate	**4500**		1500	420	mg/L			06/11/19 20:48	300

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.16**				SU			06/03/19 11:52	1

Client Sample ID: AES-MW4-DUP-060319
Lab Sample ID: 400-171203-5

Date Collected: 06/03/19 14:04
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**5700**		20	7.7	mg/L		07/05/19 16:17	07/08/19 12:47	100
Potassium	**860**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 18:50	5
Lithium	**0.37**		0.010	0.0025	mg/L		07/05/19 16:17	07/09/19 11:51	5
Calcium	**270**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 18:50	5
Molybdenum	**0.51**		0.0050	0.0025	mg/L		07/05/19 16:17	07/07/19 14:02	1
Iron	**10**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 18:50	5
Magnesium	**66**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 18:50	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 18:50	5
Manganese	**2.1**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 18:50	5
Boron	**1.6**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 18:50	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**810**		1.0	0.98	mg/L			06/07/19 15:52	1
Bicarbonate Alkalinity as CaCO3	**810**		1.0	0.98	mg/L			06/07/19 15:52	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 15:52	1
Total Dissolved Solids	**13000**		1000	680	mg/L			06/10/19 14:06	1
Chloride	**4500**		200	140	mg/L			06/11/19 15:14	100
Fluoride	**0.79**		0.10	0.032	mg/L			06/21/19 15:26	1
Sulfate	**4300**		1500	420	mg/L			06/11/19 20:48	300

Client Sample ID: AES-TW103-060319
Lab Sample ID: 400-171203-6

Date Collected: 06/03/19 14:51
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**11000**		20	7.7	mg/L		07/05/19 16:17	07/08/19 12:59	100
Potassium	**1000**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 14:37	5
Lithium	**0.60**		0.010	0.0025	mg/L		07/05/19 16:17	07/08/19 14:37	5
Calcium	**590**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 14:37	5
Molybdenum	**1.4**		0.0050	0.0025	mg/L		07/05/19 16:17	07/07/19 14:05	1
Iron	**1.3**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 14:37	5

Client Sample ID: AES-TW103-060319
Lab Sample ID: 400-171203-6

Date Collected: 06/03/19 14:51
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	180		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 14:37	5
Selenium	0.70		0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 14:37	5
Manganese	6.9		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 14:37	5
Boron	2.0		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 14:37	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	320		1.0	0.98	mg/L			06/07/19 15:59	1
Bicarbonate Alkalinity as CaCO3	320		1.0	0.98	mg/L			06/07/19 15:59	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 15:59	1
Total Dissolved Solids	32000		1000	680	mg/L			06/10/19 14:06	1
Chloride	5200		600	420	mg/L			06/11/19 15:54	300
Fluoride	0.74		0.10	0.032	mg/L			06/21/19 15:30	1
Sulfate	10000		1500	420	mg/L			06/11/19 20:48	300

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.09				SU			06/03/19 12:51	1

Client Sample ID: AES-MW5-060319
Lab Sample ID: 400-171203-7

Date Collected: 06/03/19 16:07
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	2600		20	7.7	mg/L		07/05/19 16:17	07/08/19 13:02	100
Potassium	7.4		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 18:58	5
Lithium	0.0043	J	0.010	0.0025	mg/L		07/05/19 16:17	07/09/19 11:54	5
Calcium	680		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 18:58	5
Molybdenum	0.0035	J	0.0050	0.0025	mg/L		07/05/19 16:17	07/07/19 14:09	1
Iron	10		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 18:58	5
Magnesium	380		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 18:58	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 14:41	5
Manganese	11		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 18:58	5
Boron	0.43		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 18:58	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	500		1.0	0.98	mg/L			06/07/19 16:07	1
Bicarbonate Alkalinity as CaCO3	500		1.0	0.98	mg/L			06/07/19 16:07	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 16:07	1
Total Dissolved Solids	9900		130	85	mg/L			06/10/19 14:06	1
Chloride	3800		200	140	mg/L			06/11/19 15:14	100
Fluoride	0.42		0.10	0.032	mg/L			06/21/19 15:34	1
Sulfate	2300		500	140	mg/L			06/11/19 20:57	100

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.56				SU			06/03/19 14:07	1

Client Sample ID: AES-FB-060319
Lab Sample ID: 400-171203-8

Date Collected: 06/03/19 16:19
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	7.7	U	20	7.7	mg/L		07/05/19 16:17	07/08/19 13:06	100
Potassium	0.56	U	2.5	0.56	mg/L		07/05/19 16:17	07/08/19 19:02	5
Lithium	0.0025	U	0.010	0.0025	mg/L		07/05/19 16:17	07/09/19 11:58	5
Calcium	0.22	U	1.0	0.22	mg/L		07/05/19 16:17	07/08/19 19:02	5
Molybdenum	0.0025	U	0.0050	0.0025	mg/L		07/05/19 16:17	07/07/19 14:13	1
Iron	0.23	U	0.50	0.23	mg/L		07/05/19 16:17	07/08/19 19:02	5
Magnesium	0.25	U	1.0	0.25	mg/L		07/05/19 16:17	07/08/19 19:02	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 14:45	5
Manganese	**0.0083**	**J**	0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 19:02	5
Boron	0.064	U	0.25	0.064	mg/L		07/05/19 16:17	07/08/19 19:02	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	0.98	U	1.0	0.98	mg/L			06/07/19 16:13	1
Bicarbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 16:13	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 16:13	1
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			06/10/19 14:06	1
Chloride	1.4	U	2.0	1.4	mg/L			06/11/19 13:18	1
Fluoride	0.032	U	0.10	0.032	mg/L			06/21/19 15:51	1
Sulfate	**1.6**	**J**	5.0	1.4	mg/L			06/11/19 20:00	1

Client Sample ID: AES-TW104-060419
Lab Sample ID: 400-171203-9

Date Collected: 06/04/19 09:12
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**2600**		20	7.7	mg/L		07/05/19 16:17	07/08/19 13:10	100
Potassium	**21**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 19:15	5
Lithium	**0.0027**	**J**	0.010	0.0025	mg/L		07/05/19 16:17	07/09/19 12:02	5
Calcium	**630**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 19:15	5
Molybdenum	0.012	U	0.025	0.012	mg/L		07/05/19 16:17	07/08/19 14:49	5
Iron	**1.5**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 19:15	5
Magnesium	**650**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 19:15	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 14:49	5
Manganese	**12**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 19:15	5
Boron	**0.78**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 19:15	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**600**		1.0	0.98	mg/L			06/07/19 16:22	1
Bicarbonate Alkalinity as CaCO3	**600**		1.0	0.98	mg/L			06/07/19 16:22	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 16:22	1
Total Dissolved Solids	**13000**		130	85	mg/L			06/11/19 10:40	1
Chloride	**4800**		200	140	mg/L			06/11/19 15:22	100
Fluoride	**0.78**		0.10	0.032	mg/L			06/21/19 15:45	1
Sulfate	**1800**		300	84	mg/L			06/11/19 20:22	60

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.00**				SU			06/04/19 07:12	1

Client Sample ID: AES-TW105-060419
Lab Sample ID: 400-171203-10

Date Collected: 06/04/19 10:27
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**2900**		20	7.7	mg/L		07/05/19 16:17	07/08/19 13:15	100
Potassium	**30**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 19:19	5
Lithium	**0.0026**	**J**	0.010	0.0025	mg/L		07/05/19 16:17	07/09/19 12:06	5
Calcium	**420**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 19:19	5
Molybdenum	0.012	U	0.025	0.012	mg/L		07/05/19 16:17	07/08/19 15:00	5
Iron	**1.5**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 19:19	5
Magnesium	**460**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 19:19	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 15:00	5
Manganese	**8.2**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 19:19	5
Boron	**0.79**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 19:19	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**820**		1.0	0.98	mg/L			06/07/19 16:33	1
Bicarbonate Alkalinity as CaCO3	**820**		1.0	0.98	mg/L			06/07/19 16:33	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 16:33	1
Total Dissolved Solids	**12000**		130	85	mg/L			06/11/19 10:40	1
Chloride	**3600**		200	140	mg/L			06/11/19 15:22	100
Fluoride	**1.2**		0.10	0.032	mg/L			06/21/19 15:54	1
Sulfate	**3000**		500	140	mg/L			06/11/19 20:57	100

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.14**				SU			06/04/19 08:27	1

Client Sample ID: AES-TW106-060419
Lab Sample ID: 400-171203-11

Date Collected: 06/04/19 11:23
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**5600**		20	7.7	mg/L		07/05/19 16:17	07/08/19 13:19	100
Potassium	**89**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 19:23	5
Lithium	**0.0048**	**J**	0.010	0.0025	mg/L		07/05/19 16:17	07/09/19 12:09	5
Calcium	**810**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 19:23	5
Molybdenum	**0.013**	**J**	0.025	0.012	mg/L		07/05/19 16:17	07/08/19 15:04	5
Iron	**6.7**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 19:23	5
Magnesium	**810**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 19:23	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 15:04	5
Manganese	**16**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 19:23	5
Boron	**1.1**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 19:23	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**830**		1.0	0.98	mg/L			06/07/19 16:43	1
Bicarbonate Alkalinity as CaCO3	**830**		1.0	0.98	mg/L			06/07/19 16:43	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 16:43	1
Total Dissolved Solids	**50000**		1000	680	mg/L			06/11/19 10:40	1
Chloride	**6300**		600	420	mg/L			06/11/19 15:54	300
Fluoride	**0.98**		0.10	0.032	mg/L			06/21/19 15:58	1
Sulfate	**4400**		1500	420	mg/L			06/11/19 20:53	300

Client Sample ID: AES-TW106-060419
Lab Sample ID: 400-171203-11
Date Collected: 06/04/19 11:23
Matrix: Water
Date Received: 06/06/19 09:24

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**6.93**				SU			06/04/19 09:23	1

Client Sample ID: AES-TW107-060419
Lab Sample ID: 400-171203-12
Date Collected: 06/04/19 13:37
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**8900**		20	7.7	mg/L		07/05/19 16:17	07/08/19 13:23	100
Potassium	**170**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 15:08	5
Lithium	**0.016**		0.010	0.0025	mg/L		07/05/19 16:17	07/08/19 15:08	5
Calcium	**570**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 15:08	5
Molybdenum	0.012	U	0.025	0.012	mg/L		07/05/19 16:17	07/08/19 15:08	5
Iron	**4.9**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 15:08	5
Magnesium	**580**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 15:08	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 15:08	5
Manganese	**16**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 15:08	5
Boron	**1.1**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 15:08	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**510**		1.0	0.98	mg/L			06/07/19 16:51	1
Bicarbonate Alkalinity as CaCO3	**510**		1.0	0.98	mg/L			06/07/19 16:51	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 16:51	1
Total Dissolved Solids	**39000**		1000	680	mg/L			06/11/19 10:40	1
Chloride	**7000**		600	420	mg/L			06/11/19 15:54	300
Fluoride	**0.61**		0.10	0.032	mg/L			06/21/19 16:02	1
Sulfate	**7800**		1500	420	mg/L			06/11/19 20:53	300

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.18**				SU			06/04/19 11:37	1

Client Sample ID: AES-TW108-060419
Lab Sample ID: 400-171203-13
Date Collected: 06/04/19 14:33
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**5200**		20	7.7	mg/L		07/05/19 16:17	07/08/19 13:27	100
Potassium	**10**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 19:32	5
Lithium	**0.0041**	**J**	0.010	0.0025	mg/L		07/05/19 16:17	07/09/19 12:22	5
Calcium	**700**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 19:32	5
Molybdenum	0.012	U	0.025	0.012	mg/L		07/05/19 16:17	07/08/19 15:11	5
Iron	**5.7**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 19:32	5
Magnesium	**640**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 19:32	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 15:11	5
Manganese	**18**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 19:32	5
Boron	**0.66**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 19:32	5

Client Sample ID: AES-TW108-060419
Lab Sample ID: 400-171203-13
Date Collected: 06/04/19 14:33
Matrix: Water
Date Received: 06/06/19 09:24

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**530**		1.0	0.98	mg/L			06/10/19 11:00	1
Bicarbonate Alkalinity as CaCO3	**530**		1.0	0.98	mg/L			06/10/19 11:00	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/10/19 11:00	1
Total Dissolved Solids	**26000**		1000	680	mg/L			06/11/19 10:40	1
Chloride	**6300**		600	420	mg/L			06/11/19 15:56	300
Fluoride	**0.71**		0.10	0.032	mg/L			06/21/19 16:04	1
Sulfate	**4200**		1500	420	mg/L			06/11/19 20:53	300

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**6.91**				SU			06/04/19 12:33	1

Client Sample ID: AES-TW109-060419
Lab Sample ID: 400-171203-14
Date Collected: 06/04/19 15:38
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**2100**	**V**	20	7.7	mg/L		07/05/19 16:17	07/08/19 13:38	100
Potassium	**4.7**		2.5	0.56	mg/L		07/05/19 16:17	07/08/19 19:36	5
Lithium	**0.0041**	**J F1**	0.010	0.0025	mg/L		07/05/19 16:17	07/09/19 12:26	5
Calcium	**970**		1.0	0.22	mg/L		07/05/19 16:17	07/08/19 19:36	5
Molybdenum	0.012	U	0.025	0.012	mg/L		07/05/19 16:17	07/08/19 15:15	5
Iron	**13**		0.50	0.23	mg/L		07/05/19 16:17	07/08/19 19:36	5
Magnesium	**570**		1.0	0.25	mg/L		07/05/19 16:17	07/08/19 19:36	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 15:15	5
Manganese	**14**		0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 19:36	5
Boron	**0.43**		0.25	0.064	mg/L		07/05/19 16:17	07/08/19 19:36	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	**500**		1.0	0.98	mg/L			06/10/19 10:43	1
Bicarbonate Alkalinity as CaCO3	**500**		1.0	0.98	mg/L			06/10/19 10:43	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/10/19 10:43	1
Total Dissolved Solids	**13000**		250	170	mg/L			06/10/19 14:06	1
Chloride	**4000**		200	140	mg/L			06/11/19 15:11	100
Fluoride	**0.66**		0.10	0.032	mg/L			06/21/19 15:02	1
Sulfate	**2300**		500	140	mg/L			06/11/19 20:53	100

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**6.76**				SU			06/04/19 13:38	1

Client Sample ID: AES-FB-060419
Lab Sample ID: 400-171203-15
Date Collected: 06/04/19 16:18
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**0.53**	**J**	1.0	0.39	mg/L		07/05/19 16:17	07/08/19 15:34	5
Potassium	0.56	U	2.5	0.56	mg/L		07/05/19 16:17	07/08/19 15:34	5

Client Sample ID: AES-FB-060419
Lab Sample ID: 400-171203-15

Date Collected: 06/04/19 16:18
Matrix: Water
Date Received: 06/06/19 09:24

Method: 6020 - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0025	U	0.010	0.0025	mg/L		07/05/19 16:17	07/08/19 15:34	5
Calcium	0.22	U	1.0	0.22	mg/L		07/05/19 16:17	07/08/19 15:34	5
Molybdenum	0.012	U	0.025	0.012	mg/L		07/05/19 16:17	07/08/19 15:34	5
Iron	0.23	U	0.50	0.23	mg/L		07/05/19 16:17	07/08/19 15:34	5
Magnesium	0.25	U	1.0	0.25	mg/L		07/05/19 16:17	07/08/19 15:34	5
Selenium	0.0049	U	0.013	0.0049	mg/L		07/05/19 16:17	07/08/19 15:34	5
Manganese	0.0040	U	0.013	0.0040	mg/L		07/05/19 16:17	07/08/19 15:34	5
Boron	0.064	U	0.25	0.064	mg/L		07/05/19 16:17	07/08/19 15:34	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	0.98	U	1.0	0.98	mg/L			06/10/19 11:05	1
Bicarbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/10/19 11:05	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/10/19 11:05	1
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			06/11/19 10:40	1
Chloride	1.4	U	2.0	1.4	mg/L			06/11/19 13:25	1
Fluoride	0.032	U	0.10	0.032	mg/L			06/21/19 16:08	1
Sulfate	**1.6**	**J**	5.0	1.4	mg/L			06/11/19 20:00	1

Default Detection Limits

Client: DNA-Environment, LLC
Job ID: 400-171203-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Prep: 3005A

Analyte	RL	MDL	Units
Boron	0.050	0.013	mg/L
Calcium	0.20	0.044	mg/L
Iron	0.10	0.047	mg/L
Lithium	0.0020	0.00050	mg/L
Magnesium	0.20	0.049	mg/L
Manganese	0.0025	0.00079	mg/L
Molybdenum	0.0050	0.0025	mg/L
Potassium	0.50	0.11	mg/L
Selenium	0.0025	0.00098	mg/L
Sodium	0.20	0.077	mg/L

General Chemistry

Analyte	RL	MDL	Units
Alkalinity, Total	1.0	0.98	mg/L
Bicarbonate Alkalinity as CaCO3	1.0	0.98	mg/L
Carbonate Alkalinity as CaCO3	1.0	0.98	mg/L
Total Dissolved Solids	5.0	3.4	mg/L
Chloride	2.0	1.4	mg/L
Fluoride	0.10	0.032	mg/L
Sulfate	5.0	1.4	mg/L

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 500-493579/1-A
Matrix: Water
Analysis Batch: 493665

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	0.0025	U	0.0050	0.0025	mg/L		07/05/19 16:17	07/07/19 13:39	1

Lab Sample ID: MB 500-493579/1-A
Matrix: Water
Analysis Batch: 493825

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	0.077	U	0.20	0.077	mg/L		07/05/19 16:17	07/08/19 12:25	1
Potassium	0.11	U	0.50	0.11	mg/L		07/05/19 16:17	07/08/19 12:25	1
Lithium	0.00050	U	0.0020	0.00050	mg/L		07/05/19 16:17	07/08/19 12:25	1
Calcium	0.044	U	0.20	0.044	mg/L		07/05/19 16:17	07/08/19 12:25	1
Iron	0.047	U	0.10	0.047	mg/L		07/05/19 16:17	07/08/19 12:25	1
Magnesium	0.049	U	0.20	0.049	mg/L		07/05/19 16:17	07/08/19 12:25	1
Selenium	0.00098	U	0.0025	0.00098	mg/L		07/05/19 16:17	07/08/19 12:25	1
Manganese	0.00079	U	0.0025	0.00079	mg/L		07/05/19 16:17	07/08/19 12:25	1
Boron	0.013	U	0.050	0.013	mg/L		07/05/19 16:17	07/08/19 12:25	1

Lab Sample ID: LCS 500-493579/2-A
Matrix: Water
Analysis Batch: 493665

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	1.00	1.01		mg/L		101	80 - 120

Lab Sample ID: LCS 500-493579/2-A
Matrix: Water
Analysis Batch: 493825

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sodium	10.0	10.2		mg/L		102	80 - 120
Potassium	10.0	10.2		mg/L		102	80 - 120
Lithium	0.100	0.106		mg/L		106	80 - 120
Calcium	10.0	9.23		mg/L		92	80 - 120
Iron	1.00	1.07		mg/L		107	80 - 120
Magnesium	10.0	10.4		mg/L		104	80 - 120
Selenium	0.100	0.0984		mg/L		98	80 - 120
Manganese	0.500	0.522		mg/L		104	80 - 120
Boron	1.00	1.02		mg/L		102	80 - 120

Lab Sample ID: 400-171203-14 MS
Matrix: Water
Analysis Batch: 493825

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sodium	2100	V	10.0	1810	4	mg/L		-3054	75 - 125

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-171203-14 MS
Matrix: Water
Analysis Batch: 493825

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	0.012	U	1.00	1.13		mg/L		113	75 - 125
Selenium	0.0049	U	0.100	0.122		mg/L		122	75 - 125

Lab Sample ID: 400-171203-14 MS
Matrix: Water
Analysis Batch: 493953

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Potassium	4.7		10.0	13.9		mg/L		92	75 - 125
Calcium	970		10.0	955	4	mg/L		-185	75 - 125
Iron	13		1.00	12.7	4	mg/L		5	75 - 125
Magnesium	570		10.0	557	4	mg/L		-90	75 - 125
Manganese	14		0.500	13.8	4	mg/L		-7	75 - 125
Boron	0.43		1.00	1.29		mg/L		87	75 - 125

Lab Sample ID: 400-171203-14 MS
Matrix: Water
Analysis Batch: 493984

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0041	J F1	0.100	0.137	F1	mg/L		133	75 - 125

Lab Sample ID: 400-171203-14 MSD
Matrix: Water
Analysis Batch: 493825

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sodium	2100	V	10.0	1990	4	mg/L		-1286	75 - 125	9	20

Lab Sample ID: 400-171203-14 MSD
Matrix: Water
Analysis Batch: 493825

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Molybdenum	0.012	U	1.00	1.21		mg/L		121	75 - 125	6	20
Selenium	0.0049	U	0.100	0.125		mg/L		125	75 - 125	2	20

Lab Sample ID: 400-171203-14 MSD
Matrix: Water
Analysis Batch: 493953

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Potassium	4.7		10.0	13.9		mg/L		92	75 - 125	0	20
Calcium	970		10.0	947	4	mg/L		-265	75 - 125	1	20
Iron	13		1.00	13.4	4	mg/L		76	75 - 125	5	20
Magnesium	570		10.0	555	4	mg/L		-105	75 - 125	0	20
Manganese	14		0.500	13.6	4	mg/L		-46	75 - 125	1	20
Boron	0.43		1.00	1.43		mg/L		100	75 - 125	10	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-171203-14 MSD
Matrix: Water
Analysis Batch: 493984

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0041	J F1	0.100	0.127		mg/L		123	75 - 125	8	20

Lab Sample ID: 400-171203-14 DU
Matrix: Water
Analysis Batch: 493825

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sodium	2100	V	1840		mg/L		14	20

Lab Sample ID: 400-171203-14 DU
Matrix: Water
Analysis Batch: 493825

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Molybdenum	0.012	U	0.012	U	mg/L		NC	20
Selenium	0.0049	U	0.0049	U	mg/L		NC	20

Lab Sample ID: 400-171203-14 DU
Matrix: Water
Analysis Batch: 493953

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Potassium	4.7		4.73		mg/L		0.5	20
Calcium	970		993		mg/L		2	20
Iron	13		12.4		mg/L		2	20
Magnesium	570		573		mg/L		1	20
Manganese	14		13.8		mg/L		0.3	20
Boron	0.43		0.429		mg/L		0.9	20

Lab Sample ID: 400-171203-14 DU
Matrix: Water
Analysis Batch: 493984

Client Sample ID: AES-TW109-060419
Prep Type: Total Recoverable
Prep Batch: 493579

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Lithium	0.0041	J F1	0.00311	J F5	mg/L		27	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 400-443702/4
Matrix: Water
Analysis Batch: 443702

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	0.98	U	1.0	0.98	mg/L			06/07/19 13:54	1
Bicarbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 13:54	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/07/19 13:54	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 400-443702/5
Matrix: Water
Analysis Batch: 443702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity, Total			100	112		mg/L		112	80 - 120		

Lab Sample ID: 400-171203-4 DU
Matrix: Water
Analysis Batch: 443702

Client Sample ID: AES-MW4-060319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity, Total	800			808		mg/L				0.7	20
Bicarbonate Alkalinity as CaCO3	800			808		mg/L				0.7	20
Carbonate Alkalinity as CaCO3	0.98	U		0.98	U	mg/L				NC	20

Lab Sample ID: MB 400-443918/4
Matrix: Water
Analysis Batch: 443918

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	0.98	U	1.0	0.98	mg/L			06/10/19 10:18	1
Bicarbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/10/19 10:18	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			06/10/19 10:18	1

Lab Sample ID: LCS 400-443918/5
Matrix: Water
Analysis Batch: 443918

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity, Total			100	113		mg/L		113	80 - 120		

Lab Sample ID: 400-171203-14 DU
Matrix: Water
Analysis Batch: 443918

Client Sample ID: AES-TW109-060419
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity, Total	500			504		mg/L				0.8	20
Bicarbonate Alkalinity as CaCO3	500			504		mg/L				0.8	20
Carbonate Alkalinity as CaCO3	0.98	U		0.98	U	mg/L				NC	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 400-443926/1
Matrix: Water
Analysis Batch: 443926

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			06/10/19 14:06	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 400-443926/2
Matrix: Water
Analysis Batch: 443926

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	318		mg/L		109	78 - 122

Lab Sample ID: MB 400-444004/1
Matrix: Water
Analysis Batch: 444004

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			06/11/19 10:40	1

Lab Sample ID: LCS 400-444004/2
Matrix: Water
Analysis Batch: 444004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	322		mg/L		110	78 - 122

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 400-444026/16
Matrix: Water
Analysis Batch: 444026

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.4	U	2.0	1.4	mg/L			06/11/19 10:35	1

Lab Sample ID: LCS 400-444026/17
Matrix: Water
Analysis Batch: 444026

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	30.0	30.7		mg/L		102	90 - 110

Lab Sample ID: MRL 400-444026/13
Matrix: Water
Analysis Batch: 444026

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.00	1.39	J	mg/L		69	50 - 150

Lab Sample ID: MB 400-444079/6
Matrix: Water
Analysis Batch: 444079

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.4	U	2.0	1.4	mg/L			06/11/19 13:15	1

Method: SM 4500 Cl- E - Chloride, Total (Continued)

Lab Sample ID: LCS 400-444079/7
Matrix: Water
Analysis Batch: 444079

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			30.0	31.5		mg/L		105	90 - 110		

Lab Sample ID: MRL 400-444079/3
Matrix: Water
Analysis Batch: 444079

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			2.00	1.37	J	mg/L		68	50 - 150		

Lab Sample ID: 400-171203-14 MS
Matrix: Water
Analysis Batch: 444079

Client Sample ID: AES-TW109-060419
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	4000		10.0	3800	4	mg/L		-1989	73 - 120		

Lab Sample ID: 400-171203-14 MSD
Matrix: Water
Analysis Batch: 444079

Client Sample ID: AES-TW109-060419
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	4000		10.0	3740	4	mg/L		-2532	73 - 120	1	8

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 400-445316/3
Matrix: Water
Analysis Batch: 445316

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.032	U	0.10	0.032	mg/L			06/21/19 14:47	1

Lab Sample ID: LCS 400-445316/4
Matrix: Water
Analysis Batch: 445316

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			4.00	3.75		mg/L		94	90 - 110		

Lab Sample ID: 400-171203-14 MS
Matrix: Water
Analysis Batch: 445316

Client Sample ID: AES-TW109-060419
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	0.66		1.00	1.44		mg/L		78	75 - 125		

Method: SM 4500 F C - Fluoride (Continued)

Lab Sample ID: 400-171203-14 MSD
Matrix: Water
Analysis Batch: 445316

Client Sample ID: AES-TW109-060419
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.66		1.00	1.44		mg/L		78	75 - 125	0	4

Lab Sample ID: 400-171203-9 DU
Matrix: Water
Analysis Batch: 445316

Client Sample ID: AES-TW104-060419
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	0.78		0.780		mg/L		0	4

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 400-444124/6
Matrix: Water
Analysis Batch: 444124

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.4	U	5.0	1.4	mg/L			06/11/19 19:04	1

Lab Sample ID: LCS 400-444124/7
Matrix: Water
Analysis Batch: 444124

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	15.0	15.7		mg/L		105	90 - 110

Lab Sample ID: MRL 400-444124/3
Matrix: Water
Analysis Batch: 444124

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	5.16		mg/L		103	50 - 150

Lab Sample ID: 400-171203-14 MS
Matrix: Water
Analysis Batch: 444124

Client Sample ID: AES-TW109-060419
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	2300		10.0	2360	4	mg/L		740	77 - 128

Lab Sample ID: 400-171203-14 MSD
Matrix: Water
Analysis Batch: 444124

Client Sample ID: AES-TW109-060419
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	2300		10.0	2360	4	mg/L		752	77 - 128	0	5

Metals

Prep Batch: 493579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-1	AES-TW101-060319	Total Recoverable	Water	3005A	
400-171203-2	AES-MW3-060319	Total Recoverable	Water	3005A	
400-171203-3	AES-TW102-060319	Total Recoverable	Water	3005A	
400-171203-4	AES-MW4-060319	Total Recoverable	Water	3005A	
400-171203-5	AES-MW4-DUP-060319	Total Recoverable	Water	3005A	
400-171203-6	AES-TW103-060319	Total Recoverable	Water	3005A	
400-171203-7	AES-MW5-060319	Total Recoverable	Water	3005A	
400-171203-8	AES-FB-060319	Total Recoverable	Water	3005A	
400-171203-9	AES-TW104-060419	Total Recoverable	Water	3005A	
400-171203-10	AES-TW105-060419	Total Recoverable	Water	3005A	
400-171203-11	AES-TW106-060419	Total Recoverable	Water	3005A	
400-171203-12	AES-TW107-060419	Total Recoverable	Water	3005A	
400-171203-13	AES-TW108-060419	Total Recoverable	Water	3005A	
400-171203-14	AES-TW109-060419	Total Recoverable	Water	3005A	
400-171203-15	AES-FB-060419	Total Recoverable	Water	3005A	
MB 500-493579/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-493579/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-171203-14 MS	AES-TW109-060419	Total Recoverable	Water	3005A	
400-171203-14 MSD	AES-TW109-060419	Total Recoverable	Water	3005A	
400-171203-14 DU	AES-TW109-060419	Total Recoverable	Water	3005A	

Analysis Batch: 493665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-1	AES-TW101-060319	Total Recoverable	Water	6020	493579
400-171203-2	AES-MW3-060319	Total Recoverable	Water	6020	493579
400-171203-3	AES-TW102-060319	Total Recoverable	Water	6020	493579
400-171203-4	AES-MW4-060319	Total Recoverable	Water	6020	493579
400-171203-5	AES-MW4-DUP-060319	Total Recoverable	Water	6020	493579
400-171203-6	AES-TW103-060319	Total Recoverable	Water	6020	493579
400-171203-7	AES-MW5-060319	Total Recoverable	Water	6020	493579
400-171203-8	AES-FB-060319	Total Recoverable	Water	6020	493579
MB 500-493579/1-A	Method Blank	Total Recoverable	Water	6020	493579
LCS 500-493579/2-A	Lab Control Sample	Total Recoverable	Water	6020	493579

Analysis Batch: 493825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-1	AES-TW101-060319	Total Recoverable	Water	6020	493579
400-171203-1	AES-TW101-060319	Total Recoverable	Water	6020	493579
400-171203-2	AES-MW3-060319	Total Recoverable	Water	6020	493579
400-171203-2	AES-MW3-060319	Total Recoverable	Water	6020	493579
400-171203-3	AES-TW102-060319	Total Recoverable	Water	6020	493579
400-171203-3	AES-TW102-060319	Total Recoverable	Water	6020	493579
400-171203-4	AES-MW4-060319	Total Recoverable	Water	6020	493579
400-171203-4	AES-MW4-060319	Total Recoverable	Water	6020	493579
400-171203-5	AES-MW4-DUP-060319	Total Recoverable	Water	6020	493579
400-171203-6	AES-TW103-060319	Total Recoverable	Water	6020	493579
400-171203-6	AES-TW103-060319	Total Recoverable	Water	6020	493579
400-171203-7	AES-MW5-060319	Total Recoverable	Water	6020	493579
400-171203-7	AES-MW5-060319	Total Recoverable	Water	6020	493579
400-171203-8	AES-FB-060319	Total Recoverable	Water	6020	493579
400-171203-8	AES-FB-060319	Total Recoverable	Water	6020	493579

Metals (Continued)

Analysis Batch: 493825 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-9	AES-TW104-060419	Total Recoverable	Water	6020	493579
400-171203-9	AES-TW104-060419	Total Recoverable	Water	6020	493579
400-171203-10	AES-TW105-060419	Total Recoverable	Water	6020	493579
400-171203-10	AES-TW105-060419	Total Recoverable	Water	6020	493579
400-171203-11	AES-TW106-060419	Total Recoverable	Water	6020	493579
400-171203-11	AES-TW106-060419	Total Recoverable	Water	6020	493579
400-171203-12	AES-TW107-060419	Total Recoverable	Water	6020	493579
400-171203-12	AES-TW107-060419	Total Recoverable	Water	6020	493579
400-171203-13	AES-TW108-060419	Total Recoverable	Water	6020	493579
400-171203-13	AES-TW108-060419	Total Recoverable	Water	6020	493579
400-171203-14	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-15	AES-FB-060419	Total Recoverable	Water	6020	493579
MB 500-493579/1-A	Method Blank	Total Recoverable	Water	6020	493579
LCS 500-493579/2-A	Lab Control Sample	Total Recoverable	Water	6020	493579
400-171203-14 MS	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 MS	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 MSD	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 MSD	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 DU	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 DU	AES-TW109-060419	Total Recoverable	Water	6020	493579

Analysis Batch: 493953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-4	AES-MW4-060319	Total Recoverable	Water	6020	493579
400-171203-5	AES-MW4-DUP-060319	Total Recoverable	Water	6020	493579
400-171203-7	AES-MW5-060319	Total Recoverable	Water	6020	493579
400-171203-8	AES-FB-060319	Total Recoverable	Water	6020	493579
400-171203-9	AES-TW104-060419	Total Recoverable	Water	6020	493579
400-171203-10	AES-TW105-060419	Total Recoverable	Water	6020	493579
400-171203-11	AES-TW106-060419	Total Recoverable	Water	6020	493579
400-171203-13	AES-TW108-060419	Total Recoverable	Water	6020	493579
400-171203-14	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 MS	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 MSD	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 DU	AES-TW109-060419	Total Recoverable	Water	6020	493579

Analysis Batch: 493984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-4	AES-MW4-060319	Total Recoverable	Water	6020	493579
400-171203-5	AES-MW4-DUP-060319	Total Recoverable	Water	6020	493579
400-171203-7	AES-MW5-060319	Total Recoverable	Water	6020	493579
400-171203-8	AES-FB-060319	Total Recoverable	Water	6020	493579
400-171203-9	AES-TW104-060419	Total Recoverable	Water	6020	493579
400-171203-10	AES-TW105-060419	Total Recoverable	Water	6020	493579
400-171203-11	AES-TW106-060419	Total Recoverable	Water	6020	493579
400-171203-13	AES-TW108-060419	Total Recoverable	Water	6020	493579
400-171203-14	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 MS	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 MSD	AES-TW109-060419	Total Recoverable	Water	6020	493579
400-171203-14 DU	AES-TW109-060419	Total Recoverable	Water	6020	493579

General Chemistry

Analysis Batch: 443702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-1	AES-TW101-060319	Total/NA	Water	SM 2320B	
400-171203-2	AES-MW3-060319	Total/NA	Water	SM 2320B	
400-171203-3	AES-TW102-060319	Total/NA	Water	SM 2320B	
400-171203-4	AES-MW4-060319	Total/NA	Water	SM 2320B	
400-171203-5	AES-MW4-DUP-060319	Total/NA	Water	SM 2320B	
400-171203-6	AES-TW103-060319	Total/NA	Water	SM 2320B	
400-171203-7	AES-MW5-060319	Total/NA	Water	SM 2320B	
400-171203-8	AES-FB-060319	Total/NA	Water	SM 2320B	
400-171203-9	AES-TW104-060419	Total/NA	Water	SM 2320B	
400-171203-10	AES-TW105-060419	Total/NA	Water	SM 2320B	
400-171203-11	AES-TW106-060419	Total/NA	Water	SM 2320B	
400-171203-12	AES-TW107-060419	Total/NA	Water	SM 2320B	
MB 400-443702/4	Method Blank	Total/NA	Water	SM 2320B	
LCS 400-443702/5	Lab Control Sample	Total/NA	Water	SM 2320B	
400-171203-4 DU	AES-MW4-060319	Total/NA	Water	SM 2320B	

Analysis Batch: 443918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-13	AES-TW108-060419	Total/NA	Water	SM 2320B	
400-171203-14	AES-TW109-060419	Total/NA	Water	SM 2320B	
400-171203-15	AES-FB-060419	Total/NA	Water	SM 2320B	
MB 400-443918/4	Method Blank	Total/NA	Water	SM 2320B	
LCS 400-443918/5	Lab Control Sample	Total/NA	Water	SM 2320B	
400-171203-14 DU	AES-TW109-060419	Total/NA	Water	SM 2320B	

Analysis Batch: 443926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-1	AES-TW101-060319	Total/NA	Water	SM 2540C	
400-171203-2	AES-MW3-060319	Total/NA	Water	SM 2540C	
400-171203-3	AES-TW102-060319	Total/NA	Water	SM 2540C	
400-171203-4	AES-MW4-060319	Total/NA	Water	SM 2540C	
400-171203-5	AES-MW4-DUP-060319	Total/NA	Water	SM 2540C	
400-171203-6	AES-TW103-060319	Total/NA	Water	SM 2540C	
400-171203-7	AES-MW5-060319	Total/NA	Water	SM 2540C	
400-171203-8	AES-FB-060319	Total/NA	Water	SM 2540C	
400-171203-14	AES-TW109-060419	Total/NA	Water	SM 2540C	
MB 400-443926/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-443926/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 444004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-9	AES-TW104-060419	Total/NA	Water	SM 2540C	
400-171203-10	AES-TW105-060419	Total/NA	Water	SM 2540C	
400-171203-11	AES-TW106-060419	Total/NA	Water	SM 2540C	
400-171203-12	AES-TW107-060419	Total/NA	Water	SM 2540C	
400-171203-13	AES-TW108-060419	Total/NA	Water	SM 2540C	
400-171203-15	AES-FB-060419	Total/NA	Water	SM 2540C	
MB 400-444004/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-444004/2	Lab Control Sample	Total/NA	Water	SM 2540C	

General Chemistry

Analysis Batch: 444026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-1	AES-TW101-060319	Total/NA	Water	SM 4500 Cl- E	
MB 400-444026/16	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 400-444026/17	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
MRL 400-444026/13	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	

Analysis Batch: 444079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-2	AES-MW3-060319	Total/NA	Water	SM 4500 Cl- E	
400-171203-3	AES-TW102-060319	Total/NA	Water	SM 4500 Cl- E	
400-171203-4	AES-MW4-060319	Total/NA	Water	SM 4500 Cl- E	
400-171203-5	AES-MW4-DUP-060319	Total/NA	Water	SM 4500 Cl- E	
400-171203-6	AES-TW103-060319	Total/NA	Water	SM 4500 Cl- E	
400-171203-7	AES-MW5-060319	Total/NA	Water	SM 4500 Cl- E	
400-171203-8	AES-FB-060319	Total/NA	Water	SM 4500 Cl- E	
400-171203-9	AES-TW104-060419	Total/NA	Water	SM 4500 Cl- E	
400-171203-10	AES-TW105-060419	Total/NA	Water	SM 4500 Cl- E	
400-171203-11	AES-TW106-060419	Total/NA	Water	SM 4500 Cl- E	
400-171203-12	AES-TW107-060419	Total/NA	Water	SM 4500 Cl- E	
400-171203-13	AES-TW108-060419	Total/NA	Water	SM 4500 Cl- E	
400-171203-14	AES-TW109-060419	Total/NA	Water	SM 4500 Cl- E	
400-171203-15	AES-FB-060419	Total/NA	Water	SM 4500 Cl- E	
MB 400-444079/6	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 400-444079/7	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
MRL 400-444079/3	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
400-171203-14 MS	AES-TW109-060419	Total/NA	Water	SM 4500 Cl- E	
400-171203-14 MSD	AES-TW109-060419	Total/NA	Water	SM 4500 Cl- E	

Analysis Batch: 444124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-1	AES-TW101-060319	Total/NA	Water	SM 4500 SO4 E	
400-171203-2	AES-MW3-060319	Total/NA	Water	SM 4500 SO4 E	
400-171203-3	AES-TW102-060319	Total/NA	Water	SM 4500 SO4 E	
400-171203-4	AES-MW4-060319	Total/NA	Water	SM 4500 SO4 E	
400-171203-5	AES-MW4-DUP-060319	Total/NA	Water	SM 4500 SO4 E	
400-171203-6	AES-TW103-060319	Total/NA	Water	SM 4500 SO4 E	
400-171203-7	AES-MW5-060319	Total/NA	Water	SM 4500 SO4 E	
400-171203-8	AES-FB-060319	Total/NA	Water	SM 4500 SO4 E	
400-171203-9	AES-TW104-060419	Total/NA	Water	SM 4500 SO4 E	
400-171203-10	AES-TW105-060419	Total/NA	Water	SM 4500 SO4 E	
400-171203-11	AES-TW106-060419	Total/NA	Water	SM 4500 SO4 E	
400-171203-12	AES-TW107-060419	Total/NA	Water	SM 4500 SO4 E	
400-171203-13	AES-TW108-060419	Total/NA	Water	SM 4500 SO4 E	
400-171203-14	AES-TW109-060419	Total/NA	Water	SM 4500 SO4 E	
400-171203-15	AES-FB-060419	Total/NA	Water	SM 4500 SO4 E	
MB 400-444124/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-444124/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-444124/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
400-171203-14 MS	AES-TW109-060419	Total/NA	Water	SM 4500 SO4 E	
400-171203-14 MSD	AES-TW109-060419	Total/NA	Water	SM 4500 SO4 E	

General Chemistry

Analysis Batch: 445316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-1	AES-TW101-060319	Total/NA	Water	SM 4500 F C	
400-171203-2	AES-MW3-060319	Total/NA	Water	SM 4500 F C	
400-171203-3	AES-TW102-060319	Total/NA	Water	SM 4500 F C	
400-171203-4	AES-MW4-060319	Total/NA	Water	SM 4500 F C	
400-171203-5	AES-MW4-DUP-060319	Total/NA	Water	SM 4500 F C	
400-171203-6	AES-TW103-060319	Total/NA	Water	SM 4500 F C	
400-171203-7	AES-MW5-060319	Total/NA	Water	SM 4500 F C	
400-171203-8	AES-FB-060319	Total/NA	Water	SM 4500 F C	
400-171203-9	AES-TW104-060419	Total/NA	Water	SM 4500 F C	
400-171203-10	AES-TW105-060419	Total/NA	Water	SM 4500 F C	
400-171203-11	AES-TW106-060419	Total/NA	Water	SM 4500 F C	
400-171203-12	AES-TW107-060419	Total/NA	Water	SM 4500 F C	
400-171203-13	AES-TW108-060419	Total/NA	Water	SM 4500 F C	
400-171203-14	AES-TW109-060419	Total/NA	Water	SM 4500 F C	
400-171203-15	AES-FB-060419	Total/NA	Water	SM 4500 F C	
MB 400-445316/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-445316/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
400-171203-14 MS	AES-TW109-060419	Total/NA	Water	SM 4500 F C	
400-171203-14 MSD	AES-TW109-060419	Total/NA	Water	SM 4500 F C	
400-171203-9 DU	AES-TW104-060419	Total/NA	Water	SM 4500 F C	

Field Service / Mobile Lab

Analysis Batch: 446351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-171203-1	AES-TW101-060319	Total/NA	Water	Field Sampling	
400-171203-2	AES-MW3-060319	Total/NA	Water	Field Sampling	
400-171203-3	AES-TW102-060319	Total/NA	Water	Field Sampling	
400-171203-4	AES-MW4-060319	Total/NA	Water	Field Sampling	
400-171203-6	AES-TW103-060319	Total/NA	Water	Field Sampling	
400-171203-7	AES-MW5-060319	Total/NA	Water	Field Sampling	
400-171203-9	AES-TW104-060419	Total/NA	Water	Field Sampling	
400-171203-10	AES-TW105-060419	Total/NA	Water	Field Sampling	
400-171203-11	AES-TW106-060419	Total/NA	Water	Field Sampling	
400-171203-12	AES-TW107-060419	Total/NA	Water	Field Sampling	
400-171203-13	AES-TW108-060419	Total/NA	Water	Field Sampling	
400-171203-14	AES-TW109-060419	Total/NA	Water	Field Sampling	

Client Sample ID: AES-TW101-060319
Lab Sample ID: 400-171203-1

Date Collected: 06/03/19 09:25
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		1	493665	07/07/19 13:46	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 12:32	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 14:19	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 14:53	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	443926	06/10/19 14:06	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		100	444026	06/11/19 11:04	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:14	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		60	444124	06/11/19 20:09	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/03/19 07:25	EAL	TAL PEN

Client Sample ID: AES-MW3-060319
Lab Sample ID: 400-171203-2

Date Collected: 06/03/19 10:36
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		1	493665	07/07/19 13:50	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 12:36	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 14:22	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 15:01	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	443926	06/10/19 14:06	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		100	444079	06/11/19 15:11	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:16	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		60	444124	06/11/19 20:09	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/03/19 08:36	EAL	TAL PEN

Client Sample ID: AES-TW102-060319
Lab Sample ID: 400-171203-3

Date Collected: 06/03/19 11:27
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		1	493665	07/07/19 13:54	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 12:40	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 14:26	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 15:08	BAB	TAL PEN

Client Sample ID: AES-TW102-060319
Lab Sample ID: 400-171203-3

Date Collected: 06/03/19 11:27
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	443926	06/10/19 14:06	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		300	444079	06/11/19 15:54	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:20	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		600	444124	06/11/19 21:10	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/03/19 09:27	EAL	TAL PEN

Client Sample ID: AES-MW4-060319
Lab Sample ID: 400-171203-4

Date Collected: 06/03/19 13:52
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		1	493665	07/07/19 13:58	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 12:43	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 14:30	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493984	07/09/19 11:47	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493953	07/08/19 18:45	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 15:30	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	443926	06/10/19 14:06	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		100	444079	06/11/19 15:14	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:22	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		300	444124	06/11/19 20:48	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/03/19 11:52	EAL	TAL PEN

Client Sample ID: AES-MW4-DUP-060319
Lab Sample ID: 400-171203-5

Date Collected: 06/03/19 14:04
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		1	493665	07/07/19 14:02	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 12:47	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493984	07/09/19 11:51	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493953	07/08/19 18:50	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 15:52	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	443926	06/10/19 14:06	CLB	TAL PEN

Client Sample ID: AES-MW4-DUP-060319
Lab Sample ID: 400-171203-5

Date Collected: 06/03/19 14:04
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 Cl- E		100	444079	06/11/19 15:14	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:26	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		300	444124	06/11/19 20:48	RRC	TAL PEN

Client Sample ID: AES-TW103-060319
Lab Sample ID: 400-171203-6

Date Collected: 06/03/19 14:51
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		1	493665	07/07/19 14:05	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 12:59	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 14:37	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 15:59	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	443926	06/10/19 14:06	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		300	444079	06/11/19 15:54	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:30	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		300	444124	06/11/19 20:48	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/03/19 12:51	EAL	TAL PEN

Client Sample ID: AES-MW5-060319
Lab Sample ID: 400-171203-7

Date Collected: 06/03/19 16:07
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		1	493665	07/07/19 14:09	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 13:02	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 14:41	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493984	07/09/19 11:54	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493953	07/08/19 18:58	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 16:07	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	443926	06/10/19 14:06	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		100	444079	06/11/19 15:14	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:34	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		100	444124	06/11/19 20:57	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/03/19 14:07	EAL	TAL PEN

Client Sample ID: AES-FB-060319
Lab Sample ID: 400-171203-8

Date Collected: 06/03/19 16:19
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		1	493665	07/07/19 14:13	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 13:06	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 14:45	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493984	07/09/19 11:58	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493953	07/08/19 19:02	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 16:13	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	443926	06/10/19 14:06	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		1	444079	06/11/19 13:18	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:51	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	444124	06/11/19 20:00	RRC	TAL PEN

Client Sample ID: AES-TW104-060419
Lab Sample ID: 400-171203-9

Date Collected: 06/04/19 09:12
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 13:10	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 14:49	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493984	07/09/19 12:02	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493953	07/08/19 19:15	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 16:22	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	444004	06/11/19 10:40	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		100	444079	06/11/19 15:22	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:45	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		60	444124	06/11/19 20:22	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/04/19 07:12	EAL	TAL PEN

Client Sample ID: AES-TW105-060419
Lab Sample ID: 400-171203-10

Date Collected: 06/04/19 10:27
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 13:15	FXG	TAL CHI

Client Sample ID: AES-TW105-060419
Lab Sample ID: 400-171203-10

Date Collected: 06/04/19 10:27
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 15:00	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493984	07/09/19 12:06	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493953	07/08/19 19:19	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 16:33	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	444004	06/11/19 10:40	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		100	444079	06/11/19 15:22	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:54	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		100	444124	06/11/19 20:57	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/04/19 08:27	EAL	TAL PEN

Client Sample ID: AES-TW106-060419
Lab Sample ID: 400-171203-11

Date Collected: 06/04/19 11:23
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 13:19	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 15:04	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493984	07/09/19 12:09	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493953	07/08/19 19:23	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 16:43	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	444004	06/11/19 10:40	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		300	444079	06/11/19 15:54	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:58	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		300	444124	06/11/19 20:53	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/04/19 09:23	EAL	TAL PEN

Client Sample ID: AES-TW107-060419
Lab Sample ID: 400-171203-12

Date Collected: 06/04/19 13:37
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 13:23	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 15:08	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443702	06/07/19 16:51	BAB	TAL PEN

Client Sample ID: AES-TW107-060419
Lab Sample ID: 400-171203-12
Date Collected: 06/04/19 13:37
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	444004	06/11/19 10:40	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		300	444079	06/11/19 15:54	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 16:02	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		300	444124	06/11/19 20:53	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/04/19 11:37	EAL	TAL PEN

Client Sample ID: AES-TW108-060419
Lab Sample ID: 400-171203-13
Date Collected: 06/04/19 14:33
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 13:27	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 15:11	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493984	07/09/19 12:22	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493953	07/08/19 19:32	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443918	06/10/19 11:00	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	444004	06/11/19 10:40	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		300	444079	06/11/19 15:56	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 16:04	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		300	444124	06/11/19 20:53	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/04/19 12:33	EAL	TAL PEN

Client Sample ID: AES-TW109-060419
Lab Sample ID: 400-171203-14
Date Collected: 06/04/19 15:38
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		100	493825	07/08/19 13:38	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 15:15	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493984	07/09/19 12:26	FXG	TAL CHI
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493953	07/08/19 19:36	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443918	06/10/19 10:43	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	443926	06/10/19 14:06	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		100	444079	06/11/19 15:11	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 15:02	BAB	TAL PEN

Lab Chronicle

Client: DNA-Environment, LLC
Job ID: 400-171203-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-TW109-060419
Lab Sample ID: 400-171203-14
Date Collected: 06/04/19 15:38
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		100	444124	06/11/19 20:53	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	446351	06/04/19 13:38	EAL	TAL PEN

Client Sample ID: AES-FB-060419
Lab Sample ID: 400-171203-15
Date Collected: 06/04/19 16:18
Matrix: Water
Date Received: 06/06/19 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493579	07/05/19 16:17	BDE	TAL CHI
Total Recoverable	Analysis	6020		5	493825	07/08/19 15:34	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	443918	06/10/19 11:05	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	444004	06/11/19 10:40	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		1	444079	06/11/19 13:25	RRC	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	445316	06/21/19 16:08	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	444124	06/11/19 20:00	RRC	TAL PEN

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: DNA-Environment, LLC
Job ID: 400-171203-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Laboratory: Eurofins TestAmerica, Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Florida	NELAP	E81010	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Field Sampling		Water	Field pH
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3

Laboratory: Eurofins TestAmerica, Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Georgia	State	N/A	04-30-20
Georgia (DW)	State	939	04-30-20
Hawaii	State	NA	04-30-20
Illinois	NELAP	IL00035	04-30-20
Indiana	State	C-IL-02	04-30-20
Iowa	State	082	05-01-20
Kansas	NELAP	E-10161	10-31-19
Kentucky (UST)	State	AI # 108083	04-30-20
Kentucky (WW)	State	KY90023	12-31-19
Louisiana	NELAP	02046	06-30-20
Mississippi	State	NA	04-30-20
New York	NELAP	12019	04-01-20
North Carolina (WW/SW)	State	291	12-31-19
North Dakota	State	R-194	04-30-20
USDA	US Federal Programs	P330-18-00018	02-11-21
Wyoming	State	8TMS-Q	04-30-20

Method Summary

Client: DNA-Environment, LLC
Job ID: 400-171203-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL CHI
SM 2320B	Alkalinity	SM	TAL PEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PEN
SM 4500 Cl- E	Chloride, Total	SM	TAL PEN
SM 4500 F C	Fluoride	SM	TAL PEN
SM 4500 SO4 E	Sulfate, Total	SM	TAL PEN
Field Sampling	Field Sampling	EPA	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Sample Summary

Client: DNA-Environment, LLC
Job ID: 400-171203-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
400-171203-1	AES-TW101-060319	Water	06/03/19 09:25	06/06/19 09:24	
400-171203-2	AES-MW3-060319	Water	06/03/19 10:36	06/06/19 09:24	
400-171203-3	AES-TW102-060319	Water	06/03/19 11:27	06/06/19 09:24	
400-171203-4	AES-MW4-060319	Water	06/03/19 13:52	06/06/19 09:24	
400-171203-5	AES-MW4-DUP-060319	Water	06/03/19 14:04	06/06/19 09:24	
400-171203-6	AES-TW103-060319	Water	06/03/19 14:51	06/06/19 09:24	
400-171203-7	AES-MW5-060319	Water	06/03/19 16:07	06/06/19 09:24	
400-171203-8	AES-FB-060319	Water	06/03/19 16:19	06/06/19 09:24	
400-171203-9	AES-TW104-060419	Water	06/04/19 09:12	06/06/19 09:24	
400-171203-10	AES-TW105-060419	Water	06/04/19 10:27	06/06/19 09:24	
400-171203-11	AES-TW106-060419	Water	06/04/19 11:23	06/06/19 09:24	
400-171203-12	AES-TW107-060419	Water	06/04/19 13:37	06/06/19 09:24	
400-171203-13	AES-TW108-060419	Water	06/04/19 14:33	06/06/19 09:24	
400-171203-14	AES-TW109-060419	Water	06/04/19 15:38	06/06/19 09:24	
400-171203-15	AES-FB-060419	Water	06/04/19 16:18	06/06/19 09:24	

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
ALK-CCV-W_00068	08/16/19	05/16/19	REAGENT WATER, Lot NA	1000 mL	ALK-CCV-S_00044	100 mL	Alkalinity, Total	100 mg/L
							Bicarbonate Alkalinity as CaCO3	106 mg/L
							Carbonate Alkalinity as CaCO3	106 mg/L
.ALK-CCV-S_00044	11/13/19	05/13/19	REAGENT WATER, Lot NA	1000 mL	Sodium_Carbon_00005	1.06 g	Alkalinity, Total	1000 mg/L
							Bicarbonate Alkalinity as CaCO3	1060 mg/L
							Carbonate Alkalinity as CaCO3	1060 mg/L
..Sodium_Carbon_00005	10/31/22	Fisher, Lot 174819			(Purchased Reagent)		Alkalinity, Total	943396 mg/L
							Bicarbonate Alkalinity as CaCO3	1000000 mg/L
							Carbonate Alkalinity as CaCO3	1000000 mg/L
ALK-ICV-W_00084	08/13/19	05/13/19	WATER, Lot N/A	1000 mL	ALK-ICV-S_00030	10 mL	Alkalinity, Total	100 mg/L
.ALK-ICV-S_00030	11/13/19	05/13/19	WATER, Lot N/A	1000 mL	Na2C03_00002	10.6 g	Alkalinity, Total	10000 mg/L
..Na2C03_00002	12/02/19	Alfa Aesar, Lot A16Z011			(Purchased Reagent)		Alkalinity, Total	943396 mg/L
CL-CCV-35ppm_00031	06/14/19	03/04/19	DI H2O, Lot NA	200 mL	CL-CCV-S_00017	7 mL	Chloride	35 ppm
.CL-CCV-S_00017	01/30/20	Aqua Solutions, Lot 8123126			(Purchased Reagent)		Chloride	1000 mg/L
							Chloride	1000 mg/L
CL-CCVL-2ppm_00029	08/31/19	06/05/19	DI H2O, Lot NA	250 mL	CL-CCV-S_00017	0.5 mL	Chloride	2 ppm
.CL-CCV-S_00017	01/30/20	Aqua Solutions, Lot 8123126			(Purchased Reagent)		Chloride	1000 mg/L
CL-ICV-W_00054	08/12/19	03/04/19	WATER, Lot NA	200 mL	CL-ICV-S_00015	6 mL	Chloride	30 mg/L
.CL-ICV-S_00015	08/30/19	Aqua Solutions, Lot 8081677			(Purchased Reagent)		Chloride	1000 mg/L
FL-CCV-S_00007	11/05/19	LabChem, Lot H299-20			(Purchased Reagent)		Fluoride	100 mg/L
FL-LCS-S_00013	01/30/20	RICCA, Lot 2901970			(Purchased Reagent)		Fluoride	100 mg/L
GTDS-LCS-W_00096	08/28/19	05/29/19	REAGENT GRADE WATER, Lot N/A	1000 mL	TDS-LCS-Stock_00009	5 mL	Total Dissolved Solids	293 mg/L
.TDS-LCS-Stock_00009	10/31/19	FISHER, Lot 051549 / 120731			(Purchased Reagent)		Total Dissolved Solids	58600 mg/L
SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-CCV-W_00032	06/30/19	04/11/19	WATER, Lot NA	200 mL	SO4-CCV-C-S_00016	3 mL	Sulfate	15 mg/L
.SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-CCVL-W_00037	06/30/19	04/11/19	WATER, Lot NA	200 mL	SO4-CCV-C-S_00016	1 mL	Sulfate	5 mg/L
.SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-ICV-W_00062	06/30/19	04/11/19	DI WATER, Lot NA	200 mL	SO4-Cal-Stock_00013	3 mL	Sulfate	15 mg/L
.SO4-Cal-Stock_00013	03/31/20	Ricca, Lot 2809B22			(Purchased Reagent)		Sulfate	1000 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
M19DCCVMS_00006	11/23/19	04/16/19	Acidified Water, Lot 203839/221681	1000 mL	M18KSTKMS_00004	2.5 mL	Boron	250 ug/L
							Manganese	250 ug/L
							Selenium	250 ug/L
					M19ASTKIC_00007	2.5 mL	Potassium	25000 ug/L
					M19CINTMS_00002	2.5 mL	Lithium	250 ug/L
					M19DSTKIC_00001	5 mL	Calcium	25000 ug/L
							Iron	25000 ug/L
							Magnesium	25000 ug/L
							Sodium	25000 ug/L
					M19DSTKMS_00001	2.5 mL	Molybdenum	250 ug/L
.M18KSTKMS_00004	11/23/19	Inorganic Ventures, Lot N2-MEB670765			(Purchased Reagent)		Boron	100 ug/mL
							Manganese	100 ug/mL
							Selenium	100 ug/mL
.M19ASTKIC_00007	01/29/20	Inorganic Ventures, Lot N2-MEB670766			(Purchased Reagent)		Potassium	10000 ug/mL
.M19CINTMS_00002	03/12/20	03/07/19	Nitric Acid Water, Lot 216908	100 mL	M19BSTKMS_00004	10 mL	Lithium	100 ug/mL
..M19BSTKMS_00004	08/01/20	CPI Internatioanl, Lot 751942-43			(Purchased Reagent)		Lithium	1000 ug/mL
.M19DSTKIC_00001	04/05/20	Inorganic Ventures, Lot P2-MEB677991			(Purchased Reagent)		Calcium	5000 ug/mL
							Iron	5000 ug/mL
							Magnesium	5000 ug/mL
							Sodium	5000 ug/mL
.M19DSTKMS_00001	04/05/20	Inorganic Ventures, Lot M2-MEB657747			(Purchased Reagent)		Molybdenum	100 ug/mL
M19ECRIMS_00005	03/01/20	05/23/19	acidic water, Lot 216908/221681	1000 mL	M18ESTKMS_00003	2 mL	Boron	100 ug/L
							Calcium	400 ug/L
							Iron	200 ug/L
							Lithium	20 ug/L
							Magnesium	400 ug/L
							Manganese	5 ug/L
							Molybdenum	8 ug/L
							Potassium	1000 ug/L
							Selenium	5 ug/L
							Sodium	400 ug/L
.M18ESTKMS_00003	08/30/20	CPI, Lot 10097009-1			(Purchased Reagent)		Boron	50 ug/mL
							Calcium	200 ug/mL
							Iron	100 ug/mL
							Lithium	10 ug/mL
							Magnesium	200 ug/mL
							Manganese	2.5 ug/mL
							Molybdenum	4 ug/mL
							Potassium	500 ug/mL
							Selenium	2.5 ug/mL
							Sodium	200 ug/mL
M19FICSABMS_00006	07/09/19	07/02/19	n/a, Lot n/a	100 mL	M18JSTKMS_00002	0.2 mL	Ag	0.02 mg/L
					M18KICSAB_00001	0.2 mL	As	0.02 mg/L
							Ba	0.02 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Be	0.02 mg/L
							Cd	0.02 mg/L
							Co	0.02 mg/L
							Cr	0.02 mg/L
							Cu	0.02 mg/L
							Lithium	0.02 mg/L
							Manganese	0.02 mg/L
							Ni	0.02 mg/L
							Pb	0.02 mg/L
							Sb	0.01 mg/L
							Selenium	0.02 mg/L
							Sn	0.02 mg/L
							Sr	0.02 mg/L
							Tl	0.01 mg/L
							V	0.02 mg/L
					M19CICSA_00001	10 mL	Al	100 mg/L
							Calcium	100 mg/L
							Iron	100 mg/L
							Magnesium	100 mg/L
							Molybdenum	2 mg/L
							Potassium	100 mg/L
							Sodium	100 mg/L
							Ti	2 mg/L
					M19FSTKIC_00001	0.05 mL	Boron	0.05 mg/L
					M19FSTKMS_00002	0.02 mL	Zn	0.02 mg/L
.M18JSTKMS_00002	11/13/19	Inorganic Ventures, Lot N2-AG666190			(Purchased Reagent)		Ag	10 ug/mL
.M18KICSAB_00001	11/22/19	CPI, Lot 982898-1			(Purchased Reagent)		As	10 mg/L
							Ba	10 mg/L
							Be	10 mg/L
							Cd	10 mg/L
							Co	10 mg/L
							Cr	10 mg/L
							Cu	10 mg/L
							Lithium	10 mg/L
							Manganese	10 mg/L
							Ni	10 mg/L
							Pb	10 mg/L
							Sb	5 mg/L
							Selenium	10 mg/L
							Sn	10 mg/L
							Sr	10 mg/L
							Tl	5 mg/L
							V	10 mg/L
.M19CICSA_00001	03/12/20	CPI, Lot 992328-1			(Purchased Reagent)		Al	1000 mg/L
							Calcium	1000 mg/L
							Iron	1000 mg/L
							Magnesium	1000 mg/L
							Molybdenum	20 mg/L

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Potassium	1000 mg/L
							Sodium	1000 mg/L
							Ti	20 mg/L
.M19FSTKIC_00001	06/06/20	CPI, Lot 10096922-2			(Purchased Reagent)		Boron	100 mg/L
.M19FSTKMS_00002	06/06/20	CPI, Lot 10096922-1			(Purchased Reagent)		Zn	100 mg/L
M19FICSAMS_00006	07/09/19	07/02/19	n/a, Lot n/a	100 mL	M19CICSA_00001	10 mL	Al	100000 ug/L
							Calcium	100000 ug/L
							Iron	100000 ug/L
							Magnesium	100000 ug/L
							Molybdenum	2000 ug/L
							Potassium	100000 ug/L
							Sodium	100000 ug/L
							Ti	2000 ug/L
.M19CICSA_00001	03/12/20	CPI, Lot 992328-1			(Purchased Reagent)		Al	1000 mg/L
							Calcium	1000 mg/L
							Iron	1000 mg/L
							Magnesium	1000 mg/L
							Molybdenum	20 mg/L
							Potassium	1000 mg/L
							Sodium	1000 mg/L
							Ti	20 mg/L
M19FICVMS_00001	03/12/20	07/01/19	Acidified Water, Lot 216908/221681	1000 mL	M19CINTMS_00002	2 mL	Lithium	0.2 ug/mL
					M19FSTKMS_00008	2 mL	Calcium	20 ug/mL
							Iron	20 ug/mL
							Magnesium	20 ug/mL
							Potassium	20 ug/mL
							Sodium	20 ug/mL
					M19FSTKMS_00009	2 mL	Boron	0.2 ug/mL
							Manganese	0.2 ug/mL
							Molybdenum	0.2 ug/mL
							Selenium	0.2 ug/mL
.M19CINTMS_00002	03/12/20	03/07/19	Nitric Acid Water, Lot 216908	100 mL	M19BSTKMS_00004	10 mL	Lithium	100 ug/mL
..M19BSTKMS_00004	08/01/20	CPI Internatioanl, Lot 751942-43			(Purchased Reagent)		Lithium	1000 ug/mL
.M19FSTKMS_00008	06/30/20	HIGH PURITY, Lot 1917503-250			(Purchased Reagent)		Calcium	10000 ug/mL
							Iron	10000 ug/mL
							Magnesium	10000 ug/mL
							Potassium	10000 ug/mL
							Sodium	10000 ug/mL
.M19FSTKMS_00009	06/30/20	High Purity, Lot 191750502-250			(Purchased Reagent)		Boron	100 ug/mL
							Manganese	100 ug/mL
							Molybdenum	100 ug/mL
							Selenium	100 ug/mL
M19FSPKMS_00002	03/01/20	06/11/19	Nitric Acid Water, Lot 216908	500 mL	M19CSTKIC_00005	4.5 mL	Selenium	10000 ug/L
					M19CSTKIC_00006	2.5 mL	Tl	10000 ug/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					M19CSTKMS_00001	5 mL	U	10000 ug/L
					M19DSTKIC_00002	4 mL	Pb	10000 ug/L
					M19DSTKIC_00003	3 mL	As	10000 ug/L
					M19DSTKMS_00004	5 mL	Lithium	10000 ug/L
					M19FSTKMS_00006	50 mL	As	10000 ug/L
							Ba	50000 ug/L
							Be	5000 ug/L
							Boron	100000 ug/L
							Cd	5000 ug/L
							Co	50000 ug/L
							Cr	20000 ug/L
							Cu	25000 ug/L
							Iron	100000 ug/L
							Manganese	50000 ug/L
							Ni	50000 ug/L
							Pb	10000 ug/L
							Selenium	10000 ug/L
							Sr	100000 ug/L
							Tl	10000 ug/L
							V	50000 ug/L
							Zn	50000 ug/L
					M19FSTKMS_00007	50 mL	Ag	5000 ug/L
							Molybdenum	100000 ug/L
							Sb	50000 ug/L
							Si	500000 ug/L
							Sn	100000 ug/L
							Ti	100000 ug/L
					M19HFSTKMS_00001	50 mL	Al	200000 ug/L
							Calcium	1000000 ug/L
							Magnesium	1000000 ug/L
							Potassium	1000000 ug/L
							Sodium	1000000 ug/L
.M19CSTKIC_00005	09/12/20	CPI International, Lot 982461-7			(Purchased Reagent)		Selenium	1000 ug/mL
.M19CSTKIC_00006	09/12/20	CPI International, Lot 148983-92			(Purchased Reagent)		Tl	1000 ug/mL
.M19CSTKMS_00001	03/01/20	CPI, Lot 984257-3			(Purchased Reagent)		U	1000 ug/mL
.M19DSTKIC_00002	10/03/20	CPI International, Lot 981329-18			(Purchased Reagent)		Pb	1000 ug/mL
.M19DSTKIC_00003	10/03/20	CPI International, Lot 175385-43			(Purchased Reagent)		As	1000 ug/mL
.M19DSTKMS_00004	10/17/20	CPI International, Lot 751942-57			(Purchased Reagent)		Lithium	1000 ug/mL
.M19FSTKMS_00006	05/31/20	Environmental Express, Lot 1912224			(Purchased Reagent)		As	40000 ug/L
							Ba	500000 ug/L
							Be	50000 ug/L
							Boron	1000000 ug/L
							Cd	50000 ug/L
							Co	500000 ug/L
							Cr	200000 ug/L
							Cu	250000 ug/L
							Iron	1000000 ug/L
							Manganese	500000 ug/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Ni	500000 ug/L
							Pb	20000 ug/L
							Selenium	10000 ug/L
							Sr	1000000 ug/L
							Tl	50000 ug/L
							V	500000 ug/L
							Zn	500000 ug/L
.M19FSTKMS_00007	05/31/20	Environmental Express, Lot 1912225			(Purchased Reagent)		Ag	50000 ug/L
							Molybdenum	1000000 ug/L
							Sb	500000 ug/L
							Si	5000000 ug/L
							Sn	1000000 ug/L
							Ti	1000000 ug/L
.M19HFSTKMS_00001	05/31/20	Enviromental Express, Lot 1912223			(Purchased Reagent)		Al	2000000 ug/L
							Calcium	10000000 ug/L
							Magnesium	10000000 ug/L
							Potassium	10000000 ug/L
							Sodium	10000000 ug/L

Reagent

CL-CCV-S_00017

Aqua Solutions, Inc.
6913 Highway 225
Deer Park, TX, 77536
281/479-2569

Certificate of Analysis / QC Results

Customer PO # :

Packaged Product: EOP005
CHLORIDE STANDARD 1000 PPM W/W AS CL- (500ML)

Lot # 8123126

Chemical Product: EOP005F
CHLORIDE STANDARD 1000 PPM W/W AS CL-

Test	Target/UOM	Range	Result
PREPARED TO FORMULATION ON FILE	YES YES		YES
CHLORIDE PPM	1000.0 PPM	980.0 - 1020.0	1011.5
APPEARANCE AND COLOR	CLEAR LIQUID APPEARANCE		PASS
INSTRUMENTS USED DURING PREPARATION	INSTRUMENT		M53,VF1-13,M61
EXPIRATION DATE	MM/DD/YY MM/DD/YYYY		01/30/20
SHELF LIFE OF PRODUCT	1 YEAR TIME		1 YEAR

Made 12/31/18

This is to certify that the product listed above has been prepared according to the agreed upon formulation. The solutions producer has a Quality Management System which governs each step of the manufacturing process to insure the production of a consistent product. Traceability from the producer's lot numbers to the original manufacturer's lot number is maintained. Certificates of Analysis for the raw materials used to prepare this product are available upon request.

The weights and/or volumes used to prepare this product are N.I.S.T. Traceable. All balances used in the preparation of product are calibrated daily against N.I.S.T. Traceable weights. The balances are maintained and serviced on a regular basis by an outside certified company. All volumetric glassware used is N.I.S.T. Traceable and certified as meeting Class A specifications.

Unless otherwise agreed to, all chemicals used in the preparation of this product are Reagent ACS grade.

Aqua Solutions' Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by DNV Certificate Number 51119-2009-AQ-USA-ANAB

Quality Manager
Aqua Solutions, Inc.

4512564
ID: CL-CCV-S_00017
Exp 01/30/20 Prpd:RRC Opn:03/04/19
1000PPM Chloride Std

Reagent

CL-ICV-S_00015

Aqua Solutions, Inc.
Ph: 281-479-2569
Fax: 281-479-2790
P O Box 70
Deer Park,TX 77536
Website: www.aquasolutions.org

Date: 08/17/18 at 7:11 AM

Aqua Solutions, Inc.
6913 Highway 225
Deer Park, TX, 77536
281/479-2569
Certificate of Analysis / QC Results

Customer PO # :

Packaged Product: EOP005F
CHLORIDE STANDARD 1000 PPM W/W AS CL-

Test	Target/UOM	Range	Result
PREPARED TO FORMULATION ON FILE	YES		YES
CHLORIDE PPM	1000.0 PPM	980.0 - 1020.0	983.8
APPEARANCE AND COLOR	CLEAR LIQUID APPEARANCE		PASS
INSTRUMENTS USED DURING PREPARATION	INSTRUMENT		M53,VF1-60,M61
EXPIRATION DATE	MM/DD/YY MM\DD\YYYY		08/30/19
SHELF LIFE OF PRODUCT	1 YEAR		1 YEAR

Lot # 8081677
Made 08/17/18

This is to certify that the product listed above has been prepared according to the agreed upon formulation. The solutions producer has a Quality Management System which governs each step of the manufacturing process to insure the production of a consistent product. Traceability from the producer's lot numbers to the original manufacturer's lot number is maintained. Certificates of Analysis for the raw materials used to prepare this product are available upon request.

The weights and/or volumes used to prepare this product are N.I.S.T. Traceable. All balances used in the preparation of product are calibrated daily against N.I.S.T. Traceable weights. The balances are maintained and serviced on a regular basis by an outside certified company. All volumetric glassware used is N.I.S.T. Traceable and certified as meeting Class A specifications.

Unless otherwise agreed to, all chemicals used in the preparation of this product are Reagent ACS grade.

Richard Fox
Quality Manager

4512587
ID CL-ICV-S 00015
Exp:08/30/19 Prpd:RRC Opn:03/04/19
1000ppm Chloride ICV Stan

Reagent

FL-CCV-S_00007

LabChem
performance through chemistry
Jackson's Pointe Commerce Park - Building 1000
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Ph: 412-826-5230 | Fax: 724-473-0647 | www.labchem.com

CERTIFICATE OF ANALYSIS

Description: FLUORIDE STANDARD, 100ppm (1mL = 0.1mg F)

Catalog Number: LC14580
Lot Number: H299-20

Mfg Date: 11/05/2018
Expiration Date: 11/05/2019

ANALYTICAL SECTION

Test	Specification	Test Result
Appearance	clear, colorless solution	Pass Test
Concentration	100.0ppm +/- 0.5ppm	100.0ppm
Concentration	0.1000 +/- 0.0005 mg F/mL	0.1000 mg F/mL
Traceable to NIST	Potassium Fluoride	2203

Intended Use - Product is intended for use in manufacturing procedures and laboratory procedures and protocols.

Storage Information - Unless otherwise noted on the product label, store the product under normal lab conditions in its tightly closed, original container. Do not pipet directly from the container or return unused portions to the container.

Instructions for Handling and Use - Please refer to the associated product label and Safety Data Sheet (SDS) for information regarding safety and handling of this product.

Preparation - All products are manufactured and tested according to established, documented procedures and methodology. Production documentation records manufacturing data, raw material traceability and testing history on a per lot basis. Balances, thermometers, and glassware are calibrated before first use and on a regular schedule with references traceable to NIST standards.

Submitted By: Greg Albright, Chemist Supervisor

Greg Albright

An ISO9001:2008 certified company. Registration # 0306-01

11/14/2018 3:50:01 PM

Form #17.13 07/28/2016

Page 1 of 1

Reagent

FL-LCS-S_00013

RICCA CHEMICAL COMPANY®

1841 Broad Street
Pocomoke City, MD 21851
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

Certificate of Analysis

Fluoride Standard, 100 ppm F^-

Lot Number: 2901970 **Product Number:** 3171

Manufacture Date: JAN 14, 2019
Expiration Date: JAN 2020

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.
The concentration is confirmed by Fluoride ISE and is certified traceable to NIST SRM 2203.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Fluoride	7681-49-4	High Purity

Test	Specification	Result
Appearance	Colorless liquid	Passed
Fluoride (F)	99.5-100.5 ppm	100.5 ppm

Specification	Reference
Stock Fluoride Solution	APHA (4500-F- C)
Stock Fluoride Solution	EPA (340.1)
Fluoride Standard Solution (100 mg/L F-)	EPA (SW-846) (9214)
Sodium Fluoride, Stock Solution, 1.0 mL = 0.1 mg F	EPA (340.2)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
3171-16	500 mL natural poly	12 months
3171-32	1 L natural poly	12 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Tara Jones

Tara Jones (01/14/2019)
Quality Control Supervisor
This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

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Reagent

Na2C03_00002

Certificate of Analysis

Alfa Aesar®
A Johnson Matthey Company

Product No.: 33377

Product: Sodium carbonate, ACS primary standard, 99.95-100.05% (dried basis)

Lot No.: A16Z011

Appearance	White, fine granular
Clarity of solution (10 g/100 mL)	Clear and complete

Test	Limits	Results
Loss on drying at 285°C	1.0 % max	0.1%
Insoluble matter	0.01 % max	0.003%
Nitrogen compounds	0.001 % max	0.0003 %
Chloride	0.001 % max	0.0003 %
Phosphate	0.001 % max	0.0004 %
Heavy metals	5 ppm max	3 ppm
Ammonium hydroxide precipitate	0.01 % max	0.004 %
Iron	5 ppm max	3 ppm
Potassium	0.005 % max	0.002 %
Sulfur compounds	0.003 % max	0.0009 %
Silica	0.005 % max	0.001 %
Assay	99.95 – 100.05 %	99.99 %
Calcium (by AA)	0.03 % max	0.004 %
Magnesium	0.004 % max	0.002 %
Arsenic	1 ppm max	0.1 ppm

This document has been electronically generated and does not require a signature.

Reagent

SO4-Cal-Stock_00013

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Certificate of Analysis

Sulfate Standard, 1000 ppm SO_4^{2-}

Lot Number: 2809B22 **Product Number:** 8112

Manufacture Date: SEP 14, 2018
Expiration Date: MAR 2020

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Sulfate Anhydrous	7757-82-6	ACS

Test	Specification	Result
Appearance	Colorless liquid	Passed
Sulfate (SO_4)	995-1005 ppm	1000 ppm

Specification	Reference
Sulfate Solution Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5542)
Sulfate Stock Solution, 1 mL = 1 mg SO4	EPA (SW-846) (9036)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	EPA (SW-846) (9056)
Sulfate solution (1000 ppm)	TAPPI (T 699 om-87)
Sulfate Stock Solution, 1 mL = 1 mg SO42	EPA (375.2)
Sulfate Solution, Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5996)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
8112-16	500 mL natural poly	18 months
8112-4	120 mL natural poly	18 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Andy Baumgartner (09/14/2018)
Quality Control Supervisor
This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

Sulfate ICV

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Reagent

SO4-CCV-C-S_00016

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Arlington, TX 76012
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

Certificate of Analysis

Sulfate Standard, 1000 ppm SO_4^{2-}

Lot Number: 1810H42 **Product Number:** 8112

Manufacture Date: OCT 23, 2018
Expiration Date: APR 2020

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Sulfate Anhydrous	7757-82-6	ACS

Test	Specification	Result
Appearance	Colorless liquid	Passed
Sulfate (SO_4)	995-1005 ppm	1000 ppm

Specification	Reference
Sulfate Solution Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5542)
Sulfate Stock Solution, 1 mL = 1 mg SO4	EPA (SW-846) (9036)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	EPA (SW-846) (9056)
Sulfate solution (1000 ppm)	TAPPI (T 699 om-87)
Sulfate Stock Solution, 1 mL = 1 mg SO42	EPA (375.2)
Sulfate Solution, Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5996)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
8112-16	500 mL natural poly	18 months
8112-4	120 mL natural poly	18 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Sulfate CCV

Israel Alamudun (10/23/2018)
Quality Control Supervisor
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Reagent

Sodium_Carbon_00005

ThermoFisher SCIENTIFIC

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

ThermoFisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0090918

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. ThermoFisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing.ThermoFisher does not maintain DMF's with the FDA. The following are the actual analytical results obtained:

Catalog Number	S263	Quality Test / Release Date	10/13/2017
Lot Number	174819		
Description	SODIUM CARBONATE, ANHYDROUS, CERTIFIED A.C.S.		
Country of Origin	China	Suggested Retest Date	Oct/2022
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		
Chemical Comment			

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	White crystalline powder or powder
SULFUR COMPOUNDS	%	<= 0.003	<0.003
SILICA (SiO2)	%	<= 0.005	<0.005
PHOSPHATE (PO4)	%	<= 0.001	<0.001
POTASSIUM (K)	%	<= 0.005	<0.005
MAGNESIUM	%	<= 0.005	<0.005
ASSAY	%	>= 99.5	100.4
HEAVY METALS (as Pb)	ppm	<= 5	<5
INSOLUBLE MATTER	%	<= 0.01	0.004
LOSS ON HEATING @ 285 DEG C	%	<= 1.0	0.33
CHLORIDE	%	<= 0.001	<0.001
CALCIUM	%	<= 0.03	<0.03
IRON (Fe)	ppm	<= 5	<5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST

Teresa Bailey-Wyche

Quality Assurance Specialist - Certificate of Analysis Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

METALS

COVER PAGE
METALS

Lab Name: Eurofins TestAmerica, Chicago Job Number: 400-171203-1

SDG No.:

Project: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID	Lab Sample ID
AES-TW101-060319	400-171203-1
AES-MW3-060319	400-171203-2
AES-TW102-060319	400-171203-3
AES-MW4-060319	400-171203-4
AES-MW4-DUP-060319	400-171203-5
AES-TW103-060319	400-171203-6
AES-MW5-060319	400-171203-7
AES-FB-060319	400-171203-8
AES-TW104-060419	400-171203-9
AES-TW105-060419	400-171203-10
AES-TW106-060419	400-171203-11
AES-TW107-060419	400-171203-12
AES-TW108-060419	400-171203-13
AES-TW109-060419	400-171203-14
AES-FB-060419	400-171203-15

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-TW101-060319 Lab Sample ID: 400-171203-1

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 09:25

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	1800	20	7.7	mg/L			100	6020
7440-09-7	Potassium	10	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.0048	0.010	0.0025	mg/L	J		5	6020
7440-70-2	Calcium	950	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.0067	0.0050	0.0025	mg/L			1	6020
7439-89-6	Iron	45	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	840	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	7.6	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	0.77	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW3-060319 Lab Sample ID: 400-171203-2

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 10:36

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	2700	20	7.7	mg/L			100	6020
7440-09-7	Potassium	23	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.0035	0.010	0.0025	mg/L	J		5	6020
7440-70-2	Calcium	310	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.17	0.0050	0.0025	mg/L			1	6020
7439-89-6	Iron	0.83	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	480	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.11	0.013	0.0049	mg/L			5	6020
7439-96-5	Manganese	1.2	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	1.1	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-TW102-060319 Lab Sample ID: 400-171203-3

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 11:27

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	11000	20	7.7	mg/L			100	6020
7440-09-7	Potassium	1100	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	1.1	0.010	0.0025	mg/L			5	6020
7440-70-2	Calcium	590	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	1.4	0.0050	0.0025	mg/L			1	6020
7439-89-6	Iron	0.23	0.50	0.23	mg/L	U		5	6020
7439-95-4	Magnesium	290	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.98	0.013	0.0049	mg/L			5	6020
7439-96-5	Manganese	4.0	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	2.8	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW4-060319 Lab Sample ID: 400-171203-4

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 13:52

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	5900	20	7.7	mg/L			100	6020
7440-09-7	Potassium	900	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.38	0.010	0.0025	mg/L			5	6020
7440-70-2	Calcium	280	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.51	0.0050	0.0025	mg/L			1	6020
7439-89-6	Iron	13	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	68	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	2.2	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	1.6	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW4-DUP-060319 Lab Sample ID: 400-171203-5

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 14:04

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	5700	20	7.7	mg/L			100	6020
7440-09-7	Potassium	860	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.37	0.010	0.0025	mg/L			5	6020
7440-70-2	Calcium	270	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.51	0.0050	0.0025	mg/L			1	6020
7439-89-6	Iron	10	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	66	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	2.1	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	1.6	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-TW103-060319 Lab Sample ID: 400-171203-6

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 14:51

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	11000	20	7.7	mg/L			100	6020
7440-09-7	Potassium	1000	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.60	0.010	0.0025	mg/L			5	6020
7440-70-2	Calcium	590	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	1.4	0.0050	0.0025	mg/L			1	6020
7439-89-6	Iron	1.3	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	180	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.70	0.013	0.0049	mg/L			5	6020
7439-96-5	Manganese	6.9	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	2.0	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW5-060319 Lab Sample ID: 400-171203-7

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 16:07

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	2600	20	7.7	mg/L			100	6020
7440-09-7	Potassium	7.4	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.0043	0.010	0.0025	mg/L	J		5	6020
7440-70-2	Calcium	680	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.0035	0.0050	0.0025	mg/L	J		1	6020
7439-89-6	Iron	10	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	380	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	11	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	0.43	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-FB-060319 Lab Sample ID: 400-171203-8

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 16:19

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	7.7	20	7.7	mg/L	U		100	6020
7440-09-7	Potassium	0.56	2.5	0.56	mg/L	U		5	6020
7439-93-2	Lithium	0.0025	0.010	0.0025	mg/L	U		5	6020
7440-70-2	Calcium	0.22	1.0	0.22	mg/L	U		5	6020
7439-98-7	Molybdenum	0.0025	0.0050	0.0025	mg/L	U		1	6020
7439-89-6	Iron	0.23	0.50	0.23	mg/L	U		5	6020
7439-95-4	Magnesium	0.25	1.0	0.25	mg/L	U		5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	0.0083	0.013	0.0040	mg/L	J		5	6020
7440-42-8	Boron	0.064	0.25	0.064	mg/L	U		5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-TW104-060419 Lab Sample ID: 400-171203-9

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 09:12

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	2600	20	7.7	mg/L			100	6020
7440-09-7	Potassium	21	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.0027	0.010	0.0025	mg/L	J		5	6020
7440-70-2	Calcium	630	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.012	0.025	0.012	mg/L	U		5	6020
7439-89-6	Iron	1.5	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	650	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	12	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	0.78	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-TW105-060419 Lab Sample ID: 400-171203-10

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 10:27

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	2900	20	7.7	mg/L			100	6020
7440-09-7	Potassium	30	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.0026	0.010	0.0025	mg/L	J		5	6020
7440-70-2	Calcium	420	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.012	0.025	0.012	mg/L	U		5	6020
7439-89-6	Iron	1.5	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	460	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	8.2	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	0.79	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-TW106-060419 Lab Sample ID: 400-171203-11

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 11:23

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	5600	20	7.7	mg/L			100	6020
7440-09-7	Potassium	89	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.0048	0.010	0.0025	mg/L	J		5	6020
7440-70-2	Calcium	810	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.013	0.025	0.012	mg/L	J		5	6020
7439-89-6	Iron	6.7	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	810	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	16	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	1.1	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-TW107-060419 Lab Sample ID: 400-171203-12

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 13:37

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	8900	20	7.7	mg/L			100	6020
7440-09-7	Potassium	170	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.016	0.010	0.0025	mg/L			5	6020
7440-70-2	Calcium	570	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.012	0.025	0.012	mg/L	U		5	6020
7439-89-6	Iron	4.9	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	580	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	16	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	1.1	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-TW108-060419 Lab Sample ID: 400-171203-13

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 14:33

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	5200	20	7.7	mg/L			100	6020
7440-09-7	Potassium	10	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.0041	0.010	0.0025	mg/L	J		5	6020
7440-70-2	Calcium	700	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.012	0.025	0.012	mg/L	U		5	6020
7439-89-6	Iron	5.7	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	640	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	18	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	0.66	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-TW109-060419 Lab Sample ID: 400-171203-14

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 15:38

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	2100	20	7.7	mg/L		V	100	6020
7440-09-7	Potassium	4.7	2.5	0.56	mg/L			5	6020
7439-93-2	Lithium	0.0041	0.010	0.0025	mg/L	J	F1	5	6020
7440-70-2	Calcium	970	1.0	0.22	mg/L			5	6020
7439-98-7	Molybdenum	0.012	0.025	0.012	mg/L	U		5	6020
7439-89-6	Iron	13	0.50	0.23	mg/L			5	6020
7439-95-4	Magnesium	570	1.0	0.25	mg/L			5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	14	0.013	0.0040	mg/L			5	6020
7440-42-8	Boron	0.43	0.25	0.064	mg/L			5	6020

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-FB-060419 Lab Sample ID: 400-171203-15

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 16:18

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-23-5	Sodium	0.53	1.0	0.39	mg/L	J		5	6020
7440-09-7	Potassium	0.56	2.5	0.56	mg/L	U		5	6020
7439-93-2	Lithium	0.0025	0.010	0.0025	mg/L	U		5	6020
7440-70-2	Calcium	0.22	1.0	0.22	mg/L	U		5	6020
7439-98-7	Molybdenum	0.012	0.025	0.012	mg/L	U		5	6020
7439-89-6	Iron	0.23	0.50	0.23	mg/L	U		5	6020
7439-95-4	Magnesium	0.25	1.0	0.25	mg/L	U		5	6020
7782-49-2	Selenium	0.0049	0.013	0.0049	mg/L	U		5	6020
7439-96-5	Manganese	0.0040	0.013	0.0040	mg/L	U		5	6020
7440-42-8	Boron	0.064	0.25	0.064	mg/L	U		5	6020

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICV Source: M19FICVMS_00001 Concentration Units: ug/L

CCV Source: M19DCCVMS_00006

Analyte	ICV 500-493665/7 07/07/2019 12:19				CCV 500-493665/23 07/07/2019 13:28				CCV 500-493665/36 07/07/2019 14:17			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Molybdenum	197		200	98	255		250	102	259		250	104
Calcium	20100		20000	101	25700		25000	103				
Iron	20600		20000	103	26700		25000	107				
Lithium	203		200	102	263		250	105				
Magnesium	20800		20000	104	26600		25000	106				
Manganese	205		200	102	261		250	104				
Potassium	20600		20000	103	26400		25000	106				
Selenium	198		200	99	252		250	101				
Sodium	20500		20000	103	26400		25000	106				

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICV Source: M19FICVMS_00001 Concentration Units: ug/L

CCV Source: M19DCCVMS_00006

Analyte	ICV 500-493825/7 07/08/2019 11:48				CCV 500-493825/13 07/08/2019 12:13				CCV 500-493825/23 07/08/2019 12:51			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Boron	203		200	101	252		250	101	249		250	100
Calcium	20200		20000	101	25000		25000	100	24700		25000	99
Iron	20600		20000	103	25500		25000	102	25500		25000	102
Lithium	198		200	99	256		250	102	249		250	100
Magnesium	20800		20000	104	25400		25000	101	25100		25000	100
Manganese	204		200	102	253		250	101	250		250	100
Molybdenum	196		200	98	247		250	99	251		250	100
Potassium	20500		20000	102	25400		25000	101	25100		25000	100
Selenium	197		200	98	246		250	98	250		250	100
Sodium	20300		20000	102	25300		25000	101	25100		25000	100

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICV Source: M19FICVMS_00001 Concentration Units: ug/L

CCV Source: M19DCCVMS_00006

Analyte	CCV 500-493825/33 07/08/2019 13:31				CCV 500-493825/42 07/08/2019 14:11				CCV 500-493825/53 07/08/2019 14:52			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Boron	260		250	104	258		250	103	250		250	100
Calcium	25300		25000	101	25200		25000	101	24900		25000	100
Iron	26200		25000	105	26200		25000	105	25700		25000	103
Lithium	258		250	103	260		250	104	253		250	101
Magnesium	25900		25000	104	26000		25000	104	25700		25000	103
Manganese	256		250	102	255		250	102	250		250	100
Molybdenum	251		250	100	251		250	100	248		250	99
Potassium	25800		25000	103	26000		25000	104	25700		25000	103
Selenium	246		250	98	246		250	98	247		250	99
Sodium	25700		25000	103	25900		25000	104	25600		25000	102

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICV Source: M19FICVMS_00001 Concentration Units: ug/L

CCV Source: M19DCCVMS_00006

Analyte	CCV 500-493825/65 07/08/2019 15:38											
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Boron	249		250	100								
Calcium	24700		25000	99								
Iron	25800		25000	103								
Lithium	251		250	100								
Magnesium	25400		25000	102								
Manganese	250		250	100								
Molybdenum	248		250	99								
Potassium	25400		25000	102								
Selenium	244		250	98								
Sodium	25300		25000	101								

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICV Source: M19FICVMS_00001 Concentration Units: ug/L

CCV Source: M19DCCVMS_00006

Analyte	ICV 500-493984/7 07/09/2019 10:57				CCV 500-493984/13 07/09/2019 11:22				CCV 500-493984/22 07/09/2019 12:15			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Lithium	202		200	101	249		250	100	242		250	97
Boron	207		200	104	240		250	96	245		250	98
Calcium	19800		20000	99	25000		25000	100	24500		25000	98
Iron	20100		20000	100	25600		25000	102	24700		25000	99
Magnesium	20200		20000	101	25300		25000	101	25200		25000	101
Manganese	201		200	101	253		250	101	248		250	99
Molybdenum	198		200	99	248		250	99	241		250	96
Potassium	20200		20000	101	25500		25000	102	25200		25000	101
Selenium	198		200	99	247		250	99	240		250	96
Sodium	19900		20000	100	25300		25000	101	25100		25000	100

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICV Source: M19FICVMS_00001 Concentration Units: ug/L

CCV Source: M19DCCVMS_00006

Analyte	CCV 500-493984/30 07/09/2019 12:45											
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Lithium	265		250	106								
Boron	258		250	103								
Calcium	27200		25000	109								
Iron	27600		25000	110								
Magnesium	27600		25000	110								
Manganese	274		250	109								
Molybdenum	267		250	107								
Potassium												
Selenium	265		250	106								
Sodium	27500		25000	110								

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICV Source: M19FICVMS_00001 Concentration Units: ug/L

CCV Source: M19DCCVMS_00006

Analyte	ICV 500-493953/6 07/08/2019 17:50				CCV 500-493953/12 07/08/2019 18:16				CCV 500-493953/24 07/08/2019 19:07			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Boron	198		200	99	256		250	102	270		250	108
Calcium	19500		20000	97	24700		25000	99	25800		25000	103
Iron	19500		20000	98	24600		25000	98	24700		25000	99
Magnesium	19800		20000	99	24900		25000	99	25300		25000	101
Manganese	200		200	100	254		250	101	256		250	102
Potassium	19700		20000	99	24800		25000	99	25100		25000	101
Selenium	202		200	101	253		250	101	255		250	102
Molybdenum	203		200	101	257		250	103	252		250	101
Sodium	19600		20000	98	25300		25000	101	25700		25000	103

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICV Source: M19FICVMS_00001 Concentration Units: ug/L

CCV Source: M19DCCVMS_00006

Analyte	CCV 500-493953/33 07/08/2019 19:45				CCV 500-493953/39 07/08/2019 20:10							
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Boron	234		250	93	261		250	104				
Calcium	25400		25000	102	25800		25000	103				
Iron	25100		25000	100	25000		25000	100				
Magnesium	25500		25000	102	25600		25000	103				
Manganese	259		250	104	259		250	104				
Potassium	25500		25000	102	25700		25000	103				
Selenium	257		250	103	257		250	103				
Molybdenum	257		250	103	261		250	104				
Sodium	26000		25000	104	26100		25000	104				

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Method: 6020 Instrument ID: ICPMS4

Lab Sample ID: CRI 500-493665/12 Concentration Units: ug/L

CRQL Check Standard Source: M19ECRIMS_00005

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Sodium	400	428		107	50-150
Potassium	1000	1060		106	50-150
Lithium	20.0	20.6		103	50-150
Calcium	400	405		101	50-150
Molybdenum	8.00	8.10		101	50-150
Iron	200	129		64	50-150
Magnesium	400	426		107	50-150
Selenium	5.00	4.99		100	50-150
Manganese	5.00	3.73		75	50-150

Lab Sample ID: CRI 500-493825/12 Concentration Units: ug/L

CRQL Check Standard Source: M19ECRIMS_00005

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Sodium	400	401		100	50-150
Potassium	1000	1050		105	50-150
Lithium	20.0	22.6		113	50-150
Calcium	400	410		102	50-150
Molybdenum	8.00	7.99		100	50-150
Iron	200	227		113	50-150
Magnesium	400	414		103	50-150
Selenium	5.00	4.61		92	50-150
Manganese	5.00	5.27		105	50-150
Boron	100	106		106	50-150

Lab Sample ID: CRI 500-493984/12 Concentration Units: ug/L

CRQL Check Standard Source: M19ECRIMS_00005

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Sodium	400	305		76	50-150
Potassium	1000	1060		106	50-150
Lithium	20.0	20.2		101	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Method: 6020 Instrument ID: ICPMS4

Lab Sample ID: CRI 500-493984/12 Concentration Units: ug/L

CRQL Check Standard Source: M19ECRIMS_00005

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Calcium	400	413		103	50-150
Molybdenum	8.00	8.33		104	50-150
Iron	200	234		117	50-150
Magnesium	400	409		102	50-150
Selenium	5.00	4.38		88	50-150
Manganese	5.00	5.08		102	50-150
Boron	100	100		100	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Method: 6020 Instrument ID: ICPMS5

Lab Sample ID: CRI 500-493953/9 Concentration Units: ug/L

CRQL Check Standard Source: M19ECRIMS_00005

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Sodium	400	303		76	50-150
Potassium	1000	986		99	50-150
Lithium	20.0	14.5		73	50-150
Calcium	400	380		95	50-150
Molybdenum	8.00	8.58		107	50-150
Iron	200	199		99	50-150
Magnesium	400	403		101	50-150
Selenium	5.00	4.62		92	50-150
Manganese	5.00	5.64		113	50-150
Boron	100	102		102	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 500-493665/8 07/07/2019 12:23		CCB 500-493665/24 07/07/2019 13:31		CCB 500-493665/37 07/07/2019 14:20			
		Found	C	Found	C	Found	C	Found	C
Molybdenum	5.0	2.5	U	2.5	U	2.5	U		
Calcium	200	44	U	44	U	44	U		
Iron	100	47	U	47	U	47	U		
Lithium	2.0	0.50	U	0.50	U	0.665	J		
Magnesium	200	49	U	49	U	49	U		
Manganese	2.5	0.79	U	0.79	U	0.79	U		
Potassium	500	110	U	110	U	110	U		
Selenium	2.5	0.98	U	0.98	U	1.11	J		
Sodium	200	77	U	77	U				

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 500-493825/8 07/08/2019 11:52		CCB 500-493825/14 07/08/2019 12:17		CCB 500-493825/24 07/08/2019 12:55		CCB 500-493825/34 07/08/2019 13:34	
		Found	C	Found	C	Found	C	Found	C
Boron	50	13	U	13	U	13	U	13	U
Calcium	200	44	U	44	U	44	U	44	U
Iron	100	47	U	47	U	47	U	47	U
Lithium	2.0	0.740	J	0.50	U	0.50	U	0.50	U
Magnesium	200	49	U	49	U	49	U	49	U
Manganese	2.5	0.79	U	0.79	U	0.79	U	0.79	U
Molybdenum	5.0	2.5	U	2.5	U	2.5	U	2.5	U
Potassium	500	110	U	110	U	110	U	110	U
Selenium	2.5	0.98	U	0.98	U	0.98	U	0.98	U
Sodium	200	77	U	77	U	77	U	77	U

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	CCB 500-493825/43 07/08/2019 14:15		CCB 500-493825/54 07/08/2019 14:56		CCB 500-493825/66 07/08/2019 15:41			
		Found	C	Found	C	Found	C	Found	C
Boron	50	13	U	13	U	13	U		
Calcium	200	44	U	44	U	44	U		
Iron	100	47	U	47	U	47	U		
Lithium	2.0	0.50	U	0.50	U	0.50	U		
Magnesium	200	49	U	49	U	49	U		
Manganese	2.5	0.79	U	0.79	U	0.79	U		
Molybdenum	5.0	2.5	U	2.5	U	2.5	U		
Potassium	500	110	U	110	U	110	U		
Selenium	2.5	0.98	U	0.98	U	0.98	U		
Sodium	200	77	U	77	U	77	U		

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 500-493984/8 07/09/2019 11:03		CCB 500-493984/14 07/09/2019 11:26		CCB 500-493984/23 07/09/2019 12:18		CCB 500-493984/31 07/09/2019 12:49	
		Found	C	Found	C	Found	C	Found	C
Lithium	2.0	0.50	U	0.50	U	0.50	U	0.50	U
Boron	50	13	U	13	U	13	U	13	U
Calcium	200	44	U	44	U	44	U	44	U
Iron	100	47	U	47	U	47	U	47	U
Magnesium	200	49	U	49	U	49	U	49	U
Manganese	2.5	0.79	U	0.79	U	0.79	U	0.79	U
Molybdenum	5.0	2.5	U	2.5	U	2.5	U	2.5	U
Potassium	500	110	U	110	U	110	U	110	U
Selenium	2.5	0.98	U	0.98	U	0.98	U	0.98	U
Sodium	200	77	U	77	U	77	U	77	U

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 500-493953/7 07/08/2019 17:54		CCB 500-493953/13 07/08/2019 18:20		CCB 500-493953/25 07/08/2019 19:11		CCB 500-493953/34 07/08/2019 19:49	
		Found	C	Found	C	Found	C	Found	C
Boron	50	13	U	13	U	13	U	13	U
Calcium	200	44	U	58.9	J	63.2	J	65.0	J
Iron	100	47	U	47	U	47	U	47	U
Magnesium	200	49	U	49	U	49	U	49	U
Manganese	2.5	1.30	J	1.35	J	1.47	J	1.58	J
Potassium	500	110	U	110	U	110	U	110	U
Selenium	2.5	0.98	U	0.98	U	0.98	U	0.98	U
Molybdenum	5.0	2.5	U	2.5	U	2.5	U	2.5	U
Sodium	200	91.0	J	102	J	193	J	178	J

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	CCB 500-493953/40 07/08/2019 20:14							
		Found	C	Found	C	Found	C	Found	C
Boron	50	13	U						
Calcium	200	71.2	J						
Iron	100	47	U						
Magnesium	200	53.7	J						
Manganese	2.5	1.68	J						
Potassium	500	110	U						
Selenium	2.5	0.98	U						
Molybdenum	5.0	2.5	U						
Sodium	200	172	J						

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Concentration Units: mg/L Lab Sample ID: MB 500-493579/1-A

Instrument Code: ICPMS4 Batch No.: 493665

CAS No.	Analyte	Concentration	C	Q	Method
7439-98-7	Molybdenum	0.0025	U		6020

3-IN
METHOD BLANK
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Concentration Units: mg/L Lab Sample ID: MB 500-493579/1-A

Instrument Code: ICPMS4 Batch No.: 493825

CAS No.	Analyte	Concentration	C	Q	Method
7440-23-5	Sodium	0.077	U		6020
7440-09-7	Potassium	0.11	U		6020
7439-93-2	Lithium	0.00050	U		6020
7440-70-2	Calcium	0.044	U		6020
7439-89-6	Iron	0.047	U		6020
7439-95-4	Magnesium	0.049	U		6020
7782-49-2	Selenium	0.00098	U		6020
7439-96-5	Manganese	0.00079	U		6020
7440-42-8	Boron	0.013	U		6020

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Lab Sample ID: ICSA 500-493665/10 Instrument ID: ICPMS4

Lab File ID: 010ICSA.d ICS Source: M19FICSAMS_00006

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Molybdenum	**2000**	**2030**	**101**
Aluminum	*100000*	*100224*	*100*
Antimony		*0.149*	
Arsenic		*-0.173*	
Barium		*0.746*	
Beryllium		*0.114*	
Boron		*1.22*	
Cadmium		*0.306*	
Calcium	*100000*	*101062*	*101*
Cobalt		*0.326*	
Copper		*-0.390*	
Iron	*100000*	*98615*	*99*
Lead		*0.352*	
Lithium		*0.121*	
Magnesium	*100000*	*101741*	*102*
Manganese		*-0.920*	
Nickel		*0.0370*	
Potassium	*100000*	*100616*	*101*
Selenium		*0.317*	
Silver		*0.0670*	
Sodium	*100000*	*101346*	*101*
Strontium		*1.95*	
Thallium		*0.0410*	
Tin		*0.0650*	
Titanium	*2000*	*2018*	*101*
Vanadium		*-1.72*	
Zinc		*0.775*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Lab Sample ID: ICSAB 500-493665/11 Instrument ID: ICPMS4

Lab File ID: 011ICSB.d ICS Source: M19FICSABMS_00006

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Molybdenum	**2000**	**2081**	**104**
Aluminum	*100000*	*101582*	*102*
Antimony	*10.0*	*10.5*	*105*
Arsenic	*20.0*	*22.1*	*110*
Barium	*20.0*	*21.8*	*109*
Beryllium	*20.0*	*18.4*	*92*
Boron	*50.0*	*49.1*	*98*
Cadmium	*20.0*	*21.7*	*109*
Calcium	*100000*	*102580*	*103*
Cobalt	*20.0*	*19.8*	*99*
Copper	*20.0*	*20.7*	*104*
Iron	*100000*	*99713*	*100*
Lead	*20.0*	*20.9*	*104*
Lithium	*20.0*	*19.4*	*97*
Magnesium	*100000*	*102342*	*102*
Manganese	*20.0*	*19.6*	*98*
Nickel	*20.0*	*19.6*	*98*
Potassium	*100000*	*102377*	*102*
Selenium	*20.0*	*23.6*	*118*
Silver	*20.0*	*21.0*	*105*
Sodium	*100000*	*102512*	*103*
Strontium	*20.0*	*24.0*	*120*
Thallium	*10.0*	*10.3*	*103*
Tin	*20.0*	*21.8*	*109*
Titanium	*2000*	*2049*	*102*
Vanadium	*20.0*	*18.7*	*94*
Zinc	*20.0*	*22.7*	*113*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Lab Sample ID: ICSA 500-493825/10 Instrument ID: ICPMS4

Lab File ID: 010ICSA.d ICS Source: M19FICSAMS_00006

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Boron		**2.56**	
Calcium	**100000**	**99848**	**100**
Iron	**100000**	**98647**	**99**
Lithium		**0.348**	
Magnesium	**100000**	**101886**	**102**
Manganese		**0.598**	
Molybdenum	**2000**	**2020**	**101**
Potassium	**100000**	**99843**	**100**
Selenium		**0.237**	
Sodium	**100000**	**101769**	**102**
Aluminum	*100000*	*99468*	*99*
Antimony		*0.165*	
Arsenic		*-0.214*	
Barium		*0.758*	
Beryllium		*0.0920*	
Cadmium		*0.283*	
Chromium		*1.22*	
Cobalt		*0.388*	
Copper		*-0.322*	
Lead		*0.357*	
Nickel		*0.408*	
Silver		*0.0730*	
Strontium		*1.88*	
Thallium		*0.0440*	
Tin		*0.0860*	
Titanium	*2000*	*2025*	*101*
Vanadium		*-2.27*	
Zinc		*0.843*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Lab Sample ID: ICSAB 500-493825/11 Instrument ID: ICPMS4

Lab File ID: 011ICSB.d ICS Source: M19FICSABMS_00006

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Boron	**50.0**	**52.7**	**105**
Calcium	**100000**	**99649**	**100**
Iron	**100000**	**97529**	**98**
Lithium	**20.0**	**20.7**	**104**
Magnesium	**100000**	**99893**	**100**
Manganese	**20.0**	**20.2**	**101**
Molybdenum	**2000**	**2021**	**101**
Potassium	**100000**	**98706**	**99**
Selenium	**20.0**	**22.2**	**111**
Sodium	**100000**	**100217**	**100**
Aluminum	*100000*	*98653*	*99*
Antimony	*10.0*	*10.4*	*104*
Arsenic	*20.0*	*21.4*	*107*
Barium	*20.0*	*21.0*	*105*
Beryllium	*20.0*	*18.6*	*93*
Cadmium	*20.0*	*21.2*	*106*
Chromium	*20.0*	*21.2*	*106*
Cobalt	*20.0*	*19.6*	*98*
Copper	*20.0*	*20.3*	*101*
Lead	*20.0*	*20.7*	*103*
Nickel	*20.0*	*19.6*	*98*
Silver	*20.0*	*20.7*	*103*
Strontium	*20.0*	*23.4*	*117*
Thallium	*10.0*	*10.1*	*101*
Tin	*20.0*	*21.2*	*106*
Titanium	*2000*	*2012*	*101*
Vanadium	*20.0*	*17.9*	*90*
Zinc	*20.0*	*22.3*	*112*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Lab Sample ID: ICSA 500-493984/10 Instrument ID: ICPMS4

Lab File ID: 010ICSA.d ICS Source: M19FICSAMS_00006

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Lithium		**0.190**	
Aluminum	*100000*	*100133*	*100*
Antimony		*0.158*	
Arsenic		*0.0520*	
Barium		*0.764*	
Beryllium		*0.0200*	
Boron		*1.50*	
Cadmium		*0.446*	
Calcium	*100000*	*100727*	*101*
Chromium		*1.30*	
Cobalt		*0.329*	
Copper		*-0.0280*	
Iron	*100000*	*97945*	*98*
Lead		*0.307*	
Magnesium	*100000*	*101590*	*102*
Manganese		*0.467*	
Molybdenum	*2000*	*2006*	*100*
Nickel		*-0.269*	
Potassium	*100000*	*100325*	*100*
Selenium		*0.262*	
Silver		*0.0560*	
Sodium	*100000*	*101903*	*102*
Strontium		*1.89*	
Thallium		*0.0160*	
Tin		*0.0790*	
Titanium	*2000*	*2020*	*101*
Vanadium		*-0.773*	
Zinc		*11.0*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Lab Sample ID: ICSAB 500-493984/11 Instrument ID: ICPMS4

Lab File ID: 011ICSB.d ICS Source: M19FICSABMS_00006

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Lithium	**20.0**	**19.2**	**96**
Aluminum	*100000*	*100987*	*101*
Antimony	*10.0*	*10.4*	*104*
Arsenic	*20.0*	*21.6*	*108*
Barium	*20.0*	*21.2*	*106*
Beryllium	*20.0*	*18.8*	*94*
Boron	*50.0*	*49.7*	*99*
Cadmium	*20.0*	*21.1*	*106*
Calcium	*100000*	*101554*	*102*
Chromium	*20.0*	*21.0*	*105*
Cobalt	*20.0*	*19.7*	*99*
Copper	*20.0*	*20.7*	*103*
Iron	*100000*	*98750*	*99*
Lead	*20.0*	*20.8*	*104*
Magnesium	*100000*	*101707*	*102*
Manganese	*20.0*	*20.9*	*105*
Molybdenum	*2000*	*2028*	*101*
Nickel	*20.0*	*19.2*	*96*
Potassium	*100000*	*100638*	*101*
Selenium	*20.0*	*22.3*	*111*
Silver	*20.0*	*21.1*	*105*
Sodium	*100000*	*102209*	*102*
Strontium	*20.0*	*23.3*	*116*
Thallium	*10.0*	*10.3*	*103*
Tin	*20.0*	*21.3*	*107*
Titanium	*2000*	*2023*	*101*
Vanadium	*20.0*	*19.6*	*98*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Lab Sample ID: ICSA 500-493953/10 Instrument ID: ICPMS5

Lab File ID: MS5070819BB.csv ICS Source: M19FICSAMS_00006

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Boron		**1.94**	
Calcium	**100000**	**100100**	**100**
Iron	**100000**	**102300**	**102**
Magnesium	**100000**	**100500**	**101**
Manganese		**-1.04**	
Potassium	**100000**	**105500**	**106**
Selenium		**0.0670**	
Aluminum	*100000*	*98320*	*98*
Antimony		*0.0220*	
Arsenic		*0.0370*	
Barium		*0.591*	
Beryllium		*-0.341*	
Cadmium		*-0.126*	
Chromium		*1.28*	
Cobalt		*0.376*	
Copper		*0.139*	
Lead		*0.285*	
Molybdenum	*2000*	*2054*	*103*
Nickel		*0.199*	
Silver		*0.0580*	
Sodium	*100000*	*106000*	*106*
Strontium		*1.78*	
Thallium		*0.0770*	
Tin		*0.0250*	
Titanium	*2000*	*2020*	*101*
Vanadium		*-0.0820*	
Zinc		*0.463*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Lab Sample ID: ICSAB 500-493953/11 Instrument ID: ICPMS5

Lab File ID: MS5070819BB.csv ICS Source: M19FICSABMS_00006

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Boron	**50.0**	**52.1**	**104**
Calcium	**100000**	**98400**	**98**
Iron	**100000**	**99980**	**100**
Magnesium	**100000**	**97280**	**97**
Manganese	**20.0**	**18.6**	**93**
Potassium	**100000**	**102600**	**103**
Selenium	**20.0**	**21.1**	**106**
Aluminum	*100000*	*95990*	*96*
Antimony	*10.0*	*9.14*	*91*
Arsenic	*20.0*	*21.0*	*105*
Barium	*20.0*	*20.5*	*102*
Beryllium	*20.0*	*17.0*	*85*
Cadmium	*20.0*	*19.3*	*96*
Chromium	*20.0*	*20.1*	*100*
Cobalt	*20.0*	*19.1*	*95*
Copper	*20.0*	*19.8*	*99*
Lead	*20.0*	*19.9*	*99*
Lithium	*20.0*	*18.6*	*93*
Molybdenum	*2000*	*2036*	*102*
Nickel	*20.0*	*19.2*	*96*
Silver	*20.0*	*20.2*	*101*
Sodium	*100000*	*102500*	*103*
Strontium	*20.0*	*21.6*	*108*
Thallium	*10.0*	*9.43*	*94*
Tin	*20.0*	*20.4*	*102*
Titanium	*2000*	*1960*	*98*
Vanadium	*20.0*	*19.4*	*97*
Zinc	*20.0*	*21.0*	*105*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS - TOTAL RECOVERABLE

Client ID: AES-TW109-060419 MS
Lab ID: 400-171203-14 MS
Lab Name: Eurofins TestAmerica, Chicago
Job No.: 400-171203-1
SDG No.:
Matrix: Water
Concentration Units: mg/L
% Solids:

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Sodium	1810		2100		10.0	-3054	75-125	4	6020
Potassium	13.9		4.7		10.0	92	75-125		6020
Lithium	0.137		0.0041	J	0.100	133	75-125	F1	6020
Calcium	955		970		10.0	-185	75-125	4	6020
Molybdenum	1.13		0.012	U	1.00	113	75-125		6020
Iron	12.7		13		1.00	5	75-125	4	6020
Magnesium	557		570		10.0	-90	75-125	4	6020
Selenium	0.122		0.0049	U	0.100	122	75-125		6020
Manganese	13.8		14		0.500	-7	75-125	4	6020
Boron	1.29		0.43		1.00	87	75-125		6020

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VA - IN

5A-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
METALS - TOTAL RECOVERABLE

Client ID: AES-TW109-060419 MSD
Lab ID: 400-171203-14 MSD
Lab Name: Eurofins TestAmerica, Chicago
Job No.: 400-171203-1
SDG No.:
Matrix: Water
Concentration Units: mg/L
% Solids:

Analyte	(SDR)	C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Sodium	1990		10.0	-1286	75-125	9	20	4	6020
Potassium	13.9		10.0	92	75-125	0	20		6020
Lithium	0.127		0.100	123	75-125	8	20		6020
Calcium	947		10.0	-265	75-125	1	20	4	6020
Molybdenum	1.21		1.00	121	75-125	6	20		6020
Iron	13.4		1.00	76	75-125	5	20	4	6020
Magnesium	555		10.0	-105	75-125	0	20	4	6020
Selenium	0.125		0.100	125	75-125	2	20		6020
Manganese	13.6		0.500	-46	75-125	1	20	4	6020
Boron	1.43		1.00	100	75-125	10	20		6020

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VD - IN

6-IN
DUPLICATES
METALS - TOTAL RECOVERABLE

Client ID: AES-TW109-060419 DU | Lab ID: 400-171203-14 DU

Lab Name: Eurofins TestAmerica, Chicago | Job No.: 400-171203-1

SDG No.:

% Solids for Sample: | % Solids for Duplicate:

Matrix: Water | Concentration Units: mg/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Sodium	20	2100		1840		14		6020
Potassium	2.5	4.7		4.73		0.5		6020
Lithium	0.010	0.0041	J	0.00311	J	27	F5	6020
Calcium	1.0	970		993		2		6020
Molybdenum	0.025	0.012	U	0.012	U	NC		6020
Iron	0.50	13		12.4		2		6020
Magnesium	1.0	570		573		1		6020
Selenium	0.013	0.0049	U	0.0049	U	NC		6020
Manganese	0.013	14		13.8		0.3		6020
Boron	0.25	0.43		0.429		0.9		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

7A-IN
LAB CONTROL SAMPLE
METALS - TOTAL RECOVERABLE

Lab ID: LCS 500-493579/2-A

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

Sample Matrix: Water LCS Source: M19FSPKMS_00002

Analyte	Water(mg/L)							
	True	Found	C	%R	Limits		Q	Method
Molybdenum	1.00	1.01		101	80	120		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

7A-IN
LAB CONTROL SAMPLE
METALS - TOTAL RECOVERABLE

Lab ID: LCS 500-493579/2-A

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

Sample Matrix: Water LCS Source: M19FSPKMS_00002

Analyte	Water(mg/L)							
	True	Found	C	%R	Limits		Q	Method
Sodium	10.0	10.2		102	80	120		6020
Potassium	10.0	10.2		102	80	120		6020
Lithium	0.100	0.106		106	80	120		6020
Calcium	10.0	9.23		92	80	120		6020
Iron	1.00	1.07		107	80	120		6020
Magnesium	10.0	10.4		104	80	120		6020
Selenium	0.100	0.0984		98	80	120		6020
Manganese	0.500	0.522		104	80	120		6020
Boron	1.00	1.02		102	80	120		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS - TOTAL RECOVERABLE

Lab ID: 400-171203-14

SDG No:

Lab Name: Eurofins TestAmerica, Chicago Job No: 400-171203-1

Matrix: Water Concentration Units: mg/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Sodium	2100		1590		25	V	6020
Potassium	4.7		4.42	J	NC		6020
Lithium	0.0041	J	0.013	U	NC		6020
Calcium	970		972		0.18		6020
Molybdenum	0.012	U	0.062	U	NC		6020
Iron	13		12.4		2.3		6020
Magnesium	570		570		0.75		6020
Selenium	0.0049	U	0.025	U	NC		6020
Manganese	14		13.5		2.1		6020
Boron	0.43		0.403	J	NC		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

9-IN
DETECTION LIMITS
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Chicago Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: ICPMS4

Method: 6020 MDL Date: 03/29/2017 10:13

Prep Method: 3005A

Analyte	Wavelength/ Mass	RL (ug/L)	MDL (ug/L)
Boron		50	12.7
Calcium		200	44.3
Iron		100	46.7
Lithium		2	0.5
Magnesium		200	49.4
Manganese		2.5	0.791
Molybdenum		5	2.46
Potassium		500	111
Selenium		2.5	0.982
Sodium		200	77.3

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Chicago Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: ICPMS4

Method: 6020 XMDL Date: 03/29/2017 10:16

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Boron		50	12.7
Calcium		200	44.3
Iron		100	46.7
Lithium		2	0.5
Magnesium		200	49.4
Manganese		2.5	0.791
Molybdenum		5	2.46
Potassium		500	111
Selenium		2.5	0.982
Sodium		200	77.3

9-IN
DETECTION LIMITS
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Chicago Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: ICPMS5

Method: 6020 MDL Date: 03/29/2017 10:13

Prep Method: 3005A

Analyte	Wavelength/ Mass	RL (ug/L)	MDL (ug/L)
Boron		50	12.7
Calcium		200	44.3
Iron		100	46.7
Magnesium		200	49.4
Manganese		2.5	0.791
Potassium		500	111
Selenium		2.5	0.982

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Chicago Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: ICPMS5

Method: 6020 XMDL Date: 03/29/2017 10:16

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Boron		50	12.7
Calcium		200	44.3
Iron		100	46.7
Magnesium		200	49.4
Manganese		2.5	0.791
Potassium		500	111
Selenium		2.5	0.982

11-IN
LINEAR RANGES
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No: 400-171203-1

SDG No.:

Instrument ID: ICPMS4 Date: 05/31/2016 14:50

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Sodium		250000	6020
Potassium		250000	6020
Lithium		5000	6020
Calcium		250000	6020
Molybdenum		5000	6020
Iron		250000	6020
Magnesium		250000	6020
Selenium		5000	6020
Manganese		5000	6020
Boron		5000	6020

11-IN
LINEAR RANGES
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No: 400-171203-1

SDG No.:

Instrument ID: ICPMS5 Date: 08/30/2018 08:43

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Potassium		250000	6020
Calcium		250000	6020
Iron		250000	6020
Magnesium		250000	6020
Selenium		5000	6020
Manganese		5000	6020
Boron		5000	6020

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Prep Method: 3005A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 500-493579/1-A	07/05/2019 16:17	493579		50	50
LCS 500-493579/2-A	07/05/2019 16:17	493579		50	50
400-171203-1	07/05/2019 16:17	493579		50	50
400-171203-2	07/05/2019 16:17	493579		50	50
400-171203-3	07/05/2019 16:17	493579		50	50
400-171203-4	07/05/2019 16:17	493579		50	50
400-171203-5	07/05/2019 16:17	493579		50	50
400-171203-6	07/05/2019 16:17	493579		50	50
400-171203-7	07/05/2019 16:17	493579		50	50
400-171203-8	07/05/2019 16:17	493579		50	50
400-171203-9	07/05/2019 16:17	493579		50	50
400-171203-10	07/05/2019 16:17	493579		50	50
400-171203-11	07/05/2019 16:17	493579		50	50
400-171203-12	07/05/2019 16:17	493579		50	50
400-171203-13	07/05/2019 16:17	493579		50	50
400-171203-14	07/05/2019 16:17	493579		50	50
400-171203-14 DU	07/05/2019 16:17	493579		50	50
400-171203-14 MS	07/05/2019 16:17	493579		50	50
400-171203-14 MSD	07/05/2019 16:17	493579		50	50
400-171203-15	07/05/2019 16:17	493579		50	50

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 07/07/2019 11:56 End Date: 07/07/2019 15:26

Lab Sample Id	D/F	Type	Time	Analytes
				Mo
ZZZZZZ			11:56	
ICIS 500-493665/2			12:00	X
STD1 500-493665/3 IC	1		12:04	X
STD2 500-493665/4 IC	1		12:08	X
STD3 500-493665/5 IC	1		12:11	X
ZZZZZZ			12:15	
ICV 500-493665/7	1		12:19	X
ICB 500-493665/8	1		12:23	X
ICVL 500-493665/9			12:26	
ICSA 500-493665/10	1		12:30	X
ICSAB 500-493665/11	1		12:34	X
CRI 500-493665/12	1		12:38	X
CCV 500-493665/13			12:41	
CCB 500-493665/14			12:45	
ZZZZZZ			12:58	
ZZZZZZ			13:01	
ZZZZZZ			13:05	
ZZZZZZ			13:09	
ZZZZZZ			13:13	
ZZZZZZ			13:16	
ZZZZZZ			13:20	
ZZZZZZ			13:24	
CCV 500-493665/23	1		13:28	X
CCB 500-493665/24	1		13:31	X
CCVL 500-493665/25			13:35	
MB 500-493579/1-A	1	R	13:39	X
LCS 500-493579/2-A	1	R	13:43	X
400-171203-1	1	R	13:46	X
400-171203-2	1	R	13:50	X
400-171203-3	1	R	13:54	X
400-171203-4	1	R	13:58	X
400-171203-5	1	R	14:02	X
400-171203-6	1	R	14:05	X
400-171203-7	1	R	14:09	X
400-171203-8	1	R	14:13	X
CCV 500-493665/36	1		14:17	X
CCB 500-493665/37	1		14:20	X
ZZZZZZ			14:26	
ZZZZZZ			14:30	
ZZZZZZ			14:33	
ZZZZZZ			14:37	
ZZZZZZ			14:41	

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 07/07/2019 11:56 End Date: 07/07/2019 15:26

Lab Sample Id	D/F	Type	Time	Analytes
				Mo
ZZZZZZ			14:45	
ZZZZZZ			14:48	
ZZZZZZ			14:52	
ZZZZZZ			14:56	
ZZZZZZ			15:00	
ZZZZZZ			15:04	
CCV 500-493665/49			15:07	
CCB 500-493665/50			15:11	
ZZZZZZ			15:15	
CCV 500-493665/52			15:19	
CCB 500-493665/53			15:22	
CCVL 500-493665/54			15:26	

Prep Types:
R = Total Recoverable

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 07/08/2019 11:25 End Date: 07/08/2019 16:54

Lab Sample Id	D/F	Type	Time	Analytes									
				B	Ca	Fe	K	Li	Mg	Mn	Mo	Na	Se
ZZZZZZ			11:25										
ICIS 500-493825/2			11:29	X	X	X	X	X	X	X	X	X	X
STD1 500-493825/3 IC	1		11:33	X	X	X	X	X	X	X	X	X	X
STD2 500-493825/4 IC	1		11:37	X	X	X	X	X	X	X	X	X	X
STD3 500-493825/5 IC	1		11:41	X	X	X	X	X	X	X	X	X	X
ZZZZZZ			11:44										
ICV 500-493825/7	1		11:48	X	X	X	X	X	X	X	X	X	X
ICB 500-493825/8	1		11:52	X	X	X	X	X	X	X	X	X	X
ICVL 500-493825/9			11:56										
ICSA 500-493825/10	1		11:59	X	X	X	X	X	X	X	X	X	X
ICSAB 500-493825/11	1		12:03	X	X	X	X	X	X	X	X	X	X
CRI 500-493825/12	1		12:07	X	X	X	X	X	X	X	X	X	X
CCV 500-493825/13	1		12:13	X	X	X	X	X	X	X	X	X	X
CCB 500-493825/14	1		12:17	X	X	X	X	X	X	X	X	X	X
ZZZZZZ			12:21										
MB 500-493579/1-A	1	R	12:25	X	X	X	X	X	X	X		X	X
LCS 500-493579/2-A	1	R	12:28	X	X	X	X	X	X	X		X	X
400-171203-1	100	R	12:32									X	
400-171203-2	100	R	12:36									X	
400-171203-3	100	R	12:40									X	
400-171203-4	100	R	12:43									X	
400-171203-5	100	R	12:47									X	
CCV 500-493825/23	1		12:51	X	X	X	X	X	X	X	X	X	X
CCB 500-493825/24	1		12:55	X	X	X	X	X	X	X	X	X	X
400-171203-6	100	R	12:59									X	
400-171203-7	100	R	13:02									X	
400-171203-8	100	R	13:06									X	
400-171203-9	100	R	13:10									X	
400-171203-10	100	R	13:15									X	
400-171203-11	100	R	13:19									X	
400-171203-12	100	R	13:23									X	
400-171203-13	100	R	13:27									X	
CCV 500-493825/33	1		13:31	X	X	X	X	X	X	X	X	X	X
CCB 500-493825/34	1		13:34	X	X	X	X	X	X	X	X	X	X
400-171203-14	100	R	13:38									X	
400-171203-14 DU	100	R	13:42									X	
400-171203-14 MS	100	R	13:46									X	
400-171203-14 MSD	100	R	13:49									X	
400-171203-14 SD	500	R	13:53									X	
ZZZZZZ			13:57										
ZZZZZZ			14:07										
CCV 500-493825/42	1		14:11	X	X	X	X	X	X	X	X	X	X

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 07/08/2019 11:25 End Date: 07/08/2019 16:54

Lab Sample Id	D/F	Type	Time	Analytes																										
				B	Ca	Fe	K	Li	Mg	Mn	Mo	Na	Se																	
CCB 500-493825/43	1		14:15	X	X	X	X	X	X	X	X	X	X																	
400-171203-1	5	R	14:19	X	X	X	X	X	X	X			X																	
400-171203-2	5	R	14:22	X	X	X	X	X	X	X			X																	
400-171203-3	5	R	14:26	X	X	X	X	X	X	X			X																	
400-171203-4	5	R	14:30										X																	
ZZZZZZ			14:34																											
400-171203-6	5	R	14:37	X	X	X	X	X	X	X			X																	
400-171203-7	5	R	14:41										X																	
400-171203-8	5	R	14:45										X																	
400-171203-9	5	R	14:49								X		X																	
CCV 500-493825/53	1		14:52	X	X	X	X	X	X	X	X	X	X																	
CCB 500-493825/54	1		14:56	X	X	X	X	X	X	X	X	X	X																	
400-171203-10	5	R	15:00								X		X																	
400-171203-11	5	R	15:04								X		X																	
400-171203-12	5	R	15:08	X	X	X	X	X	X	X	X		X																	
400-171203-13	5	R	15:11								X		X																	
400-171203-14	5	R	15:15								X		X																	
400-171203-14 DU	5	R	15:19								X		X																	
400-171203-14 MS	5	R	15:23								X		X																	
400-171203-14 MSD	5	R	15:26								X		X																	
400-171203-14 SD	25	R	15:30								X		X																	
400-171203-15	5	R	15:34	X	X	X	X	X	X	X	X	X	X																	
CCV 500-493825/65	1		15:38	X	X	X	X	X	X	X	X	X	X																	
CCB 500-493825/66	1		15:41	X	X	X	X	X	X	X	X	X	X																	
ZZZZZZ			15:45																											
ZZZZZZ			15:49																											
ZZZZZZ			15:53																											
ZZZZZZ			15:56																											
ZZZZZZ			16:01																											
ZZZZZZ			16:04																											
ZZZZZZ			16:08																											
ZZZZZZ			16:12																											
ZZZZZZ			16:16																											
ZZZZZZ			16:20																											
CCV 500-493825/77			16:23																											
CCB 500-493825/78			16:27																											
CCVL 500-493825/79			16:31																											
ZZZZZZ			16:35																											
ZZZZZZ			16:38																											
ZZZZZZ			16:42																											
ZZZZZZ			16:46																											
ZZZZZZ			16:50																											

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 07/08/2019 11:25 End Date: 07/08/2019 16:54

Lab Sample Id	D/F	Type	Time	Analytes																										
				B	Ca	Fe	K	Li	Mg	Mn	Mo	Na	Se																	
ZZZZZZ			16:54																											

Prep Types:
R = Total Recoverable

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 07/09/2019 10:35 End Date: 07/09/2019 12:49

Lab Sample Id	D/F	Type	Time	Analytes																								
				Li																								
ZZZZZZ			10:35																									
ICIS 500-493984/2			10:38	X																								
STD1 500-493984/3 IC	1		10:42	X																								
STD2 500-493984/4 IC	1		10:46	X																								
STD3 500-493984/5 IC	1		10:50	X																								
ZZZZZZ			10:54																									
ICV 500-493984/7	1		10:57	X																								
ICB 500-493984/8	1		11:03	X																								
ICVL 500-493984/9			11:07																									
ICSA 500-493984/10	1		11:10	X																								
ICSAB 500-493984/11	1		11:14	X																								
CRI 500-493984/12	1		11:18	X																								
CCV 500-493984/13	1		11:22	X																								
CCB 500-493984/14	1		11:26	X																								
400-171203-4	5	R	11:47	X																								
400-171203-5	5	R	11:51	X																								
400-171203-7	5	R	11:54	X																								
400-171203-8	5	R	11:58	X																								
400-171203-9	5	R	12:02	X																								
400-171203-10	5	R	12:06	X																								
400-171203-11	5	R	12:09	X																								
CCV 500-493984/22	1		12:15	X																								
CCB 500-493984/23	1		12:18	X																								
400-171203-13	5	R	12:22	X																								
400-171203-14	5	R	12:26	X																								
400-171203-14 DU	5	R	12:30	X																								
400-171203-14 MS	5	R	12:33	X																								
400-171203-14 MSD	5	R	12:37	X																								
400-171203-14 SD	25	R	12:41	X																								
CCV 500-493984/30	1		12:45	X																								
CCB 500-493984/31	1		12:49	X																								

Prep Types:
R = Total Recoverable

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Instrument ID: ICPMS5 Analysis Method: 6020

Start Date: 07/08/2019 17:29 End Date: 07/08/2019 23:35

Lab Sample Id	D/F	Type	Time	Analytes																										
				B	Ca	Fe	K	Mg	Mn	Se																				
STD0 500-493953/1 IC	1		17:29	X	X	X	X	X	X	X																				
STD1 500-493953/2 IC	1		17:33	X	X	X	X	X	X	X																				
STD2 500-493953/3 IC	1		17:38	X	X	X	X	X	X	X																				
STD3 500-493953/4 IC	1		17:42	X	X	X	X	X	X	X																				
ZZZZZZ			17:46																											
ICV 500-493953/6	1		17:50	X	X	X	X	X	X	X																				
ICB 500-493953/7	1		17:54	X	X	X	X	X	X	X																				
ICVL 500-493953/8			17:59																											
CRI 500-493953/9	1		18:03	X	X	X	X	X	X	X																				
ICSA 500-493953/10	1		18:07	X	X	X	X	X	X	X																				
ICSAB 500-493953/11	1		18:11	X	X	X	X	X	X	X																				
CCV 500-493953/12	1		18:16	X	X	X	X	X	X	X																				
CCB 500-493953/13	1		18:20	X	X	X	X	X	X	X																				
ZZZZZZ			18:24																											
ZZZZZZ			18:28																											
ZZZZZZ			18:33																											
ZZZZZZ			18:37																											
ZZZZZZ			18:41																											
400-171203-4	5	R	18:45	X	X	X	X	X	X																					
400-171203-5	5	R	18:50	X	X	X	X	X	X	X																				
ZZZZZZ			18:54																											
400-171203-7	5	R	18:58	X	X	X	X	X	X																					
400-171203-8	5	R	19:02	X	X	X	X	X	X																					
CCV 500-493953/24	1		19:07	X	X	X	X	X	X	X																				
CCB 500-493953/25	1		19:11	X	X	X	X	X	X	X																				
400-171203-9	5	R	19:15	X	X	X	X	X	X																					
400-171203-10	5	R	19:19	X	X	X	X	X	X																					
400-171203-11	5	R	19:23	X	X	X	X	X	X																					
ZZZZZZ			19:28																											
400-171203-13	5	R	19:32	X	X	X	X	X	X																					
400-171203-14	5	R	19:36	X	X	X	X	X	X																					
400-171203-14 DU	5	R	19:40	X	X	X	X	X	X																					
CCV 500-493953/33	1		19:45	X	X	X	X	X	X	X																				
CCB 500-493953/34	1		19:49	X	X	X	X	X	X	X																				
400-171203-14 MS	5	R	19:53	X	X	X	X	X	X																					
400-171203-14 MSD	5	R	19:57	X	X	X	X	X	X																					
400-171203-14 SD	25	R	20:02	X	X	X	X	X	X																					
ZZZZZZ			20:06																											
CCV 500-493953/39	1		20:10	X	X	X	X	X	X	X																				
CCB 500-493953/40	1		20:14	X	X	X	X	X	X	X																				
ZZZZZZ			20:24																											
ZZZZZZ			20:28																											

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Instrument ID: ICPMS5 Analysis Method: 6020

Start Date: 07/08/2019 17:29 End Date: 07/08/2019 23:35

Lab Sample Id	D/F	Type	Time	Analytes																								
				B	Ca	Fe	K	Mg	Mn	Se																		
ZZZZZZ			20:33																									
ZZZZZZ			20:37																									
ZZZZZZ			20:41																									
ZZZZZZ			20:45																									
ZZZZZZ			20:50																									
ZZZZZZ			20:54																									
ZZZZZZ			20:58																									
CCV 500-493953/50			21:02																									
CCB 500-493953/51			21:07																									
CCVL 500-493953/52			21:11																									
ZZZZZZ			21:15																									
ZZZZZZ			21:19																									
ZZZZZZ			21:24																									
ZZZZZZ			21:28																									
ZZZZZZ			21:32																									
ZZZZZZ			21:36																									
ZZZZZZ			21:40																									
ZZZZZZ			21:45																									
ZZZZZZ			21:49																									
CCV 500-493953/62			21:53																									
CCB 500-493953/63			21:58																									
ZZZZZZ			22:02																									
ZZZZZZ			22:06																									
ZZZZZZ			22:10																									
ZZZZZZ			22:14																									
ZZZZZZ			22:19																									
ZZZZZZ			22:23																									
ZZZZZZ			22:27																									
ZZZZZZ			22:31																									
ZZZZZZ			22:36																									
ZZZZZZ			22:40																									
CCV 500-493953/74			22:44																									
CCB 500-493953/75			22:48																									
ZZZZZZ			22:53																									
ZZZZZZ			22:57																									
ZZZZZZ			23:01																									
ZZZZZZ			23:05																									
ZZZZZZ			23:10																									
ZZZZZZ			23:14																									
ZZZZZZ			23:18																									
ZZZZZZ			23:22																									
CCV 500-493953/84			23:27																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Instrument ID: ICPMS5 Analysis Method: 6020

Start Date: 07/08/2019 17:29 End Date: 07/08/2019 23:35

Lab Sample Id	D/F	Type	Time	Analytes																								
				B	Ca	Fe	K	Mg	Mn	Se																		
CCB 500-493953/85			23:31																									
CCVL 500-493953/86			23:35																									

Prep Types:
R = Total Recoverable

FORM XIII-IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICP-MS Instrument ID: ICPMS4 Start Date: 07/07/2019 End Date: 07/07/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Sc	Q	Element Y-89	Q	Element Rh-103	Q	Element Tb	Q	Element Bi	Q
STD1 500-493665/3 IC	12:04	109		109		107		111		108	
STD2 500-493665/4 IC	12:08	109		110		106		112		107	
STD3 500-493665/5 IC	12:11	110		108		103		110		101	
ICV 500-493665/7	12:19	107		108		105		108		102	
ICB 500-493665/8	12:23	93		97		96		98		98	
ICSA 500-493665/10	12:30	112		111		98		108		97	
ICSAB 500-493665/11	12:34	111		109		96		107		96	
CRI 500-493665/12	12:38	104		104		102		104		103	
CCV 500-493665/23	13:28	106		108		102		107		101	
CCB 500-493665/24	13:31	92		94		95		95		97	
MB 500-493579/1-A	13:39	91		93		94		95		97	
LCS 500-493579/2-A	13:43	104		105		102		107		105	
400-171203-1	13:46	105		104		82		87		75	
400-171203-2	13:50	112		104		84		89		76	
400-171203-3	13:54	91		101		61		65		53	
400-171203-4	13:58	103		95		69		74		63	
400-171203-5	14:02	106		96		70		74		63	
400-171203-6	14:05	97		109		62		65		53	
400-171203-7	14:09	117		115		78		82		69	
400-171203-8	14:13			118		106		101		96	
CCV 500-493665/36	14:17			114		100		101		92	
CCB 500-493665/37	14:20	114		107		98		95		94	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICP-MS Instrument ID: ICPMS4 Start Date: 07/08/2019 End Date: 07/08/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Sc	Q	Element Y-89	Q	Element Rh-103	Q	Element Tb	Q	Element Bi	Q
STD1 500-493825/3 IC	11:33	110		112		110		112		109	
STD2 500-493825/4 IC	11:37	111		115		109		114		109	
STD3 500-493825/5 IC	11:41	113		113		106		113		104	
ICV 500-493825/7	11:48	113		116		110		114		108	
ICB 500-493825/8	11:52	98		102		102		102		103	
ICSA 500-493825/10	11:59	116		117		104		114		104	
ICSAB 500-493825/11	12:03	117		117		104		115		105	
CRI 500-493825/12	12:07	109		111		110		112		110	
CCV 500-493825/13	12:13	113		115		110		115		110	
CCB 500-493825/14	12:17	99		102		101		102		104	
MB 500-493579/1-A	12:25	102		104		104		104		104	
LCS 500-493579/2-A	12:28	114		116		114		117		115	
400-171203-1	12:32	114		115		114		116		111	
400-171203-2	12:36	116		117		114		115		112	
400-171203-3	12:40	115		118		111		115		110	
400-171203-4	12:43	117		118		114		117		114	
400-171203-5	12:47	117		118		116		118		116	
CCV 500-493825/23	12:51	117		116		111		119		112	
CCB 500-493825/24	12:55	101		106		106		105		108	
400-171203-6	12:59	113		115		111		116		113	
400-171203-7	13:02	117		119		116		119		115	
400-171203-8	13:06	103		104		106		104		105	
400-171203-9	13:10	117		117		115		118		114	
400-171203-10	13:15	116		118		114		116		114	
400-171203-11	13:19	117		118		113		116		111	
400-171203-12	13:23	117		118		114		116		112	
400-171203-13	13:27	118		117		114		115		112	
CCV 500-493825/33	13:31	113		115		111		115		109	
CCB 500-493825/34	13:34	101		102		103		101		105	
400-171203-14	13:38	110		112		109		110		107	
400-171203-14 DU	13:42	116		117		116		116		115	
400-171203-14 MS	13:46	117		118		115		118		115	
400-171203-14 MSD	13:49	117		118		114		118		115	
400-171203-14 SD	13:53	117		117		116		117		117	
CCV 500-493825/42	14:11	113		115		110		116		111	
CCB 500-493825/43	14:15	100		103		103		103		105	
400-171203-1	14:19	112		114		103		110		99	
400-171203-2	14:22	118		116		106		112		101	
400-171203-3	14:26	119		118		98		103		92	
400-171203-4	14:30			120		107		112		100	

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICP-MS Instrument ID: ICPMS4 Start Date: 07/08/2019 End Date: 07/08/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element	Q	Element Y-89	Q	Element Rh-103	Q	Element Tb	Q	Element Bi	Q
400-171203-5	14:34			119		105		111		101	
400-171203-6	14:37	120		120		101		105		94	
400-171203-7	14:41					109		115		104	
400-171203-8	14:45			120		118		115		114	
400-171203-9	14:49					108		114		101	
CCV 500-493825/53	14:52	120				114		119		114	
CCB 500-493825/54	14:56	108		109		109		109		111	
400-171203-10	15:00					108		115		103	
400-171203-11	15:04					107		110		101	
400-171203-12	15:08	120				102		106		96	
400-171203-13	15:11					105		111		100	
400-171203-14	15:15					110		115		103	
400-171203-14 DU	15:19					107		114		101	
400-171203-14 MS	15:23					108		113		102	
400-171203-14 MSD	15:26	117		115		102		108		98	
400-171203-14 SD	15:30			119		112		115		108	
400-171203-15	15:34	111		111		109		108		107	
CCV 500-493825/65	15:38	113		115		109		115		109	
CCB 500-493825/66	15:41	100		104		104		105		106	

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ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICP-MS Instrument ID: ICPMS4 Start Date: 07/09/2019 End Date: 07/09/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Sc	Q	Element Y-89	Q	Element Rh-103	Q	Element Tb	Q	Element Bi	Q
STD1 500-493984/3 IC	10:42	107		109		108		112		111	
STD2 500-493984/4 IC	10:46	107		107		104		111		107	
STD3 500-493984/5 IC	10:50	109		107		103		109		101	
ICV 500-493984/7	10:57	110		108		105		111		105	
ICB 500-493984/8	11:03	103		101		101		103		100	
ICSA 500-493984/10	11:10	115		113		101		112		99	
ICSAB 500-493984/11	11:14	113		111		99		109		99	
CRI 500-493984/12	11:18	110		110		108		112		111	
CCV 500-493984/13	11:22	110		109		106		112		105	
CCB 500-493984/14	11:26	102		101		102		103		104	
400-171203-4	11:47	108		104		95		102		93	
400-171203-5	11:51	114		109		98		103		95	
400-171203-7	11:54	118		117		102		108		97	
400-171203-8	11:58	114		110		107		106		106	
400-171203-9	12:02	115		113		98		104		94	
400-171203-10	12:06	116		113		100		105		94	
400-171203-11	12:09	116		114		96		101		90	
CCV 500-493984/22	12:15	113		111		108		112		108	
CCB 500-493984/23	12:18	103		103		102		103		104	
400-171203-13	12:22	113		110		96		101		92	
400-171203-14	12:26	110		110		95		99		91	
400-171203-14 DU	12:30	107		108		91		98		88	
400-171203-14 MS	12:33	105		105		91		97		88	
400-171203-14 MSD	12:37	107		106		94		98		91	
400-171203-14 SD	12:41	105		103		97		99		93	
CCV 500-493984/30	12:45	97		95		92		96		93	
CCB 500-493984/31	12:49	96		96		95		95		96	

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ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICP-MS Instrument ID: ICPMS5 Start Date: 07/08/2019 End Date: 07/08/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Sc	Q	Element Y-89	Q	Element Rh-103	Q	Element In	Q	Element Tb	Q
STD0 500-493953/1 IC	17:29	100		100		100		100		100	
STD1 500-493953/2 IC	17:33	104		100		98		99		102	
STD2 500-493953/3 IC	17:38	102		100		97		99		103	
STD3 500-493953/4 IC	17:42	99		102		95		95		105	
ICV 500-493953/6	17:50	101		100		96		98		107	
ICB 500-493953/7	17:54	101		100		100		100		102	
CRI 500-493953/9	18:03	101		98		100		101		103	
ICSA 500-493953/10	18:07	103		104		93		96		106	
ICSAB 500-493953/11	18:11	106		105		95		99		108	
CCV 500-493953/12	18:16	101		101		96		96		108	
CCB 500-493953/13	18:20	100		99		99		96		105	
400-171203-4	18:45	96		94		88		92		100	
400-171203-5	18:50	93		94		87		91		102	
400-171203-7	18:58	97		98		90		92		104	
400-171203-8	19:02	101		100		98		101		102	
CCV 500-493953/24	19:07	95		97		92		96		105	
CCB 500-493953/25	19:11	97		96		96		99		101	
400-171203-9	19:15	100		98		91		95		100	
400-171203-10	19:19	102		98		90		94		100	
400-171203-11	19:23	98		99		89		96		95	
400-171203-13	19:32	101		99		91		95		101	
400-171203-14	19:36	100		99		90		97		103	
400-171203-14 DU	19:40	98		97		91		96		101	
CCV 500-493953/33	19:45	95		98		93		96		104	
CCB 500-493953/34	19:49	97		96		95		100		102	
400-171203-14 MS	19:53	98		100		90		95		100	
400-171203-14 MSD	19:57	99		99		92		94		102	
400-171203-14 SD	20:02	101		100		96		100		105	
CCV 500-493953/39	20:10	96		96		93		94		106	
CCB 500-493953/40	20:14	100		99		99		100		102	

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ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

ICP-MS Instrument ID: ICPMS5 Start Date: 07/08/2019 End Date: 07/08/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Bi	Q	Element	Q	Element	Q	Element	Q	Element	Q
STD0 500-493953/1 IC	17:29	100									
STD1 500-493953/2 IC	17:33	98									
STD2 500-493953/3 IC	17:38	97									
STD3 500-493953/4 IC	17:42	98									
ICV 500-493953/6	17:50	100									
ICB 500-493953/7	17:54	103									
CRI 500-493953/9	18:03	101									
ICSA 500-493953/10	18:07	97									
ICSAB 500-493953/11	18:11	100									
CCV 500-493953/12	18:16	101									
CCB 500-493953/13	18:20	102									
400-171203-4	18:45	92									
400-171203-5	18:50	93									
400-171203-7	18:58	94									
400-171203-8	19:02	100									
CCV 500-493953/24	19:07	99									
CCB 500-493953/25	19:11	100									
400-171203-9	19:15	91									
400-171203-10	19:19	89									
400-171203-11	19:23	91									
400-171203-13	19:32	93									
400-171203-14	19:36	94									
400-171203-14 DU	19:40	95									
CCV 500-493953/33	19:45	101									
CCB 500-493953/34	19:49	102									
400-171203-14 MS	19:53	92									
400-171203-14 MSD	19:57	93									
400-171203-14 SD	20:02	97									
CCV 500-493953/39	20:10	100									
CCB 500-493953/40	20:14	102									

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Batch Number: 493579 Batch Start Date: 07/05/19 16:17 Batch Analyst: Edwards, Benjamin D

Batch Method: 3005A Batch End Date: 07/05/19 16:47

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	M19FSPKMS 00002			
MB 500-493579/1		3005A, 6020		50 mL	50 mL				
LCS 500-493579/2		3005A, 6020		50 mL	50 mL	0.5 mL			
400-171203-C-1	AES-TW101-060319	3005A, 6020	R	50 mL	50 mL				
400-171203-C-2	AES-MW3-060319	3005A, 6020	R	50 mL	50 mL				
400-171203-C-3	AES-TW102-060319	3005A, 6020	R	50 mL	50 mL				
400-171203-C-4	AES-MW4-060319	3005A, 6020	R	50 mL	50 mL				
400-171203-C-5	AES-MW4-DUP-060319	3005A, 6020	R	50 mL	50 mL				
400-171203-C-6	AES-TW103-060319	3005A, 6020	R	50 mL	50 mL				
400-171203-C-7	AES-MW5-060319	3005A, 6020	R	50 mL	50 mL				
400-171203-C-8	AES-FB-060319	3005A, 6020	R	50 mL	50 mL				
400-171203-C-9	AES-TW104-060419	3005A, 6020	R	50 mL	50 mL				
400-171203-C-10	AES-TW105-060419	3005A, 6020	R	50 mL	50 mL				
400-171203-C-11	AES-TW106-060419	3005A, 6020	R	50 mL	50 mL				
400-171203-C-12	AES-TW107-060419	3005A, 6020	R	50 mL	50 mL				
400-171203-C-13	AES-TW108-060419	3005A, 6020	R	50 mL	50 mL				
400-171203-C-14	AES-TW109-060419	3005A, 6020	R	50 mL	50 mL				
400-171203-C-14 DU	AES-TW109-060419	3005A, 6020	R	50 mL	50 mL				
400-171203-C-14 MS	AES-TW109-060419	3005A, 6020	R	50 mL	50 mL	0.5 mL			
400-171203-C-14 MSD	AES-TW109-060419	3005A, 6020	R	50 mL	50 mL	0.5 mL			
400-171203-C-15	AES-FB-060419	3005A, 6020	R	50 mL	50 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-171203-1

SDG No.:

Batch Number: 493579 Batch Start Date: 07/05/19 16:17 Batch Analyst: Edwards, Benjamin D

Batch Method: 3005A Batch End Date: 07/05/19 16:47

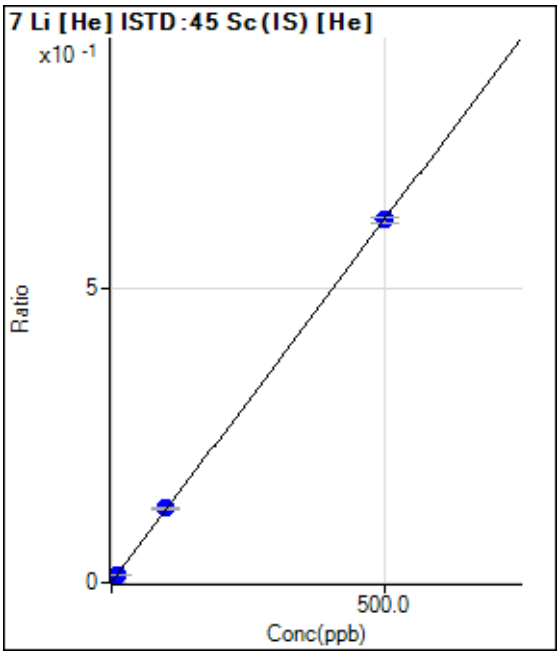
Batch Notes	
Batch Comment	filter/plungers: 90219752
Temperature - Corrected - End	91 Degrees C
Temperature - Corrected - Start	91 Degrees C
Digestion End Time	07/05/2019 16:47
Digestion Start Time	07/05/2019 16:17
Digestion Unit ID	1567
Hydrochloric Acid ID	221681
Nitric Acid ID	212262
Pipette/Syringe/Dispenser ID	2850
Thermometer ID	m62169
Digestion Tube/Cup ID	1812114
Temperature - Uncorrected - End	91 Degrees C
Temperature - Uncorrected - Start	91 Degrees C

Basis	Basis Description
R	Total Recoverable

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Batch Folder: C:\Agilent\ICPMH\1\DATA\MS4070719He-1.b\
Analysis File: MS4070719He-1.batch.bin
DA Date-Time: 7/7/2019 3:08:32 PM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

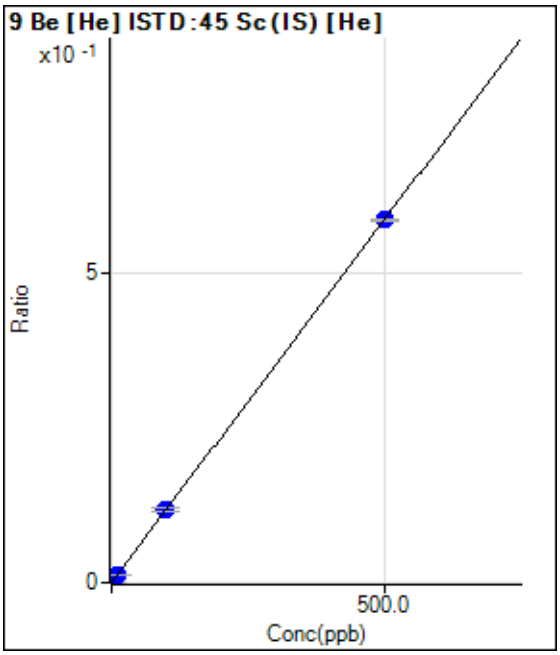
Level	Standard Data File	Sample Name	Acq. Date-Time
1	002CALB.d	ICIS	7/7/2019 12:00:29 PM
2	003CALS.d	Std1	7/7/2019 12:04:14 PM
3	004CALS.d	Std2	7/7/2019 12:08:01 PM
4	005CALS.d	Std3	7/7/2019 12:11:49 PM



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	80.00	0.0004	P	12.6
2	☐	10.000	9.713	2950.36	0.0124	P	6.6
3	☐	100.000	101.971	29979.48	0.1264	P	4.5
4	☐	500.000	499.612	147928.83	0.6181	P	1.5

y = 0.0012 * x + 3.6630E-004
R = 1.0000
DL = 0.1123
BEC = 0.2963

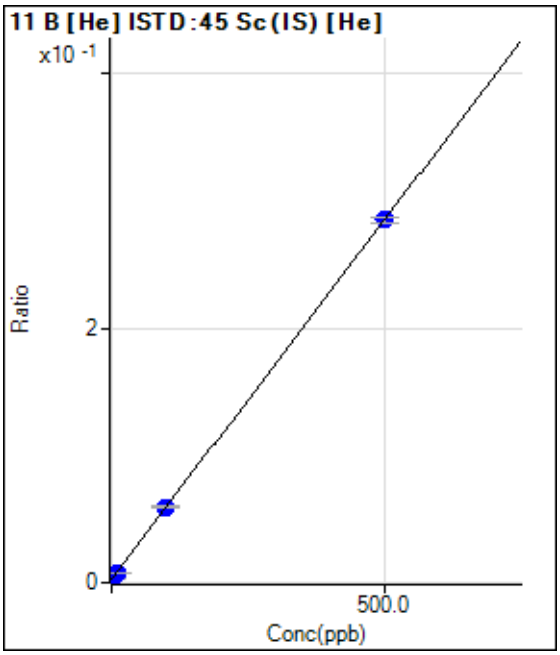
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3.33	0.0000	P	173.
2	☐	10.000	10.866	3033.71	0.0127	P	7.0
3	☐	100.000	101.198	28073.00	0.1184	P	4.4
4	☐	500.000	499.743	139922.26	0.5846	P	0.8

y = 0.0012 * x + 1.5260E-005
R = 1.0000
DL = 0.06778
BEC = 0.01304

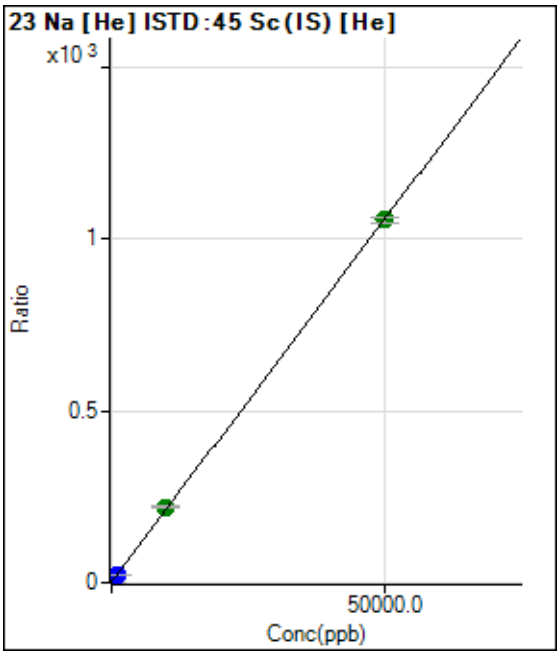
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	600.03	0.0027	P	10.1
2	☐	10.000	9.392	1920.19	0.0081	P	6.2
3	☐	100.000	99.916	14042.80	0.0592	P	2.2
4	☐	500.000	500.029	68275.58	0.2853	P	1.3

y = 5.6504E-004 * x + 0.0027
R = 1.0000
DL = 1.477
BEC = 4.862

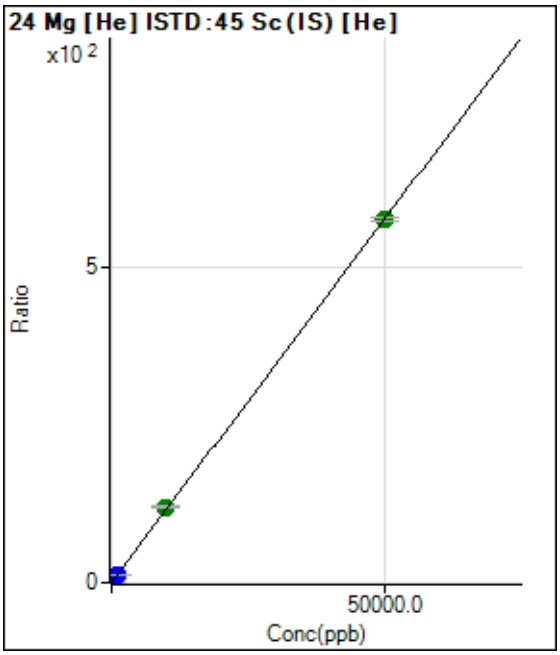
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	278746.34	1.2762	P	1.0
2	☐	1000.000	1046.578	5574644.71	23.3793	P	1.6
3	☐	10000.00	10314.13	51970155.89	219.1044	A	2.0
4	☐	50000.00	49936.24	252705862.90	1,055.898	A	1.3

y = 0.0211 * x + 1.2762
R = 1.0000
DL = 1.855
BEC = 60.43

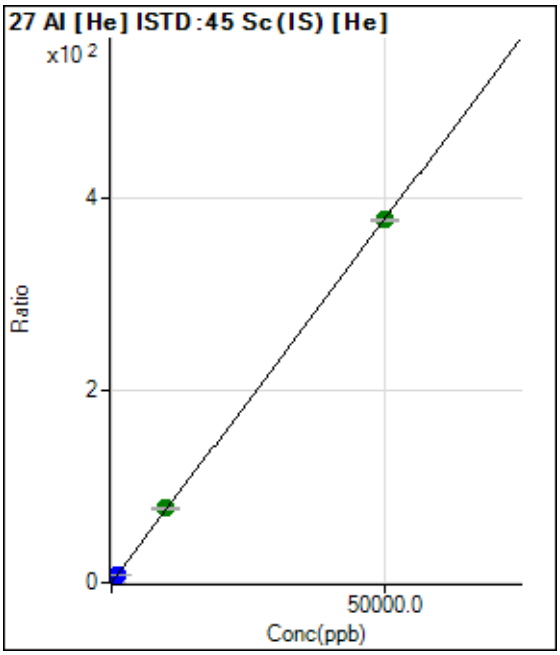
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	21777.65	0.0997	P	0.4
2	☐	1000.000	1060.040	2931847.67	12.2954	P	1.3
3	☐	10000.00	10382.58	28350191.24	119.5511	A	3.4
4	☐	50000.00	49922.28	137486454.62	574.4544	A	1.0

y = 0.0115 * x + 0.0997
R = 1.0000
DL = 0.1042
BEC = 8.666

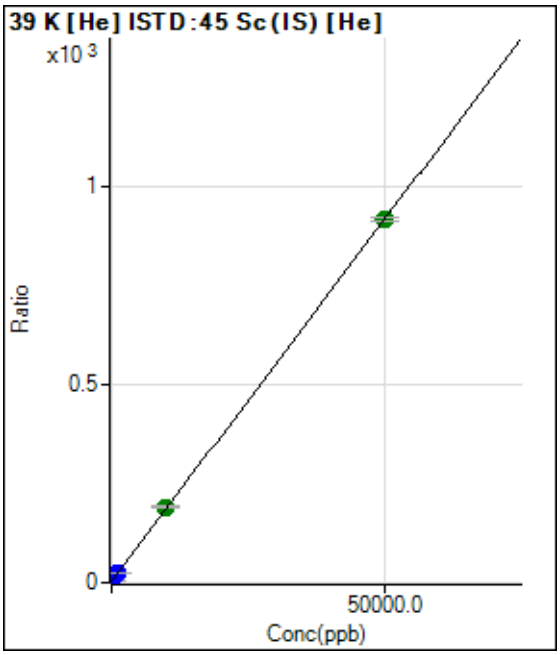
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2663.65	0.0122	P	4.3
2	☐	1000.000	1026.367	1848147.57	7.7508	P	1.5
3	☐	10000.00	10235.32	18305724.31	77.1850	A	2.7
4	☐	50000.00	49952.40	90144995.32	376.6459	A	0.8

y = 0.0075 * x + 0.0122
R = 1.0000
DL = 0.2075
BEC = 1.617

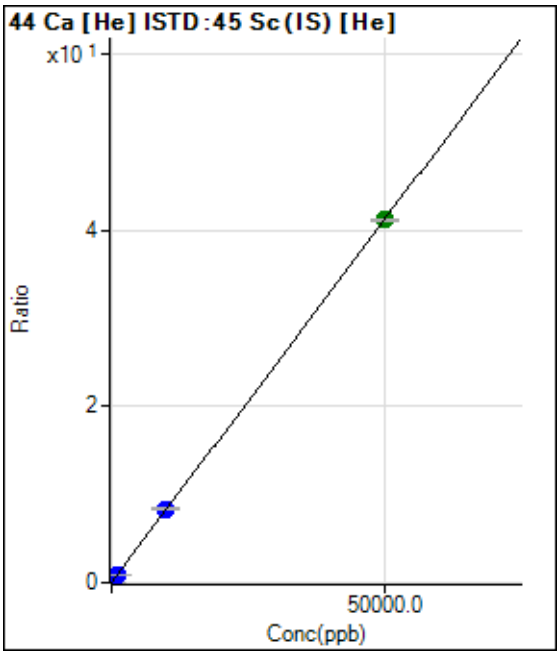
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	673566.92	3.0838	P	0.5
2	☐	1000.000	1044.943	5296740.75	22.2131	P	1.3
3	☐	10000.00	10279.32	45367930.99	191.2634	A	1.8
4	☐	50000.00	49943.23	219556703.39	917.3750	A	1.0

y = 0.0183 * x + 3.0838
R = 1.0000
DL = 2.304
BEC = 168.5

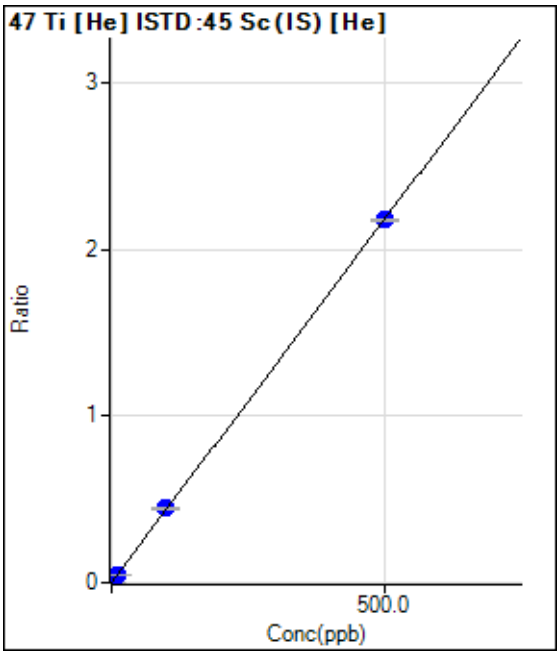
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4653.31	0.0213	P	3.4
2	☐	1000.000	1009.762	203415.47	0.8530	P	0.8
3	☐	10000.00	10085.38	1975331.84	8.3281	P	2.1
4	☐	50000.00	49982.72	9858529.51	41.1892	A	0.2

y = 8.2364E-004 * x + 0.0213
R = 1.0000
DL = 2.635
BEC = 25.86

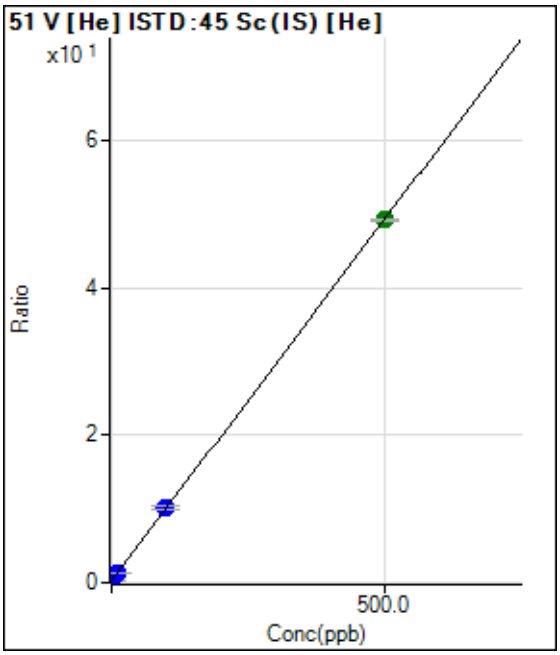
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	26.67	0.0001	P	43.1
2	☐	10.000	10.450	10907.27	0.0457	P	1.3
3	☐	100.000	102.601	106227.87	0.4479	P	3.2
4	☐	500.000	499.471	521793.64	2.1801	P	0.4

y = 0.0044 * x + 1.2202E-004
R = 1.0000
DL = 0.03614
BEC = 0.02796

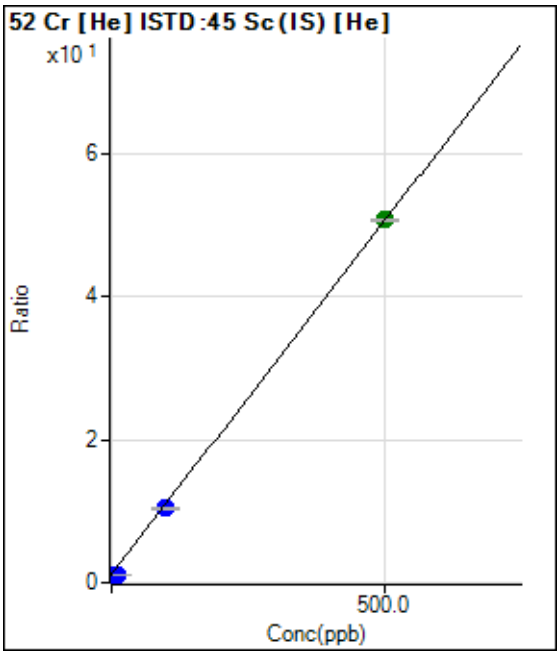
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	58290.20	0.2669	P	1.8
2	☐	10.000	9.790	292440.61	1.2265	P	1.9
3	☐	100.000	101.453	2421560.54	10.2113	P	3.2
4	☐	500.000	499.714	11787171.49	49.2487	A	0.5

y = 0.0980 * x + 0.2669
R = 1.0000
DL = 0.1447
BEC = 2.723

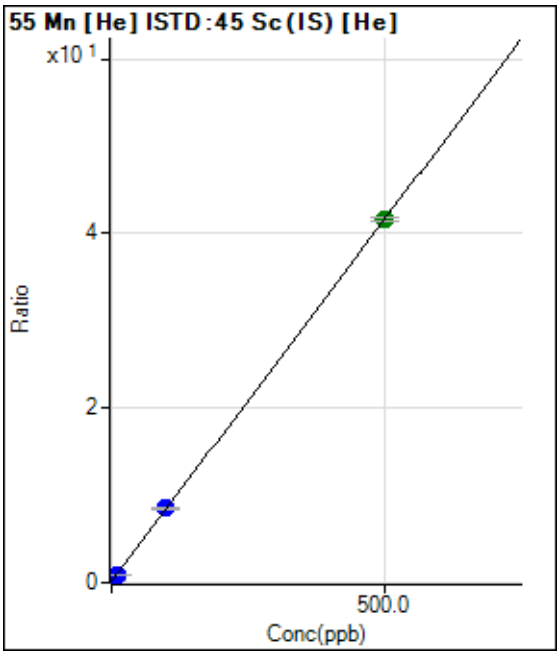
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	259083.41	1.1862	P	2.4
2	☐	10.000	-0.812	263755.50	1.1061	P	0.8
3	☐	100.000	93.689	2474649.29	10.4328	P	1.8
4	☐	500.000	501.478	12129762.74	50.6792	A	0.4

y = 0.0987 * x + 1.1862
R = 0.9998
DL = 0.881
BEC = 12.02

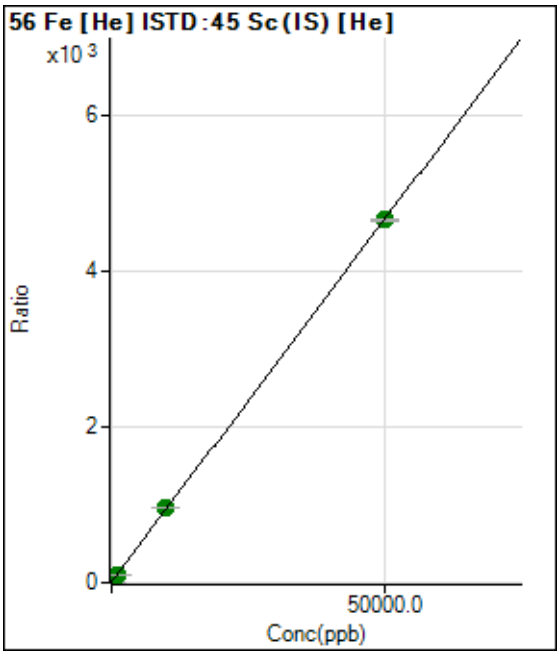
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	30564.96	0.1399	P	3.5
2	☐	10.000	8.911	209467.67	0.8785	P	1.3
3	☐	100.000	101.580	2029724.50	8.5584	P	2.8
4	☐	500.000	499.706	9944906.31	41.5532	A	1.1

y = 0.0829 * x + 0.1399
R = 1.0000
DL = 0.1758
BEC = 1.689

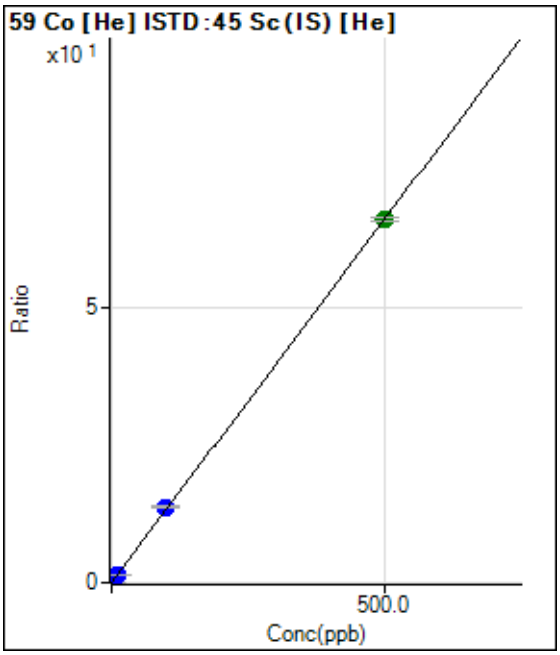
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2020198.98	9.2494	P	2.3
2	☐	1000.000	969.500	23719574.65	99.4781	A	1.7
3	☐	10000.00	10246.70	228389189.93	962.8830	A	2.0
4	☐	50000.00	49951.26	1114894730.0	4,658.079	A	0.3

y = 0.0931 * x + 9.2494
R = 1.0000
DL = 6.895
BEC = 99.38

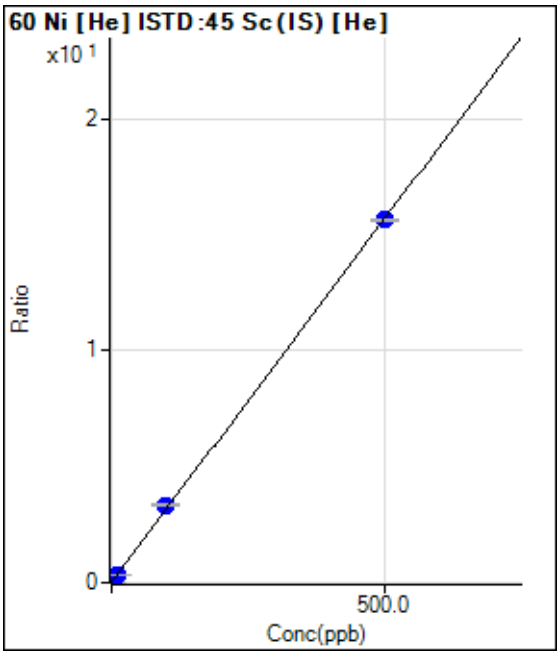
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1250.12	0.0057	P	13.1
2	☐	10.000	10.554	333142.39	1.3971	P	0.9
3	☐	100.000	103.513	3238006.20	13.6513	P	2.1
4	☐	500.000	499.286	15753968.93	65.8244	A	1.0

y = 0.1318 * x + 0.0057
R = 1.0000
DL = 0.017
BEC = 0.04341

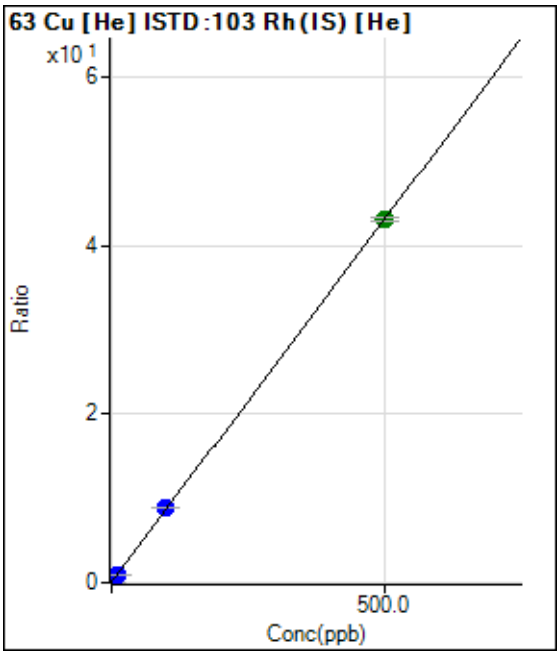
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3977.29	0.0182	P	5.1
2	☐	10.000	10.774	84808.41	0.3557	P	1.3
3	☐	100.000	106.440	794957.49	3.3519	P	2.7
4	☐	500.000	498.697	3742640.88	15.6374	P	0.6

y = 0.0313 * x + 0.0182
R = 0.9999
DL = 0.0883
BEC = 0.5814

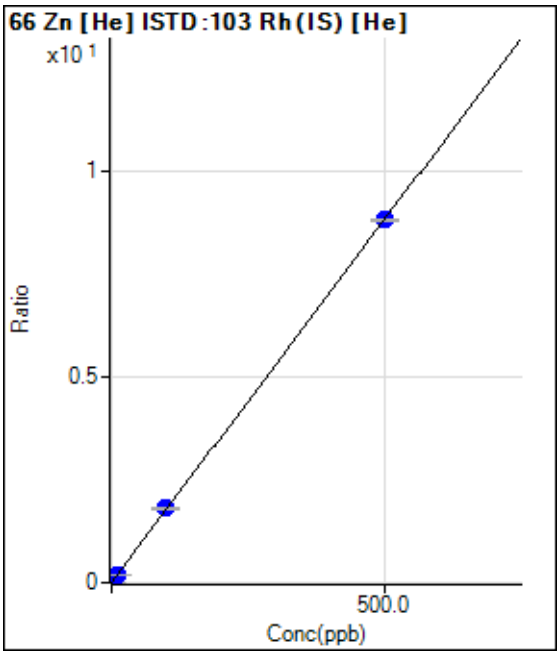
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13278.65	0.0642	P	3.2
2	☐	10.000	10.484	214683.95	0.9676	P	3.1
3	☐	100.000	103.388	1960640.48	8.9739	P	0.8
4	☐	500.000	499.313	9153561.02	43.0937	A	1.2

y = 0.0862 * x + 0.0642
R = 1.0000
DL = 0.0704
BEC = 0.7447

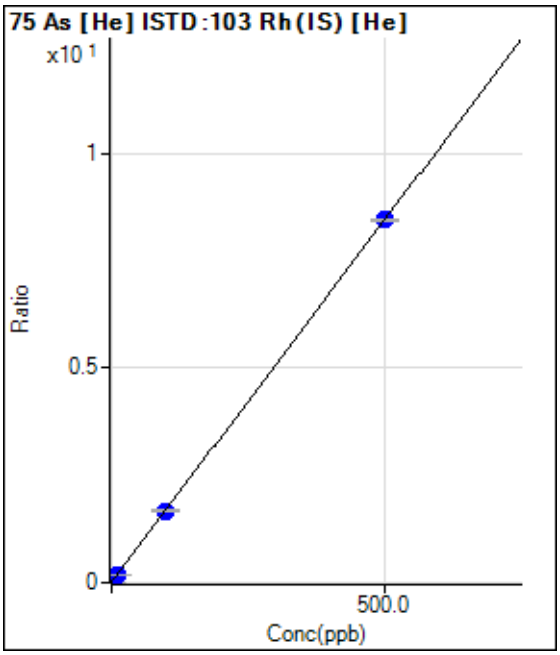
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	793.39	0.0038	P	23.1
2	☐	10.000	10.142	40632.98	0.1831	P	3.0
3	☐	100.000	101.804	394058.56	1.8035	P	1.0
4	☐	500.000	499.636	1876872.11	8.8364	P	0.2

y = 0.0177 * x + 0.0038
R = 1.0000
DL = 0.151
BEC = 0.2176

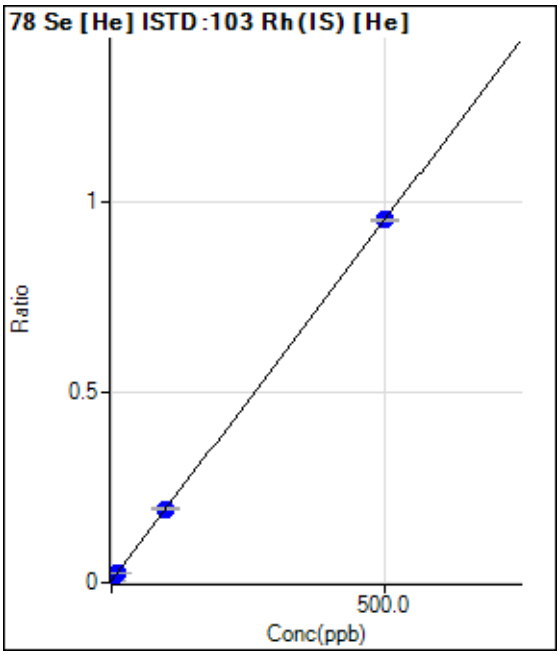
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2039.47	0.0099	P	1.1
2	☐	10.000	9.698	38525.71	0.1737	P	3.2
3	☐	100.000	98.599	366005.54	1.6752	P	0.9
4	☐	500.000	500.286	1796882.46	8.4598	P	0.3

y = 0.0169 * x + 0.0099
R = 1.0000
DL = 0.01889
BEC = 0.5834

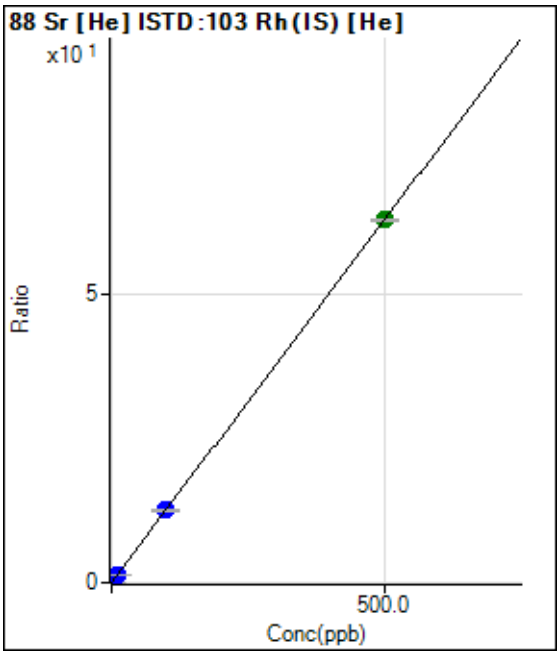
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1078.71	0.0052	P	5.2
2	☐	10.000	9.741	5242.50	0.0236	P	4.4
3	☐	100.000	99.376	42197.54	0.1931	P	1.2
4	☐	500.000	500.130	201995.60	0.9510	P	0.5

y = 0.0019 * x + 0.0052
R = 1.0000
DL = 0.4326
BEC = 2.758

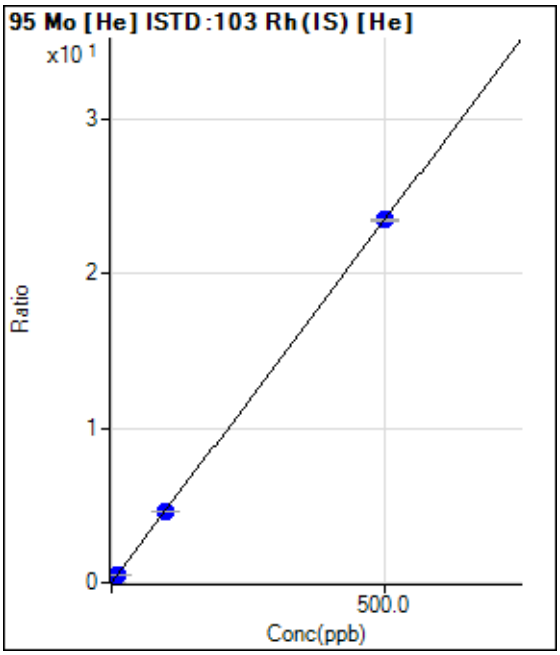
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	930.07	0.0045	P	21.1
2	☐	10.000	9.835	275707.29	1.2427	P	3.1
3	☐	100.000	99.539	2738958.81	12.5365	P	1.3
4	☐	500.000	500.095	13374011.05	62.9665	A	0.8

y = 0.1259 * x + 0.0045
R = 1.0000
DL = 0.02267
BEC = 0.03582

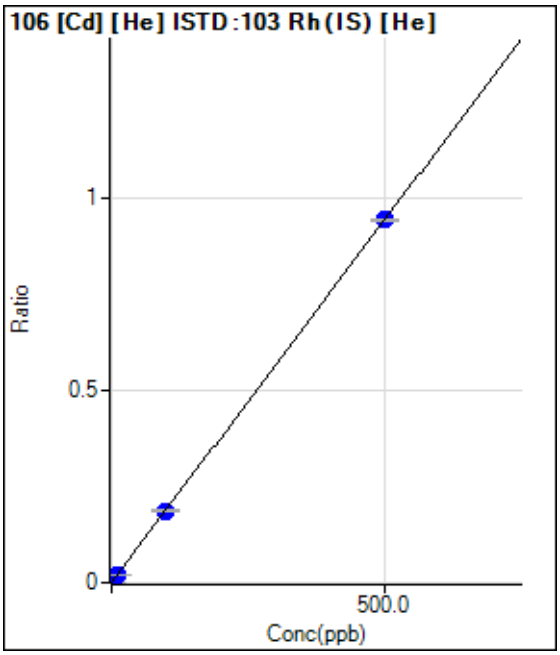
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1230.10	0.0059	P	5.4
2	☐	10.000	9.701	102349.67	0.4613	P	3.3
3	☐	100.000	98.135	1007739.88	4.6126	P	1.8
4	☐	500.000	500.379	4990326.59	23.4950	P	0.6

y = 0.0469 * x + 0.0059
R = 1.0000
DL = 0.02056
BEC = 0.1265

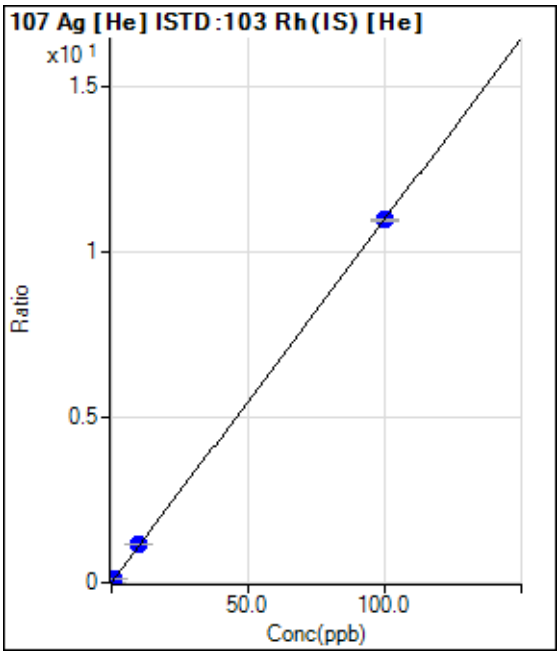
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	96.67	0.0005	P	60.4
2	☐	10.000	10.397	4460.81	0.0201	P	11.0
3	☐	100.000	98.713	40851.85	0.1870	P	1.3
4	☐	500.000	500.249	200852.60	0.9456	P	0.7

y = 0.0019 * x + 4.6443E-004
R = 1.0000
DL = 0.4454
BEC = 0.2458

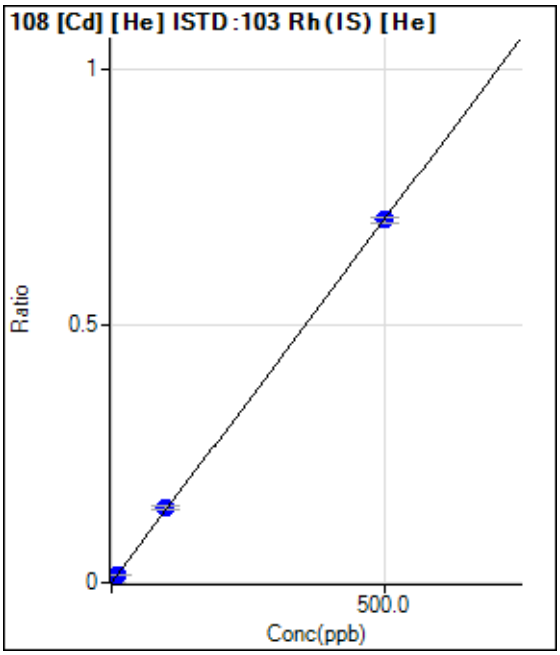
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	33.33	0.0002	P	36.3
2	☐	1.000	1.033	25206.89	0.1136	P	2.7
3	☐	10.000	10.381	249084.25	1.1400	P	0.4
4	☐	100.000	99.962	2331296.63	10.9761	P	0.8

y = 0.1098 * x + 1.6194E-004
R = 1.0000
DL = 0.001606
BEC = 0.001475

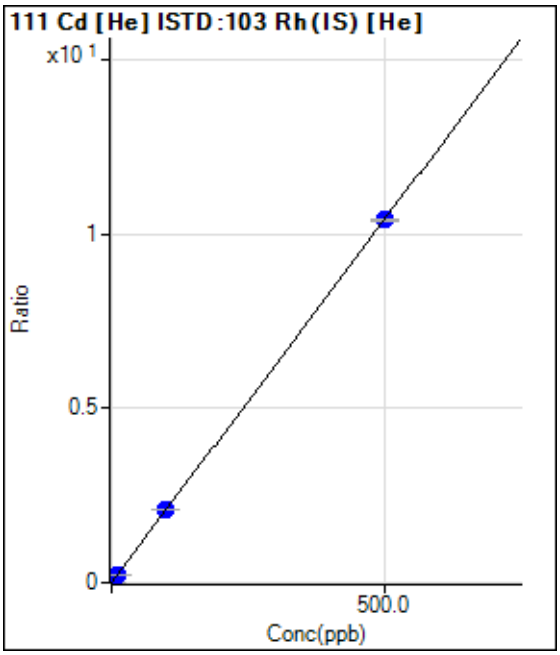
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3.33	0.0000	P	173.
2	☐	10.000	10.112	3173.78	0.0143	P	7.4
3	☐	100.000	102.858	31755.10	0.1454	P	4.8
4	☐	500.000	499.426	149902.45	0.7058	P	1.4

y = 0.0014 * x + 1.6077E-005
R = 1.0000
DL = 0.05912
BEC = 0.01138

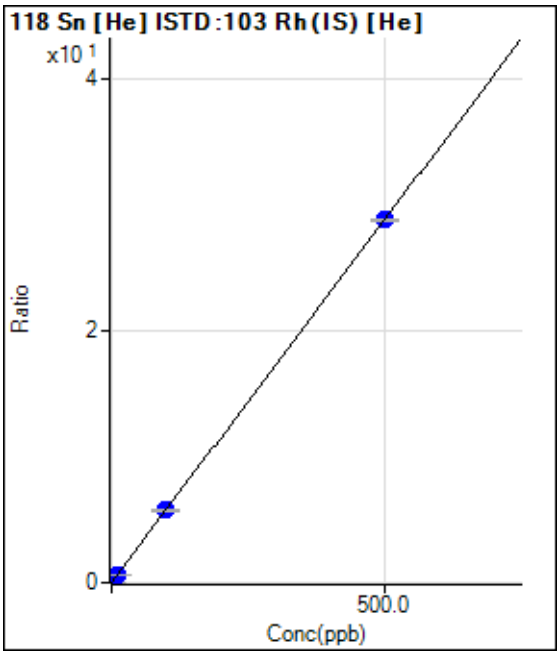
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	83.61	0.0004	P	49.3
2	☐	10.000	10.174	47104.87	0.2124	P	5.9
3	☐	100.000	101.500	462196.44	2.1154	P	0.8
4	☐	500.000	499.697	2211689.68	10.4129	P	0.5

y = 0.0208 * x + 4.0150E-004
R = 1.0000
DL = 0.0285
BEC = 0.01927

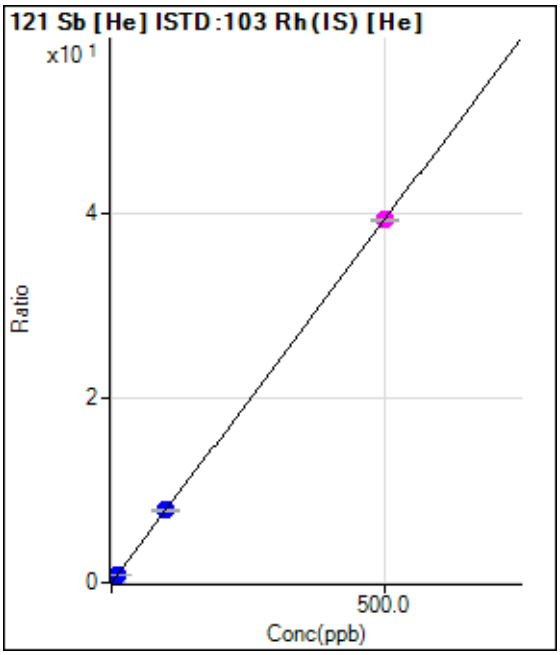
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1210.10	0.0059	P	26.3
2	☐	10.000	10.034	129412.92	0.5831	P	2.4
3	☐	100.000	99.691	1254331.49	5.7411	P	1.1
4	☐	500.000	500.061	6111663.45	28.7744	P	0.5

y = 0.0575 * x + 0.0059
R = 1.0000
DL = 0.08037
BEC = 0.1019

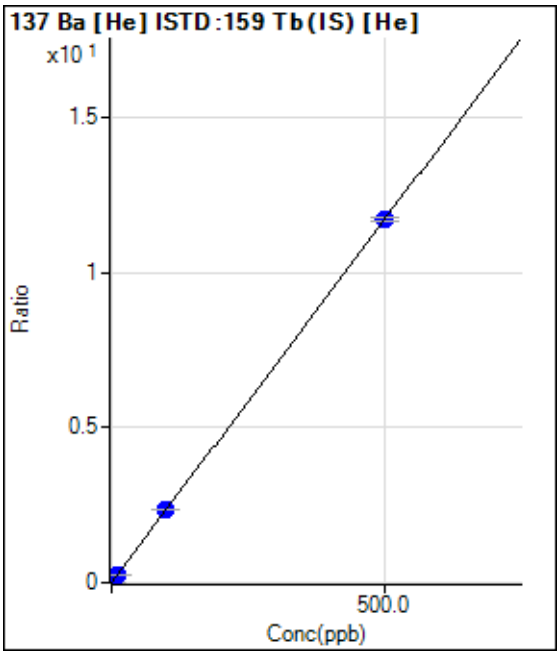
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	360.02	0.0017	P	22.2
2	☐	10.000	9.840	172465.20	0.7773	P	2.9
3	☐	100.000	100.217	1726067.84	7.9006	P	1.9
4	☐	500.000	499.960	8370062.38	39.4074	M	0.8

y = 0.0788 * x + 0.0017
R = 1.0000
DL = 0.01474
BEC = 0.02215

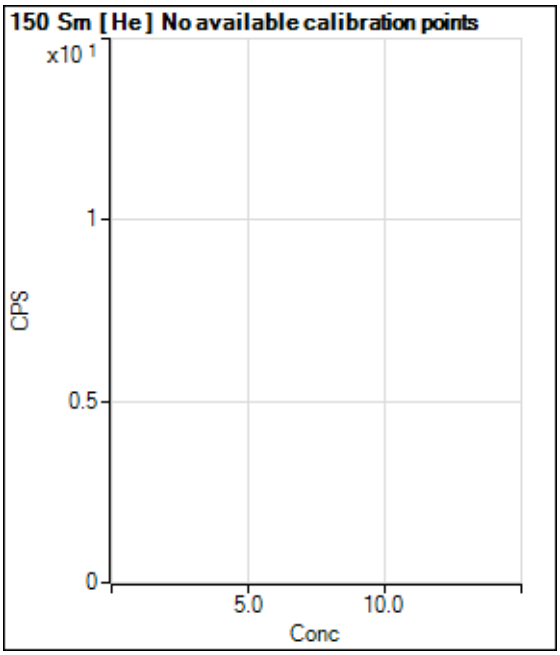
Weight: <None>
Min Conc: 0



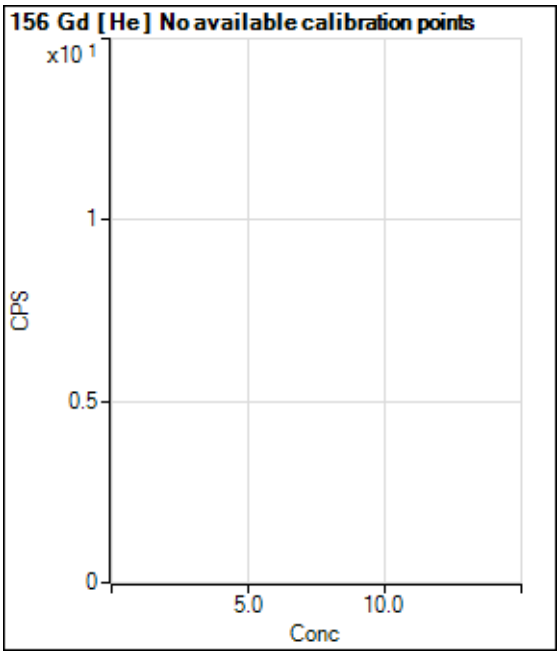
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	43.33	0.0002	P	12.5
2	☐	10.000	10.075	60652.31	0.2364	P	2.1
3	☐	100.000	100.813	611216.90	2.3635	P	2.0
4	☐	500.000	499.836	2975950.69	11.7176	P	1.2

y = 0.0234 * x + 1.8671E-004
R = 1.0000
DL = 0.002995
BEC = 0.007965

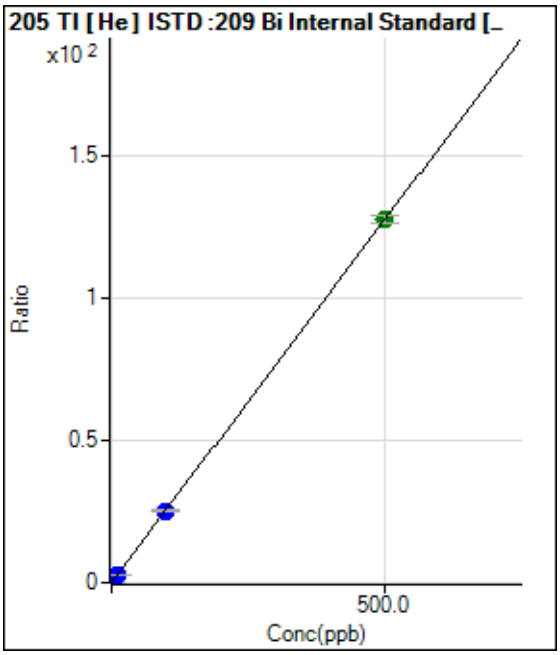
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



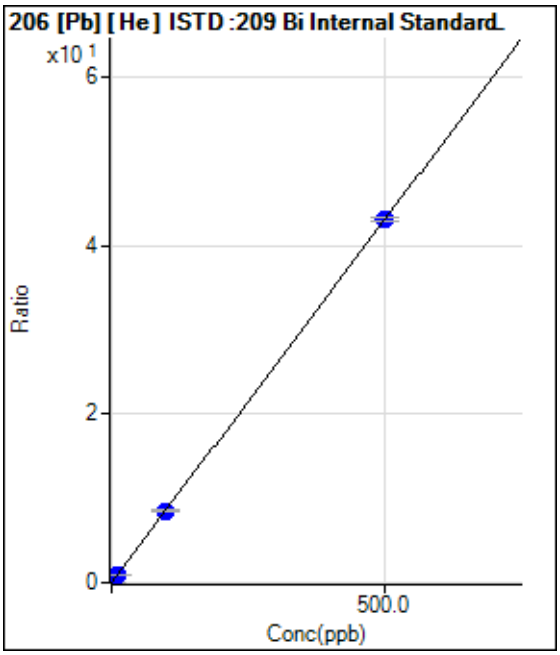
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	886.72	0.0070	P	10.6
2	☐	10.000	9.940	344205.53	2.5393	P	1.7
3	☐	100.000	98.733	3380893.91	25.1592	P	2.8
4	☐	500.000	500.255	16179221.84	127.4472	A	2.0

y = 0.2548 * x + 0.0070
R = 1.0000
DL = 0.008802
BEC = 0.02759

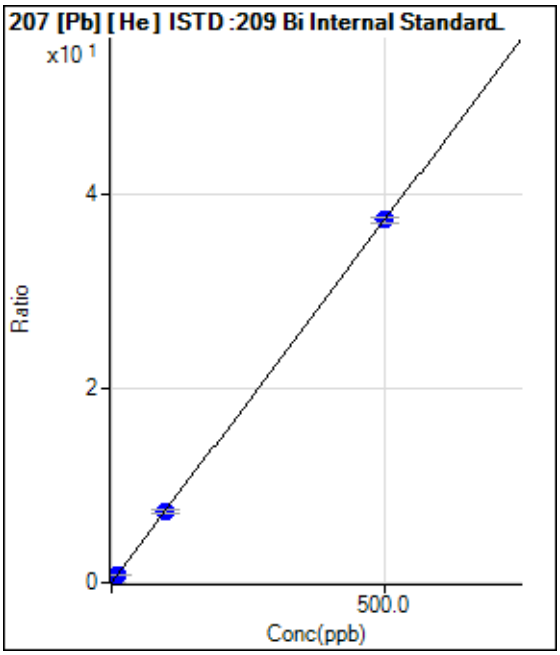
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	116.67	0.0009	P	26.0
2	☐	10.000	10.056	117474.75	0.8666	P	1.4
3	☐	100.000	98.751	1142362.53	8.5019	P	3.3
4	☐	500.000	500.249	5467352.21	43.0650	P	1.1

y = 0.0861 * x + 9.2534E-004
R = 1.0000
DL = 0.008379
BEC = 0.01075

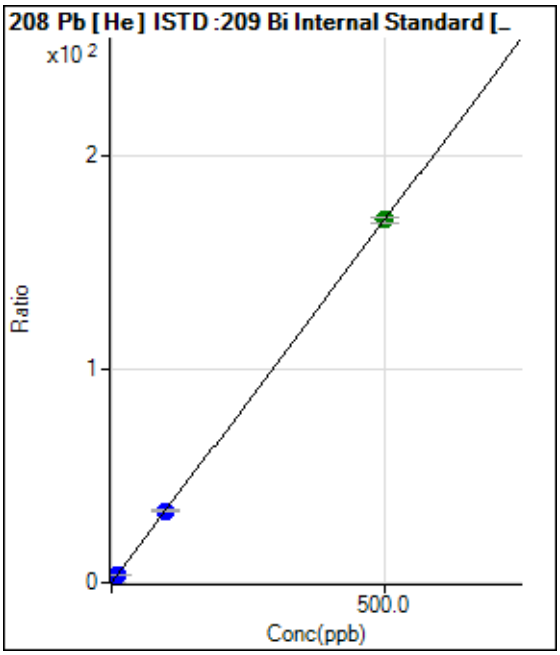
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	96.67	0.0008	P	16.1
2	☐	10.000	9.927	100361.04	0.7403	P	1.7
3	☐	100.000	97.985	980765.90	7.3009	P	4.4
4	☐	500.000	500.405	4733007.43	37.2822	P	1.3

y = 0.0745 * x + 7.6709E-004
R = 1.0000
DL = 0.004988
BEC = 0.0103

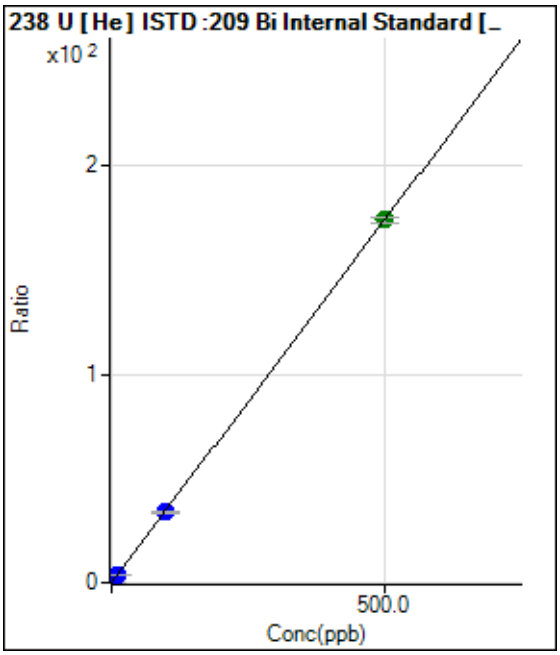
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	513.35	0.0041	P	4.7
2	☐	10.000	10.017	462188.49	3.4096	P	1.6
3	☐	100.000	99.060	4525126.89	33.6825	P	3.9
4	☐	500.000	500.188	21589488.63	170.0583	A	1.3

y = 0.3400 * x + 0.0041
R = 1.0000
DL = 0.001692
BEC = 0.01197

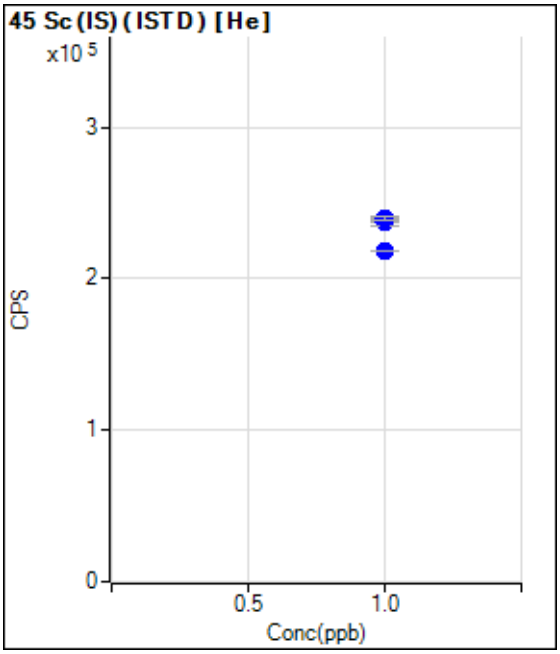
Weight: <None>
Min Conc: 0



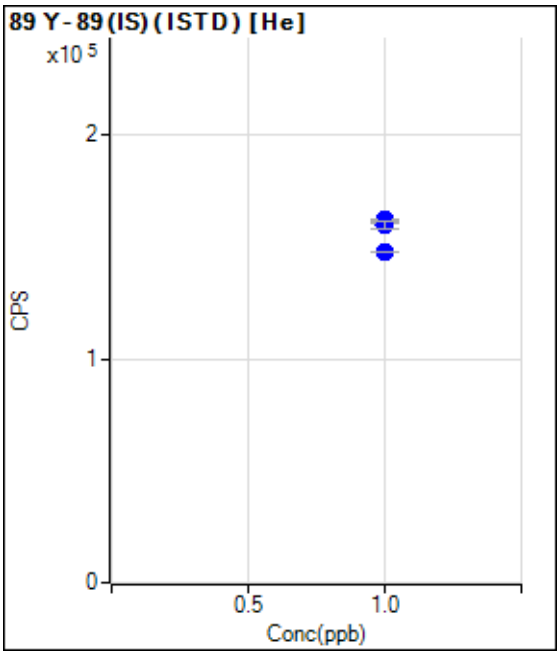
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	40.00	0.0003	P	42.5
2	☐	10.000	9.666	455863.30	3.3633	P	2.5
3	☐	100.000	97.557	4560183.47	33.9424	P	3.8
4	☐	500.000	500.495	22106326.34	174.1325	A	1.4

y = 0.3479 * x + 3.1610E-004
R = 1.0000
DL = 0.001158
BEC = 0.0009085

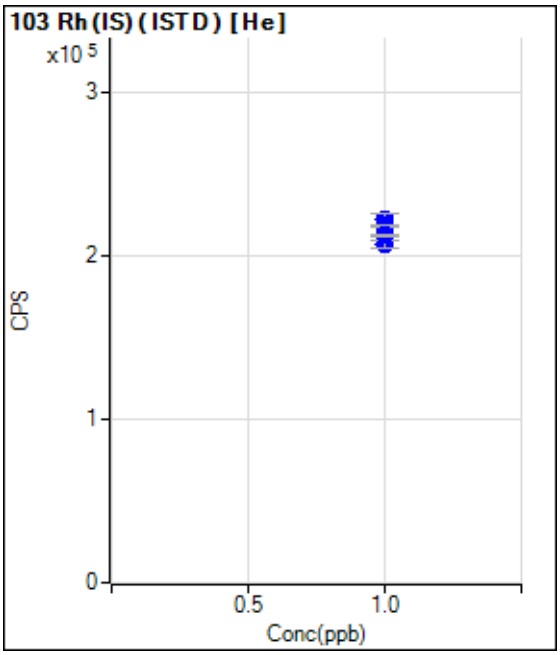
Weight: <None>
Min Conc: 0



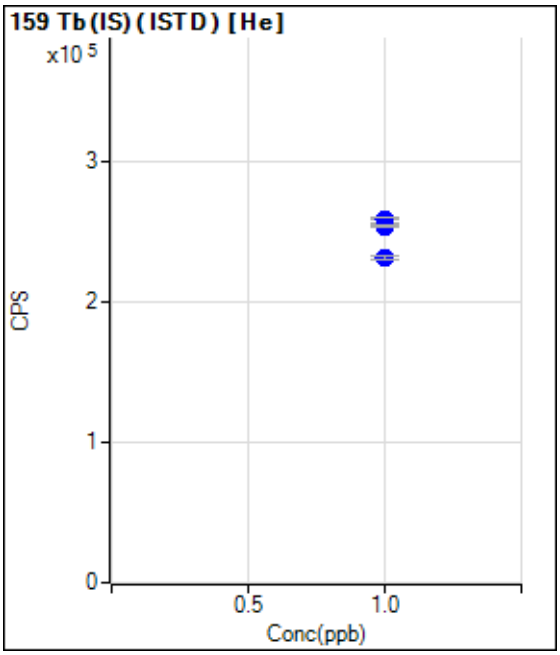
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		218421.47		P	0.2
2	☐	1.000		238479.45		P	1.4
3	☐	1.000		237270.21		P	2.5
4	☐	1.000		239346.71		P	0.9



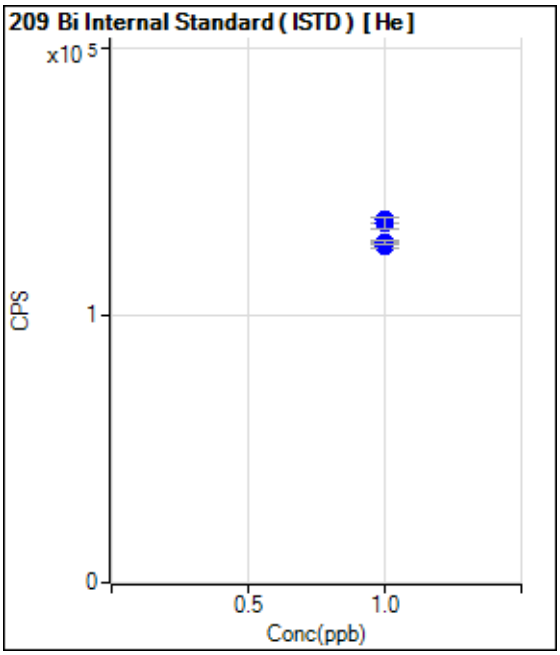
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		147830.21		P	0.3
2	☐	1.000		161718.30		P	1.2
3	☐	1.000		162087.61		P	0.6
4	☐	1.000		159664.44		P	1.8



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		207010.17		P	2.7
2	☐	1.000		222008.46		P	3.2
3	☐	1.000		218491.61		P	0.7
4	☐	1.000		212403.04		P	0.5



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		231947.32		P	1.0
2	☐	1.000		256652.68		P	2.2
3	☐	1.000		258656.47		P	1.6
4	☐	1.000		253979.09		P	0.4



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		126087.11		P	1.3
2	☐	1.000		135579.26		P	1.8
3	☐	1.000		134451.91		P	3.0
4	☐	1.000		126962.33		P	1.1

Batch Summary Report

Batch Folder: C:\Agilent\ICPMH\1\DATA\MS4070719He-1.b\
Analysis File: MS4070719He-1.batch.bin
Tune Step: #1 He

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
1		7/7/2019 11:56:42 AM	001CALB.d	blk I.S /tune	CalBlk	1	1.0000
2		7/7/2019 12:00:29 PM	002CALB.d	ICIS	CalBlk	1	1.0000
3		7/7/2019 12:04:14 PM	003CALS.d	Std1	CalStd	2	1.0000
4		7/7/2019 12:08:01 PM	004CALS.d	Std2	CalStd	3	1.0000
5		7/7/2019 12:11:49 PM	005CALS.d	Std3	CalStd	4	1.0000
6		7/7/2019 12:15:34 PM	006_QCS.d	S1	QCS		1.0000
7		7/7/2019 12:19:20 PM	007_ICV.d	ICV	ICV		1.0000
8		7/7/2019 12:23:06 PM	008_ICB.d	ICB	ICB		1.0000
9		7/7/2019 12:26:53 PM	009LICV.d	ICVL	LLICV		1.0000
10		7/7/2019 12:30:39 PM	010ICSA.d	icsa	ICSA		1.0000
11		7/7/2019 12:34:24 PM	011ICSB.d	icsab	ICSB		1.0000
12		7/7/2019 12:38:11 PM	012SMPL.d	CRI	Sample		1.0000
13		7/7/2019 12:41:57 PM	013_CCV.d	CCV	CCV		1.0000
14		7/7/2019 12:45:44 PM	014_CCB.d	CCB	CCB		1.0000
15		7/7/2019 12:58:01 PM	015_PB.d	mb 500-493633/1-a	PB		1.0000
16		7/7/2019 1:01:46 PM	016_LCS.d	lcs 500-493633/2-a	LCS		1.0000
17		7/7/2019 1:05:30 PM	017SMPL.d	400-171672-a-1-a	Sample		1.0000
18		7/7/2019 1:09:16 PM	018SMPL.d	400-171672-a-1-b du	Sample		1.0000
19		7/7/2019 1:13:02 PM	019SMPL.d	400-171672-a-1-c ms	Sample		1.0000
20		7/7/2019 1:16:48 PM	020SMPL.d	400-171672-a-1-a SD@5	Sample		1.0000
21		7/7/2019 1:20:35 PM	021SMPL.d	400-171672-a-2-a	Sample		1.0000
22		7/7/2019 1:24:21 PM	022SMPL.d	400-172077-i-1-a	Sample		1.0000
23		7/7/2019 1:28:06 PM	023_CCV.d	CCV	CCV		1.0000
24		7/7/2019 1:31:51 PM	024_CCB.d	CCB	CCB		1.0000
25		7/7/2019 1:35:35 PM	025LCCV.d	CCVL	LLCCV		1.0000
26		7/7/2019 1:39:21 PM	026_PB.d	mb 500-493579/1-a	PB		1.0000
27		7/7/2019 1:43:07 PM	027_LCS.d	lcs 500-493579/2-a	LCS		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
28		7/7/2019 1:46:52 PM	028SMPL.d	400-171203-c-1-a	Sample		1.0000
29		7/7/2019 1:50:36 PM	029SMPL.d	400-171203-c-2-a	Sample		1.0000
30		7/7/2019 1:54:22 PM	030SMPL.d	400-171203-c-3-a	Sample		1.0000
31		7/7/2019 1:58:07 PM	031SMPL.d	400-171203-c-4-a	Sample		1.0000
32		7/7/2019 2:02:03 PM	032SMPL.d	400-171203-c-5-a	Sample		1.0000
33		7/7/2019 2:05:49 PM	033SMPL.d	400-171203-c-6-a	Sample		1.0000
34		7/7/2019 2:09:36 PM	034SMPL.d	400-171203-c-7-a	Sample		1.0000
35		7/7/2019 2:13:23 PM	035SMPL.d	400-171203-c-8-a	Sample		1.0000
36		7/7/2019 2:17:08 PM	036_CCV.d	CCV	CCV		1.0000
37		7/7/2019 2:20:55 PM	037_CCB.d	CCB	CCB		1.0000
38		7/7/2019 2:26:19 PM	038SMPL.d	400-171203-c-9-a	Sample		1.0000
39		7/7/2019 2:30:06 PM	039SMPL.d	400-171203-c-10-a	Sample		1.0000
40		7/7/2019 2:33:51 PM	040SMPL.d	400-171203-c-11-a	Sample		1.0000
41		7/7/2019 2:37:37 PM	041SMPL.d	400-171203-c-12-a	Sample		1.0000
42		7/7/2019 2:41:22 PM	042SMPL.d	400-171203-c-13-a	Sample		1.0000
43		7/7/2019 2:45:08 PM	043SMPL.d	400-171203-c-14-a	Sample		1.0000
44		7/7/2019 2:48:55 PM	044SMPL.d	400-171203-c-14-b du	Sample		1.0000
45		7/7/2019 2:52:41 PM	045SMPL.d	400-171203-c-14-c ms	Sample		1.0000
46		7/7/2019 2:56:26 PM	046SMPL.d	400-171203-c-14-d msd	Sample		1.0000
47		7/7/2019 3:00:15 PM	047SMPL.d	400-171203-c-14-a SD@5	Sample		1.0000
48		7/7/2019 3:04:01 PM	048SMPL.d	400-171203-c-15-a	Sample		1.0000
49		7/7/2019 3:07:46 PM	049_CCV.d	CCV	CCV		1.0000
50		7/7/2019 3:11:30 PM	050_CCB.d	CCB	CCB		1.0000
51		7/7/2019 3:15:16 PM	051SMPL.d	500-166247-c-1-a	Sample		1.0000
52		7/7/2019 3:19:02 PM	052_CCV.d	CCV	CCV		1.0000
53		7/7/2019 3:22:49 PM	053_CCB.d	CCB	CCB		1.0000
54		7/7/2019 3:26:34 PM	054LCCV.d	CCVL	LLCCV		1.0000

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	80.00	N/A	<0.000	0.00	N/A	<0.000	600.04	N/A
2	ICIS	0.000	80.00	N/A	0.000	3.33	N/A	0.000	600.03	N/A
3	Std1	9.713	2950.36	6.830	10.866	3033.71	6.966	9.392	1920.19	9.471
4	Std2	101.971	29979.48	4.518	101.198	28073.00	4.374	99.916	14042.80	2.268
5	Std3	499.612	147928.83	1.497	499.743	139922.26	0.783	500.029	68275.58	1.360
6	S1	506.640	147942.76	0.663	510.738	141024.17	0.601	500.876	67453.21	0.741
7	ICV	203.498	59075.98	1.937	206.609	56675.02	0.798	211.436	28654.17	2.182
8	ICB	0.475	193.34	58.962	0.310	76.67	47.647	3.341	943.40	9.147
9	ICVL	10.720	2943.69	7.076	0.937	240.01	8.472	50.329	6741.56	3.554
10	icsa	0.121	126.67	61.249	0.114	36.67	33.420	1.220	843.39	64.800
11	icsab	19.362	5887.88	7.807	18.358	5207.63	2.561	49.081	7385.18	8.714
12	CRI	20.629	5861.20	5.804	2.190	583.37	13.545	103.831	13905.92	1.750
13	CCV	254.257	73101.38	1.934	257.622	70009.12	1.255	251.857	33692.98	3.208
14	CCB	0.293	150.01	42.717	0.097	26.67	87.944	1.464	736.72	49.817
15	mb 500-49363...	0.150	120.01	86.702	0.027	10.00	148.148	0.493	656.71	73.186
16	lcs 500-493633...	104.237	29375.26	2.061	51.937	13809.14	6.247	1042.231	134481.45	1.521
17	400-171672-a-...	1.381	486.70	23.615	0.132	40.00	25.816	23.727	3793.91	9.998
18	400-171672-a-...	1.042	386.69	37.597	0.060	20.00	105.379	17.796	2993.74	9.182
19	400-171672-a-...	102.263	30497.21	3.927	49.992	14066.00	5.989	1011.284	138122.44	1.492
20	400-171672-a-...	0.630	256.68	22.617	<0.000	3.33	N/A	10.829	1986.85	10.779
21	400-171672-a-...	0.913	356.69	5.619	0.095	30.00	100.508	14.926	2666.98	2.998
22	400-172077-i-1-a	3.020	943.40	4.728	<0.000	3.33	N/A	31.597	4737.51	6.000
23	CCV	262.752	74931.87	1.406	267.659	72147.88	0.876	257.782	34193.98	1.632
24	CCB	0.426	180.01	19.307	0.155	40.00	52.344	2.349	823.38	29.552
25	CCVL	11.009	2963.71	5.575	0.860	216.68	25.563	59.124	7665.32	1.887
26	mb 500-49357...	0.122	103.34	98.260	0.058	16.67	41.286	0.650	620.03	221.414

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	106.882	30059.67	2.474	51.490	13665.74	3.665	1055.313	135881.90	1.436
28	400-171203-c-...	1.848	606.71	6.771	0.024	10.00	154.986	617.155	80410.12	2.192
29	400-171203-c-...	3.636	1186.76	12.830	0.045	16.67	89.853	859.466	119234.05	1.492
30	400-171203-c-...	863.149	211745.06	1.346	0.044	13.33	112.029	2312.190	259688.54	0.783
31	400-171203-c-...	269.399	74631.33	1.945	0.012	6.67	360.723	1604.349	203497.06	1.858
32	400-171203-c-...	271.789	77573.77	1.931	0.012	6.67	183.903	1574.344	205746.51	1.409
33	400-171203-c-...	409.605	107455.10	2.127	0.027	10.00	147.545	1466.638	176280.47	0.955
34	400-171203-c-...	4.665	1570.12	11.157	0.009	6.67	418.972	371.308	54401.71	0.917
35	400-171203-c-...	0.842	396.69	49.586	0.017	10.00	1.251	16.952	3470.48	9.742
36	CCV	234.845	78115.68	0.481	235.218	73935.17	0.806	251.404	38907.25	2.181
37	CCB	0.665	296.68	38.773	0.090	30.00	2.326	7.316	1710.16	13.766
38	400-171203-c-...	3.665	1163.41	13.820	0.083	26.67	66.241	719.991	97313.99	1.238
39	400-171203-c-...	3.251	1023.41	2.256	0.023	10.00	154.137	798.453	105923.73	2.076
40	400-171203-c-...	4.237	1230.09	7.762	0.090	26.67	107.978	882.422	110095.14	1.412
41	400-171203-c-...	10.549	2793.67	8.042	0.125	33.33	85.304	845.912	100103.07	1.312
42	400-171203-c-...	3.948	1126.75	23.404	0.067	20.00	103.569	541.697	66348.66	2.104
43	400-171203-c-...	2.249	716.71	16.294	0.037	13.33	58.538	335.922	43818.80	4.307
44	400-171203-c-...	2.606	753.38	10.357	0.027	10.00	149.501	334.904	40340.36	1.661
45	400-171203-c-...	72.931	17012.10	2.057	37.277	8195.55	5.288	1164.187	124116.95	1.659
46	400-171203-c-...	70.038	16391.47	5.295	34.147	7531.94	3.444	1100.848	117761.16	3.180
47	400-171203-c-...	0.833	266.68	13.502	0.017	6.67	304.991	82.017	9379.58	4.387
48	400-171203-c-...	0.130	100.00	154.810	0.121	30.00	96.253	7.453	1326.77	5.231
49	CCV	201.054	45930.86	2.551	206.485	44566.95	0.306	221.682	23616.51	4.414
50	CCB	0.467	166.67	52.735	0.117	26.67	106.120	5.157	996.74	17.364
51	500-166247-c-...	40.876	9336.16	1.079	0.298	66.67	18.866	362.210	38028.62	2.101
52	CCV	195.548	46194.77	0.827	210.226	46916.74	1.304	227.929	25095.27	2.454
53	CCB	0.336	136.67	30.186	0.231	50.00	21.757	5.558	1030.29	38.004
54	CCVL	7.758	1853.50	5.593	0.983	216.68	22.896	48.156	5574.44	6.324

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	282294.84	N/A	<0.000	21016.78	N/A	<0.000	2706.98	N/A
2	ICIS	0.000	278746.34	N/A	0.000	21777.65	N/A	0.000	2663.65	N/A
3	Std1	1046.578	5574644.71	1.661	1060.040	2931847.67	1.294	1026.367	1848147.57	1.527
4	Std2	10314.137	51970155.89	2.039	10382.582	28350191.24	3.380	10235.324	18305724.31	2.671
5	Std3	49936.241	2.52706E+08	1.293	49922.283	1.37486E+08	0.953	49952.408	90144995.32	0.824
6	S1	50934.413	2.54199E+08	0.592	51210.168	1.39086E+08	0.535	50986.294	90739185.31	0.608
7	ICV	20503.264	1.01826E+08	0.725	20753.708	56007477.50	0.652	20439.924	36138301.96	0.625
8	ICB	10.835	306170.26	10.924	0.109	20536.01	156.519	2.224	5897.87	15.431
9	ICVL	213.409	1249773.50	1.949	210.805	545678.56	1.132	102.905	170299.72	2.219
10	icsa	101346.127	5.25234E+08	1.335	101741.249	2.87110E+08	0.603	100223.789	1.85334E+08	0.838
11	icsab	102511.593	5.25040E+08	0.775	102342.454	2.85407E+08	0.870	101582.122	1.85641E+08	0.919
12	CRI	427.709	2334152.42	2.203	426.007	1132293.92	1.727	211.748	364249.46	1.989
13	CCV	25931.674	1.27503E+08	1.269	25946.897	69362838.97	0.836	25652.806	44928881.00	1.193
14	CCB	10.656	309661.82	5.380	2.901	27445.81	10.114	3.476	7918.76	7.768
15	mb 500-49363...	34.031	433303.13	4.565	6.365	37537.95	14.005	13.150	24177.62	4.468
16	lcs 500-493633...	10688.477	51596167.57	1.427	10734.635	28094014.58	0.657	2065.791	3543089.11	0.544
17	400-171672-a-...	3762.505	18973734.30	1.114	1535.289	4174352.65	1.129	987.513	1752830.60	0.523
18	400-171672-a-...	3566.268	17900369.31	1.173	1477.582	3996087.44	1.518	997.481	1760375.60	2.238
19	400-171672-a-...	13594.885	69372430.63	1.724	11856.702	32839279.51	1.220	3073.103	5576849.29	1.350
20	400-171672-a-...	732.397	3751940.99	0.312	311.061	824250.74	0.247	202.824	345392.44	1.771
21	400-171672-a-...	2439.920	12596083.14	0.292	1624.967	4483261.18	0.050	631.426	1138531.13	1.377
22	400-172077-i-1-a	18295.803	89165755.34	1.253	12103.115	32050329.52	1.060	50.336	90089.42	2.449
23	CCV	26449.444	1.28992E+08	1.496	26588.008	70500570.62	0.937	26207.059	45528484.32	1.040
24	CCB	<0.000	256020.64	N/A	0.180	20539.49	54.946	1.676	5010.94	18.865
25	CCVL	204.806	1187654.13	1.292	213.151	541101.72	0.503	102.642	166672.43	1.166
26	mb 500-49357...	<0.000	245307.09	N/A	<0.000	19418.18	N/A	0.719	3513.88	10.707

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	10713.103	51613899.23	0.912	10846.784	28329177.91	1.873	2049.856	3508672.55	1.273
28	400-171203-c-...	OR		N/A	697711.574	1.83661E+09	1.924	39.522	70955.15	3.351
29	400-171203-c-...	OR		N/A	409073.146	1.14916E+09	0.605	9.680	20793.04	3.845
30	400-171203-c-...	OR		N/A	272963.743	6.22909E+08	0.946	30.598	48177.87	2.032
31	400-171203-c-...	OR		N/A	71153.897	1.83230E+08	1.880	8.586	17219.08	2.096
32	400-171203-c-...	OR		N/A	72674.570	1.92813E+08	1.431	10.103	20379.36	1.800
33	400-171203-c-...	OR		N/A	161278.369	3.93437E+08	1.118	41.657	69180.61	2.882
34	400-171203-c-...	OR		N/A	396603.033	1.16789E+09	0.470	9.899	22224.92	1.509
35	400-171203-c-...	2983.726	18097865.98	3.965	41.197	161482.58	4.171	4.772	13559.07	1.391
36	CCV	27984.552	1.59136E+08	1.040	27124.758	83872970.42	1.113	28037.194	56799989.15	1.718
37	CCB	899.073	5037920.65	1.663	4.355	37230.73	12.531	1.824	6454.84	6.660
38	400-171203-c-...	OR		N/A	670758.662	1.83357E+09	1.547	332.111	597816.83	1.934
39	400-171203-c-...	OR		N/A	493169.275	1.32400E+09	1.638	226.617	401497.83	2.546
40	400-171203-c-...	OR		N/A	800246.468	2.02148E+09	2.650	72.735	123073.71	3.961
41	400-171203-c-...	OR		N/A	517869.047	1.24055E+09	2.267	158.717	251731.05	1.778
42	400-171203-c-...	OR		N/A	711261.835	1.75819E+09	1.043	595.725	967799.83	0.983
43	400-171203-c-...	OR		N/A	541536.208	1.41813E+09	1.805	541.007	931222.48	2.594
44	400-171203-c-...	OR		N/A	544258.987	1.31560E+09	1.769	543.943	864018.29	3.296
45	400-171203-c-...	OR		N/A	574848.009	1.24270E+09	1.691	2500.461	3544797.45	1.572
46	400-171203-c-...	OR		N/A	549542.162	1.19192E+09	2.266	2129.328	3029174.54	1.795
47	400-171203-c-...	344417.548	1.38999E+09	1.406	119365.347	2.62410E+08	0.921	115.232	168349.45	0.339
48	400-171203-c-...	1326.891	5584482.63	3.023	55.454	140587.93	5.091	9.919	16581.91	3.935
49	CCV	26092.960	1.01903E+08	0.748	25529.257	54206074.19	0.103	26737.634	37195589.45	0.743
50	CCB	715.884	2884689.43	2.774	16.647	51239.49	5.363	2.765	5807.90	18.104
51	500-166247-c-...	358161.202	1.38714E+09	1.618	28080.680	59250965.78	2.023	83.060	117044.07	3.615
52	CCV	25184.517	1.01702E+08	1.114	24852.863	54554877.52	2.257	26001.345	37392773.61	2.985
53	CCB	443.847	1863399.71	0.859	5.580	28684.34	10.533	2.717	5717.85	4.970
54	CCVL	561.617	2445123.40	1.210	200.423	447737.74	1.011	101.419	144594.97	1.349

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	677526.08	N/A	4.146	5537.92	34.004	0.057	83.34	98.930
2	ICIS	0.000	673566.92	N/A	0.000	4653.31	N/A	0.000	26.67	N/A
3	Std1	1044.943	5296740.75	1.452	1009.762	203415.47	0.793	10.450	10907.27	1.293
4	Std2	10279.327	45367930.99	1.812	10085.383	1975331.84	2.074	102.601	106227.87	3.234
5	Std3	49943.236	2.19557E+08	1.040	49982.728	9858529.51	0.237	499.471	521793.64	0.359
6	S1	50988.986	2.21048E+08	0.433	50971.619	9913737.00	1.141	509.843	525266.26	0.371
7	ICV	20574.471	89035602.01	1.049	20104.738	3887536.90	0.655	200.798	205505.84	1.304
8	ICB	0.796	630271.73	317.501	<0.000	4149.08	N/A	0.028	50.00	66.605
9	ICVL	513.770	2698953.19	1.908	197.609	39769.35	4.244	5.195	4924.25	7.971
10	icsa	100615.596	4.52482E+08	1.426	101061.963	20419752.96	1.624	2018.026	2160156.43	1.133
11	icsab	102377.305	4.55013E+08	0.528	102579.798	20483042.77	0.925	2048.707	2167246.79	0.836
12	CRI	1055.409	5072988.57	1.550	405.042	80367.74	0.367	10.393	10296.77	5.061
13	CCV	25966.845	1.11135E+08	0.635	25342.353	4853271.24	1.051	252.662	256170.24	1.359
14	CCB	4.132	651608.51	63.074	<0.000	4371.03	N/A	0.109	123.34	24.320
15	mb 500-49363...	8.635	704135.75	36.334	65.630	16371.98	3.366	0.109	130.01	27.148
16	lcs 500-493633...	10537.758	44547787.67	1.113	9682.822	1817525.40	1.056	1029.060	1020857.75	1.516
17	400-171672-a-...	1810.203	8512558.21	0.895	4018.439	782746.54	1.784	25.849	26529.31	17.830
18	400-171672-a-...	1727.546	8111485.50	1.784	3857.851	747644.40	0.202	22.993	23483.41	9.843
19	400-171672-a-...	11806.921	52736067.55	1.571	12939.199	2568834.98	1.295	996.709	1046489.57	1.737
20	400-171672-a-...	348.449	2120381.01	0.326	800.705	152554.45	1.443	4.980	4898.85	21.302
21	400-171672-a-...	1742.030	8342626.54	0.714	4728.116	934002.85	0.829	16.634	17346.65	8.806
22	400-172077-i-1-a	3982.542	17478652.66	0.731	40680.851	7710995.76	2.105	0.251	280.01	3.609
23	CCV	26443.581	1.12245E+08	0.974	25669.841	4876154.70	1.010	259.511	260984.78	1.268
24	CCB	<0.000	621315.62	N/A	<0.000	3864.23	N/A	0.040	60.00	59.172
25	CCVL	520.942	2675736.63	1.706	201.298	39670.56	2.370	5.236	4870.88	3.544
26	mb 500-49357...	<0.000	611611.44	N/A	<0.000	4027.51	N/A	0.033	53.33	78.344

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	10608.704	44750471.00	2.111	9598.283	1798090.62	1.379	1026.000	1015835.53	1.189
28	400-171203-c-...	8952.528	38203493.60	2.104	824389.105	1.55372E+08	1.462	1.313	1340.11	1.910
29	400-171203-c-...	20793.226	93693945.27	0.866	280441.129	56404164.57	0.655	0.488	550.03	4.016
30	400-171203-c-...	1200916.823	4.36131E+09	0.849	612859.512	1.00124E+08	0.996	0.870	776.72	8.158
31	400-171203-c-...	904093.174	3.70484E+09	1.617	306399.302	56484298.54	1.682	0.744	753.39	16.167
32	400-171203-c-...	918310.691	3.87722E+09	0.858	314793.579	59788803.04	1.401	0.813	846.73	14.890
33	400-171203-c-...	966861.345	3.75351E+09	1.029	564703.474	98618946.40	0.330	0.855	816.72	19.390
34	400-171203-c-...	8620.704	41182194.39	0.153	718812.912	1.51539E+08	0.788	0.575	673.37	7.805
35	400-171203-c-...	120.295	1487873.78	2.980	116.250	32949.73	5.183	0.110	170.01	32.453
36	CCV	28109.894	1.39090E+08	1.021	26067.457	5774272.42	1.265	256.340	300640.44	0.552
37	CCB	52.002	1003246.03	7.042	21.271	9648.87	7.416	0.030	63.33	21.313
38	400-171203-c-...	24329.519	1.06555E+08	1.446	686276.241	1.34296E+08	1.811	6.967	7251.03	28.838
39	400-171203-c-...	35933.260	1.54218E+08	1.639	470747.914	90483885.96	1.177	3.191	3280.47	7.407
40	400-171203-c-...	100682.135	4.05417E+08	1.346	871090.104	1.57544E+08	1.913	1.632	1593.47	16.025
41	400-171203-c-...	170742.231	6.51486E+08	1.787	554119.349	95026729.47	2.577	6.026	5504.60	3.588
42	400-171203-c-...	13036.297	51940537.56	0.546	818506.721	1.44855E+08	0.673	17.536	16472.06	3.653
43	400-171203-c-...	5473.004	23505182.15	2.636	1009649.036	1.89284E+08	1.798	17.378	17296.43	4.177
44	400-171203-c-...	5523.480	21893057.17	1.833	1019099.649	1.76363E+08	1.716	17.730	16285.36	3.292
45	400-171203-c-...	16957.959	58911282.46	1.708	1063165.100	1.64536E+08	2.229	1012.201	830120.77	1.961
46	400-171203-c-...	16335.566	56957779.15	2.306	1022993.891	1.58855E+08	1.987	975.886	803100.54	1.833
47	400-171203-c-...	1221.444	4861512.63	1.156	216945.951	34143297.83	1.489	4.021	3377.16	2.883
48	400-171203-c-...	139.932	1076118.58	3.623	137.351	25622.17	3.178	0.217	203.34	38.128
49	CCV	28174.798	95727328.57	0.515	26095.492	3969284.26	0.389	257.151	207089.67	0.994
50	CCB	111.779	902677.38	5.333	29.506	8022.74	7.421	0.133	123.34	56.894
51	500-166247-c-...	28762.160	97107568.55	1.618	115289.321	17414537.57	1.594	1.549	1263.44	9.703
52	CCV	27663.288	97184645.22	1.717	25674.347	4037431.97	2.342	251.496	209401.73	1.805
53	CCB	104.073	872888.71	2.829	16.033	6036.73	12.044	0.107	103.33	14.339
54	CCVL	630.882	2723598.92	0.871	212.776	36589.62	2.545	5.476	4470.77	4.663

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	57892.82	N/A	3.133	334995.21	11.386	0.315	37194.80	21.057
2	ICIS	0.000	58290.20	N/A	0.000	259083.41	N/A	0.000	30564.96	N/A
3	Std1	9.790	292440.61	2.426	<0.000	263755.50	N/A	8.911	209467.67	1.514
4	Std2	101.453	2421560.54	3.284	93.689	2474649.29	2.047	101.580	2029724.50	2.822
5	Std3	499.714	11787171.49	0.502	501.478	12129762.74	0.364	499.706	9944906.31	1.152
6	S1	511.528	11897574.82	0.404	512.641	12221584.82	0.900	512.187	10051829.64	0.793
7	ICV	201.778	4699901.39	0.589	198.544	4872524.82	0.632	204.749	4011296.71	0.901
8	ICB	<0.000	46634.73	N/A	<0.000	7588.63	N/A	<0.000	1743.49	N/A
9	ICVL	4.833	160061.92	1.066	<0.000	121533.03	N/A	1.047	48998.05	5.468
10	icsa	<0.000	24027.67	N/A	<0.000	47797.75	N/A	<0.000	15624.36	N/A
11	icsab	18.735	509749.30	1.817	10.072	528399.26	2.840	19.592	427449.47	1.614
12	CRI	10.582	295282.51	1.859	<0.000	249891.90	N/A	3.731	101716.42	2.548
13	CCV	257.344	5921066.79	1.204	253.782	6093130.95	1.554	257.242	4984343.88	1.271
14	CCB	<0.000	52909.52	N/A	<0.000	7485.27	N/A	<0.000	1666.82	N/A
15	mb 500-49363...	<0.000	42323.38	N/A	<0.000	24394.83	N/A	<0.000	7585.30	N/A
16	lcs 500-493633...	526.770	11796556.90	1.016	206.302	4897311.90	1.589	539.896	10201454.64	1.449
17	400-171672-a-...	1.114	88365.44	11.532	<0.000	37509.19	N/A	87.292	1732943.15	1.247
18	400-171672-a-...	2.007	108349.84	4.343	<0.000	67287.06	N/A	84.351	1666493.93	1.148
19	400-171672-a-...	500.018	11853823.15	1.821	196.332	4946259.51	2.137	604.800	12090559.40	1.896
20	400-171672-a-...	0.998	81709.66	5.761	<0.000	16218.34	N/A	16.461	337046.36	0.447
21	400-171672-a-...	<0.000	55725.18	N/A	<0.000	26805.17	N/A	1441.285	28525691.24	0.163
22	400-172077-i-1-a	0.611	75132.85	22.226	<0.000	123678.58	N/A	1.157	54243.90	4.003
23	CCV	261.285	5962291.99	0.977	257.342	6124914.91	1.261	260.589	5007928.78	1.167
24	CCB	<0.000	51659.08	N/A	<0.000	6448.12	N/A	<0.000	2203.57	N/A
25	CCVL	5.144	163486.59	1.790	<0.000	122496.92	N/A	1.144	49770.78	7.936
26	mb 500-49357...	0.119	55541.21	48.245	<0.000	7535.31	N/A	<0.000	2216.90	N/A

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	528.910	11820598.15	1.316	205.522	4870554.82	0.423	547.068	10316428.39	1.085
28	400-171203-c-...	1.645	97986.98	5.342	<0.000	26134.34	N/A	6310.752	1.19698E+08	1.503
29	400-171203-c-...	6.025	209385.42	3.830	<0.000	51806.57	N/A	1037.907	21035573.02	0.562
30	400-171203-c-...	17.825	399454.66	2.403	<0.000	14880.38	N/A	3751.818	61699770.75	0.835
31	400-171203-c-...	0.767	76555.35	9.454	<0.000	38410.73	N/A	2100.794	38995666.92	1.787
32	400-171203-c-...	0.687	77077.63	12.639	<0.000	44094.61	N/A	2159.644	41303105.22	1.073
33	400-171203-c-...	39.343	874232.72	0.839	<0.000	32431.63	N/A	5697.394	1.00143E+08	1.164
34	400-171203-c-...	2.142	122036.10	2.278	<0.000	50084.28	N/A	10351.577	2.19613E+08	0.985
35	400-171203-c-...	1.294	110807.90	1.933	<0.000	32601.86	N/A	<0.000	37612.42	N/A
36	CCV	248.131	6606501.15	0.775	237.539	6617533.45	1.075	251.589	5639613.46	1.311
37	CCB	0.220	71701.23	27.793	<0.000	8185.63	N/A	<0.000	8669.22	N/A
38	400-171203-c-...	5.499	191516.04	0.915	<0.000	55885.21	N/A	11988.978	2.36123E+08	0.775
39	400-171203-c-...	4.558	166542.82	1.572	<0.000	19251.55	N/A	8354.709	1.61601E+08	1.602
40	400-171203-c-...	5.716	181633.41	1.208	21.731	731443.22	2.621	15188.821	2.76460E+08	0.903
41	400-171203-c-...	5.202	161713.35	4.108	<0.000	23643.60	N/A	13861.372	2.39206E+08	2.477
42	400-171203-c-...	8.929	245392.44	1.380	<0.000	25225.98	N/A	18337.017	3.26531E+08	1.556
43	400-171203-c-...	6.405	203609.70	5.568	<0.000	50014.14	N/A	12718.185	2.39918E+08	2.855
44	400-171203-c-...	6.744	194991.59	2.266	<0.000	53420.96	N/A	12885.635	2.24403E+08	1.499
45	400-171203-c-...	505.860	9366566.53	2.290	176.702	3499677.24	2.423	13829.454	2.15381E+08	1.483
46	400-171203-c-...	488.084	9070782.57	1.635	171.242	3409829.11	2.284	13480.424	2.10659E+08	1.744
47	400-171203-c-...	6.904	180297.54	0.678	<0.000	39683.62	N/A	2862.905	45362025.99	0.752
48	400-171203-c-...	6.929	180338.47	1.255	<0.000	11464.34	N/A	0.379	32662.18	9.944
49	CCV	251.587	4598906.39	0.253	238.303	4557921.91	0.281	251.580	3872440.78	0.390
50	CCB	4.017	116240.85	3.620	<0.000	7351.87	N/A	<0.000	15210.63	N/A
51	500-166247-c-...	4.357	127216.98	4.504	<0.000	31126.02	N/A	65.820	1025816.00	1.634
52	CCV	250.943	4742318.05	2.535	238.735	4720113.47	3.037	252.271	4014266.50	2.484
53	CCB	3.859	112874.53	4.034	<0.000	7488.64	N/A	<0.000	9533.02	N/A
54	CCVL	9.042	214621.31	1.840	<0.000	100712.88	N/A	1.459	48546.85	3.697

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	27.847	2652397.82	7.455	0.010	1566.79	66.584	0.100	4780.89	14.241
2	ICIS	0.000	2020198.98	N/A	0.000	1250.12	N/A	0.000	3977.29	N/A
3	Std1	969.500	23719574.65	1.895	10.554	333142.39	0.902	10.774	84808.41	1.384
4	Std2	10246.709	2.28389E+08	2.001	103.513	3238006.20	2.113	106.440	794957.49	2.724
5	Std3	49951.268	1.11489E+09	0.320	499.286	15753968.93	1.024	498.697	3742640.88	0.553
6	S1	51038.574	1.12334E+09	0.384	508.077	15809811.43	0.729	508.345	3762120.36	0.992
7	ICV	20634.830	4.52435E+08	0.899	203.488	6290951.78	0.467	210.231	1548107.95	0.663
8	ICB	<0.000	165892.05	N/A	0.024	1803.50	17.080	<0.000	2883.69	N/A
9	ICVL	15.987	2320328.04	11.886	1.097	32482.10	0.977	1.953	17152.66	0.997
10	icsa	98614.527	2.25308E+09	1.569	0.326	11927.94	7.558	0.037	4754.18	51.458
11	icsab	99712.590	2.25121E+09	1.800	19.837	635154.30	1.270	19.576	153003.43	1.868
12	CRI	128.761	4807783.16	1.988	2.157	65698.11	0.083	4.193	33861.29	0.780
13	CCV	26081.645	5.65968E+08	0.992	258.445	7915075.51	0.796	262.917	1916955.13	0.841
14	CCB	<0.000	214797.24	N/A	0.017	1653.48	22.653	<0.000	1896.85	N/A
15	mb 500-49363...	<0.000	335195.27	N/A	0.030	2110.23	12.196	0.185	5211.02	17.214
16	lcs 500-493633...	1005.186	23365889.65	0.669	535.672	16051750.18	0.747	543.279	3871496.40	1.648
17	400-171672-a-...	1624.908	37710926.94	1.418	0.505	17002.45	2.541	1.587	15954.67	7.697
18	400-171672-a-...	1566.372	36231728.63	1.326	0.389	13305.75	6.426	1.507	15287.43	3.291
19	400-171672-a-...	2557.065	59473112.45	1.358	514.822	16327032.68	1.494	520.031	3922264.21	1.825
20	400-171672-a-...	248.645	7257944.48	0.539	0.119	4807.57	7.624	0.037	4344.08	129.660
21	400-171672-a-...	1499.452	35493880.30	0.505	1.033	33841.25	1.480	1.974	19087.93	3.747
22	400-172077-i-1-a	<0.000	1035402.46	N/A	0.196	7258.46	4.367	7.763	60110.57	1.765
23	CCV	26691.028	5.74467E+08	0.840	265.334	8061045.30	1.963	266.868	1929938.67	0.995
24	CCB	<0.000	146921.05	N/A	0.013	1500.12	81.317	<0.000	1173.43	N/A
25	CCVL	16.205	2280764.45	9.410	1.077	31316.34	1.088	1.835	16044.78	4.165
26	mb 500-49357...	<0.000	141146.58	N/A	<0.000	860.06	N/A	<0.000	873.39	N/A

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	1037.450	24000245.47	1.172	539.609	16137881.84	0.771	539.738	3838895.26	0.809
28	400-171203-c-...	36164.943	7.72154E+08	2.115	0.910	28775.42	2.083	1.942	18076.86	5.855
29	400-171203-c-...	611.567	16154696.43	0.887	2.106	69175.33	1.687	3.386	30334.76	2.338
30	400-171203-c-...	72.022	3164020.79	2.879	6.891	181298.90	1.091	17.128	110011.70	1.597
31	400-171203-c-...	10049.036	2.11379E+08	1.636	0.770	24000.99	1.172	5.825	44913.65	2.315
32	400-171203-c-...	10132.014	2.19555E+08	1.954	0.768	24672.12	2.330	5.903	46825.47	1.682
33	400-171203-c-...	<0.000	1461376.02	N/A	16.745	469264.34	2.237	24.674	167712.50	1.473
34	400-171203-c-...	9893.871	2.38045E+08	0.248	2.792	95671.77	1.168	6.755	58809.61	0.800
35	400-171203-c-...	<0.000	447161.55	N/A	0.002	1680.16	219.899	0.010	5211.04	331.329
36	CCV	25224.183	6.33220E+08	1.077	244.889	8675374.04	0.486	235.701	1988305.60	1.465
37	CCB	<0.000	179638.54	N/A	<0.000	1216.76	N/A	<0.000	833.39	N/A
38	400-171203-c-...	982.004	23913016.31	1.166	6.848	215852.91	1.632	6.532	52933.40	1.451
39	400-171203-c-...	1472.603	34135836.16	2.221	7.403	229020.60	2.458	8.244	64489.84	3.204
40	400-171203-c-...	6305.042	1.30883E+08	1.562	7.439	216573.77	2.251	14.069	100748.56	3.307
41	400-171203-c-...	4056.447	80539495.47	1.392	6.160	170269.51	1.878	11.006	75561.92	2.494
42	400-171203-c-...	6079.687	1.23556E+08	1.230	5.198	148449.59	1.203	11.171	79091.31	0.515
43	400-171203-c-...	11685.225	2.49624E+08	2.354	4.673	141526.03	2.568	7.796	59715.92	3.526
44	400-171203-c-...	11906.415	2.34770E+08	1.434	4.741	132513.52	1.988	7.828	55371.94	2.435
45	400-171203-c-...	13024.854	2.29500E+08	2.037	441.259	10930643.59	2.267	416.547	2454782.67	1.889
46	400-171203-c-...	12468.985	2.20529E+08	1.941	429.968	10687470.26	1.730	409.466	2421440.85	1.617
47	400-171203-c-...	2582.610	47689670.96	1.388	1.085	28427.87	0.913	1.339	11491.02	1.233
48	400-171203-c-...	<0.000	345116.94	N/A	0.041	2110.21	25.728	<0.000	3427.16	N/A
49	CCV	25523.095	4.39942E+08	0.198	237.851	5785749.50	0.125	238.487	1381405.86	0.395
50	CCB	<0.000	171408.65	N/A	0.021	1493.46	82.432	<0.000	523.36	N/A
51	500-166247-c-...	70.539	2899559.64	4.035	0.386	10376.92	2.314	6.009	37836.39	4.088
52	CCV	25734.464	4.58615E+08	1.219	240.866	6057743.45	1.423	240.524	1440444.35	1.206
53	CCB	<0.000	179083.88	N/A	0.016	1366.78	28.320	<0.000	620.04	N/A
54	CCVL	11.174	1915050.23	11.732	0.976	25005.79	2.653	1.455	11871.22	7.519

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	12964.00	N/A	<0.000	690.05	N/A	<0.000	1985.79	N/A
2	ICIS	0.000	13278.65	N/A	0.000	793.39	N/A	0.000	2039.47	N/A
3	Std1	10.484	214683.95	3.301	10.142	40632.98	3.088	9.698	38525.71	3.411
4	Std2	103.388	1960640.48	0.842	101.804	394058.56	1.021	98.599	366005.54	0.929
5	Std3	499.313	9153561.02	1.181	499.636	1876872.11	0.197	500.286	1796882.46	0.335
6	S1	506.963	9246576.85	0.617	502.630	1878587.52	0.886	505.623	1806881.25	0.872
7	ICV	203.103	3799138.60	0.853	201.078	769572.67	0.792	195.930	717826.58	0.491
8	ICB	<0.000	12343.52	N/A	0.018	823.39	341.945	<0.000	1610.42	N/A
9	ICVL	2.191	53229.70	0.998	19.781	74384.25	2.550	0.866	5150.47	5.736
10	icsa	<0.000	6208.98	N/A	0.775	3560.54	3.705	<0.000	1408.07	N/A
11	icsab	20.719	369055.88	1.813	22.654	80666.42	3.211	22.054	76286.78	1.771
12	CRI	3.797	82877.16	1.587	41.335	155538.86	0.666	1.893	8855.01	0.798
13	CCV	256.981	4727195.23	0.480	253.916	956154.78	1.095	250.596	902958.08	0.742
14	CCB	<0.000	4987.45	N/A	<0.000	763.38	N/A	<0.000	1590.75	N/A
15	mb 500-49363...	<0.000	13237.51	N/A	6.534	25016.00	4.842	<0.000	1199.38	N/A
16	lcs 500-493633...	262.719	4816261.20	2.405	522.971	1961913.25	2.450	100.833	363371.59	2.174
17	400-171672-a-...	3.773	86365.48	1.438	9.823	39373.34	1.454	0.753	5007.76	5.842
18	400-171672-a-...	3.103	72242.53	1.733	13.832	54114.02	4.054	0.861	5317.52	1.670
19	400-171672-a-...	267.256	4939946.47	1.809	524.037	1982413.15	1.216	101.585	369114.53	1.481
20	400-171672-a-...	0.465	22132.30	5.732	2.141	8852.68	4.249	0.166	2688.22	16.203
21	400-171672-a-...	1.731	47019.27	1.260	8.684	34683.46	2.606	1.418	7449.99	2.068
22	400-172077-i-1-a	9.010	179678.45	0.846	16.497	63152.28	2.054	0.252	3017.28	7.507
23	CCV	261.884	4774037.31	0.721	260.100	970670.87	1.094	253.220	904229.00	0.775
24	CCB	<0.000	11074.84	N/A	0.016	810.05	127.868	<0.000	1678.09	N/A
25	CCVL	1.958	47997.57	0.362	20.245	74538.14	1.426	0.896	5148.47	2.854
26	mb 500-49357...	<0.000	9462.75	N/A	0.248	1596.81	7.819	<0.000	1735.10	N/A

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	262.749	4803466.89	0.717	524.837	1963497.63	0.481	100.564	361391.32	0.987
28	400-171203-c-...	0.400	16670.56	14.206	4.268	13395.82	2.769	4.617	14838.20	0.713
29	400-171203-c-...	7.861	129061.93	1.493	6.353	20219.42	1.997	2.604	9368.28	4.429
30	400-171203-c-...	21.373	240762.39	0.895	12.720	28892.01	1.448	3.903	9572.40	1.043
31	400-171203-c-...	2.994	46208.24	5.097	9.327	24211.42	4.203	3.396	9640.11	3.924
32	400-171203-c-...	3.603	54202.67	5.294	9.331	24421.80	4.535	3.304	9500.35	5.072
33	400-171203-c-...	25.278	288721.14	1.504	9.876	22963.01	5.495	5.179	12530.32	2.652
34	400-171203-c-...	2.449	44578.49	7.489	8.384	24642.05	1.187	15.932	45201.77	1.611
35	400-171203-c-...	<0.000	10253.20	N/A	3.725	15274.13	2.337	0.242	3056.95	6.957
36	CCV	271.203	4868248.00	1.690	273.982	1006890.84	1.806	277.048	974090.38	1.654
37	CCB	<0.000	2590.23	N/A	0.056	980.07	66.021	0.159	2544.20	22.481
38	400-171203-c-...	2.490	44937.13	0.585	10.437	30354.84	2.227	4.916	14973.99	3.577
39	400-171203-c-...	2.149	39498.14	2.646	8.198	23564.09	2.537	6.133	17968.88	1.651
40	400-171203-c-...	5.692	79465.95	4.662	6.648	17382.96	2.803	10.346	26436.94	2.584
41	400-171203-c-...	16.106	191174.71	3.729	6.723	16144.99	6.930	6.656	16096.01	4.523
42	400-171203-c-...	9.511	119840.16	5.006	11.394	27833.82	4.932	9.769	23713.25	3.607
43	400-171203-c-...	4.083	61084.71	1.741	21.809	57173.82	2.408	13.797	35663.80	2.329
44	400-171203-c-...	3.944	56198.01	2.355	9.107	22929.72	1.055	13.657	33460.99	0.591
45	400-171203-c-...	276.168	3010113.70	1.778	543.828	1213145.22	1.637	148.780	318216.50	2.230
46	400-171203-c-...	265.115	2946601.13	1.601	526.822	1198246.67	1.627	144.215	314540.89	1.645
47	400-171203-c-...	0.326	13109.62	2.056	4.840	12708.57	2.390	3.319	9368.28	1.574
48	400-171203-c-...	<0.000	8603.39	N/A	9.778	27553.30	1.476	0.698	3375.01	1.335
49	CCV	265.505	3406871.81	1.175	270.451	710435.04	1.695	286.555	720100.42	1.318
50	CCB	<0.000	2145.72	N/A	0.098	853.39	9.255	0.638	3151.31	3.582
51	500-166247-c-...	0.681	17580.36	3.615	12.340	31760.64	3.656	3.475	9807.20	3.168
52	CCV	257.819	3565068.05	1.585	264.952	750060.74	0.838	278.484	754158.54	1.312
53	CCB	<0.000	1628.99	N/A	0.080	813.38	41.585	0.582	3048.62	1.421
54	CCVL	1.445	30844.75	3.420	20.663	60335.10	2.438	1.693	6284.85	4.144

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.130	1151.71	46.684	0.005	1083.41	60.821	<0.000	750.05	N/A
2	ICIS	0.000	1078.71	N/A	0.000	930.07	N/A	0.000	1230.10	N/A
3	Std1	9.741	5242.50	5.626	9.835	275707.29	3.119	9.701	102349.67	3.389
4	Std2	99.376	42197.54	1.226	99.539	2738958.81	1.293	98.135	1007739.88	1.814
5	Std3	500.130	201995.60	0.474	500.095	13374011.05	0.835	500.379	4990326.59	0.579
6	S1	505.935	203297.91	0.784	507.175	13495255.22	0.847	504.825	5009465.45	0.508
7	ICV	198.190	82183.30	0.226	198.244	5398724.29	0.632	196.713	1998332.16	0.571
8	ICB	<0.000	1030.37	N/A	0.021	1416.79	25.088	<0.000	836.73	N/A
9	ICVL	2.225	1983.13	5.242	3.887	103931.95	0.909	3.708	37877.89	1.417
10	icsa	0.317	1179.71	47.415	1.951	50742.13	4.126	2029.881	19338712.63	1.071
11	icsab	23.581	9937.95	2.073	23.996	603677.95	1.368	2081.126	19493096.79	1.650
12	CRI	4.988	3101.30	2.944	7.833	209751.01	1.165	8.103	81792.42	2.081
13	CCV	252.595	102772.98	1.273	252.157	6757830.52	0.797	251.136	2510301.47	1.253
14	CCB	0.030	1047.04	221.621	0.007	1073.41	58.754	0.040	1550.14	42.935
15	mb 500-49363...	<0.000	1068.37	N/A	0.096	3487.18	2.787	<0.000	1096.75	N/A
16	lcs 500-493633...	101.265	41729.37	2.371	1007.017	26895722.93	2.197	987.483	9834362.35	2.395
17	400-171672-a-...	<0.000	1084.04	N/A	22.366	625650.12	1.556	0.299	4430.76	5.615
18	400-171672-a-...	<0.000	1100.04	N/A	21.582	592976.02	2.124	0.084	2153.57	24.843
19	400-171672-a-...	102.308	42497.60	1.697	1037.900	27953283.75	0.867	987.287	9914829.85	1.140
20	400-171672-a-...	<0.000	1062.04	N/A	4.533	122123.04	1.854	0.121	2470.28	11.117
21	400-171672-a-...	<0.000	1122.71	N/A	27.292	758283.82	0.713	0.116	2503.64	16.654
22	400-172077-i-1-a	0.305	1238.05	15.435	167.720	4514300.66	1.276	1.931	20643.58	2.036
23	CCV	252.396	101776.77	1.180	254.406	6757098.02	0.611	254.590	2522110.74	0.750
24	CCB	0.010	1025.37	942.663	0.025	1510.14	24.202	<0.000	803.39	N/A
25	CCVL	2.238	1946.45	9.841	3.941	103169.83	1.110	3.813	38108.34	0.555
26	mb 500-49357...	<0.000	991.37	N/A	0.008	1080.08	82.925	<0.000	346.68	N/A

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	100.838	41441.67	0.869	1022.527	27234052.09	0.722	1011.148	10041961.93	1.477
28	400-171203-c-...	1.197	1263.39	14.719	7180.625	1.52729E+08	0.443	6.706	54183.18	0.757
29	400-171203-c-...	127.112	42740.21	2.104	6591.457	1.44419E+08	1.777	170.765	1396062.48	1.664
30	400-171203-c-...	1555.594	372254.90	0.954	14450.913	2.29819E+08	0.898	1411.838	8372295.50	1.310
31	400-171203-c-...	7.559	2797.91	6.662	5788.111	1.04543E+08	1.370	513.306	3457860.99	1.242
32	400-171203-c-...	8.064	2961.94	4.092	5954.470	1.08508E+08	2.187	511.346	3475518.70	1.661
33	400-171203-c-...	1004.665	245316.94	0.508	14772.147	2.39476E+08	0.755	1395.260	8434367.17	0.957
34	400-171203-c-...	3.400	1886.78	3.072	4452.033	90828075.31	1.446	3.452	27213.29	3.941
35	400-171203-c-...	1.202	1641.09	10.971	0.828	23844.84	8.036	0.151	2850.36	19.560
36	CCV	285.921	113399.54	1.834	285.814	7476283.85	1.143	258.913	2526038.19	1.441
37	CCB	1.112	1485.74	9.463	0.223	6618.27	5.227	0.002	1226.77	724.259
38	400-171203-c-...	2.441	1584.41	4.234	8115.044	1.64654E+08	2.295	2.097	16825.66	0.730
39	400-171203-c-...	2.895	1693.43	1.769	6084.801	1.21356E+08	0.769	4.247	32519.38	2.683
40	400-171203-c-...	4.447	1951.79	3.380	11315.448	2.04063E+08	1.536	4.784	33023.84	1.111
41	400-171203-c-...	6.084	2200.82	7.080	9681.520	1.60496E+08	2.542	5.465	34553.76	5.139
42	400-171203-c-...	4.890	1962.12	0.814	8754.268	1.49495E+08	2.075	3.023	20039.64	7.557
43	400-171203-c-...	3.503	1738.43	3.499	7038.171	1.30106E+08	1.535	1.562	11634.60	5.241
44	400-171203-c-...	3.773	1717.76	1.468	7037.397	1.23256E+08	0.550	1.485	10520.40	3.738
45	400-171203-c-...	153.177	37195.19	2.821	8507.201	1.35102E+08	1.762	1120.705	6636746.57	1.730
46	400-171203-c-...	149.620	37063.57	1.145	8135.338	1.31729E+08	1.560	1085.745	6555790.32	1.536
47	400-171203-c-...	2.533	1422.07	0.852	1382.531	24739944.63	0.888	0.553	4534.15	2.156
48	400-171203-c-...	2.250	1476.40	5.720	0.648	13419.24	3.108	0.061	1373.45	12.779
49	CCV	285.856	81037.73	1.526	289.723	5416574.50	1.453	261.029	1820262.16	1.312
50	CCB	2.133	1412.40	13.756	0.315	6744.96	4.112	0.006	953.40	177.631
51	500-166247-c-...	2.240	1352.06	11.068	464.450	8367164.04	2.543	39.428	265662.79	2.753
52	CCV	284.325	86862.18	1.382	279.669	5634019.92	1.925	255.073	1916721.12	1.458
53	CCB	1.720	1310.72	6.633	0.204	4674.20	5.280	<0.000	786.72	N/A
54	CCVL	4.092	2117.48	4.659	4.490	93133.49	1.726	3.757	29797.82	1.990

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.232	190.01	106.835	<0.000	20.00	N/A	<0.000	0.00	N/A
2	ICIS	0.000	96.67	N/A	0.000	33.33	N/A	0.000	3.33	N/A
3	Std1	10.397	4460.81	11.309	1.033	25206.89	2.703	10.112	3173.78	7.450
4	Std2	98.713	40851.85	1.298	10.381	249084.25	0.411	102.858	31755.10	4.845
5	Std3	500.249	200852.60	0.682	99.962	2331296.63	0.830	499.426	149902.45	1.380
6	S1	500.590	199951.71	3.061	100.886	2341039.13	0.924	503.997	150526.94	1.068
7	ICV	200.678	82099.54	0.302	40.544	962818.63	0.635	199.786	61061.29	1.079
8	ICB	0.004	93.33	985.385	0.012	300.01	16.862	0.036	13.33	113.704
9	ICVL	0.375	246.68	11.631	0.529	12248.36	2.151	0.594	180.01	35.219
10	icsa	0.519	293.35	17.770	0.067	1533.47	7.309	24.339	6985.12	2.752
11	icsab	22.307	8502.58	1.963	21.022	460577.04	1.289	46.409	13089.04	0.796
12	CRI	1.112	543.36	18.019	1.059	24652.70	0.547	1.227	370.02	39.177
13	CCV	254.113	102284.64	0.820	52.643	1230280.68	1.119	252.842	76047.21	1.348
14	CCB	<0.000	90.00	N/A	0.006	160.01	45.816	<0.000	0.00	N/A
15	mb 500-49363...	<0.000	83.33	N/A	0.004	120.01	12.513	0.011	6.67	355.425
16	lcs 500-493633...	52.097	20977.47	2.649	53.299	1241500.32	2.206	63.347	18988.39	4.132
17	400-171672-a-...	0.542	330.02	28.657	0.010	270.01	16.336	0.382	123.34	58.518
18	400-171672-a-...	0.419	273.35	37.722	0.006	180.01	40.647	0.304	96.67	42.558
19	400-171672-a-...	51.033	20727.13	0.489	52.819	1240578.52	1.239	64.296	19435.69	2.626
20	400-171672-a-...	0.020	106.67	400.886	0.005	156.68	26.842	0.056	20.00	61.969
21	400-171672-a-...	0.331	240.02	0.105	0.010	266.68	16.451	0.278	90.00	20.091
22	400-172077-i-1-a	0.216	186.68	73.126	0.008	216.68	22.904	0.198	63.33	58.324
23	CCV	254.608	101570.39	0.601	53.086	1229532.66	0.769	256.922	76603.49	3.183
24	CCB	<0.000	63.34	N/A	0.006	166.68	18.438	0.048	16.67	112.379
25	CCVL	0.413	256.68	13.100	0.534	12108.30	2.486	0.549	163.34	13.626
26	mb 500-49357...	<0.000	70.00	N/A	0.002	70.00	50.490	<0.000	0.00	N/A

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	52.239	20977.39	2.846	53.725	1247914.98	0.766	62.967	18828.19	1.804
28	400-171203-c-...	0.328	183.34	21.200	0.023	453.36	37.956	0.240	60.00	63.046
29	400-171203-c-...	0.413	216.68	26.615	0.019	386.69	26.333	2.444	603.37	18.432
30	400-171203-c-...	0.733	233.35	54.702	0.066	936.73	7.012	21.168	3780.59	1.460
31	400-171203-c-...	0.282	143.34	48.050	0.066	1063.42	12.218	6.657	1350.11	17.162
32	400-171203-c-...	0.398	176.68	24.916	0.055	896.72	16.943	7.117	1456.79	6.482
33	400-171203-c-...	1.249	363.35	17.970	0.038	553.37	33.356	18.442	3353.81	10.359
34	400-171203-c-...	0.245	150.01	93.593	0.016	306.69	10.079	0.119	30.00	62.813
35	400-171203-c-...	<0.000	83.33	N/A	0.008	220.01	35.453	0.021	10.00	0.477
36	CCV	256.171	100628.37	2.534	52.346	1194072.67	1.196	259.426	76178.52	0.581
37	CCB	<0.000	86.67	N/A	0.006	173.34	20.971	0.012	6.67	169.365
38	400-171203-c-...	0.510	230.01	78.572	0.017	326.69	17.216	0.281	66.67	23.055
39	400-171203-c-...	0.356	180.01	26.343	0.014	270.01	22.397	0.331	76.67	20.135
40	400-171203-c-...	0.677	250.01	10.913	0.030	490.03	15.580	0.252	53.33	22.932
41	400-171203-c-...	0.739	246.68	51.099	0.054	800.05	19.886	0.294	56.67	29.357
42	400-171203-c-...	0.377	160.01	39.186	0.041	636.71	11.413	0.494	96.67	47.687
43	400-171203-c-...	0.439	190.01	24.228	0.014	253.35	36.989	0.101	23.33	109.776
44	400-171203-c-...	0.821	280.02	52.783	0.018	303.35	22.457	0.294	60.00	18.469
45	400-171203-c-...	51.873	12421.81	3.093	50.990	706230.01	2.332	67.321	12001.61	5.298
46	400-171203-c-...	49.204	12004.91	7.063	49.465	698525.07	1.850	65.260	11868.02	2.175
47	400-171203-c-...	<0.000	60.00	N/A	0.010	186.68	19.335	0.071	16.67	106.656
48	400-171203-c-...	0.105	103.34	65.901	0.007	150.01	20.508	0.109	26.67	95.668
49	CCV	259.593	72893.04	2.182	53.469	871755.74	0.970	260.919	54749.04	1.467
50	CCB	0.019	76.67	713.305	0.008	166.67	36.603	<0.000	0.00	N/A
51	500-166247-c-...	0.087	90.00	8.304	0.017	296.68	2.153	0.581	120.01	59.509
52	CCV	258.133	78116.45	0.769	52.772	927129.33	1.583	255.726	57813.07	3.648
53	CCB	<0.000	63.33	N/A	0.009	173.34	8.678	0.050	13.33	54.970
54	CCVL	0.423	206.68	14.693	0.532	9576.51	6.790	0.334	80.00	45.487

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.019	168.50	86.851	0.047	1803.51	22.386	0.086	1796.84	7.932
2	ICIS	0.000	83.61	N/A	0.000	1210.10	N/A	0.000	360.02	N/A
3	Std1	10.174	47104.87	5.885	10.034	129412.92	2.455	9.840	172465.20	2.919
4	Std2	101.500	462196.44	0.804	99.691	1254331.49	1.079	100.217	1726067.84	1.947
5	Std3	499.697	2211689.68	0.500	500.061	6111663.45	0.514	499.960	8370062.38	0.788
6	S1	505.284	2225174.33	1.091	501.339	6096463.66	0.961	504.267	8399936.54	0.599
7	ICV	200.696	904523.00	0.625	198.203	2467299.86	0.350	199.561	3401999.64	0.676
8	ICB	0.038	237.01	30.601	0.241	3900.61	10.512	0.267	4504.14	13.474
9	ICVL	0.517	2352.25	6.493	5.054	62414.32	1.138	3.029	50603.69	0.420
10	icsa	0.306	1375.03	39.861	0.065	1950.20	33.359	0.149	2740.34	5.986
11	icsab	21.716	90371.03	0.666	21.794	251339.96	1.418	10.492	165336.15	2.234
12	CRI	1.037	4662.27	4.519	10.037	123520.23	0.828	5.953	99719.76	0.849
13	CCV	256.400	1137250.10	0.320	251.031	3075045.58	0.454	245.381	4116632.65	0.990
14	CCB	0.028	195.44	61.412	0.168	3093.75	24.448	0.394	6518.24	6.574
15	mb 500-49363...	0.009	123.18	100.223	0.067	2030.20	22.410	0.089	1836.85	7.768
16	lcs 500-493633...	52.896	233891.21	2.558	1016.449	12407233.57	1.445	514.195	8597937.16	1.863
17	400-171672-a-...	0.230	1153.20	8.478	0.425	6724.99	9.058	0.155	3100.43	3.231
18	400-171672-a-...	0.199	991.84	7.115	0.181	3547.21	12.852	0.062	1440.12	9.988
19	400-171672-a-...	51.892	231382.52	1.272	1015.816	12500888.56	1.900	508.452	8573061.33	1.193
20	400-171672-a-...	0.046	290.05	26.990	0.455	6798.32	11.120	0.122	2403.62	4.892
21	400-171672-a-...	0.130	686.84	6.569	0.171	3463.83	5.153	0.084	1850.18	20.681
22	400-172077-i-1-a	0.034	238.01	44.743	0.345	5497.82	10.775	0.253	4637.53	0.569
23	CCV	257.393	1131388.87	1.066	253.985	3083334.01	0.664	248.727	4135617.65	0.138
24	CCB	0.013	130.51	126.692	0.175	3117.09	7.706	0.417	6798.37	11.545
25	CCVL	0.487	2174.40	3.560	5.093	61584.21	0.952	3.117	50991.21	2.823
26	mb 500-49357...	<0.000	70.15	N/A	0.059	1800.18	12.215	0.068	1386.78	13.121

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	52.702	232403.37	0.965	1029.712	12532291.48	1.270	522.649	8714315.70	1.049
28	400-171203-c-...	0.028	165.70	82.389	0.764	8419.18	4.338	0.195	2897.05	6.423
29	400-171203-c-...	0.209	828.23	34.577	0.251	3535.53	3.765	0.151	2380.26	5.818
30	400-171203-c-...	0.380	1052.61	35.286	0.938	7555.41	5.143	0.625	6441.56	4.299
31	400-171203-c-...	0.094	341.00	151.749	0.195	2450.29	9.736	0.102	1396.79	24.524
32	400-171203-c-...	0.098	355.36	84.973	0.171	2270.26	29.914	0.100	1393.45	13.752
33	400-171203-c-...	0.544	1519.88	37.560	0.410	3790.58	7.245	1.029	10660.54	5.271
34	400-171203-c-...	0.055	249.09	39.387	0.200	2813.70	9.635	0.087	1396.79	10.738
35	400-171203-c-...	0.003	99.60	257.456	0.054	1963.54	24.683	0.017	683.38	17.696
36	CCV	257.178	1113303.76	1.536	259.278	3099781.62	1.593	253.046	4143481.92	1.478
37	CCB	0.015	142.40	101.219	0.167	3133.76	16.376	0.361	6128.09	12.017
38	400-171203-c-...	0.102	407.55	21.126	0.433	4954.28	18.616	0.196	2777.02	8.249
39	400-171203-c-...	0.023	138.60	111.525	0.318	3830.60	3.863	0.147	2106.88	7.123
40	400-171203-c-...	0.050	207.12	24.337	0.206	2543.63	7.417	0.104	1423.45	7.827
41	400-171203-c-...	0.096	317.67	16.856	0.150	1906.87	15.590	0.127	1540.15	37.798
42	400-171203-c-...	0.037	158.52	35.464	0.328	3350.49	9.930	0.182	2173.57	20.998
43	400-171203-c-...	0.076	290.14	19.718	0.252	2990.40	15.286	0.056	903.40	9.026
44	400-171203-c-...	0.083	296.23	56.977	0.239	2727.01	9.990	0.055	843.39	20.695
45	400-171203-c-...	51.630	135754.28	2.433	1130.099	8201315.71	3.007	568.315	5650343.46	1.970
46	400-171203-c-...	49.733	133364.55	1.098	1080.638	7996622.38	1.743	554.896	5625038.87	1.744
47	400-171203-c-...	0.026	134.63	79.217	0.648	6128.07	5.192	0.118	1563.48	16.428
48	400-171203-c-...	0.020	127.00	21.174	0.284	3467.19	6.576	0.049	873.39	7.315
49	CCV	259.458	802822.08	1.048	267.178	2283074.13	1.878	265.356	3105627.14	1.604
50	CCB	0.023	135.25	114.201	0.261	3193.78	12.464	0.392	4984.33	12.587
51	500-166247-c-...	0.077	286.68	72.805	0.890	8162.44	4.552	0.785	9092.91	9.646
52	CCV	258.726	862663.95	1.210	263.913	2430222.05	1.930	261.090	3292685.06	2.314
53	CCB	0.041	194.09	24.709	0.247	3107.08	6.439	0.383	4940.96	12.314
54	CCVL	0.542	1908.90	14.457	5.196	49814.18	3.990	3.283	42586.63	0.915

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
1	blk I.S /tune	0.003	60.00	192.357						
2	ICIS	0.000	43.33	N/A						
3	Std1	10.075	60652.31	2.072						
4	Std2	100.813	611216.90	2.028						
5	Std3	499.836	2975950.69	1.152						
6	S1	508.682	2990079.75	0.086						
7	ICV	203.103	1195342.38	0.940						
8	ICB	0.032	213.35	20.942						
9	ICVL	2.531	14480.48	1.995						
10	icsa	0.746	4424.10	6.089						
11	icsab	21.771	126123.43	2.567						
12	CRI	5.190	29307.82	0.323						
13	CCV	255.609	1501884.04	0.792						
14	CCB	0.007	76.67	134.148						
15	mb 500-49363...	0.142	830.06	9.259						
16	lcs 500-493633...	518.326	2973199.75	1.281						
17	400-171672-a-...	38.820	227418.41	2.264						
18	400-171672-a-...	36.738	215547.24	1.064						
19	400-171672-a-...	544.319	3199056.83	1.532						
20	400-171672-a-...	7.749	43526.96	0.666						
21	400-171672-a-...	51.931	308288.54	0.624						
22	400-172077-i-1-a	67.748	396553.82	1.322						
23	CCV	258.037	1497803.73	0.868						
24	CCB	0.047	283.37	17.588						
25	CCVL	2.617	14413.80	5.101						
26	mb 500-49357...	0.022	156.67	20.980						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
27	lcs 500-493579...	512.874	2976950.58	0.532						
28	400-171203-c-...	407.966	1938391.27	1.383						
29	400-171203-c-...	153.879	744817.54	1.996						
30	400-171203-c-...	70.267	247339.79	0.796						
31	400-171203-c-...	71.526	289220.72	2.646						
32	400-171203-c-...	72.306	292339.49	2.389						
33	400-171203-c-...	61.846	219118.12	1.172						
34	400-171203-c-...	37.120	166373.54	2.413						
35	400-171203-c-...	0.158	910.07	16.465						
36	CCV	277.845	1523743.05	1.629						
37	CCB	0.033	210.01	32.637						
38	400-171203-c-...	88.884	390002.98	1.468						
39	400-171203-c-...	65.473	281850.83	0.567						
40	400-171203-c-...	51.346	199942.09	0.653						
41	400-171203-c-...	76.697	275398.52	0.993						
42	400-171203-c-...	43.689	162245.56	1.578						
43	400-171203-c-...	45.575	183013.04	1.419						
44	400-171203-c-...	46.306	174843.83	1.093						
45	400-171203-c-...	640.534	2201715.02	0.872						
46	400-171203-c-...	614.636	2178745.44	1.752						
47	400-171203-c-...	9.416	37337.74	1.018						
48	400-171203-c-...	0.220	903.39	3.921						
49	CCV	283.585	1149413.42	0.871						
50	CCB	0.033	160.01	25.814						
51	500-166247-c-...	58.433	235767.87	2.849						
52	CCV	274.599	1202180.01	2.234						
53	CCB	0.055	256.68	3.058						
54	CCVL	2.757	11901.52	6.146						

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	906.73	N/A	0.000	123.34	173.979	0.000	100.01	6186.236
2	ICIS	0.000	886.72	N/A	0.000	116.67	N/A	0.000	96.67	N/A
3	Std1	9.940	344205.53	1.749	10.056	117474.75	1.430	9.927	100361.04	1.723
4	Std2	98.733	3380893.91	2.764	98.751	1142362.53	3.278	97.985	980765.90	4.356
5	Std3	500.255	16179221.84	2.008	500.249	5467352.21	1.096	500.405	4733007.43	1.323
6	S1	505.247	16271371.01	0.237	501.623	5458776.58	0.328	503.776	4744560.45	0.334
7	ICV	202.391	6618096.78	0.860	201.312	2224267.88	1.153	200.826	1920360.60	0.832
8	ICB	0.062	2833.71	1.828	0.055	700.04	15.225	0.061	660.05	12.501
9	ICVL	2.014	67346.73	3.979	0.548	6231.53	2.191	0.555	5451.24	4.706
10	icsa	0.041	2146.90	15.369	0.355	3847.30	10.419	0.353	3310.49	2.109
11	icsab	10.332	320286.83	3.151	20.830	217752.94	2.667	20.641	186762.50	1.803
12	CRI	4.025	133612.11	2.386	0.973	10961.08	4.911	1.025	9987.04	0.433
13	CCV	256.857	8345117.38	2.760	253.371	2781517.67	2.781	253.390	2407633.19	2.366
14	CCB	0.038	2030.24	5.039	0.044	570.03	17.728	0.038	440.02	26.140
15	mb 500-49363...	0.008	1180.09	13.923	0.090	1140.08	2.724	0.087	956.74	14.721
16	lcs 500-493633...	101.271	3422610.05	0.945	101.017	1153473.89	1.399	101.622	1004265.35	0.458
17	400-171672-a-...	0.042	2370.29	15.289	0.587	6925.18	1.195	0.581	5924.71	5.220
18	400-171672-a-...	0.011	1326.79	30.862	0.539	6371.63	3.739	0.505	5161.09	7.834
19	400-171672-a-...	101.445	3407129.95	2.086	102.384	1161801.31	2.236	101.869	1000363.82	2.532
20	400-171672-a-...	0.014	1396.79	35.625	0.146	1776.84	5.074	0.124	1323.44	9.478
21	400-171672-a-...	0.024	1803.51	11.531	0.444	5384.47	0.568	0.427	4484.19	4.736
22	400-172077-i-1-a	<0.000	896.74	N/A	0.131	1596.82	8.882	0.129	1356.80	13.636
23	CCV	257.533	8324515.92	0.861	255.073	2785990.90	0.677	256.786	2427340.80	0.672
24	CCB	0.060	2733.69	2.868	0.036	496.69	13.164	0.040	456.69	5.875
25	CCVL	2.007	66361.93	3.086	0.547	6148.17	7.101	0.500	4860.96	7.128
26	mb 500-49357...	<0.000	856.73	N/A	0.016	286.68	12.889	0.016	236.68	61.110

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	101.786	3447427.97	1.565	102.404	1171808.66	1.805	102.473	1014827.20	1.839
28	400-171203-c-...	0.030	1383.45	5.465	0.165	1423.46	8.831	0.166	1233.43	8.189
29	400-171203-c-...	0.022	1206.76	2.539	0.111	1013.41	11.622	0.083	670.04	7.985
30	400-171203-c-...	0.083	1876.86	3.553	0.223	1340.12	15.418	0.188	983.40	10.335
31	400-171203-c-...	<0.000	276.68	N/A	0.081	626.70	12.216	0.078	523.37	23.108
32	400-171203-c-...	<0.000	260.01	N/A	0.069	546.70	12.390	0.077	513.36	15.236
33	400-171203-c-...	0.142	2900.39	5.608	0.191	1163.43	15.238	0.171	906.73	16.960
34	400-171203-c-...	<0.000	313.35	N/A	0.078	663.38	10.946	0.084	610.04	12.719
35	400-171203-c-...	<0.000	523.36	N/A	0.059	726.72	9.718	0.052	563.37	18.979
36	CCV	255.140	7547447.18	2.422	250.979	2508928.87	1.532	251.937	2179803.98	0.839
37	CCB	0.029	1716.83	11.672	0.014	253.34	21.254	0.017	243.35	15.770
38	400-171203-c-...	0.003	673.38	278.092	0.155	1236.77	7.994	0.134	930.07	8.063
39	400-171203-c-...	<0.000	466.69	N/A	0.145	1146.76	5.583	0.150	1016.75	5.206
40	400-171203-c-...	<0.000	290.01	N/A	0.091	663.38	4.936	0.079	503.36	25.784
41	400-171203-c-...	<0.000	220.01	N/A	0.105	686.71	10.131	0.097	553.37	16.845
42	400-171203-c-...	<0.000	333.35	N/A	0.199	1276.78	15.200	0.198	1100.09	20.886
43	400-171203-c-...	<0.000	273.35	N/A	0.153	1096.75	11.500	0.147	910.06	7.456
44	400-171203-c-...	<0.000	266.68	N/A	0.151	1013.42	14.284	0.143	830.06	5.160
45	400-171203-c-...	113.024	1928773.04	2.144	112.147	646605.72	2.055	112.807	562930.16	1.970
46	400-171203-c-...	108.449	1911992.47	0.827	107.679	641423.52	0.577	108.855	561158.31	0.717
47	400-171203-c-...	0.013	853.39	30.177	0.044	390.02	14.082	0.034	270.01	23.178
48	400-171203-c-...	<0.000	623.37	N/A	0.126	1066.76	12.284	0.093	700.04	9.518
49	CCV	252.266	5715793.25	0.424	250.173	1915328.51	0.240	250.362	1658872.00	0.662
50	CCB	0.046	1703.51	23.298	0.030	320.02	10.130	0.040	336.69	48.859
51	500-166247-c-...	<0.000	600.04	N/A	0.286	2226.92	2.080	0.280	1890.19	7.420
52	CCV	249.026	6173991.16	1.220	245.883	2059780.13	1.993	247.255	1792687.21	0.735
53	CCB	0.052	1950.20	4.774	0.041	423.36	12.903	0.042	373.35	11.230
54	CCVL	1.950	50030.05	1.994	0.505	4407.49	7.390	0.462	3493.89	6.964

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.000	536.70	309.183	0.001	76.67	103.998
2	ICIS	0.000	513.35	N/A	0.000	40.00	N/A
3	Std1	10.017	462188.49	1.610	9.666	455863.30	2.491
4	Std2	99.060	4525126.89	3.918	97.557	4560183.47	3.788
5	Std3	500.188	21589488.63	1.255	500.495	22106326.34	1.378
6	S1	503.254	21628342.70	0.758	505.249	22220326.34	0.968
7	ICV	202.511	8836871.43	0.983	204.839	9146890.28	0.318
8	ICB	0.062	3113.59	7.478	0.033	1463.47	10.454
9	ICVL	0.540	24281.72	2.812	9.700	437027.91	0.968
10	icsa	0.352	15150.23	4.317	0.062	2697.03	8.286
11	icsab	20.884	862312.17	2.377	20.574	868914.39	2.074
12	CRI	1.009	44907.73	1.572	19.668	885771.08	0.674
13	CCV	255.768	11089300.57	2.697	256.846	11395938.58	2.672
14	CCB	0.042	2226.81	7.152	0.022	956.74	8.752
15	mb 500-49363...	0.084	4303.74	4.397	0.006	303.35	6.081
16	lcs 500-493633...	102.743	4633409.94	0.463	101.472	4682457.53	0.707
17	400-171672-a-...	0.596	27797.85	2.938	0.052	2480.31	3.799
18	400-171672-a-...	0.526	24612.24	4.887	0.043	2043.73	8.744
19	400-171672-a-...	103.062	4618815.71	2.013	101.777	4667159.41	2.113
20	400-171672-a-...	0.140	6824.23	5.572	0.020	956.74	12.880
21	400-171672-a-...	0.433	20803.03	3.156	0.040	1956.93	11.743
22	400-172077-i-1-a	0.128	6210.77	2.823	0.459	20871.91	2.615
23	CCV	258.271	11140577.02	0.868	261.587	11546093.16	1.744
24	CCB	0.039	2123.48	15.150	0.027	1186.77	11.415
25	CCVL	0.520	23147.80	4.494	9.758	434709.36	1.575
26	mb 500-49357...	0.015	1140.06	13.838	0.005	236.68	32.995

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	lcs 500-493579...	103.126	4660736.44	1.504	101.555	4696252.43	1.844
28	400-171203-c-...	0.168	5750.66	6.676	0.151	4971.06	2.269
29	400-171203-c-...	0.088	3260.27	8.597	6.077	203733.57	1.357
30	400-171203-c-...	0.207	4967.20	7.255	16.758	388462.62	1.926
31	400-171203-c-...	0.076	2386.84	11.797	0.076	2136.91	11.671
32	400-171203-c-...	0.069	2193.48	6.791	0.075	2080.23	8.612
33	400-171203-c-...	0.179	4337.09	7.536	3.110	72426.78	3.618
34	400-171203-c-...	0.079	2690.21	7.315	0.909	27499.71	1.888
35	400-171203-c-...	0.057	2840.24	3.158	0.001	93.34	52.197
36	CCV	253.879	10023478.18	1.217	253.189	10230070.47	0.602
37	CCB	0.017	1180.07	15.272	0.020	863.40	5.326
38	400-171203-c-...	0.146	4647.14	8.843	5.901	177779.58	0.525
39	400-171203-c-...	0.142	4480.45	4.288	5.771	171367.04	0.846
40	400-171203-c-...	0.085	2490.18	2.414	2.798	73455.18	2.990
41	400-171203-c-...	0.098	2576.86	6.446	1.033	24831.47	2.277
42	400-171203-c-...	0.197	5034.10	2.948	1.930	47557.14	2.230
43	400-171203-c-...	0.144	4113.72	11.665	0.690	18719.05	3.744
44	400-171203-c-...	0.149	3983.71	9.202	0.719	18195.10	2.891
45	400-171203-c-...	113.158	2576748.10	2.203	115.515	2691502.46	2.222
46	400-171203-c-...	108.817	2559979.16	0.628	111.737	2689750.38	0.726
47	400-171203-c-...	0.062	2065.11	71.292	0.141	4050.72	4.538
48	400-171203-c-...	0.112	3830.36	1.075	0.006	230.01	49.027
49	CCV	251.702	7610565.66	0.446	245.562	7597910.72	0.586
50	CCB	0.033	1370.09	10.906	0.030	963.41	1.504
51	500-166247-c-...	0.280	8661.32	2.580	0.958	29072.75	1.556
52	CCV	247.927	8202864.36	0.840	242.543	8212415.29	1.401
53	CCB	0.037	1603.44	7.522	0.032	1106.76	15.330
54	CCVL	0.486	16791.00	7.493	9.149	316108.35	2.018

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	223973.38	100.0	151337.40	100.0	210926.22	100.0
2	ICIS	218421.47	100.0	147830.21	100.0	207010.17	100.0
3	Std1	238479.45	109.2	161718.30	109.4	222008.46	107.2
4	Std2	237270.21	108.6	162087.61	109.6	218491.61	105.5
5	Std3	239346.71	109.6	159664.44	108.0	212403.04	102.6
6	S1	236037.73	108.1	162367.85	109.8	211341.40	102.1
7	ICV	234476.58	107.4	160011.64	108.2	216269.98	104.5
8	ICB	203456.52	93.1	142635.39	96.5	197625.95	95.5
9	ICVL	216127.97	98.9	151472.53	102.5	210432.22	101.7
10	icsa	245271.23	112.3	163804.92	110.8	202954.16	98.0
11	icsab	242393.18	111.0	161341.37	109.1	199536.08	96.4
12	CRI	226448.37	103.7	154379.48	104.4	211749.49	102.3
13	CCV	232292.12	106.4	159615.20	108.0	212846.30	102.8
14	CCB	206271.10	94.4	140652.27	95.1	198593.77	95.9
15	mb 500-49363...	217254.61	99.5	150187.92	101.6	209638.60	101.3
16	lcs 500-493633...	227303.66	104.1	157746.25	106.7	212191.99	102.5
17	400-171672-a-...	235027.76	107.6	182138.53	123.2	221845.93	107.2
18	400-171672-a-...	233726.64	107.0	181358.84	122.7	217926.01	105.3
19	400-171672-a-...	240594.03	110.2	182800.59	123.7	213927.81	103.3
20	400-171672-a-...	224077.07	102.6	156117.96	105.6	212341.84	102.6
21	400-171672-a-...	238535.85	109.2	186390.63	126.1	220398.37	106.5
22	400-172077-i-1-a	230023.43	105.3	158342.05	107.1	213754.07	103.3
23	CCV	230407.57	105.5	159120.53	107.6	210940.29	101.9
24	CCB	201835.00	92.4	139343.17	94.3	195981.09	94.7
25	CCVL	212032.83	97.1	147474.98	99.8	206068.06	99.5
26	mb 500-49357...	199442.16	91.3	137841.62	93.2	194130.17	93.8

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
27	lcs 500-493579...	226860.76	103.9	155826.42	105.4	211546.42	102.2
28	400-171203-c-...	228847.17	104.8	154106.30	104.2	168941.39	81.6
29	400-171203-c-...	244163.84	111.8	154312.92	104.4	174048.60	84.1
30	400-171203-c-...	198354.19	90.8	149811.23	101.3	126322.72	61.0
31	400-171203-c-...	223833.58	102.5	139725.07	94.5	143478.68	69.3
32	400-171203-c-...	230603.68	105.6	142208.91	96.2	144804.34	70.0
33	400-171203-c-...	212020.87	97.1	160605.01	108.6	128778.25	62.2
34	400-171203-c-...	255950.09	117.2	169310.19	114.5	162066.76	78.3
35	400-171203-c-...	281468.87	128.9	175087.33	118.4	219150.72	105.9
36	CCV	268689.23	123.0	168999.12	114.3	207771.04	100.4
37	CCB	248642.62	113.8	158259.72	107.1	203130.19	98.1
38	400-171203-c-...	237637.30	108.8	159668.50	108.0	161208.01	77.9
39	400-171203-c-...	233395.17	106.9	154852.31	104.8	158417.79	76.5
40	400-171203-c-...	219620.61	100.5	154947.20	104.8	143280.18	69.2
41	400-171203-c-...	208271.74	95.4	154155.88	104.3	131725.48	63.6
42	400-171203-c-...	214868.86	98.4	137397.63	92.9	135676.63	65.5
43	400-171203-c-...	227647.26	104.2	152748.56	103.3	146829.22	70.9
44	400-171203-c-...	210165.03	96.2	144098.30	97.5	139109.92	67.2
45	400-171203-c-...	187910.71	86.0	129639.56	87.7	126142.43	60.9
46	400-171203-c-...	188595.37	86.3	129479.55	87.6	128644.94	62.1
47	400-171203-c-...	191081.84	87.5	126308.48	85.4	142137.81	68.7
48	400-171203-c-...	190647.44	87.3	123655.75	83.6	155943.55	75.3
49	CCV	184491.65	84.5	121500.60	82.2	148490.67	71.7
50	CCB	176006.09	80.6	118935.39	80.5	152755.18	73.8
51	500-166247-c-...	183381.37	84.0	119405.22	80.8	143132.89	69.1
52	CCV	190769.72	87.3	130617.59	88.4	160019.56	77.3
53	CCB	174971.63	80.1	120519.47	81.5	154830.93	74.8
54	CCVL	186132.97	85.2	126375.17	85.5	163495.31	79.0

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	235991.29	100.0	129392.03	100.0
2	ICIS	231947.32	100.0	126087.11	100.0
3	Std1	256652.68	110.7	135579.26	107.5
4	Std2	258656.47	111.5	134451.91	106.6
5	Std3	253979.09	109.5	126962.33	100.7
6	S1	250741.93	108.1	126409.61	100.3
7	ICV	251054.30	108.2	128345.85	101.8
8	ICB	226050.69	97.5	123745.27	98.1
9	ICVL	243315.50	104.9	129486.33	102.7
10	icsa	250176.54	107.9	122366.37	97.0
11	icsab	247087.91	106.5	121412.86	96.3
12	CRI	240508.56	103.7	129442.02	102.7
13	CCV	250643.52	108.1	127589.27	101.2
14	CCB	223195.55	96.2	121736.03	96.5
15	mb 500-49363...	236520.24	102.0	131623.29	104.4
16	lcs 500-493633...	244713.43	105.5	132631.99	105.2
17	400-171672-a-...	249875.32	107.7	134529.29	106.7
18	400-171672-a-...	250256.94	107.9	134616.65	106.8
19	400-171672-a-...	250739.80	108.1	131833.45	104.6
20	400-171672-a-...	239393.09	103.2	131905.54	104.6
21	400-171672-a-...	253204.15	109.2	137545.14	109.1
22	400-172077-i-1-a	249672.78	107.6	130480.50	103.5
23	CCV	247614.14	106.8	126876.28	100.6
24	CCB	221328.00	95.4	122381.12	97.1
25	CCVL	234374.07	101.0	128044.82	101.6
26	mb 500-49357...	220446.69	95.0	122282.98	97.0

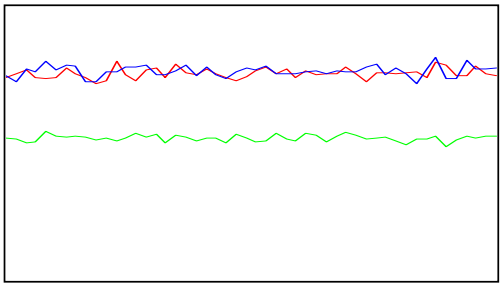
ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
27	lcs 500-493579...	247603.57	106.7	132942.40	105.4
28	400-171203-c-...	202696.63	87.4	94024.37	74.6
29	400-171203-c-...	206504.66	89.0	96352.11	76.4
30	400-171203-c-...	150142.91	64.7	66633.23	52.8
31	400-171203-c-...	172541.35	74.4	79723.54	63.2
32	400-171203-c-...	172508.28	74.4	79311.09	62.9
33	400-171203-c-...	151156.58	65.2	66972.18	53.1
34	400-171203-c-...	191171.49	82.4	86869.09	68.9
35	400-171203-c-...	233695.66	100.8	120842.19	95.8
36	CCV	233956.20	100.9	116138.69	92.1
37	CCB	220755.86	95.2	118723.21	94.2
38	400-171203-c-...	187176.57	80.7	86580.10	68.7
39	400-171203-c-...	183615.35	79.2	85343.17	67.7
40	400-171203-c-...	166083.18	71.6	75444.22	59.8
41	400-171203-c-...	153164.55	66.0	69046.91	54.8
42	400-171203-c-...	158399.73	68.3	70802.41	56.2
43	400-171203-c-...	171261.91	73.8	77897.42	61.8
44	400-171203-c-...	161060.06	69.4	72637.63	57.6
45	400-171203-c-...	146619.05	63.2	66978.25	53.1
46	400-171203-c-...	151251.64	65.2	69188.27	54.9
47	400-171203-c-...	169004.59	72.9	82052.72	65.1
48	400-171203-c-...	168667.42	72.7	90694.30	71.9
49	CCV	172895.24	74.5	88930.82	70.5
50	CCB	168550.66	72.7	90370.07	71.7
51	500-166247-c-...	172178.04	74.2	87191.02	69.2
52	CCV	186800.70	80.5	97318.11	77.2
53	CCB	174060.80	75.0	95594.10	75.8
54	CCVL	183706.14	79.2	99317.81	78.8

Tune Report

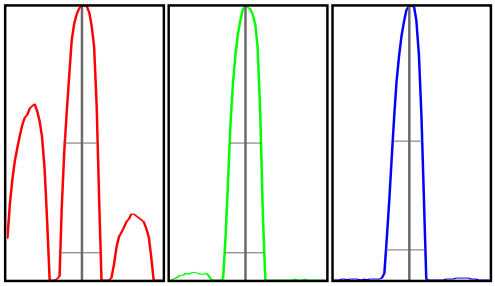
Batch Folder C:\Agilent\ICPMH\1\DATA\MS4070719TUNE.b
Acq. Date-Time 7/7/2019 11:41
Report Comment 072015Atune
Instrument Name G3281A JP11040848

[He]



Mass	Range	Count	RSD%	Background
59	5000	3770	2.433	
89	10000	5192	2.356	
205	5000	3811	2.632	

Ratio 156/140 1.269 %
Integration Time [sec] 0.1 **Sampling Period [sec]** 0.31



Mass	Peak Height	Axis	W-50%	W-10%
59	3659.54	59.00	0.61	0.765
89	5113.98	89.00	0.58	0.750
205	3718.60	205.00	0.55	0.743

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.54 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1500 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-50 V
Extract 2	-200.0 V	Cell Exit	-80 V
Omega Bias	-100 V	Deflect	3.0 V
Omega Lens	8.0 V	Plate Bias	-60 V

Cell Parameters

Use Gas	true	OctP Bias	-18.0 V

Tune Report

He Flow	3.5 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	3.0 V
3rd Gas Flow	0 %		

[no gas]

Mass	Range	Count	RSD%	Background
7	5000	3616	2.140	6.400
89	20000	11446	2.243	5.300
205	10000	5921	2.312	15.100

Ratio 156/140 1.790 % **Ratio** 70/140 25.862 %

Integration Time [sec] 0.1 **Sampling Period [sec]** 0.311

Mass	Peak Height	Axis	W-50%	W-10%
7	3567.44	7.00	0.66	0.804
89	11365.08	89.00	0.58	0.755
205	5976.07	205.00	0.55	0.760

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.74 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1550 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-34 V
Extract 2	-200.0 V	Cell Exit	-60 V
Omega Bias	-80 V	Deflect	14.2 V
Omega Lens	10.1 V	Plate Bias	-50 V

Cell Parameters

Use Gas	false	OctP Bias	-8.0 V
He Flow	0.0 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	5.0 V
3rd Gas Flow	0 %		

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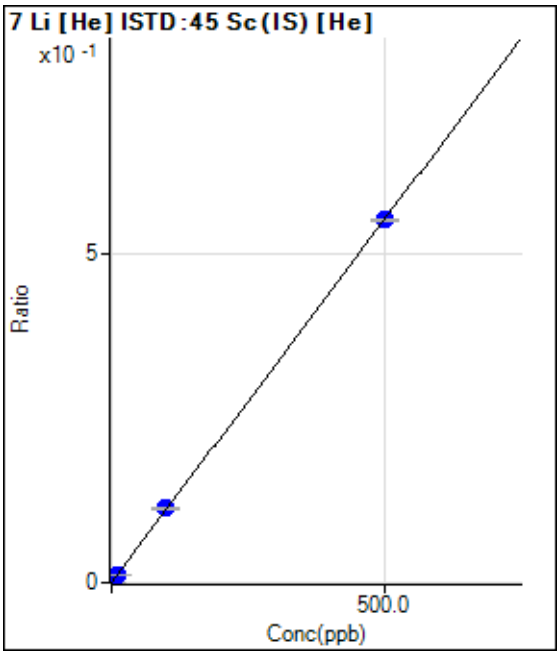
Analysis File: MS4070819He-1.batch.bin
DA Date-Time: 7/8/2019 11:41:55 AM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

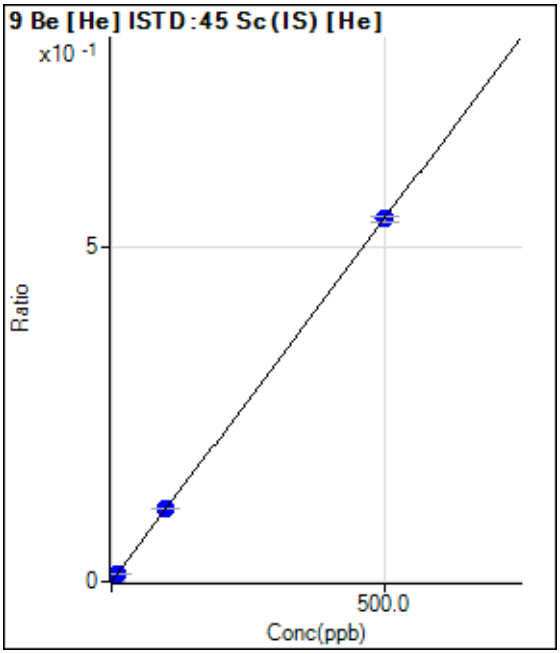
Level	Standard Data File	Sample Name	Acq. Date-Time
1	002CALB.d	ICIS	7/8/2019 11:29:38 AM
2	003CALS.d	Std1	7/8/2019 11:33:23 AM
3	004CALS.d	Std2	7/8/2019 11:37:20 AM
4	005CALS.d	Std3	7/8/2019 11:41:05 AM



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	33.33	0.0002	P	46.5
2	☐	10.000	11.015	2263.58	0.0124	P	6.4
3	☐	100.000	101.855	20729.54	0.1127	P	3.8
4	☐	500.000	499.609	103478.34	0.5521	P	0.5

y = 0.0011 * x + 2.0071E-004
R = 1.0000
DL = 0.2536
BEC = 0.1817

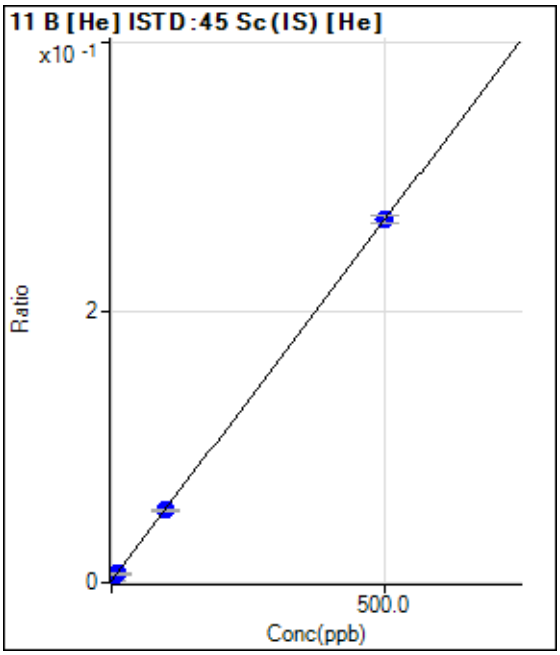
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3.33	0.0000	P	173.
2	☐	10.000	10.336	2053.54	0.0112	P	6.8
3	☐	100.000	101.204	20182.26	0.1097	P	1.0
4	☐	500.000	499.752	101544.02	0.5418	P	1.9

y = 0.0011 * x + 2.0043E-005
R = 1.0000
DL = 0.09606
BEC = 0.01849

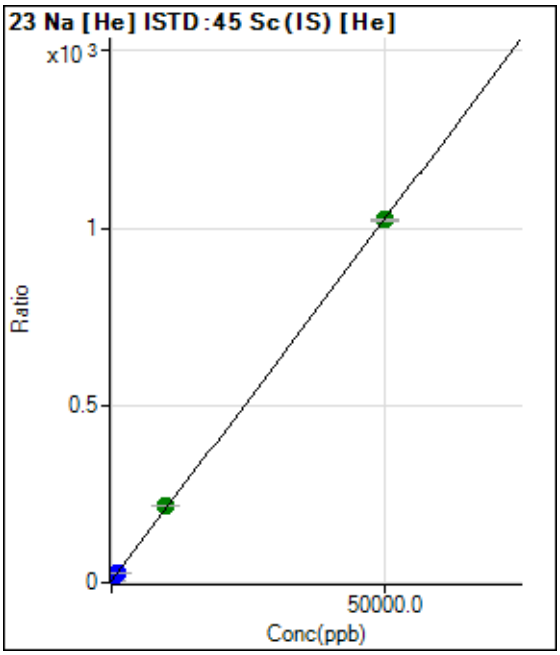
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	220.01	0.0013	P	32.0
2	☐	10.000	10.182	1236.76	0.0068	P	10.7
3	☐	100.000	97.922	9853.11	0.0536	P	2.5
4	☐	500.000	500.412	50296.34	0.2684	P	2.2

y = 5.3366E-004 * x + 0.0013
R = 1.0000
DL = 2.377
BEC = 2.478

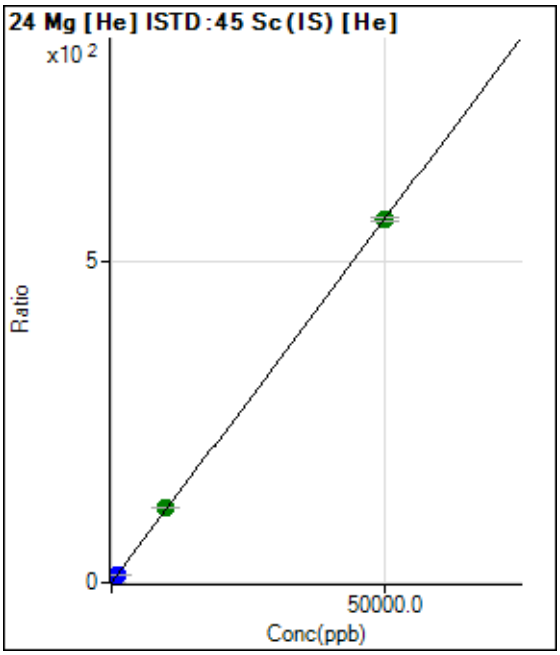
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	762722.67	4.5822	P	1.5
2	☐	1000.000	1044.532	4735468.89	25.8800	P	0.8
3	☐	10000.00	10323.74	39555331.08	215.0815	A	0.3
4	☐	50000.00	49934.36	191670350.4	1,022.735	A	0.7

y = 0.0204 * x + 4.5822
R = 1.0000
DL = 9.81
BEC = 224.7

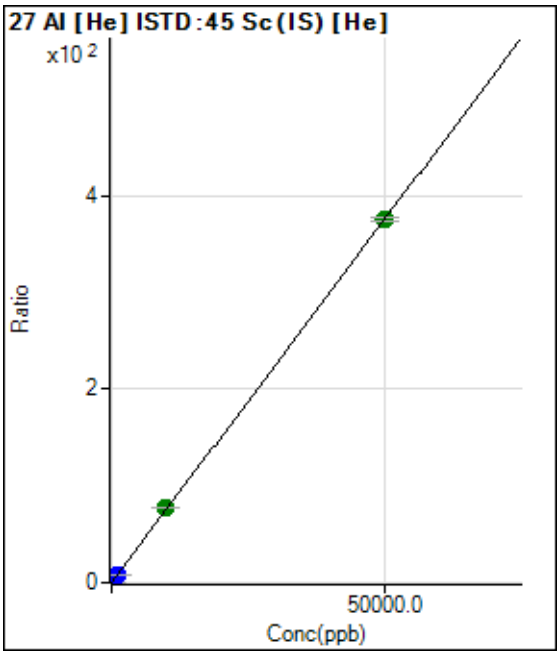
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	49521.15	0.2975	P	0.9
2	☐	1000.000	1050.732	2232244.97	12.1996	P	1.0
3	☐	10000.00	10339.64	21594569.68	117.4196	A	0.6
4	☐	50000.00	49931.05	106053075.0	565.8903	A	1.0

y = 0.0113 * x + 0.2975
R = 1.0000
DL = 0.7465
BEC = 26.26

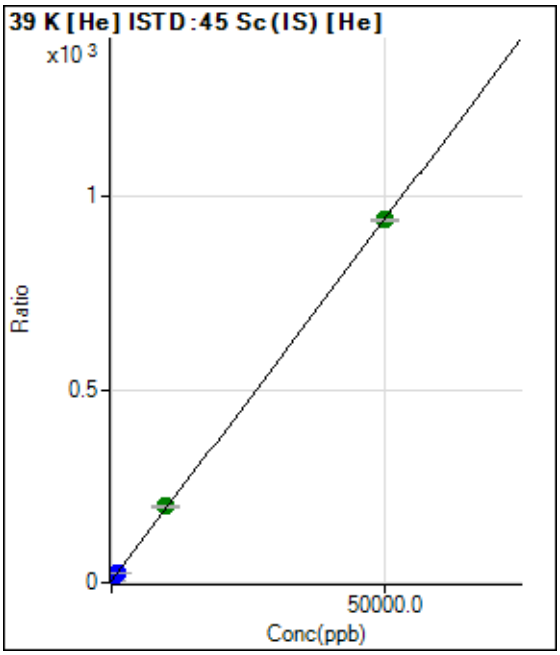
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1840.19	0.0111	P	4.6
2	☐	1000.000	1019.330	1402234.67	7.6634	P	0.8
3	☐	10000.00	10234.87	14132855.62	76.8470	A	0.8
4	☐	50000.00	49952.63	70281313.95	375.0186	A	1.2

y = 0.0075 * x + 0.0111
R = 1.0000
DL = 0.2025
BEC = 1.472

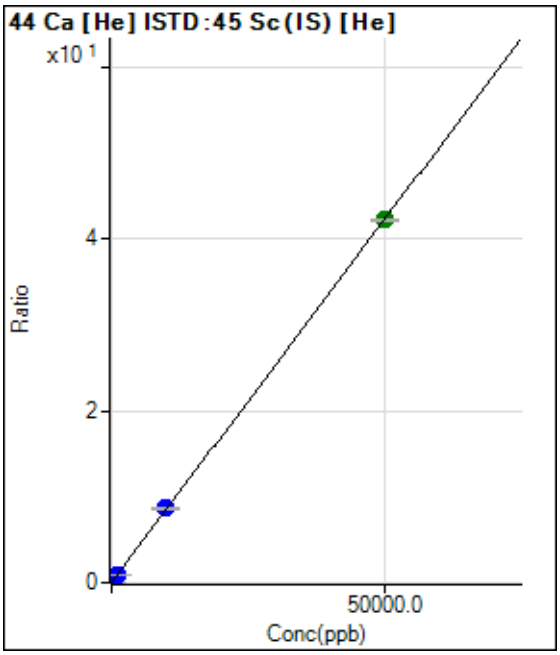
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	715450.28	4.2981	P	1.2
2	☐	1000.000	1033.184	4326632.75	23.6456	P	0.7
3	☐	10000.00	10294.25	36242199.46	197.0690	A	0.7
4	☐	50000.00	49940.48	176068070.7	939.4866	A	0.9

y = 0.0187 * x + 4.2981
R = 1.0000
DL = 8.453
BEC = 229.5

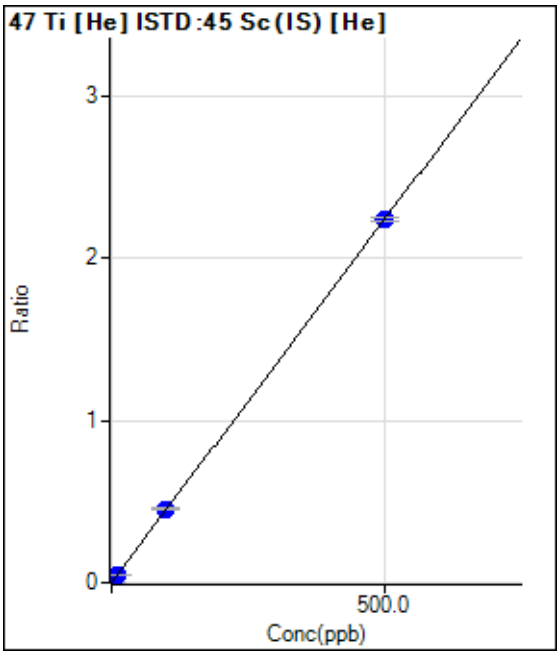
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3410.63	0.0205	P	4.4
2	☐	1000.000	1026.079	162215.94	0.8865	P	0.7
3	☐	10000.00	10189.64	1585357.20	8.6202	P	0.5
4	☐	50000.00	49961.55	7906204.57	42.1865	A	0.5

y = 8.4397E-004 * x + 0.0205
R = 1.0000
DL = 3.179
BEC = 24.27

Weight: <None>
Min Conc: 0



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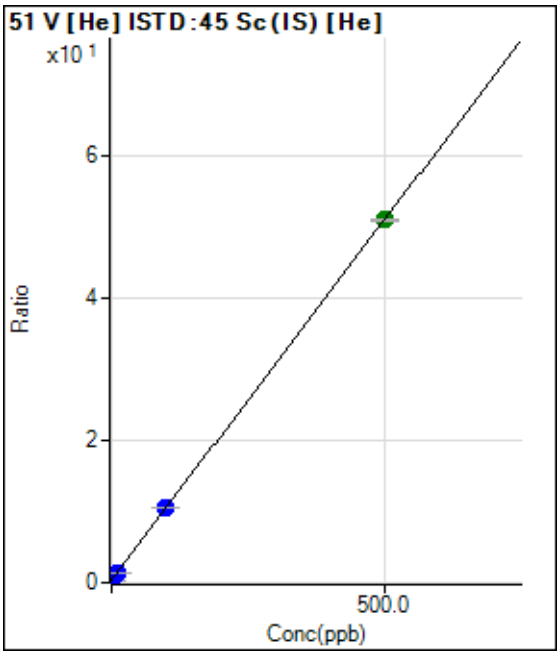
1	☐	0.000	0.000	53.33	0.0003	P	38.7
2	☐	10.000	9.877	8135.58	0.0445	P	5.0
3	☐	100.000	101.715	83644.74	0.4548	P	1.5
4	☐	500.000	499.660	418494.73	2.2331	P	1.1

y = 0.0045 * x + 3.2018E-004
R = 1.0000
DL = 0.08327
BEC = 0.07165

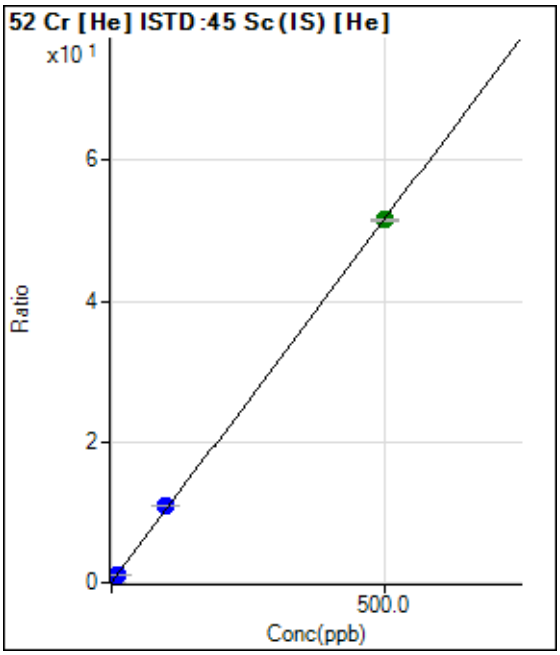
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63632.39	0.3822	P	1.8
2	☐	10.000	9.824	251702.07	1.3757	P	1.8
3	☐	100.000	100.784	1944533.31	10.5735	P	0.5
4	☐	500.000	499.847	9544166.94	50.9265	A	0.5

y = 0.1011 * x + 0.3822
R = 1.0000
DL = 0.2091
BEC = 3.78

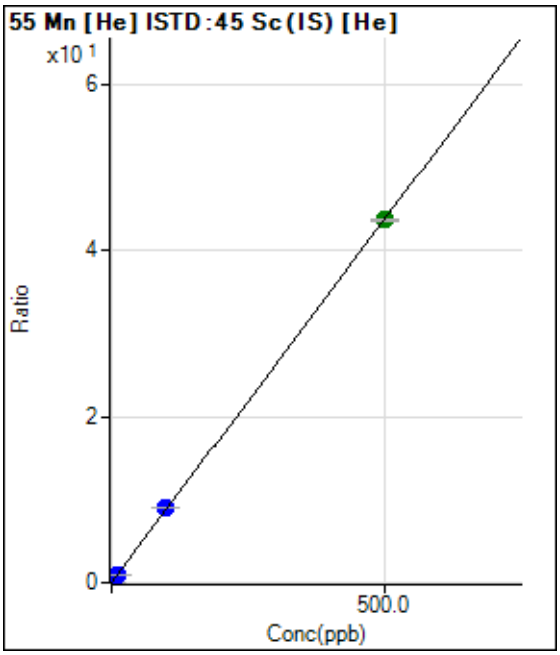
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7108.42	0.0427	P	0.7
2	☐	10.000	10.365	203415.88	1.1117	P	1.9
3	☐	100.000	104.594	1991795.55	10.8303	P	0.6
4	☐	500.000	499.074	9654692.78	51.5162	A	0.5

y = 0.1031 * x + 0.0427
R = 1.0000
DL = 0.008336
BEC = 0.414

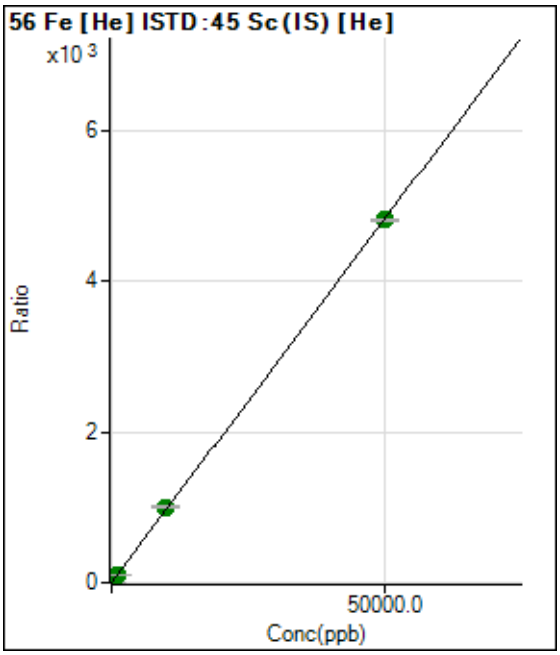
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2740.35	0.0165	P	4.3
2	☐	10.000	10.364	168703.81	0.9220	P	0.8
3	☐	100.000	102.959	1657367.01	9.0120	P	0.6
4	☐	500.000	499.401	8180253.21	43.6491	A	0.8

y = 0.0874 * x + 0.0165
R = 1.0000
DL = 0.0242
BEC = 0.1885

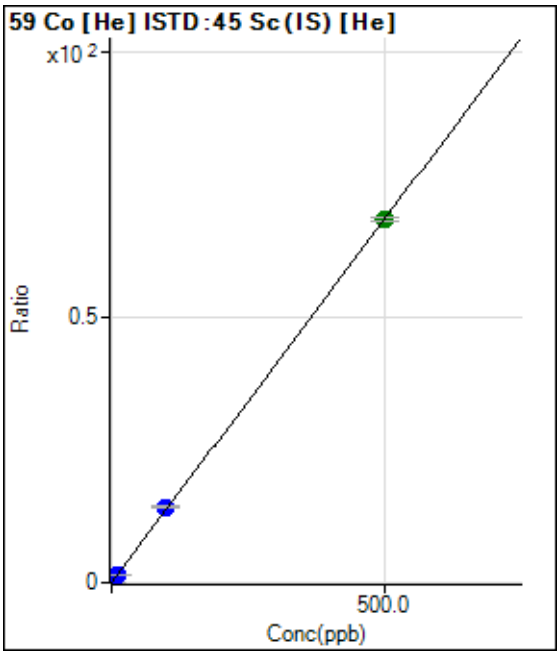
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	116207.63	0.6982	P	2.9
2	☐	1000.000	1052.202	18695067.64	102.1699	A	0.5
3	☐	10000.00	10390.17	184403897.2	1,002.701	A	1.1
4	☐	50000.00	49920.92	902368253.2	4,814.948	A	0.7

y = 0.0964 * x + 0.6982
R = 1.0000
DL = 0.6248
BEC = 7.24

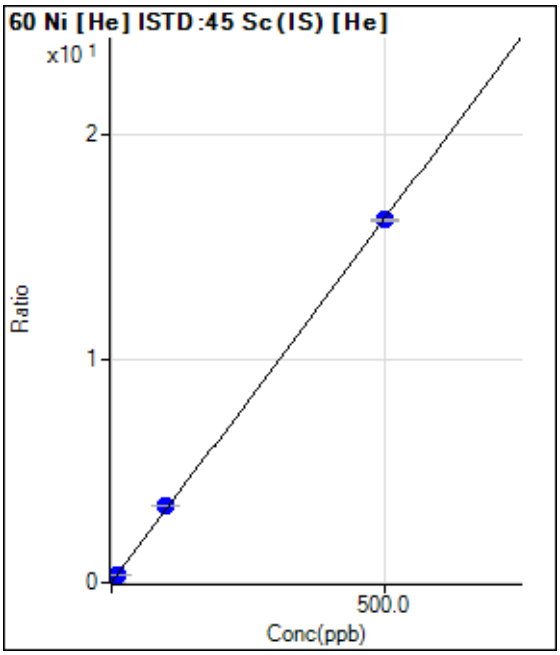
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	506.69	0.0030	P	13.0
2	☐	10.000	10.562	264825.15	1.4473	P	1.0
3	☐	100.000	104.182	2620475.64	14.2489	P	0.7
4	☐	500.000	499.152	12791965.23	68.2573	A	1.0

y = 0.1367 * x + 0.0030
R = 1.0000
DL = 0.00871
BEC = 0.02226

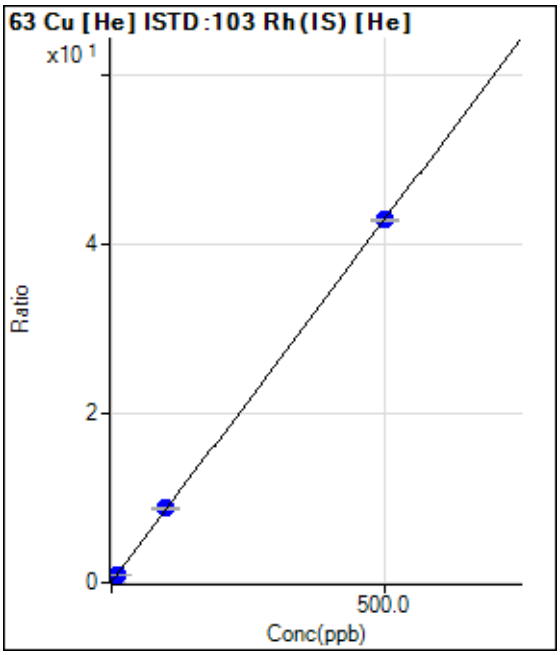
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1556.80	0.0094	P	14.4
2	☐	10.000	10.899	66531.06	0.3636	P	2.0
3	☐	100.000	105.654	633301.34	3.4435	P	1.5
4	☐	500.000	498.851	3040568.70	16.2240	P	0.4

y = 0.0325 * x + 0.0094
R = 0.9999
DL = 0.1241
BEC = 0.2879

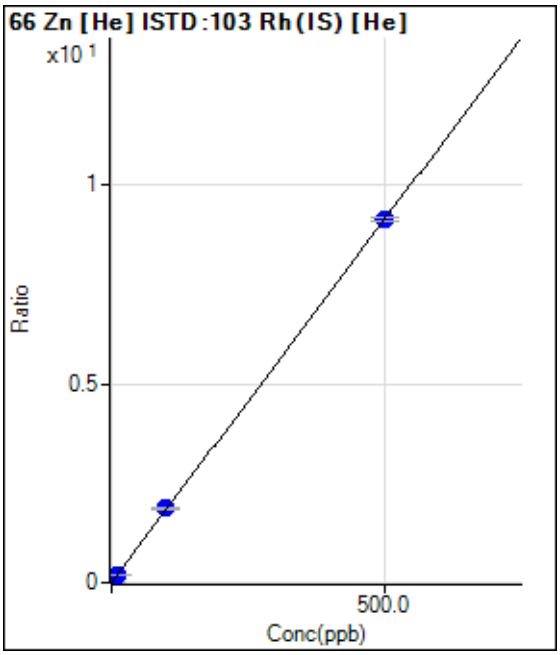
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	9500.56	0.0573	P	4.4
2	☐	10.000	10.254	170758.55	0.9371	P	1.6
3	☐	100.000	102.210	1593087.96	8.8277	P	1.7
4	☐	500.000	499.553	7552031.64	42.9230	P	0.6

y = 0.0858 * x + 0.0573
R = 1.0000
DL = 0.08867
BEC = 0.6675

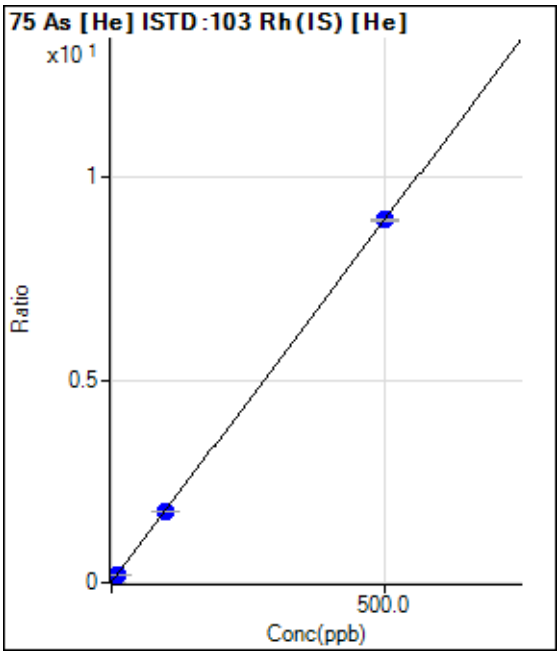
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	616.71	0.0037	P	6.1
2	☐	10.000	10.031	34031.84	0.1868	P	3.4
3	☐	100.000	101.979	336608.34	1.8651	P	1.5
4	☐	500.000	499.604	1605126.69	9.1229	P	1.0

y = 0.0183 * x + 0.0037
R = 1.0000
DL = 0.03749
BEC = 0.2036

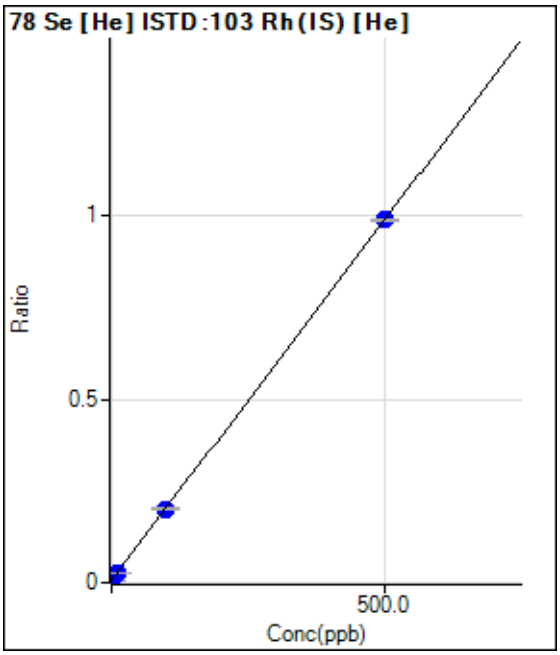
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1964.79	0.0118	P	5.4
2	☐	10.000	9.536	33197.79	0.1822	P	1.3
3	☐	100.000	97.805	317404.69	1.7589	P	1.7
4	☐	500.000	500.448	1574855.46	8.9509	P	0.8

y = 0.0179 * x + 0.0118
R = 1.0000
DL = 0.1081
BEC = 0.6632

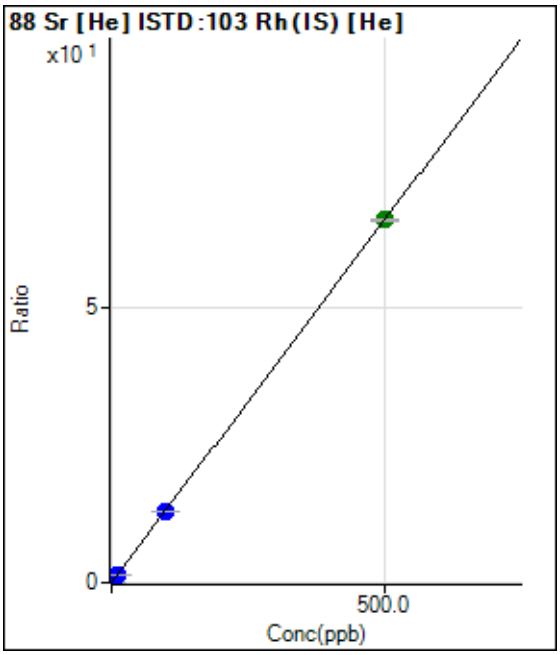
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1074.04	0.0065	P	1.4
2	☐	10.000	9.347	4529.29	0.0249	P	1.4
3	☐	100.000	98.662	36172.28	0.2005	P	2.1
4	☐	500.000	500.281	174198.38	0.9901	P	0.7

y = 0.0020 * x + 0.0065
R = 1.0000
DL = 0.1375
BEC = 3.293

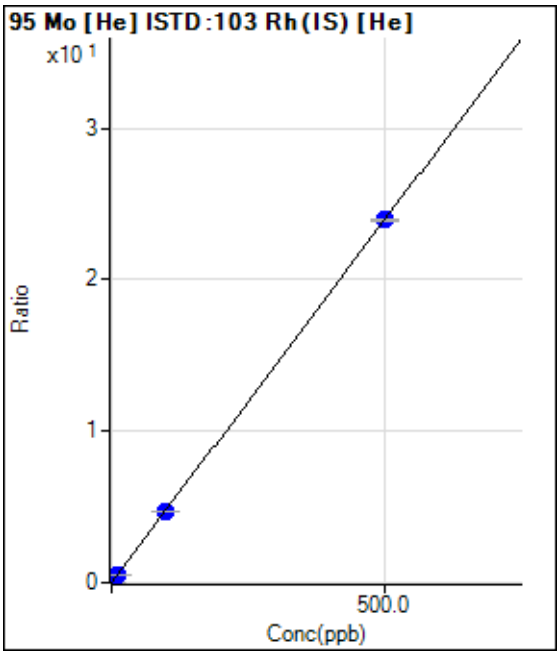
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1083.42	0.0065	P	8.2
2	☐	10.000	9.702	234041.38	1.2846	P	2.8
3	☐	100.000	98.864	2351735.90	13.0303	P	0.9
4	☐	500.000	500.233	11595675.66	65.9041	A	0.4

y = 0.1317 * x + 0.0065
R = 1.0000
DL = 0.01226
BEC = 0.04959

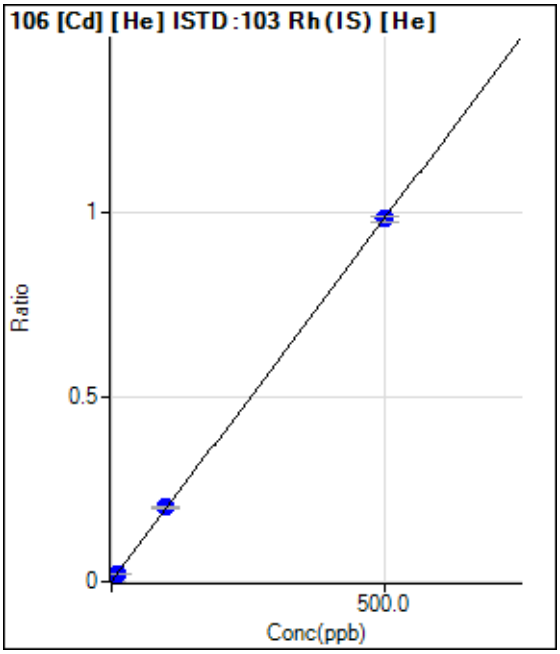
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	130.01	0.0008	P	20.8
2	☐	10.000	9.563	83544.56	0.4586	P	3.3
3	☐	100.000	98.288	849402.96	4.7062	P	0.9
4	☐	500.000	500.351	4214739.83	23.9545	P	0.3

y = 0.0479 * x + 7.8405E-004
R = 1.0000
DL = 0.01021
BEC = 0.01638

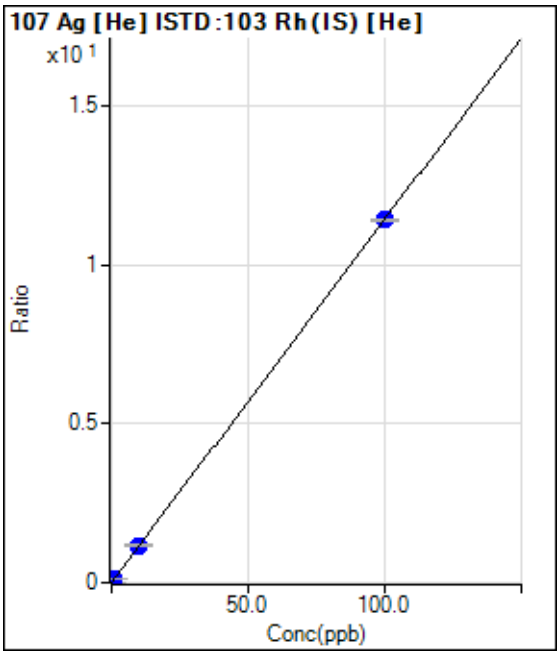
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	130.01	0.0008	P	26.3
2	☐	10.000	10.019	3733.91	0.0205	P	2.4
3	☐	100.000	101.933	36314.85	0.2012	P	2.7
4	☐	500.000	499.613	173020.99	0.9833	P	1.5

y = 0.0020 * x + 7.8303E-004
R = 1.0000
DL = 0.314
BEC = 0.3982

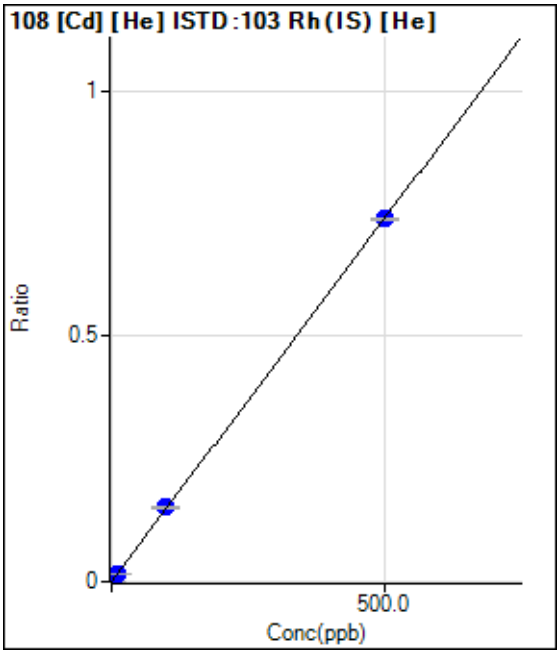
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	30.00	0.0002	P	88.2
2	☐	1.000	1.049	21855.41	0.1200	P	4.2
3	☐	10.000	10.257	211399.71	1.1714	P	1.8
4	☐	100.000	99.974	2008549.19	11.4158	P	0.5

y = 0.1142 * x + 1.8161E-004
R = 1.0000
DL = 0.00421
BEC = 0.001591

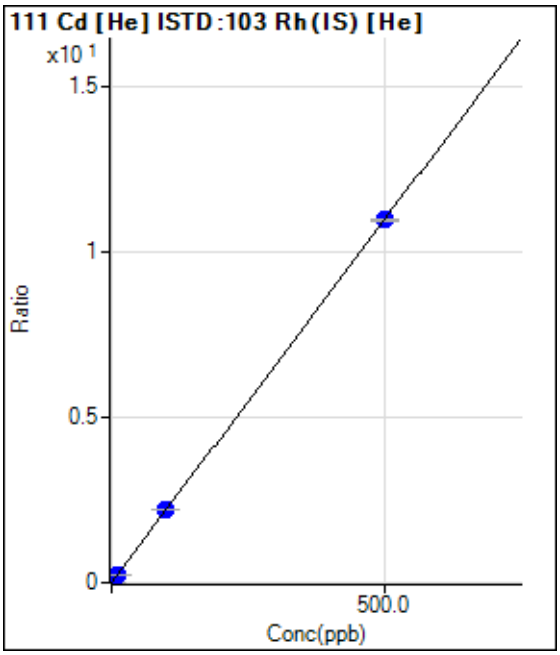
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3.33	0.0000	P	173.
2	☐	10.000	10.286	2773.69	0.0152	P	10.4
3	☐	100.000	101.947	27196.73	0.1507	P	1.6
4	☐	500.000	499.605	129925.52	0.7384	P	0.5

y = 0.0015 * x + 1.9926E-005
R = 1.0000
DL = 0.07005
BEC = 0.01348

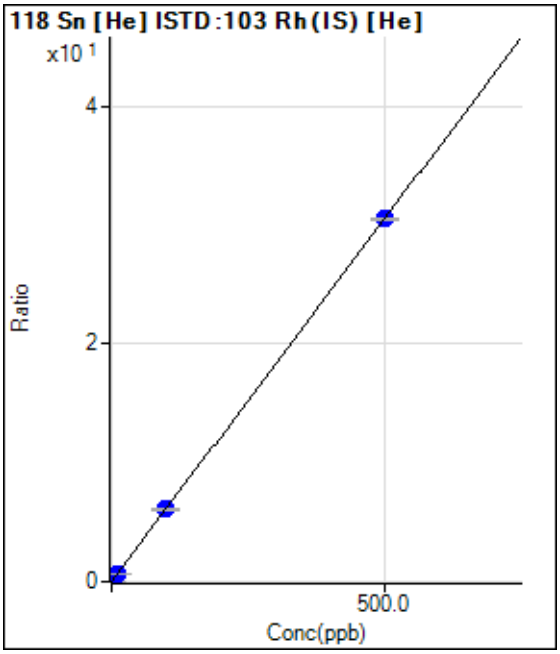
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	99.08	0.0006	P	26.2
2	☐	10.000	9.856	39495.55	0.2167	P	2.2
3	☐	100.000	100.339	397229.19	2.2009	P	1.2
4	☐	500.000	499.935	1929023.71	10.9636	P	0.7

y = 0.0219 * x + 5.9679E-004
R = 1.0000
DL = 0.02135
BEC = 0.02721

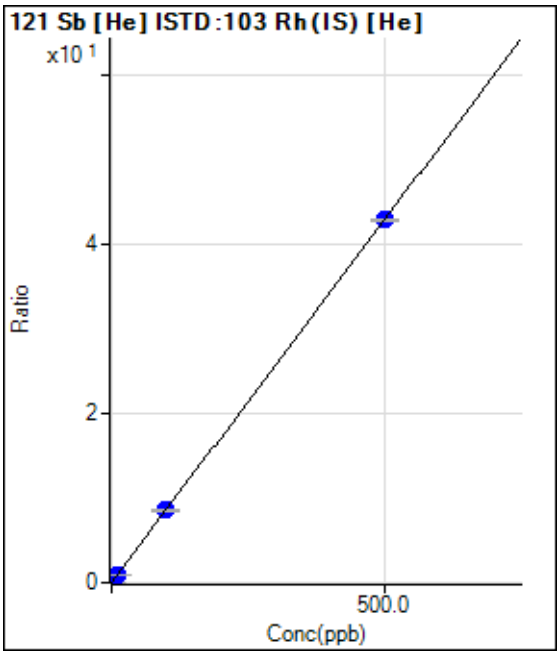
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1183.43	0.0071	P	8.4
2	☐	10.000	9.789	110185.95	0.6047	P	1.8
3	☐	100.000	99.815	1100819.67	6.1004	P	2.3
4	☐	500.000	500.041	5372070.96	30.5326	P	0.5

y = 0.0610 * x + 0.0071
R = 1.0000
DL = 0.02935
BEC = 0.1169

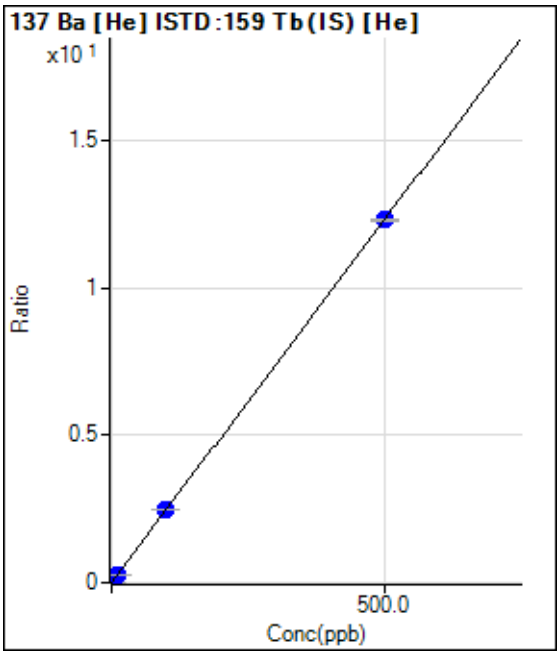
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	193.34	0.0012	P	25.8
2	☐	10.000	9.716	151808.86	0.8332	P	2.1
3	☐	100.000	99.983	1545253.73	8.5634	P	2.4
4	☐	500.000	500.009	7534049.89	42.8207	P	0.7

y = 0.0856 * x + 0.0012
R = 1.0000
DL = 0.01056
BEC = 0.01362

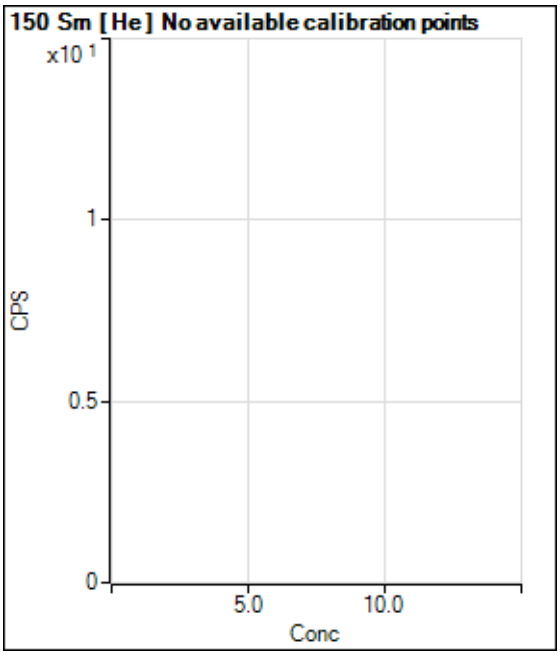
Weight: <None>
Min Conc: 0



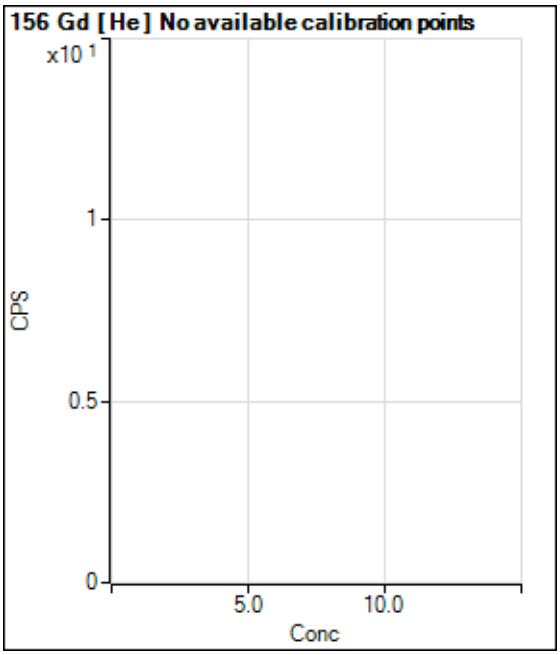
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	60.00	0.0003	P	60.8
2	☐	10.000	10.079	53443.99	0.2482	P	4.0
3	☐	100.000	100.404	540627.64	2.4694	P	0.8
4	☐	500.000	499.918	2663951.53	12.2941	P	0.3

y = 0.0246 * x + 3.1327E-004
R = 1.0000
DL = 0.02324
BEC = 0.01274

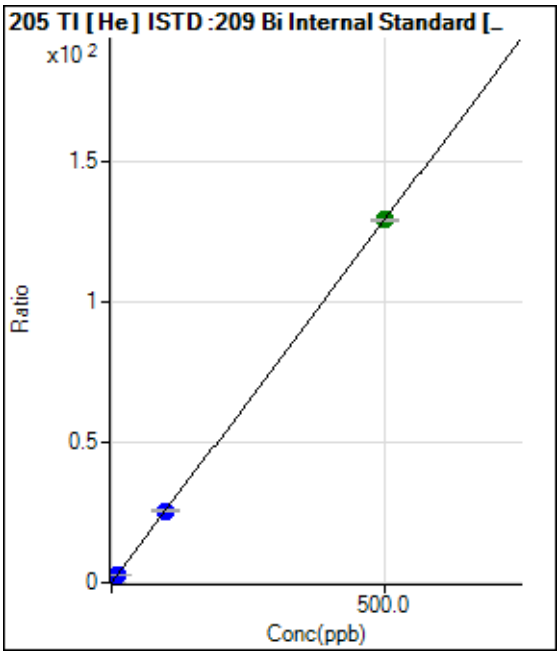
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



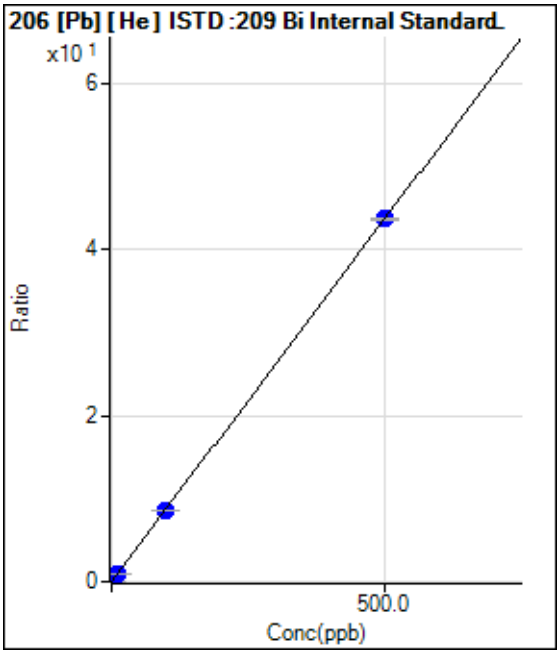
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	580.04	0.0053	P	32.3
2	☐	10.000	9.845	302505.82	2.5457	P	0.5
3	☐	100.000	99.296	3052300.48	25.6282	P	1.0
4	☐	500.000	500.144	14568454.37	129.0653	A	0.3

y = 0.2580 * x + 0.0053
R = 1.0000
DL = 0.01992
BEC = 0.02058

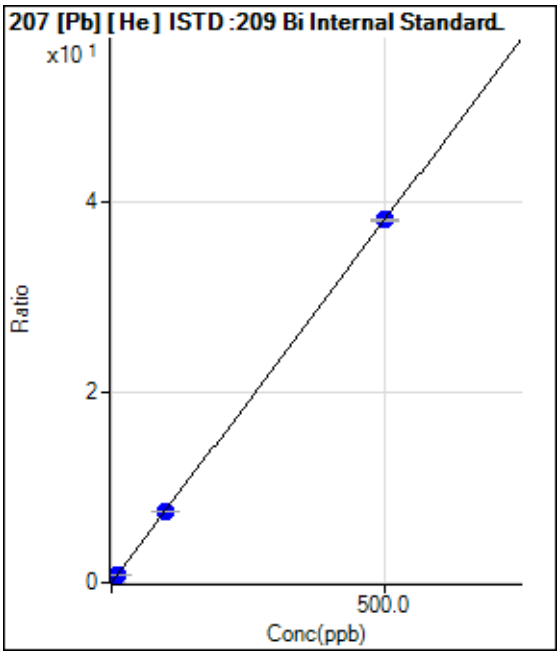
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	103.33	0.0009	P	15.6
2	☐	10.000	9.865	102470.89	0.8623	P	2.0
3	☐	100.000	97.591	1014989.80	8.5222	P	1.1
4	☐	500.000	500.485	4932634.93	43.7015	P	0.4

y = 0.0873 * x + 9.4842E-004
R = 1.0000
DL = 0.00508
BEC = 0.01086

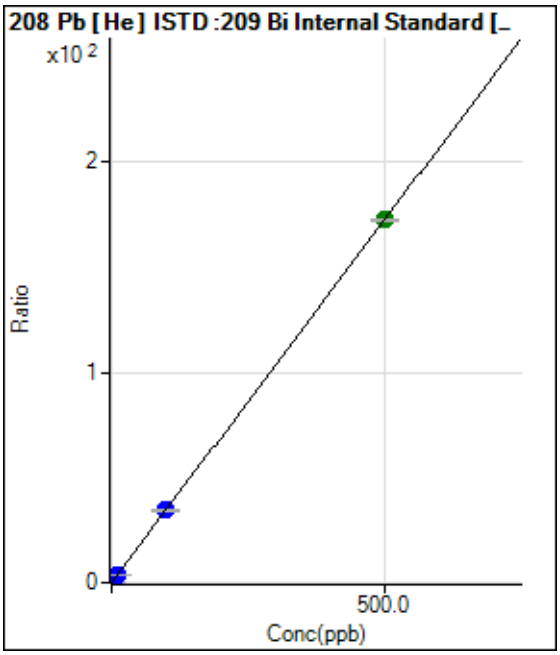
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	90.00	0.0008	P	40.2
2	☐	10.000	9.873	89329.49	0.7518	P	2.1
3	☐	100.000	97.982	887709.02	7.4537	P	1.0
4	☐	500.000	500.406	4296142.33	38.0634	P	0.7

y = 0.0761 * x + 8.2618E-004
R = 1.0000
DL = 0.0131
BEC = 0.01086

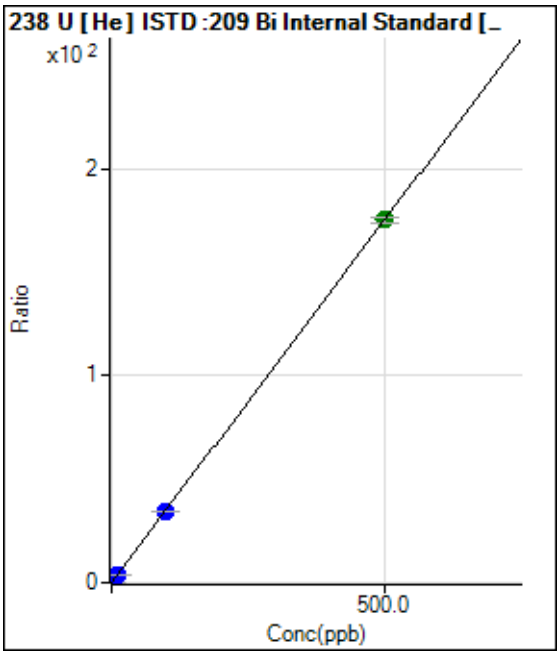
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	496.69	0.0046	P	19.1
2	☐	10.000	9.972	409035.76	3.4422	P	1.0
3	☐	100.000	99.435	4083066.76	34.2840	P	0.9
4	☐	500.000	500.114	19460195.03	172.4148	A	0.7

y = 0.3447 * x + 0.0046
R = 1.0000
DL = 0.007557
BEC = 0.01321

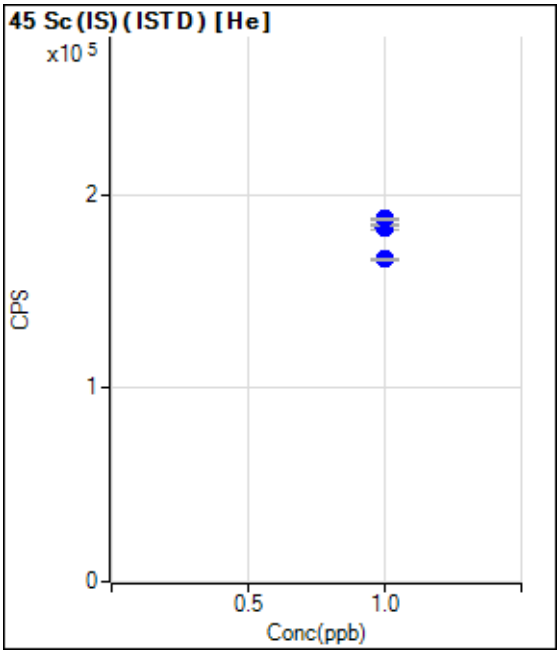
Weight: <None>
Min Conc: 0



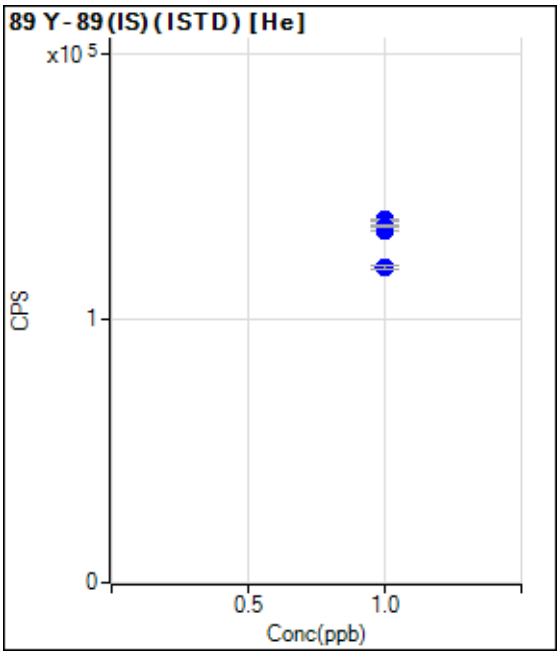
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	26.67	0.0002	P	57.3
2	☐	10.000	9.397	390843.21	3.2890	P	0.3
3	☐	100.000	98.316	4097812.54	34.4080	P	1.1
4	☐	500.000	500.349	19763086.79	175.1080	A	1.4

y = 0.3500 * x + 2.4486E-004
R = 1.0000
DL = 0.001202
BEC = 0.0006996

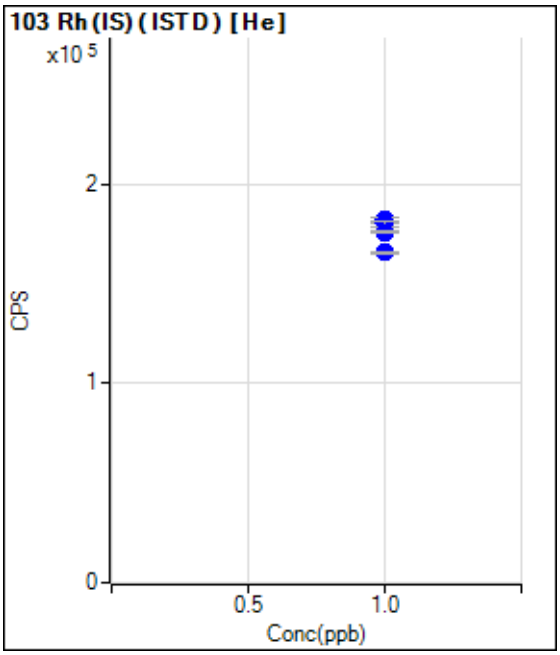
Weight: <None>
Min Conc: 0



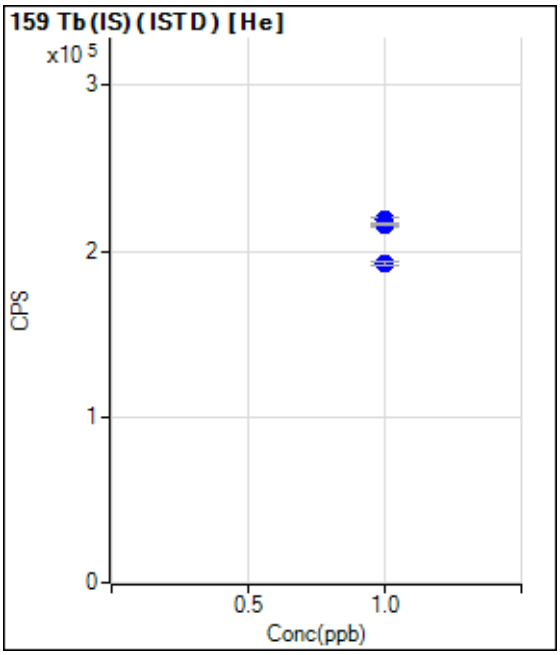
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		166465.64		P	0.8
2	☐	1.000		182985.41		P	0.8
3	☐	1.000		183909.49		P	0.4
4	☐	1.000		187413.30		P	0.4



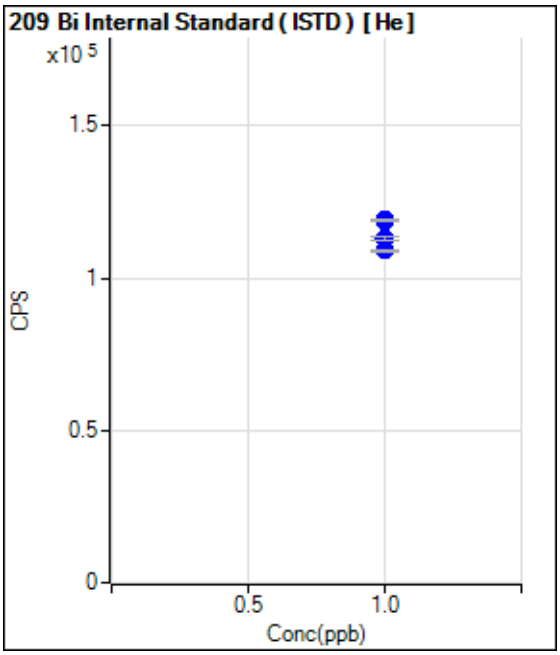
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		119212.70		P	1.1
2	☐	1.000		133067.30		P	0.3
3	☐	1.000		137323.31		P	0.9
4	☐	1.000		134952.72		P	0.7



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		165899.41		P	0.7
2	☐	1.000		182248.44		P	1.7
3	☐	1.000		180495.88		P	1.7
4	☐	1.000		175947.60		P	0.5



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		192278.55		P	1.3
2	☐	1.000		215322.22		P	0.5
3	☐	1.000		218932.75		P	1.7
4	☐	1.000		216687.84		P	0.8



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		109040.86		P	0.8
2	☐	1.000		118833.55		P	0.6
3	☐	1.000		119099.00		P	0.5
4	☐	1.000		112874.72		P	1.3

Batch Summary Report

Batch Folder: C:\Agilent\ICPMH\1\DATA\MS4070819He-1.b\
Analysis File: MS4070819He-1.batch.bin
Tune Step: #1 He

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
1		7/8/2019 11:25:51 AM	001CALB.d	blk I.S /tune	CalBlk	1	1.0000
2		7/8/2019 11:29:38 AM	002CALB.d	ICIS	CalBlk	1	1.0000
3		7/8/2019 11:33:23 AM	003CALS.d	Std1	CalStd	2	1.0000
4		7/8/2019 11:37:20 AM	004CALS.d	Std2	CalStd	3	1.0000
5		7/8/2019 11:41:05 AM	005CALS.d	Std3	CalStd	4	1.0000
6		7/8/2019 11:44:51 AM	006_QCS.d	S1	QCS		1.0000
7		7/8/2019 11:48:36 AM	007_ICV.d	ICV	ICV		1.0000
8		7/8/2019 11:52:21 AM	008_ICB.d	ICB	ICB		1.0000
9		7/8/2019 11:56:08 AM	009LICV.d	ICVL	LLICV		1.0000
10		7/8/2019 11:59:53 AM	010ICSA.d	icsa	ICSA		1.0000
11		7/8/2019 12:03:39 PM	011ICSB.d	icsab	ICSB		1.0000
12		7/8/2019 12:07:24 PM	012SMPL.d	CRI	Sample		1.0000
13		7/8/2019 12:13:48 PM	013_CCV.d	CCV	CCV		1.0000
14		7/8/2019 12:17:34 PM	014_CCB.d	CCB	CCB		1.0000
15		7/8/2019 12:21:21 PM	015SMPL.d	500-165700-e-1-a @10	Sample		1.0000
16		7/8/2019 12:25:08 PM	016_PB.d	mb 500-493579/1-a	PB		1.0000
17		7/8/2019 12:28:54 PM	017_LCS.d	lcs 500-493579/2-a	LCS		1.0000
18		7/8/2019 12:32:40 PM	018SMPL.d	400-171203-c-1-a @100	Sample		1.0000
19		7/8/2019 12:36:25 PM	019SMPL.d	400-171203-c-2-a @100	Sample		1.0000
20		7/8/2019 12:40:11 PM	020SMPL.d	400-171203-c-3-a @100	Sample		1.0000
21		7/8/2019 12:43:57 PM	021SMPL.d	400-171203-c-4-a @100	Sample		1.0000
22		7/8/2019 12:47:43 PM	022SMPL.d	400-171203-c-5-a @100	Sample		1.0000
23		7/8/2019 12:51:30 PM	023_CCV.d	CCV	CCV		1.0000
24		7/8/2019 12:55:17 PM	024_CCB.d	CCB	CCB		1.0000
25		7/8/2019 12:59:04 PM	025SMPL.d	400-171203-c-6-a @100	Sample		1.0000
26		7/8/2019 1:02:50 PM	026SMPL.d	400-171203-c-7-a @100	Sample		1.0000
27		7/8/2019 1:06:35 PM	027SMPL.d	400-171203-c-8-a @100	Sample		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
28		7/8/2019 1:10:20 PM	028SMPL.d	400-171203-c-9-a @100	Sample		1.0000
29		7/8/2019 1:15:56 PM	029SMPL.d	400-171203-c-10-a @100	Sample		1.0000
30		7/8/2019 1:19:43 PM	030SMPL.d	400-171203-c-11-a @100	Sample		1.0000
31		7/8/2019 1:23:29 PM	031SMPL.d	400-171203-c-12-a @100	Sample		1.0000
32		7/8/2019 1:27:16 PM	032SMPL.d	400-171203-c-13-a @100	Sample		1.0000
33		7/8/2019 1:31:01 PM	033_CCV.d	CCV	CCV		1.0000
34		7/8/2019 1:34:46 PM	034_CCB.d	CCB	CCB		1.0000
35		7/8/2019 1:38:32 PM	035SMPL.d	400-171203-c-14-a @100	Sample		1.0000
36		7/8/2019 1:42:19 PM	036SMPL.d	400-171203-c-14-b du @100	Sample		1.0000
37		7/8/2019 1:46:04 PM	037SMPL.d	400-171203-c-14-c ms @100	Sample		1.0000
38		7/8/2019 1:49:50 PM	038SMPL.d	400-171203-c-14-d msd @100	Sample		1.0000
39		7/8/2019 1:53:35 PM	039SMPL.d	400-171203-c-14-a SD@500	Sample		1.0000
40		7/8/2019 1:57:20 PM	040SMPL.d	400-171203-c-15-a @100	Sample		1.0000
41		7/8/2019 2:07:46 PM	041SMPL.d	500-166247-c-1-a	Sample		1.0000
42		7/8/2019 2:11:31 PM	042_CCV.d	CCV	CCV		1.0000
43		7/8/2019 2:15:17 PM	043_CCB.d	CCB	CCB		1.0000
44		7/8/2019 2:19:02 PM	044SMPL.d	400-171203-c-1-a @5	Sample		1.0000
45		7/8/2019 2:22:49 PM	045SMPL.d	400-171203-c-2-a @5	Sample		1.0000
46		7/8/2019 2:26:36 PM	046SMPL.d	400-171203-c-3-a @5	Sample		1.0000
47		7/8/2019 2:30:22 PM	047SMPL.d	400-171203-c-4-a @5	Sample		1.0000
48		7/8/2019 2:34:09 PM	048SMPL.d	400-171203-c-5-a @5	Sample		1.0000
49		7/8/2019 2:37:55 PM	049SMPL.d	400-171203-c-6-a @5	Sample		1.0000
50		7/8/2019 2:41:41 PM	050SMPL.d	400-171203-c-7-a @5	Sample		1.0000
51		7/8/2019 2:45:27 PM	051SMPL.d	400-171203-c-8-a @5	Sample		1.0000
52		7/8/2019 2:49:13 PM	052SMPL.d	400-171203-c-9-a @5	Sample		1.0000
53		7/8/2019 2:52:59 PM	053_CCV.d	CCV	CCV		1.0000
54		7/8/2019 2:56:46 PM	054_CCB.d	CCB	CCB		1.0000
55		7/8/2019 3:00:33 PM	055SMPL.d	400-171203-c-10-a @5	Sample		1.0000
56		7/8/2019 3:04:20 PM	056SMPL.d	400-171203-c-11-a @5	Sample		1.0000
57		7/8/2019 3:08:07 PM	057SMPL.d	400-171203-c-12-a @5	Sample		1.0000
58		7/8/2019 3:11:52 PM	058SMPL.d	400-171203-c-13-a @5	Sample		1.0000
59		7/8/2019 3:15:37 PM	059SMPL.d	400-171203-c-14-a @5	Sample		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
60		7/8/2019 3:19:24 PM	060SMPL.d	400-171203-c-14-b du @5	Sample		1.0000
61		7/8/2019 3:23:09 PM	061SMPL.d	400-171203-c-14-c ms @5	Sample		1.0000
62		7/8/2019 3:26:54 PM	062SMPL.d	400-171203-c-14-d msd @5	Sample		1.0000
63		7/8/2019 3:30:39 PM	063SMPL.d	400-171203-c-14-a SD@25	Sample		1.0000
64		7/8/2019 3:34:24 PM	064SMPL.d	400-171203-c-15-a @5	Sample		1.0000
65		7/8/2019 3:38:09 PM	065_CCV.d	CCV	CCV		1.0000
66		7/8/2019 3:41:55 PM	066_CCB.d	CCB	CCB		1.0000
67		7/8/2019 3:45:41 PM	067_PB.d	lb 500-493316/1-b	PB		1.0000
68		7/8/2019 3:49:26 PM	068_LCS.d	lcs 500-493494/2-a	LCS		1.0000
69		7/8/2019 3:53:11 PM	069SMPL.d	500-165912-c-1-h	Sample		1.0000
70		7/8/2019 3:56:57 PM	070SMPL.d	500-165912-c-1-h @5	Sample		1.0000
71		7/8/2019 4:01:11 PM	071_PB.d	mb 500-493674/1-a	PB		1.0000
72		7/8/2019 4:04:57 PM	072_LCS.d	lcs 500-493674/2-a	LCS		1.0000
73		7/8/2019 4:08:44 PM	073SMPL.d	500-166007-a-1-b	Sample		1.0000
74		7/8/2019 4:12:30 PM	074SMPL.d	500-166007-a-1-c du	Sample		1.0000
75		7/8/2019 4:16:16 PM	075SMPL.d	500-166007-a-1-d ms	Sample		1.0000
76		7/8/2019 4:20:03 PM	076SMPL.d	500-166007-a-1-b SD@5	Sample		1.0000
77		7/8/2019 4:23:49 PM	077_CCV.d	CCV	CCV		1.0000
78		7/8/2019 4:27:36 PM	078_CCB.d	CCB	CCB		1.0000
79		7/8/2019 4:31:23 PM	079LCCV.d	CCVL	LLCCV		1.0000
80		7/8/2019 4:35:10 PM	080SMPL.d	500-164003-f-2	Sample		1.0000
81		7/8/2019 4:38:56 PM	081SMPL.d	500-164003-f-3	Sample		1.0000
82		7/8/2019 4:42:42 PM	082SMPL.d	500-164003-f-5	Sample		1.0000
83		7/8/2019 4:46:28 PM	083SMPL.d	500-164003-f-6	Sample		1.0000
84		7/8/2019 4:50:15 PM	084SMPL.d	500-164003-h-8	Sample		1.0000
85		7/8/2019 4:54:01 PM	085SMPL.d	500-164003-f-9	Sample		1.0000

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	30.00	N/A	0.036	10.00	153.345	0.456	266.68	92.218
2	ICIS	0.000	33.33	N/A	0.000	3.33	N/A	0.000	220.01	N/A
3	Std1	11.015	2263.58	6.514	10.336	2053.54	6.783	10.182	1236.76	13.299
4	Std2	101.855	20729.54	3.852	101.204	20182.26	1.021	97.922	9853.11	2.559
5	Std3	499.609	103478.34	0.535	499.752	101544.02	1.890	500.412	50296.34	2.238
6	S1	494.954	102696.50	3.547	514.067	104665.73	0.565	513.664	51723.42	1.335
7	ICV	197.984	40994.96	2.138	208.899	42418.67	0.716	202.865	20522.57	1.432
8	ICB	0.740	166.67	67.203	0.376	70.00	26.148	5.424	690.04	6.024
9	ICVL	9.520	1896.84	8.067	1.145	223.34	9.966	53.809	5317.68	3.279
10	icsa	0.348	113.34	77.556	0.092	23.33	106.454	2.556	520.03	14.818
11	icsab	20.717	4504.08	5.490	18.556	3927.26	6.758	52.683	5741.17	5.797
12	CRI	22.593	4564.12	2.987	1.967	390.02	25.909	105.696	10463.47	4.183
13	CCV	255.748	53120.53	0.689	255.494	52047.44	1.414	252.051	25515.90	2.841
14	CCB	0.423	110.00	48.840	0.411	76.67	61.345	4.329	600.03	16.554
15	500-165700-e-...	0.592	166.68	17.680	0.092	23.33	77.725	4.027	676.71	16.818
16	mb 500-49357...	0.352	100.00	27.417	0.090	20.00	121.185	1.313	343.36	53.177
17	lcs 500-493579...	105.725	22271.44	4.832	50.000	10326.78	1.129	1024.807	104404.93	2.032
18	400-171203-c-...	0.311	103.34	22.511	0.143	33.34	50.489	17.685	2043.56	8.958
19	400-171203-c-...	0.223	86.67	51.694	0.077	20.00	62.751	14.851	1790.16	5.240
20	400-171203-c-...	14.320	3070.40	9.414	<0.000	0.00	0.000	36.462	3980.61	3.944
21	400-171203-c-...	4.451	1000.07	9.982	<0.000	3.33	N/A	28.673	3247.11	12.130
22	400-171203-c-...	4.109	926.73	14.883	0.076	20.00	124.248	25.239	2890.35	5.828
23	CCV	248.787	53354.35	0.743	253.962	53415.06	1.346	249.099	26046.69	2.701
24	CCB	0.412	110.00	21.975	0.220	43.33	38.414	3.338	520.03	42.410
25	400-171203-c-...	7.721	1636.81	9.335	0.048	13.33	240.094	26.422	2890.34	3.720
26	400-171203-c-...	0.455	136.67	70.258	0.044	13.33	161.592	5.606	840.05	23.393

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	0.291	90.00	30.403	0.053	13.33	116.566	1.587	373.35	49.709
28	400-171203-c-...	0.129	66.67	127.647	0.029	10.00	284.361	12.088	1510.13	17.851
29	400-171203-c-...	0.348	113.34	17.260	0.013	6.67	209.597	11.577	1453.46	7.910
30	400-171203-c-...	0.174	76.67	54.994	0.061	16.67	45.976	13.696	1683.48	29.163
31	400-171203-c-...	0.314	106.67	112.299	0.061	16.67	91.110	14.236	1733.50	8.701
32	400-171203-c-...	0.421	130.01	31.416	<0.000	0.00	0.000	7.413	1033.41	4.589
33	CCV	258.300	53678.96	1.314	264.442	53896.30	0.841	259.664	26303.61	2.876
34	CCB	0.160	63.33	117.073	0.294	56.67	21.624	5.549	716.83	19.037
35	400-171203-c-...	0.257	86.67	61.860	0.099	23.33	25.567	6.510	866.72	31.564
36	400-171203-c-...	0.224	86.67	45.258	0.077	20.00	2.507	5.473	820.05	24.747
37	400-171203-c-...	1.123	280.01	32.490	0.699	150.01	59.390	15.904	1900.19	11.945
38	400-171203-c-...	1.432	346.68	17.788	0.487	106.67	43.432	17.991	2123.56	4.814
39	400-171203-c-...	0.330	110.00	26.565	0.044	13.33	245.736	1.275	390.02	46.340
40	400-171203-c-...	0.517	136.67	55.661	<0.000	3.33	N/A	0.934	323.35	132.929
41	500-166247-c-...	54.016	11420.82	0.805	<0.000	3.33	N/A	402.578	41232.83	0.554
42	CCV	259.777	53812.75	1.828	263.527	53528.68	1.660	258.285	26070.08	1.635
43	CCB	0.490	123.34	95.630	0.185	36.67	45.500	3.837	560.03	3.016
44	400-171203-c-...	0.961	236.68	30.060	0.047	13.33	160.443	153.233	15533.96	4.093
45	400-171203-c-...	0.700	190.01	26.649	0.061	16.67	92.877	212.302	22434.96	2.310
46	400-171203-c-...	226.042	49312.78	1.042	0.060	16.67	163.517	557.029	58909.13	2.262
47	400-171203-c-...	64.778	14693.33	2.624	0.026	10.00	294.706	366.985	40373.94	1.119
48	400-171203-c-...	75.194	16735.14	3.514	<0.000	3.33	N/A	410.656	44296.75	1.194
49	400-171203-c-...	119.503	26370.50	0.775	0.012	6.67	217.238	402.598	43103.79	2.782
50	400-171203-c-...	0.824	233.35	37.830	0.011	6.67	477.847	88.251	10176.64	3.004
51	400-171203-c-...	0.260	100.00	106.268	<0.000	0.00	0.000	4.129	723.38	34.190
52	400-171203-c-...	0.899	246.68	45.581	<0.000	3.33	N/A	177.063	19811.90	4.663
53	CCV	252.705	55755.36	1.276	249.613	54006.91	3.211	250.074	26894.70	3.245
54	CCB	0.372	110.00	39.936	0.050	13.33	157.339	4.609	680.04	23.083
55	400-171203-c-...	1.028	270.01	23.631	0.041	13.33	250.459	208.791	22802.14	2.909
56	400-171203-c-...	1.323	340.02	32.209	0.027	10.00	171.141	224.539	24854.87	2.010

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	3.124	730.05	14.353	0.012	6.67	219.071	219.597	23666.56	2.788
58	400-171203-c-...	1.105	296.68	29.235	0.026	10.00	4.796	157.717	17796.26	0.395
59	400-171203-c-...	0.731	210.01	26.028	<0.000	0.00	0.000	86.546	9879.85	4.259
60	400-171203-c-...	0.810	223.34	30.975	0.042	13.33	165.183	89.826	10036.57	1.728
61	400-171203-c-...	22.059	4980.89	5.039	11.522	2536.96	1.636	315.865	34444.59	2.853
62	400-171203-c-...	23.072	5004.21	2.661	10.643	2250.24	11.792	313.441	32848.13	1.434
63	400-171203-c-...	0.192	83.33	81.798	0.073	20.00	108.517	23.306	2773.65	9.421
64	400-171203-c-...	0.128	63.33	60.346	<0.000	0.00	0.000	3.622	603.37	29.213
65	CCV	251.036	52261.46	1.788	254.562	51973.88	1.717	248.833	25252.21	3.393
66	CCB	0.344	96.67	11.700	0.165	33.33	68.527	4.705	640.04	25.462
67	lb 500-493316/...	0.352	113.34	69.304	0.029	10.00	164.376	9.617	1223.43	22.685
68	lcs 500-493494...	105.184	22054.43	3.629	51.842	10653.59	5.482	1095.534	111050.61	1.564
69	500-165912-c-...	121.479	26130.16	2.768	0.061	16.67	47.063	265.759	27839.62	4.442
70	500-165912-c-...	26.048	5661.12	6.378	0.044	13.33	59.423	59.134	6424.74	2.136
71	mb 500-49367...	0.325	106.67	45.992	0.062	16.67	119.080	3.851	643.37	23.107
72	lcs 500-493674...	100.747	21099.98	2.061	47.969	9846.45	2.304	1007.792	102037.64	1.999
73	500-166007-a-...	82.383	17225.69	0.736	<0.000	3.33	N/A	229.705	23399.50	1.347
74	500-166007-a-...	83.482	17352.37	3.054	0.081	20.00	122.460	222.533	22545.12	2.631
75	500-166007-a-...	181.748	37553.98	3.110	48.327	9796.39	4.035	1234.360	123331.04	2.256
76	500-166007-a-...	20.188	4364.04	5.453	0.093	23.33	30.582	66.963	7185.05	1.338
77	CCV	256.706	52542.84	2.466	262.249	52655.86	2.038	267.299	26654.45	3.193
78	CCB	0.662	150.01	30.083	0.154	30.00	99.378	8.749	963.40	15.362
79	CCVL	10.811	2110.20	6.971	0.880	170.01	28.004	58.329	5644.45	1.079
80	500-164003-f-2	2.935	693.38	13.129	0.012	6.67	218.772	16.591	2050.21	10.928
81	500-164003-f-3	2.233	526.70	32.902	0.028	10.00	166.897	18.676	2230.23	6.262
82	500-164003-f-5	5.835	1290.10	3.876	0.092	23.33	29.135	10.398	1333.44	0.474
83	500-164003-f-6	0.695	190.01	13.660	0.013	6.67	208.556	25.198	2900.36	6.860
84	500-164003-h-8	1.190	293.35	25.459	<0.000	3.33	N/A	79.048	8422.32	2.685
85	500-164003-f-9	2.659	610.04	16.661	0.092	23.33	77.729	29.191	3283.76	1.082

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	5.408	800130.17	70.847	3.077	56666.26	24.359	2.589	5204.34	11.891
2	ICIS	0.000	762722.67	N/A	0.000	49521.15	N/A	0.000	1840.19	N/A
3	Std1	1044.532	4735468.89	0.967	1050.732	2232244.97	0.994	1019.330	1402234.67	0.829
4	Std2	10323.742	39555331.08	0.346	10339.645	21594569.68	0.580	10234.878	14132855.62	0.818
5	Std3	49934.361	1.91670E+08	0.737	49931.056	1.06053E+08	1.000	49952.638	70281313.95	1.163
6	S1	50535.367	1.94348E+08	1.196	50595.481	1.07678E+08	0.888	50370.132	71008523.94	1.283
7	ICV	20336.242	78511218.83	0.918	20841.631	44265252.68	1.677	20390.352	28667944.57	1.403
8	ICB	6.172	770496.66	26.781	<0.000	23416.51	N/A	2.240	4560.80	4.676
9	ICVL	192.438	1505668.68	0.281	192.172	437976.29	0.972	100.478	135475.18	1.235
10	icsa	101768.508	4.02677E+08	1.044	101885.830	2.23524E+08	1.200	99467.864	1.44594E+08	0.885
11	icsab	100216.553	3.99440E+08	1.126	99893.488	2.20754E+08	1.105	98652.836	1.44453E+08	1.015
12	CRI	401.265	2314008.61	3.221	413.688	903491.44	2.164	211.656	290084.01	1.667
13	CCV	25266.993	97647338.54	0.921	25362.669	54029840.86	0.667	25164.173	35493932.81	0.433
14	CCB	7.948	783115.66	12.991	<0.000	28260.32	N/A	3.301	5917.93	8.930
15	500-165700-e-...	146141.369	5.81506E+08	1.060	160.806	412893.65	1.177	6.175	11187.45	3.303
16	mb 500-49357...	2.713	786950.38	98.152	<0.000	29772.75	N/A	1.588	3897.27	10.635
17	lcs 500-493579...	10246.439	40656735.23	1.369	10386.997	22461226.33	1.498	2019.575	2888958.29	2.161
18	400-171203-c-...	17904.615	70219768.95	0.731	7463.079	16114305.59	1.357	1.627	4417.41	15.086
19	400-171203-c-...	27320.929	1.08737E+08	0.699	4327.590	9548051.11	0.781	1.055	3673.92	6.577
20	400-171203-c-...	113743.299	4.45195E+08	0.545	3339.151	7303541.77	0.215	0.977	3523.83	12.611
21	400-171203-c-...	58880.422	2.35474E+08	1.511	913.638	2080307.57	1.310	0.563	2985.36	31.317
22	400-171203-c-...	57431.178	2.29749E+08	0.948	890.676	2029890.44	0.394	0.732	3233.79	9.598
23	CCV	25061.676	1.00015E+08	0.863	25079.546	55165197.51	0.477	24938.654	36318503.63	0.948
24	CCB	<0.000	644958.53	N/A	<0.000	24124.11	N/A	3.654	6451.72	7.994
25	400-171203-c-...	111746.385	4.27722E+08	1.635	2090.266	4492019.52	0.699	1.500	4184.19	25.123
26	400-171203-c-...	26074.766	1.04498E+08	1.274	4557.127	10117691.31	1.253	0.750	3250.46	28.300

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	<0.000	647306.97	N/A	<0.000	28307.08	N/A	0.628	2713.65	18.242
28	400-171203-c-...	25829.564	1.03256E+08	0.795	8060.953	17805470.57	0.703	4.492	8702.51	5.278
29	400-171203-c-...	29003.504	1.15433E+08	1.148	5560.150	12256353.99	0.724	2.653	5994.63	12.191
30	400-171203-c-...	55623.284	2.21821E+08	0.403	10436.369	23085087.16	0.938	1.230	3950.64	23.509
31	400-171203-c-...	89186.760	3.54215E+08	0.901	7052.253	15578343.52	0.139	2.468	5747.90	9.338
32	400-171203-c-...	52003.373	2.08368E+08	1.290	8936.877	19864909.71	1.604	7.680	13436.24	5.438
33	CCV	25681.200	99288585.19	1.359	25911.612	55228407.51	1.089	25580.491	36098306.96	1.698
34	CCB	<0.000	556017.62	N/A	<0.000	25165.73	N/A	1.759	4060.79	24.134
35	400-171203-c-...	21144.102	79377495.48	11.167	7368.730	15253789.35	11.707	7.212	11847.88	17.353
36	400-171203-c-...	18377.668	73448767.24	2.618	6407.250	14112010.62	2.469	6.215	11170.77	6.544
37	400-171203-c-...	18090.344	72391593.92	0.749	6381.572	14070059.37	1.003	26.974	41393.54	1.782
38	400-171203-c-...	19858.136	79616858.81	1.112	6830.730	15101806.86	0.576	25.677	39622.62	2.865
39	400-171203-c-...	3171.171	13466696.47	1.354	1085.454	2449217.31	1.037	1.542	4404.09	14.437
40	400-171203-c-...	<0.000	534182.52	N/A	<0.000	31916.80	N/A	0.513	2643.64	9.220
41	500-166247-c-...	356115.263	1.38594E+09	1.472	27683.947	59872864.11	0.901	85.626	124700.04	6.911
42	CCV	25893.415	99769021.85	1.109	26025.672	55286142.51	1.018	25656.096	36085953.63	1.089
43	CCB	<0.000	502418.84	N/A	<0.000	25623.04	N/A	2.000	4330.72	18.000
44	400-171203-c-...	403315.723	1.53878E+09	1.267	167693.797	3.55314E+08	1.002	9.464	15353.89	3.161
45	400-171203-c-...	596236.707	2.38011E+09	0.785	95556.320	2.11893E+08	0.912	2.432	5734.48	16.296
46	400-171203-c-...	OR		N/A	57265.975	1.28037E+08	2.073	6.710	12118.00	3.624
47	400-171203-c-...	934452.846	3.90213E+09	0.965	14983.281	34812148.65	1.225	2.345	5867.91	7.831
48	400-171203-c-...	1033806.837	4.23540E+09	1.208	16783.192	38251252.76	1.428	2.373	5801.25	4.158
49	400-171203-c-...	OR		N/A	36839.063	83275558.76	2.497	9.194	15967.88	2.041
50	400-171203-c-...	488265.850	2.09323E+09	0.606	85103.029	2.02655E+08	0.725	2.158	5727.84	5.449
51	400-171203-c-...	289.425	2151497.99	3.640	<0.000	51148.91	N/A	1.867	5144.29	10.851
52	400-171203-c-...	483371.274	2.03901E+09	1.012	152979.018	3.58401E+08	0.799	72.232	114416.29	1.319
53	CCV	25594.662	1.05061E+08	0.891	25659.750	58065315.80	0.862	25580.252	38326073.60	0.944
54	CCB	43.168	981824.31	1.511	<0.000	27819.60	N/A	2.276	5057.70	7.764
55	400-171203-c-...	585075.665	2.41405E+09	1.786	113545.787	2.60239E+08	1.509	50.079	78282.82	4.038
56	400-171203-c-...	917859.105	3.83926E+09	1.212	172876.253	4.01704E+08	0.781	14.970	25322.51	1.466

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	OR		N/A	115671.056	2.61638E+08	0.684	34.673	54180.39	1.083
58	400-171203-c-...	1039027.420	4.40952E+09	2.715	180583.890	4.25731E+08	2.391	140.925	222483.80	2.197
59	400-171203-c-...	353161.836	1.49871E+09	1.506	121649.438	2.86679E+08	1.449	110.007	174088.89	0.678
60	400-171203-c-...	374978.173	1.55880E+09	0.153	129314.040	2.98522E+08	0.166	116.592	180599.26	1.961
61	400-171203-c-...	383070.239	1.58453E+09	1.676	133112.419	3.05779E+08	0.990	544.300	830715.43	1.359
62	400-171203-c-...	388834.304	1.54537E+09	1.392	135200.848	2.98391E+08	1.761	493.304	723572.90	1.817
63	400-171203-c-...	76037.706	3.13473E+08	0.882	25820.465	59021789.12	0.647	22.928	36930.29	3.476
64	400-171203-c-...	105.599	1247108.94	2.388	<0.000	46014.99	N/A	2.232	5147.61	5.948
65	CCV	25269.853	97891528.54	0.754	25405.753	54248835.86	1.031	25311.422	35785007.80	0.986
66	CCB	58.292	961708.74	6.762	<0.000	25038.64	N/A	2.496	4960.91	11.991
67	lb 500-493316/...	OR		N/A	5.314	67720.40	105.461	25.998	39171.78	3.824
68	lcs 500-493494...	11017.462	43437671.02	1.021	10727.437	23084638.82	0.306	2083.234	2965730.27	1.059
69	500-165912-c-...	OR		N/A	6871.959	15188319.36	1.700	1145.137	1673294.04	1.099
70	500-165912-c-...	321030.371	1.27974E+09	1.527	1386.709	3126832.04	2.053	238.170	351478.81	1.607
71	mb 500-49367...	199.579	1646688.05	3.945	<0.000	40975.70	N/A	16.173	25212.39	1.913
72	lcs 500-493674...	10165.530	40088793.57	1.488	10265.115	22059336.34	1.328	1990.493	2829782.46	1.236
73	500-166007-a-...	11612.602	45576645.99	1.000	11692.525	25066052.13	1.201	15.509	24070.71	3.096
74	500-166007-a-...	11351.533	44319826.00	2.238	11471.926	24457508.80	1.483	13.390	20949.98	4.144
75	500-166007-a-...	21319.707	82088303.78	1.117	21714.819	46020050.98	1.100	1973.375	2770412.25	1.203
76	500-166007-a-...	2765.079	11817837.32	1.442	2679.271	5941014.08	1.605	3.427	7128.42	7.479
77	CCV	25762.464	98108575.20	1.127	25802.377	54171889.19	0.892	25738.487	35779212.80	0.867
78	CCB	62.065	940327.35	5.332	<0.000	21977.94	N/A	2.885	5261.02	10.022
79	CCVL	261.625	1724198.78	4.356	190.553	427034.12	2.399	99.588	131895.22	3.370
80	500-164003-f-2	7846.659	33150178.67	0.941	50948.980	1.16310E+08	0.636	42.564	66589.51	4.758
81	500-164003-f-3	9071.748	37456307.77	1.655	51429.945	1.15165E+08	2.466	24.855	39059.60	1.067
82	500-164003-f-5	15712.394	63058544.06	0.222	48693.387	1.07091E+08	0.819	9.851	16490.38	10.923
83	500-164003-f-6	7202.433	29741563.72	1.970	33167.375	73840833.90	2.227	0.070	2276.93	181.384
84	500-164003-h-8	36009.519	1.43026E+08	2.141	47729.493	1.04728E+08	1.762	0.050	2213.61	361.501
85	500-164003-f-9	27099.758	1.08258E+08	0.833	55755.800	1.22776E+08	0.828	<0.000	1753.53	N/A

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	726764.47	N/A	8.234	4676.60	17.847	<0.000	50.00	N/A
2	ICIS	0.000	715450.28	N/A	0.000	3410.63	N/A	0.000	53.33	N/A
3	Std1	1033.184	4326632.75	0.888	1026.079	162215.94	0.755	9.877	8135.58	5.052
4	Std2	10294.255	36242199.46	0.748	10189.642	1585357.20	0.543	101.715	83644.74	1.519
5	Std3	49940.485	1.76068E+08	0.877	49961.550	7906204.57	0.457	499.660	418494.73	1.123
6	S1	50347.088	1.77839E+08	1.573	50442.986	7997693.04	1.648	502.922	422062.52	1.292
7	ICV	20461.286	72559840.58	1.081	20154.527	3189352.78	0.643	199.743	167206.96	1.671
8	ICB	<0.000	690404.52	N/A	2.969	3762.95	47.372	<0.000	33.33	N/A
9	ICVL	495.575	2403456.53	1.486	197.705	33156.75	4.964	5.024	4030.64	1.559
10	icsa	99842.783	3.62841E+08	1.497	99847.661	16320228.70	1.427	2025.379	1752435.39	1.369
11	icsab	98705.940	3.61356E+08	0.910	99649.144	16407328.26	0.627	2011.725	1753355.65	1.119
12	CRI	1047.503	4335525.77	2.195	409.544	66372.92	3.085	10.162	8289.00	5.077
13	CCV	25360.700	90027675.33	0.688	24984.618	3965302.50	0.739	252.169	211759.22	0.484
14	CCB	<0.000	705373.12	N/A	3.002	3797.86	66.785	0.064	100.00	117.465
15	500-165700-e-...	230.205	1677478.67	1.271	146.445	28075.58	1.980	37.196	32448.47	2.042
16	mb 500-49357...	<0.000	706216.71	N/A	5.746	4298.72	14.142	0.008	60.00	804.856
17	lcs 500-493579...	10187.312	37142760.28	2.017	9231.325	1487427.95	1.693	1000.369	851220.61	2.212
18	400-171203-c-...	59.935	1029630.90	6.359	8487.332	1364660.39	0.150	0.136	176.68	39.006
19	400-171203-c-...	182.518	1493808.88	2.356	2848.195	469336.95	0.958	0.029	86.67	123.291
20	400-171203-c-...	13101.607	47827080.95	0.183	6734.081	1092740.23	0.672	0.018	76.67	227.737
21	400-171203-c-...	11050.529	41274250.22	1.018	3673.720	609813.61	1.450	<0.000	60.00	N/A
22	400-171203-c-...	10719.388	40069425.24	1.400	3636.391	603784.96	1.046	0.054	110.02	201.323
23	CCV	25117.030	92070288.63	0.781	24718.999	4050717.77	0.863	251.643	218183.58	0.859
24	CCB	<0.000	702825.28	N/A	1.047	3581.40	118.127	<0.000	50.00	N/A
25	400-171203-c-...	11224.180	40182824.40	1.087	6735.786	1068859.01	1.258	0.032	86.67	241.167
26	400-171203-c-...	53.240	1031886.50	5.246	7768.890	1281724.63	0.967	0.012	73.34	664.195

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	<0.000	725230.80	N/A	3.667	4059.59	55.204	<0.000	43.33	N/A
28	400-171203-c-...	233.536	1685406.22	1.592	7724.054	1271034.76	0.834	0.055	110.01	55.509
29	400-171203-c-...	334.084	2044227.16	0.819	4950.570	813248.07	1.243	<0.000	56.67	N/A
30	400-171203-c-...	1134.643	4975913.36	1.532	10358.421	1706920.25	0.842	<0.000	50.00	N/A
31	400-171203-c-...	1976.885	8027693.00	1.178	6745.007	1109993.77	0.476	0.001	63.33	1937.559
32	400-171203-c-...	107.218	1233746.00	5.597	9438.375	1562712.93	1.130	0.141	186.67	51.604
33	CCV	25756.579	91468471.97	1.559	25267.290	4012214.78	1.373	255.799	214912.62	1.506
34	CCB	<0.000	692677.18	N/A	2.345	3761.05	43.169	<0.000	33.33	N/A
35	400-171203-c-...	38.142	912985.56	79.206	12242.821	1885637.46	11.463	0.171	196.68	40.946
36	400-171203-c-...	20.624	907101.26	29.127	10571.093	1731413.05	3.250	0.182	220.01	31.793
37	400-171203-c-...	122.366	1277363.70	2.992	10395.895	1704767.00	0.715	10.177	8875.97	4.488
38	400-171203-c-...	135.988	1330790.14	2.129	11269.479	1853198.46	1.015	11.656	10190.16	3.981
39	400-171203-c-...	<0.000	743942.28	N/A	1834.820	305170.92	0.543	0.024	83.34	213.270
40	400-171203-c-...	<0.000	709964.81	N/A	<0.000	3413.90	N/A	<0.000	46.67	N/A
41	500-166247-c-...	25674.655	92526398.62	0.705	104461.532	16819987.68	1.087	1.509	1346.78	8.750
42	CCV	25995.678	92005311.96	0.860	25199.822	3988305.63	0.845	255.916	214300.95	1.182
43	CCB	<0.000	684646.53	N/A	0.885	3528.37	90.619	0.023	70.00	330.593
44	400-171203-c-...	2014.317	7857807.59	1.680	190701.246	30102471.20	1.473	0.272	286.68	19.589
45	400-171203-c-...	4537.494	17470272.66	0.789	62951.463	10402211.57	1.493	0.065	120.01	114.676
46	400-171203-c-...	229252.167	8.47843E+08	2.038	118057.433	19661279.10	2.136	0.121	170.01	19.653
47	400-171203-c-...	174973.706	6.71761E+08	0.746	59391.120	10267084.96	0.904	0.125	180.01	62.515
48	400-171203-c-...	194614.688	7.32973E+08	1.208	66554.360	11287514.02	1.351	0.133	183.34	26.986
49	400-171203-c-...	199211.663	7.44788E+08	2.436	118379.333	19927954.42	2.855	0.276	310.02	17.024
50	400-171203-c-...	1674.427	7492894.47	0.787	147642.852	26191389.95	0.700	0.046	110.00	81.342
51	400-171203-c-...	7.930	912566.58	25.471	24.371	8424.93	4.844	0.001	66.67	6350.648
52	400-171203-c-...	5060.804	20485959.28	0.940	147459.668	25740754.08	0.388	1.274	1243.43	2.903
53	CCV	25747.865	97077361.88	1.289	24920.756	4201359.23	1.065	247.468	220742.77	1.062
54	CCB	<0.000	729822.62	N/A	6.192	4619.49	63.509	<0.000	53.33	N/A
55	400-171203-c-...	7480.421	29206317.90	1.467	101879.225	17398676.07	1.547	0.634	636.70	18.264
56	400-171203-c-...	19309.762	75046302.21	0.862	173974.039	30119351.90	0.727	0.300	340.02	16.451

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	33759.790	1.27076E+08	0.236	114756.286	19339972.91	0.363	1.083	1030.08	13.472
58	400-171203-c-...	2876.817	12104829.40	2.570	191913.546	33708616.78	2.365	4.169	3940.63	8.102
59	400-171203-c-...	1011.241	4832706.70	1.918	204856.285	35964480.13	1.754	3.644	3453.84	15.239
60	400-171203-c-...	1073.451	4971540.97	0.608	218943.377	37653873.66	1.224	3.890	3607.24	6.186
61	400-171203-c-...	3378.188	13697678.96	1.090	223085.722	38177882.35	1.103	223.685	202729.07	1.505
62	400-171203-c-...	3420.138	13313805.22	1.417	227055.242	37334076.96	1.429	226.196	196959.86	1.804
63	400-171203-c-...	184.262	1562070.81	1.050	43623.026	7425932.24	1.253	0.653	653.38	41.010
64	400-171203-c-...	<0.000	768453.22	N/A	25.010	7703.46	13.196	0.001	60.00	2872.222
65	CCV	25412.704	90423881.99	0.888	24663.055	3923495.50	1.232	246.555	207533.30	1.963
66	CCB	<0.000	688063.53	N/A	6.590	4339.64	16.150	0.014	63.34	489.684
67	lb 500-493316/...	102.710	1182338.63	4.244	102.563	20329.23	5.376	0.588	560.04	19.550
68	lcs 500-493494...	10528.008	38176176.10	0.574	9443.018	1514166.57	0.763	1020.269	864026.00	0.366
69	500-165912-c-...	168059.891	6.12582E+08	1.388	277279.562	45495035.90	1.049	18.933	16511.91	1.457
70	500-165912-c-...	34967.677	1.28765E+08	1.873	58463.222	9643162.72	2.283	3.654	3253.78	7.834
71	mb 500-49367...	0.895	821313.14	150.764	140.019	26389.13	3.250	0.042	96.67	31.460
72	lcs 500-493674...	10029.300	36354152.79	0.624	8918.622	1428181.93	1.581	966.852	817632.85	0.791
73	500-166007-a-...	3310.567	12517700.23	1.619	35959.508	5734569.35	1.263	0.533	510.03	12.523
74	500-166007-a-...	3266.432	12293353.15	1.481	35234.581	5587687.62	1.720	0.433	423.35	4.967
75	500-166007-a-...	13280.903	47275474.30	1.482	45582.083	7192467.58	1.435	970.032	810097.51	0.443
76	500-166007-a-...	737.519	3510595.26	1.435	8383.768	1375635.14	1.302	0.229	260.01	17.746
77	CCV	25728.601	90003908.66	0.788	24897.855	3894422.59	1.260	252.684	209123.09	1.024
78	CCB	0.048	691305.25	3599.063	4.054	3842.76	86.674	0.058	93.34	96.029
79	CCVL	501.429	2379957.93	3.162	199.561	32840.24	5.433	4.730	3730.57	2.896
80	500-164003-f-2	2458.924	10140863.81	0.671	83888.898	14265243.65	0.755	1.640	1540.49	9.209
81	500-164003-f-3	2109.182	8652921.96	2.918	85417.291	14248378.14	2.045	0.623	613.38	4.424
82	500-164003-f-5	3895.345	14988961.03	0.608	76004.732	12451487.33	0.533	0.252	280.02	40.490
83	500-164003-f-6	988.085	4478067.02	2.180	37943.031	6293153.47	1.817	0.047	103.34	188.204
84	500-164003-h-8	1186.709	5134139.92	2.490	83470.006	13642407.44	1.651	0.083	133.34	47.756
85	500-164003-f-9	315.109	1981748.61	1.500	97244.736	15951151.50	0.929	0.094	143.34	50.476

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.034	65764.11	224.876	0.154	9986.63	18.380	0.041	3413.81	34.585
2	ICIS	0.000	63632.39	N/A	0.000	7108.42	N/A	0.000	2740.35	N/A
3	Std1	9.824	251702.07	2.444	10.365	203415.88	1.962	10.364	168703.81	0.819
4	Std2	100.784	1944533.31	0.529	104.594	1991795.55	0.631	102.959	1657367.01	0.559
5	Std3	499.847	9544166.94	0.497	499.074	9654692.78	0.524	499.401	8180253.21	0.829
6	S1	502.544	9614324.44	0.979	509.115	9868366.10	0.869	505.421	8294351.13	2.302
7	ICV	201.722	3891490.46	1.301	205.038	3968387.44	0.587	204.161	3343538.08	0.945
8	ICB	0.131	64717.06	52.583	<0.000	6231.39	N/A	0.030	3130.41	21.883
9	ICVL	4.688	151568.93	1.759	5.086	100411.53	0.208	2.579	42798.03	2.133
10	icsa	<0.000	29586.48	N/A	1.220	32618.73	4.657	0.598	13312.35	3.735
11	icsab	17.911	427786.66	1.495	21.179	434348.78	1.613	20.227	347879.38	1.870
12	CRI	11.120	273171.31	2.195	10.556	205140.28	1.613	5.266	86415.47	1.293
13	CCV	253.161	4881208.36	0.591	256.604	4980140.13	0.616	252.530	4148282.02	0.292
14	CCB	0.668	74228.36	15.927	<0.000	6107.98	N/A	0.024	3057.06	32.250
15	500-165700-e-...	3.503	143490.64	2.399	0.467	17706.47	5.770	0.754	16041.47	1.908
16	mb 500-49357...	0.419	72055.76	4.503	<0.000	6891.64	N/A	0.068	3800.59	2.836
17	lcs 500-493579...	502.962	9756993.60	1.959	208.770	4108148.58	1.864	522.017	8687697.16	1.818
18	400-171203-c-...	0.356	79451.55	12.918	<0.000	6401.45	N/A	68.556	1140967.85	0.566
19	400-171203-c-...	0.596	85651.82	17.847	<0.000	6885.00	N/A	11.455	196947.87	0.800
20	400-171203-c-...	0.882	90318.11	5.606	<0.000	6858.34	N/A	47.990	806427.98	0.576
21	400-171203-c-...	0.793	90371.89	5.993	<0.000	6624.85	N/A	29.244	502433.40	2.125
22	400-171203-c-...	0.825	91005.72	4.623	<0.000	6584.88	N/A	28.975	497969.81	0.410
23	CCV	251.309	5003546.49	0.702	254.652	5103072.32	0.282	249.932	4239040.98	0.516
24	CCB	0.455	71794.77	9.729	<0.000	5724.51	N/A	0.086	4013.97	21.496
25	400-171203-c-...	0.601	82984.41	14.535	<0.000	6794.95	N/A	82.149	1347733.00	1.433
26	400-171203-c-...	0.191	78252.53	32.004	<0.000	6498.16	N/A	125.185	2134633.56	0.999

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	0.467	73943.50	5.587	<0.000	6204.71	N/A	<0.000	2813.68	N/A
28	400-171203-c-...	0.353	81240.41	16.486	<0.000	6034.64	N/A	150.718	2562634.29	0.372
29	400-171203-c-...	0.609	85963.16	4.734	<0.000	6862.06	N/A	97.996	1661591.85	0.937
30	400-171203-c-...	0.797	90154.51	1.533	<0.000	6444.78	N/A	203.642	3469087.24	0.482
31	400-171203-c-...	1.102	95915.58	12.893	<0.000	6981.68	N/A	194.032	3296925.47	0.444
32	400-171203-c-...	1.105	96652.82	5.764	<0.000	6938.37	N/A	238.672	4082999.21	1.962
33	CCV	256.821	4953260.86	1.397	261.273	5073217.42	1.465	255.800	4204041.71	1.244
34	CCB	0.142	66390.07	39.460	<0.000	5661.19	N/A	0.030	3200.43	69.204
35	400-171203-c-...	0.209	73471.54	222.638	<0.000	6664.86	N/A	171.808	2737469.85	11.204
36	400-171203-c-...	0.382	81491.50	30.277	<0.000	6364.78	N/A	149.327	2529474.24	2.876
37	400-171203-c-...	5.702	185891.45	1.609	2.059	49435.87	2.140	151.164	2563378.45	0.717
38	400-171203-c-...	6.340	198959.21	2.552	2.259	53595.53	3.776	164.221	2792809.13	1.543
39	400-171203-c-...	0.281	79860.27	45.469	<0.000	6304.73	N/A	26.223	448817.14	0.324
40	400-171203-c-...	0.450	75875.35	9.672	<0.000	6224.75	N/A	<0.000	2790.34	N/A
41	500-166247-c-...	<0.000	71888.01	N/A	0.808	24034.46	3.258	71.039	1186982.43	1.678
42	CCV	255.507	4912011.38	0.947	261.190	5054785.24	1.158	255.403	4183613.48	1.075
43	CCB	<0.000	61823.18	N/A	<0.000	5761.26	N/A	0.021	3047.08	86.501
44	400-171203-c-...	0.200	75293.09	46.594	<0.000	7001.71	N/A	1529.574	24996756.29	0.980
45	400-171203-c-...	1.603	106523.88	1.757	<0.000	7348.57	N/A	241.495	4132346.60	0.713
46	400-171203-c-...	4.562	166417.17	4.482	0.009	8605.84	299.466	803.610	13855658.54	1.764
47	400-171203-c-...	0.713	93019.44	2.692	97.566	2069586.95	4.002	460.299	8237667.79	1.385
48	400-171203-c-...	0.505	87031.72	18.111	<0.000	8522.46	N/A	514.175	9027848.82	0.989
49	400-171203-c-...	10.039	278686.15	2.435	34.455	717071.11	22.561	1371.926	23906860.48	1.952
50	400-171203-c-...	1.447	111095.64	11.627	0.244	14256.42	5.506	2273.455	41747057.71	1.000
51	400-171203-c-...	1.771	115198.95	1.831	<0.000	8262.37	N/A	2.217	43125.39	2.911
52	400-171203-c-...	2.462	130518.46	6.437	0.239	13936.16	8.076	2747.542	49642067.59	1.314
53	CCV	249.985	5120971.17	0.880	253.291	5221897.84	1.372	249.688	4356881.92	0.787
54	CCB	0.736	82080.84	4.890	<0.000	6251.38	N/A	0.156	5407.79	10.971
55	400-171203-c-...	1.682	111753.95	13.472	0.082	10356.79	19.875	1944.536	34369559.49	1.315
56	400-171203-c-...	2.164	123291.61	2.479	38.276	818558.63	0.592	3282.111	58815129.12	1.398

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	2.425	125272.63	0.229	0.087	10316.88	20.829	3146.742	54889337.52	0.768
58	400-171203-c-...	3.250	147927.29	5.532	0.099	11010.62	22.929	4655.676	84645988.74	2.719
59	400-171203-c-...	3.037	143396.55	2.544	20.330	444897.94	5.316	2800.839	50902622.58	1.404
60	400-171203-c-...	3.137	142515.92	4.899	0.341	15864.56	6.417	2958.196	52665487.55	0.127
61	400-171203-c-...	112.914	2392504.86	1.550	44.276	934516.18	1.583	3121.326	55293989.18	1.754
62	400-171203-c-...	115.135	2342497.52	1.194	195.179	3929404.94	2.970	3177.116	54080014.19	0.934
63	400-171203-c-...	4.024	159073.43	3.720	0.282	14463.33	9.220	603.007	10624275.67	0.719
64	400-171203-c-...	4.188	149186.26	2.948	0.016	8208.94	65.086	0.457	10443.65	4.519
65	CCV	251.064	4852789.30	0.832	254.123	4943686.91	0.836	250.372	4122424.31	1.039
66	CCB	1.021	80904.91	8.212	<0.000	6288.08	N/A	0.237	6191.41	3.486
67	lb 500-493316/...	2.581	122274.99	2.682	1.000	27736.68	2.021	0.689	14533.40	14.161
68	lcs 500-493494...	524.550	10123551.72	1.661	212.590	4163116.50	0.624	541.501	8968369.87	0.968
69	500-165912-c-...	2.050	114598.47	1.584	2.302	54447.56	2.720	1704.607	28955462.07	0.859
70	500-165912-c-...	1.112	96659.90	11.185	0.394	16288.30	5.757	354.000	6045389.91	2.271
71	mb 500-49367...	<0.000	70322.07	N/A	0.326	14526.67	3.536	0.470	10940.55	8.165
72	lcs 500-493674...	494.000	9525175.48	1.185	200.305	3917286.40	1.633	514.591	8511428.41	0.240
73	500-166007-a-...	0.628	84180.77	1.455	0.552	18807.66	9.880	46.629	772390.98	1.300
74	500-166007-a-...	1.002	90798.27	6.336	0.401	15781.15	2.043	46.099	759412.67	1.504
75	500-166007-a-...	502.176	9560667.77	1.252	202.878	3918067.86	1.143	564.160	9213736.11	1.285
76	500-166007-a-...	0.951	92744.12	6.508	0.028	8832.63	62.019	10.950	188658.21	1.404
77	CCV	255.081	4846688.99	0.702	258.665	4947472.01	1.201	254.892	4126491.71	0.756
78	CCB	0.637	71811.91	18.589	<0.000	6134.70	N/A	0.125	4397.43	17.494
79	CCVL	5.368	160848.46	3.035	5.082	98567.99	2.235	2.617	42620.93	3.941
80	500-164003-f-2	<0.000	20036.19	N/A	1.130	32083.14	11.206	25.122	445431.39	0.533
81	500-164003-f-3	<0.000	21717.84	N/A	0.600	20653.15	5.302	113.701	1966119.76	2.145
82	500-164003-f-5	<0.000	17693.34	N/A	1.370	35708.40	0.907	12.535	215719.89	0.306
83	500-164003-f-6	<0.000	17960.20	N/A	<0.000	7788.76	N/A	41.442	714378.48	1.409
84	500-164003-h-8	<0.000	25176.05	N/A	<0.000	3747.25	N/A	515.019	8715530.50	0.893
85	500-164003-f-9	<0.000	24545.08	N/A	<0.000	3150.41	N/A	682.860	11596180.24	1.637

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	2.279	156542.83	5.662	0.034	1306.77	11.125	0.047	1856.84	46.259
2	ICIS	0.000	116207.63	N/A	0.000	506.69	N/A	0.000	1556.80	N/A
3	Std1	1052.202	18695067.64	0.549	10.562	264825.15	0.986	10.899	66531.06	2.033
4	Std2	10390.179	1.84404E+08	1.143	104.182	2620475.64	0.705	105.654	633301.34	1.530
5	Std3	49920.920	9.02368E+08	0.694	499.152	12791965.23	1.017	498.851	3040568.70	0.436
6	S1	50285.939	9.10753E+08	1.150	501.527	12877628.14	1.826	505.515	3087207.56	1.100
7	ICV	20582.093	3.71848E+08	0.814	202.048	5174585.02	0.934	208.781	1272610.14	1.107
8	ICB	3.309	166495.48	4.971	0.065	1950.20	18.173	0.176	2466.94	7.689
9	ICVL	106.298	1938132.78	0.786	1.081	26695.14	0.837	2.279	14766.95	2.867
10	icsa	98646.520	1.84211E+09	1.408	0.388	10877.21	4.747	0.408	4380.75	7.436
11	icsab	97529.234	1.83463E+09	0.328	19.636	524283.48	0.269	19.567	125880.98	1.519
12	CRI	226.512	4086934.63	1.908	2.186	54749.69	2.606	4.465	28017.21	3.731
13	CCV	25521.984	4.62552E+08	0.135	255.197	6556371.15	0.717	259.495	1586393.52	0.631
14	CCB	6.363	216568.09	5.687	0.045	1516.79	17.644	0.072	1930.20	25.093
15	500-165700-e-...	99.699	2009399.71	1.679	0.072	2516.95	4.757	0.298	3710.59	4.903
16	mb 500-49357...	7.408	239705.63	1.314	0.035	1330.10	12.955	0.048	1853.53	36.236
17	lcs 500-493579...	1068.753	19758370.12	1.961	519.790	13534196.88	2.076	529.056	3276106.62	2.169
18	400-171203-c-...	415.190	7738531.97	0.818	0.068	2353.59	5.545	0.049	2080.21	55.006
19	400-171203-c-...	9.837	318842.22	0.493	0.056	2080.22	5.046	0.070	2253.59	48.002
20	400-171203-c-...	4.176	210920.16	2.847	0.140	4247.38	3.597	0.277	3517.20	20.175
21	400-171203-c-...	151.486	2990884.33	1.511	0.032	1456.79	8.598	0.054	2170.24	29.267
22	400-171203-c-...	148.058	2926867.46	1.235	0.028	1340.10	20.023	0.050	2146.90	38.891
23	CCV	25499.405	4.77147E+08	0.652	253.765	6731613.85	0.593	257.687	1626566.54	0.389
24	CCB	3.127	167591.69	6.380	0.043	1490.13	7.442	0.020	1676.82	194.280
25	400-171203-c-...	1.866	164512.40	6.786	0.309	8482.49	1.573	0.446	4470.76	7.299
26	400-171203-c-...	128.761	2555803.30	1.917	0.049	1910.19	3.210	0.063	2223.58	34.069

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	1.722	148800.20	13.867	0.020	986.74	7.658	0.005	1636.82	187.033
28	400-171203-c-...	14.301	403755.74	0.518	0.104	3343.80	7.372	0.085	2353.61	8.698
29	400-171203-c-...	19.588	501134.93	0.378	0.110	3513.86	4.797	0.072	2266.90	25.335
30	400-171203-c-...	87.043	1771085.55	1.069	0.126	3947.28	6.244	0.137	2690.32	8.202
31	400-171203-c-...	62.332	1303571.88	1.241	0.105	3383.82	6.208	0.116	2553.62	10.043
32	400-171203-c-...	85.483	1749694.92	1.440	0.083	2823.68	6.491	0.126	2630.32	19.319
33	CCV	26189.098	4.74871E+08	1.197	259.471	6669624.69	1.556	261.192	1597552.74	1.647
34	CCB	2.780	161769.35	4.350	0.038	1386.78	18.158	<0.000	1340.10	N/A
35	400-171203-c-...	169.359	3101215.47	12.199	0.087	2740.33	6.810	0.077	2160.23	58.060
36	400-171203-c-...	146.493	2870985.48	2.326	0.072	2486.95	14.465	0.008	1863.53	227.724
37	400-171203-c-...	151.865	2974377.66	0.682	5.420	144270.32	0.959	5.755	38083.59	1.485
38	400-171203-c-...	162.238	3177673.81	1.243	5.954	158888.54	1.664	6.056	40094.77	2.205
39	400-171203-c-...	26.073	624858.99	0.524	0.013	940.07	32.356	<0.000	1506.80	N/A
40	400-171203-c-...	0.905	139311.57	21.653	0.006	690.04	71.145	<0.000	1526.80	N/A
41	500-166247-c-...	161.727	3108139.33	0.622	0.386	10657.08	3.591	6.869	44372.29	1.230
42	CCV	26225.745	4.73956E+08	1.013	258.227	6615789.28	1.213	263.890	1608748.41	0.557
43	CCB	2.639	158305.46	8.793	0.042	1466.78	11.750	0.005	1583.48	573.612
44	400-171203-c-...	8921.899	1.61043E+08	1.081	0.229	6411.50	8.550	0.570	5214.37	4.057
45	400-171203-c-...	165.441	3258874.74	1.189	0.539	15023.85	0.439	0.897	7535.29	3.476
46	400-171203-c-...	37.687	854786.65	2.288	1.652	45167.80	4.229	4.149	28454.87	3.891
47	400-171203-c-...	2991.782	59220704.12	0.753	0.375	11114.04	0.588	4.033	28758.51	2.396
48	400-171203-c-...	2543.832	49419229.27	1.273	0.203	6188.04	4.739	1.659	12718.52	2.080
49	400-171203-c-...	258.097	5102238.15	20.826	4.498	123251.39	3.155	7.420	49964.53	2.993
50	400-171203-c-...	2304.655	46854855.97	0.860	0.683	20272.76	2.302	1.579	12755.29	0.967
51	400-171203-c-...	2.250	187821.81	3.208	0.001	643.37	451.374	<0.000	1583.48	N/A
52	400-171203-c-...	451.062	9140218.41	1.478	1.752	50148.44	2.913	1.792	13972.95	6.640
53	CCV	25687.809	4.94513E+08	1.090	250.635	6839935.11	1.352	254.668	1653815.55	1.054
54	CCB	2.040	160851.61	4.973	0.032	1340.11	23.631	<0.000	843.38	N/A
55	400-171203-c-...	381.914	7590621.76	2.154	1.900	53151.01	2.315	2.038	15294.12	0.687
56	400-171203-c-...	1656.733	32911501.18	1.132	1.831	51987.16	0.740	4.062	28998.88	2.085

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	982.657	19058225.55	0.559	1.561	43215.66	3.078	2.678	19248.27	2.891
58	400-171203-c-...	1644.416	33140800.34	3.342	1.443	41688.79	3.129	2.992	22188.61	4.579
59	400-171203-c-...	2865.319	57617507.48	2.060	1.156	33503.79	1.095	2.099	16141.61	1.600
60	400-171203-c-...	2876.753	56669772.49	0.124	1.174	33337.00	1.980	1.722	13312.46	3.311
61	400-171203-c-...	3109.493	60938494.09	2.122	106.744	2959934.02	1.845	109.023	720384.18	1.131
62	400-171203-c-...	4153.623	78166988.83	1.744	108.783	2898408.71	0.876	113.736	721985.17	1.509
63	400-171203-c-...	601.617	11836781.07	0.989	0.257	7698.72	2.288	0.200	3193.77	15.626
64	400-171203-c-...	2.956	182048.07	5.077	0.001	596.70	27.056	<0.000	1106.76	N/A
65	CCV	25765.563	4.68041E+08	1.040	250.905	6461219.28	1.285	254.296	1558242.11	1.457
66	CCB	2.304	153380.64	8.185	0.041	1450.12	23.294	<0.000	650.04	N/A
67	lb 500-493316/...	10.061	316894.23	6.898	0.044	1723.50	38.584	0.115	2493.62	11.240
68	lcs 500-493494...	1102.634	20283879.70	0.463	537.198	13921010.21	0.788	533.533	3288008.60	1.038
69	500-165912-c-...	751.985	14233971.87	0.963	15.482	412093.93	1.389	5239.422	33106400.34	1.281
70	500-165912-c-...	155.277	3061827.77	2.115	3.359	90309.70	2.866	1147.742	7290013.43	2.014
71	mb 500-49367...	13.254	376187.05	1.060	0.042	1673.49	12.143	0.365	4040.64	9.831
72	lcs 500-493674...	1059.502	19466840.54	1.325	511.785	13243513.13	0.857	508.743	3130903.60	1.259
73	500-166007-a-...	238.934	4482824.72	1.433	2.056	53662.14	3.520	37.942	234630.98	1.970
74	500-166007-a-...	232.905	4348741.71	1.607	1.958	50833.88	2.783	36.793	226352.46	0.717
75	500-166007-a-...	1295.028	23467787.15	1.503	512.113	13086110.22	1.191	542.868	3299078.49	1.210
76	500-166007-a-...	55.488	1172722.02	1.259	0.553	15247.43	2.720	8.928	58076.89	2.580
77	CCV	26393.953	4.71427E+08	0.614	257.286	6514658.44	0.793	261.321	1574462.48	0.723
78	CCB	3.041	159428.76	3.884	0.073	2096.89	9.991	<0.000	1123.43	N/A
79	CCVL	106.307	1903927.16	2.369	1.112	26972.15	1.679	2.026	13075.57	6.327
80	500-164003-f-2	228.651	4582075.77	2.301	1.456	40706.35	3.032	3.608	25506.56	2.684
81	500-164003-f-3	1989.374	38050391.93	1.118	8.202	222201.23	1.965	2.485	17813.28	1.696
82	500-164003-f-5	63.642	1326487.53	0.744	3.521	94013.15	1.115	2.195	15664.48	5.591
83	500-164003-f-6	760.190	14535777.70	1.494	3.307	89401.49	1.692	6.154	41124.32	2.480
84	500-164003-h-8	3.352	197740.62	8.719	0.366	10280.10	3.155	4.411	29580.09	1.397
85	500-164003-f-9	8.861	301703.28	1.490	4.827	128842.05	0.987	22.322	142802.64	1.831

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.012	9967.47	215.490	0.017	690.04	122.685	0.008	2049.47	234.889
2	ICIS	0.000	9500.56	N/A	0.000	616.71	N/A	0.000	1964.79	N/A
3	Std1	10.254	170758.55	1.697	10.031	34031.84	3.517	9.536	33197.79	1.349
4	Std2	102.210	1593087.96	1.755	101.979	336608.34	1.509	97.805	317404.69	1.733
5	Std3	499.553	7552031.64	0.633	499.604	1605126.69	0.965	500.448	1574855.46	0.755
6	S1	498.381	7618120.81	1.954	501.396	1628727.63	2.174	501.032	1594232.00	1.895
7	ICV	200.121	3154195.92	1.165	197.642	661114.00	1.170	194.931	639595.21	1.285
8	ICB	0.068	10633.46	16.462	0.123	1003.40	29.047	<0.000	1884.11	N/A
9	ICVL	2.078	42077.56	1.121	19.807	65226.54	2.904	0.897	4977.75	3.647
10	icsa	<0.000	5121.95	N/A	0.843	3303.79	6.559	<0.000	1388.06	N/A
11	icsab	20.293	310312.70	0.614	22.308	70885.69	1.796	21.379	67925.12	1.415
12	CRI	3.775	69776.63	3.547	40.047	134477.91	3.323	1.918	8439.79	3.829
13	CCV	251.487	3953363.18	1.284	248.811	830479.88	1.112	245.284	802693.23	1.023
14	CCB	<0.000	4890.77	N/A	0.058	803.38	66.266	<0.000	1987.79	N/A
15	500-165700-e-...	7.531	128782.52	0.533	1.517	5747.88	7.680	1.595	7384.63	2.121
16	mb 500-49357...	<0.000	5552.09	N/A	0.368	1793.52	16.064	<0.000	1899.78	N/A
17	lcs 500-493579...	254.576	4123804.84	0.730	508.312	1747650.75	0.231	98.171	332396.37	0.525
18	400-171203-c-...	<0.000	3956.07	N/A	0.148	1216.77	27.363	<0.000	2118.14	N/A
19	400-171203-c-...	<0.000	4850.76	N/A	0.197	1376.79	15.615	<0.000	2160.81	N/A
20	400-171203-c-...	<0.000	5886.64	N/A	0.182	1296.77	4.063	0.016	2233.82	96.898
21	400-171203-c-...	<0.000	2963.63	N/A	0.171	1293.43	11.379	<0.000	2236.49	N/A
22	400-171203-c-...	<0.000	3124.77	N/A	0.164	1290.11	16.468	0.018	2339.84	66.674
23	CCV	255.585	4055261.78	0.805	253.396	853709.62	0.516	249.271	823340.61	0.857
24	CCB	<0.000	8769.02	N/A	0.285	1573.47	17.741	<0.000	2005.13	N/A
25	400-171203-c-...	<0.000	6870.36	N/A	0.227	1443.45	30.613	<0.000	2116.14	N/A
26	400-171203-c-...	<0.000	3475.95	N/A	0.213	1463.47	12.089	0.042	2423.85	41.101

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	<0.000	3871.60	N/A	0.121	1036.74	38.199	<0.000	1998.46	N/A
28	400-171203-c-...	<0.000	3812.70	N/A	0.234	1526.80	10.113	<0.000	2254.83	N/A
29	400-171203-c-...	<0.000	3535.97	N/A	0.168	1283.44	18.832	0.001	2249.16	985.985
30	400-171203-c-...	<0.000	2932.52	N/A	0.144	1190.09	4.691	0.073	2468.86	23.804
31	400-171203-c-...	<0.000	3910.49	N/A	0.188	1346.77	13.308	0.061	2438.19	35.696
32	400-171203-c-...	<0.000	3495.97	N/A	0.238	1526.80	31.004	0.077	2509.86	10.048
33	CCV	254.239	4011523.73	0.696	251.315	841997.12	1.031	247.559	813169.75	0.393
34	CCB	<0.000	4709.60	N/A	0.131	1043.40	29.355	<0.000	2023.47	N/A
35	400-171203-c-...	<0.000	4081.66	N/A	0.354	1823.51	17.478	0.074	2358.18	94.580
36	400-171203-c-...	<0.000	3809.37	N/A	0.179	1340.11	10.773	0.002	2275.50	1555.594
37	400-171203-c-...	2.302	48648.38	2.630	5.344	19325.07	4.627	1.034	5787.67	5.088
38	400-171203-c-...	2.518	51796.33	2.476	5.968	21340.85	6.064	1.205	6323.20	6.589
39	400-171203-c-...	<0.000	4764.06	N/A	0.206	1440.12	13.236	<0.000	2166.81	N/A
40	400-171203-c-...	<0.000	5428.71	N/A	0.191	1316.77	16.593	<0.000	2057.47	N/A
41	500-166247-c-...	0.840	22135.67	3.618	11.938	37923.32	3.641	2.402	9370.95	2.998
42	CCV	253.865	3994785.81	2.410	250.072	835492.31	3.053	246.639	807965.90	2.272
43	CCB	<0.000	5801.07	N/A	0.188	1226.77	9.191	<0.000	1961.79	N/A
44	400-171203-c-...	<0.000	4383.96	N/A	0.982	3710.58	6.539	0.770	4392.92	0.787
45	400-171203-c-...	1.259	29112.86	3.025	1.393	5131.01	2.095	0.508	3684.75	5.110
46	400-171203-c-...	3.342	56097.71	1.878	2.322	7518.65	5.792	1.008	4868.72	2.839
47	400-171203-c-...	<0.000	9719.56	N/A	1.790	6428.17	2.658	0.609	4013.49	5.508
48	400-171203-c-...	<0.000	7136.04	N/A	1.789	6318.09	3.758	0.613	3962.15	7.364
49	400-171203-c-...	5.489	88386.74	9.767	1.750	5967.96	2.641	0.898	4663.99	3.543
50	400-171203-c-...	<0.000	3287.03	N/A	1.538	5737.87	5.161	2.786	11119.68	2.015
51	400-171203-c-...	<0.000	3084.77	N/A	0.790	3560.52	7.870	0.099	2674.22	34.977
52	400-171203-c-...	0.457	17321.22	13.621	2.275	8115.60	4.536	1.016	5381.87	4.134
53	CCV	251.181	4102063.45	0.969	250.376	868175.95	0.937	246.569	838241.54	1.202
54	CCB	<0.000	3135.88	N/A	0.135	1120.09	31.720	0.071	2375.51	23.821
55	400-171203-c-...	<0.000	8187.62	N/A	1.714	6294.75	3.145	1.156	5843.36	2.665
56	400-171203-c-...	<0.000	8832.40	N/A	1.334	4967.58	3.842	1.670	7375.29	1.980

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	0.998	24117.22	4.204	1.318	4687.50	8.103	1.114	5356.20	0.699
58	400-171203-c-...	0.339	15104.65	5.359	2.430	8409.16	4.497	1.696	7368.29	2.002
59	400-171203-c-...	0.204	13624.47	13.034	3.163	11194.09	3.512	2.164	9201.52	0.907
60	400-171203-c-...	0.026	10584.50	48.428	1.834	6611.58	5.168	2.365	9613.74	1.357
61	400-171203-c-...	56.327	879335.66	1.657	112.572	370127.05	1.401	26.235	86386.19	2.021
62	400-171203-c-...	58.788	864098.49	1.183	115.448	357519.58	1.773	27.076	83917.51	1.594
63	400-171203-c-...	<0.000	2853.61	N/A	0.897	3727.24	7.623	0.662	4391.25	1.336
64	400-171203-c-...	<0.000	2441.32	N/A	1.879	6895.05	4.294	0.276	3044.29	4.877
65	CCV	249.869	3898216.37	1.763	247.351	819355.28	1.646	245.100	796022.50	1.521
66	CCB	<0.000	2324.63	N/A	0.159	1143.42	26.309	0.144	2489.86	9.571
67	lb 500-493316/...	0.953	23086.90	7.800	6.650	20796.89	1.874	0.875	4565.63	4.083
68	lcs 500-493494...	259.924	4109846.64	1.914	502.669	1687161.07	1.380	100.422	331863.23	1.867
69	500-165912-c-...	3.328	54987.43	0.706	745.205	2181703.46	1.087	2.690	9602.75	3.761
70	500-165912-c-...	0.325	15172.46	4.809	149.876	487969.69	1.267	0.523	3775.10	6.699
71	mb 500-49367...	0.025	11202.69	16.971	11.483	40198.91	1.464	<0.000	1923.12	N/A
72	lcs 500-493674...	245.399	3941635.95	1.165	492.077	1677354.20	1.492	94.926	318737.70	1.229
73	500-166007-a-...	87.312	1423651.54	1.711	729.157	2510463.19	1.962	5.050	19244.96	1.672
74	500-166007-a-...	84.476	1391604.74	0.360	700.686	2436787.77	0.153	4.912	18968.30	0.500
75	500-166007-a-...	321.667	5200729.79	0.889	1174.456	4031524.84	1.031	99.823	337498.85	0.722
76	500-166007-a-...	20.347	351451.89	0.714	172.501	614381.46	1.083	1.201	6490.27	1.104
77	CCV	250.835	3920746.93	1.422	249.835	829172.77	1.106	244.989	797171.92	1.371
78	CCB	<0.000	3008.09	N/A	0.268	1433.45	17.369	0.084	2220.82	63.954
79	CCVL	1.566	34285.77	1.403	19.597	64654.30	1.614	0.986	5268.51	4.703
80	500-164003-f-2	<0.000	7144.93	N/A	3.118	11567.80	0.525	<0.000	2026.80	N/A
81	500-164003-f-3	0.337	16296.85	10.126	0.451	2260.26	6.353	3.080	12641.41	2.348
82	500-164003-f-5	0.016	10920.27	36.382	0.771	3313.81	11.315	<0.000	1573.41	N/A
83	500-164003-f-6	<0.000	1214.50	N/A	5.029	18086.98	2.391	89.581	305169.12	2.698
84	500-164003-h-8	<0.000	4292.82	N/A	7.389	24935.84	3.290	<0.000	2095.14	N/A
85	500-164003-f-9	<0.000	4612.92	N/A	2.281	8309.02	2.549	3.658	14140.60	1.022

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	1047.70	N/A	0.031	1806.84	12.354	0.026	343.35	26.813
2	ICIS	0.000	1074.04	N/A	0.000	1083.42	N/A	0.000	130.01	N/A
3	Std1	9.347	4529.29	1.830	9.702	234041.38	2.765	9.563	83544.56	3.273
4	Std2	98.662	36172.28	2.220	98.864	2351735.90	0.878	98.288	849402.96	0.943
5	Std3	500.281	174198.38	0.700	500.233	11595675.66	0.423	500.351	4214739.83	0.269
6	S1	499.712	175943.84	1.656	500.189	11723576.91	1.812	499.221	4252137.75	1.596
7	ICV	196.521	71921.24	1.109	198.251	4782232.85	1.521	195.753	1715757.79	1.505
8	ICB	<0.000	1058.37	N/A	0.367	9246.26	2.055	0.101	943.40	15.069
9	ICVL	2.143	1908.11	13.436	3.868	92165.63	1.945	3.793	32573.22	1.121
10	icsa	0.237	1199.71	68.448	1.880	43949.27	2.005	2019.645	16717132.67	0.152
11	icsab	22.191	8643.91	1.947	23.443	533895.62	1.451	2021.495	16696274.33	1.048
12	CRI	4.614	2844.92	6.913	7.738	187801.47	2.730	7.993	70217.06	0.757
13	CCV	246.088	89586.22	1.273	247.557	5959839.08	0.641	247.140	2161940.28	1.028
14	CCB	0.044	1104.04	437.909	0.382	9579.78	0.346	0.147	1320.12	11.749
15	500-165700-e-...	0.013	1189.71	894.964	0.654	16962.64	3.223	1.072	9539.82	2.580
16	mb 500-49357...	<0.000	1091.04	N/A	0.014	1443.48	59.226	0.057	603.37	17.927
17	lcs 500-493579...	98.414	37651.50	0.382	982.973	24382283.80	0.792	957.060	8627206.33	0.219
18	400-171203-c-...	<0.000	1065.37	N/A	62.085	1549419.35	1.143	0.322	3067.09	12.325
19	400-171203-c-...	0.712	1482.74	9.132	57.384	1424763.10	1.437	1.707	15534.53	2.841
20	400-171203-c-...	8.995	4446.60	3.013	130.941	3175760.79	1.577	15.080	133026.99	0.422
21	400-171203-c-...	<0.000	1111.71	N/A	56.769	1415195.40	1.420	5.925	53778.28	1.456
22	400-171203-c-...	<0.000	1092.37	N/A	55.063	1395618.42	1.622	5.538	51110.00	3.308
23	CCV	249.987	91833.51	1.770	251.519	6111788.66	1.035	251.062	2216757.88	1.134
24	CCB	<0.000	1076.37	N/A	0.381	10000.03	4.905	0.078	796.72	15.137
25	400-171203-c-...	5.848	3302.00	2.630	140.316	3397227.34	1.373	16.143	142126.66	1.742
26	400-171203-c-...	<0.000	1089.37	N/A	37.304	946754.86	0.569	0.052	633.38	13.667

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	<0.000	1108.71	N/A	0.001	1163.42	598.811	0.021	313.35	25.363
28	400-171203-c-...	<0.000	1137.04	N/A	75.228	1895623.98	1.791	0.027	396.69	5.023
29	400-171203-c-...	<0.000	1107.04	N/A	51.511	1287160.89	0.227	0.052	623.37	16.061
30	400-171203-c-...	<0.000	1130.71	N/A	109.032	2696573.29	1.033	0.051	603.37	31.755
31	400-171203-c-...	<0.000	1188.05	N/A	92.624	2300998.51	0.352	0.061	696.71	19.303
32	400-171203-c-...	<0.000	1144.71	N/A	77.054	1926784.09	1.369	0.027	393.35	0.592
33	CCV	245.737	89797.01	0.444	250.446	6052066.78	0.565	250.641	2200780.90	0.798
34	CCB	0.018	1113.04	303.225	0.357	9152.98	2.719	0.073	730.05	26.741
35	400-171203-c-...	<0.000	1093.71	N/A	65.515	1547702.79	9.745	0.033	426.69	1.189
36	400-171203-c-...	<0.000	1102.37	N/A	56.015	1414671.39	2.820	0.021	340.02	49.838
37	400-171203-c-...	0.754	1518.08	27.576	65.113	1638688.67	2.448	9.903	90631.51	3.373
38	400-171203-c-...	0.762	1510.74	4.176	70.868	1770218.57	1.377	10.872	98778.26	1.467
39	400-171203-c-...	<0.000	1111.37	N/A	9.808	249902.12	0.628	0.006	210.01	32.110
40	400-171203-c-...	<0.000	1121.71	N/A	<0.000	1086.75	N/A	0.003	170.01	65.043
41	500-166247-c-...	0.164	1162.71	90.705	393.936	8885081.12	1.086	38.330	314246.11	1.587
42	CCV	245.898	89610.01	2.548	249.723	6018342.20	2.255	250.524	2193902.83	2.136
43	CCB	<0.000	1055.70	N/A	0.431	10853.99	5.078	0.066	673.38	19.903
44	400-171203-c-...	<0.000	1098.37	N/A	1484.327	33546503.67	0.933	1.390	11551.17	6.015
45	400-171203-c-...	22.851	9051.79	2.132	1315.197	30510542.05	0.767	36.350	306580.82	1.098
46	400-171203-c-...	195.219	63645.72	1.509	2452.043	52675885.88	0.850	273.927	2138622.36	0.388
47	400-171203-c-...	0.547	1334.06	8.344	978.069	22767505.50	1.235	103.308	874079.62	0.112
48	400-171203-c-...	0.815	1402.73	19.238	1097.117	25114506.29	0.646	107.023	890398.63	0.624
49	400-171203-c-...	139.220	46879.82	1.451	2670.890	58870509.12	2.546	294.258	2357104.03	1.964
50	400-171203-c-...	0.289	1271.05	55.913	773.743	18395277.64	0.888	0.650	5757.92	2.212
51	400-171203-c-...	<0.000	1264.05	N/A	0.198	6394.81	0.991	0.035	480.03	33.914
52	400-171203-c-...	0.037	1174.71	48.093	1557.855	36821455.28	2.229	0.509	4507.47	6.495
53	CCV	247.069	93433.95	1.335	250.954	6276344.08	1.290	248.417	2257534.45	1.417
54	CCB	<0.000	1064.04	N/A	0.431	11457.77	4.245	0.060	666.71	31.934
55	400-171203-c-...	0.066	1187.72	26.426	1138.070	26964939.60	0.760	0.928	8129.04	1.842
56	400-171203-c-...	0.405	1287.05	21.382	1944.440	45328752.66	2.174	2.676	22806.53	4.434

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	0.785	1352.73	3.467	1702.498	37843451.10	0.526	1.067	8749.36	4.266
58	400-171203-c-...	0.492	1300.72	22.069	1743.054	40142144.40	2.046	0.565	4867.57	4.631
59	400-171203-c-...	0.141	1230.05	32.942	1189.149	28537770.41	2.007	1.378	12164.94	3.978
60	400-171203-c-...	0.321	1262.72	74.507	1263.287	29581034.56	1.289	0.269	2426.96	2.254
61	400-171203-c-...	24.344	9769.85	2.083	1501.754	35573086.97	1.400	226.408	1948946.38	1.997
62	400-171203-c-...	24.953	9405.31	2.331	1543.648	34443714.49	1.223	241.335	1956953.51	1.484
63	400-171203-c-...	<0.000	1167.05	N/A	238.241	5823452.41	0.345	0.140	1390.12	3.566
64	400-171203-c-...	<0.000	1157.38	N/A	0.120	4060.65	12.887	0.028	386.69	14.099
65	CCV	244.071	88190.29	1.443	248.318	5933030.12	1.263	248.017	2153174.03	1.579
66	CCB	<0.000	1069.37	N/A	0.424	10783.96	3.363	0.073	743.38	10.484
67	lb 500-493316/...	0.183	1134.71	79.858	4.663	103102.24	4.214	0.625	5099.29	6.547
68	lcs 500-493494...	101.579	37899.74	1.383	1036.583	25100492.96	1.536	1020.857	8983247.37	1.453
69	500-165912-c-...	0.708	1261.72	34.760	1193.190	25208092.96	0.429	28.803	221244.54	0.951
70	500-165912-c-...	<0.000	1135.04	N/A	225.372	5289224.51	2.221	5.601	47913.99	2.239
71	mb 500-49367...	<0.000	1087.04	N/A	0.176	5601.17	5.591	0.090	956.73	6.091
72	lcs 500-493674...	95.357	36207.67	1.152	976.482	24014608.81	1.306	953.257	8519566.12	1.012
73	500-166007-a-...	<0.000	1035.04	N/A	91.682	2278684.65	2.232	4.188	37944.48	4.325
74	500-166007-a-...	<0.000	1069.04	N/A	88.342	2217896.95	0.453	3.902	35729.80	2.781
75	500-166007-a-...	95.430	36497.62	0.367	1060.776	26276203.78	1.212	960.583	8647027.16	0.936
76	500-166007-a-...	<0.000	1064.71	N/A	21.311	548422.09	0.893	1.199	11341.03	1.311
77	CCV	246.372	89176.78	1.713	249.890	5981574.70	1.795	251.218	2185195.70	0.943
78	CCB	<0.000	1036.70	N/A	0.403	9916.67	5.491	0.105	963.40	8.964
79	CCVL	2.009	1865.11	6.768	3.794	90586.44	1.925	3.846	33074.06	2.552
80	500-164003-f-2	<0.000	1077.71	N/A	113.460	2852342.56	1.141	0.447	4230.72	6.926
81	500-164003-f-3	<0.000	1052.37	N/A	129.025	3214233.60	2.619	0.377	3557.20	9.757
82	500-164003-f-5	<0.000	1044.04	N/A	79.351	1948632.16	0.486	0.451	4167.35	2.397
83	500-164003-f-6	<0.000	1068.71	N/A	103.844	2590886.52	3.026	1.914	17496.60	1.873
84	500-164003-h-8	<0.000	1055.04	N/A	167.627	3974663.07	2.581	0.326	2947.05	3.253
85	500-164003-f-9	<0.000	1055.71	N/A	283.027	6831935.11	1.273	0.451	4093.99	4.019

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.039	146.67	563.130	0.002	80.00	51.611	<0.000	3.33	N/A
2	ICIS	0.000	130.01	N/A	0.000	30.00	N/A	0.000	3.33	N/A
3	Std1	10.019	3733.91	2.445	1.049	21855.41	4.172	10.286	2773.69	10.463
4	Std2	101.933	36314.85	2.687	10.257	211399.71	1.760	101.947	27196.73	1.621
5	Std3	499.613	173020.99	1.482	99.974	2008549.19	0.475	499.605	129925.52	0.501
6	S1	499.856	175021.69	1.935	99.986	2031081.22	2.070	500.636	131613.31	3.448
7	ICV	196.379	70850.89	1.934	40.512	846895.53	1.278	196.952	53287.70	3.289
8	ICB	<0.000	80.00	N/A	0.007	173.34	15.868	0.027	10.00	150.651
9	ICVL	0.303	246.68	49.166	0.513	10497.05	4.181	0.592	160.01	16.389
10	icsa	0.101	170.01	73.027	0.073	1470.12	3.102	23.695	6058.03	1.871
11	icsab	20.927	7238.56	4.616	20.675	407308.04	1.716	44.152	11260.97	1.659
12	CRI	0.679	386.69	29.454	1.046	21888.70	5.352	1.134	310.02	11.742
13	CCV	245.651	88415.32	0.119	51.553	1075609.25	0.914	247.846	66937.76	1.713
14	CCB	<0.000	76.67	N/A	0.010	213.34	27.697	0.013	6.67	174.402
15	500-165700-e-...	1.759	776.72	8.701	0.011	253.34	9.583	0.553	153.34	30.012
16	mb 500-49357...	<0.000	76.67	N/A	0.003	96.67	34.735	0.013	6.67	176.698
17	lcs 500-493579...	50.772	18944.97	4.552	52.030	1118629.80	0.839	61.549	17129.55	3.608
18	400-171203-c-...	<0.000	60.00	N/A	0.005	143.34	42.147	0.022	10.00	161.720
19	400-171203-c-...	<0.000	43.33	N/A	0.002	76.67	93.572	0.023	10.00	159.351
20	400-171203-c-...	<0.000	93.34	N/A	0.003	86.67	27.542	0.232	66.67	24.881
21	400-171203-c-...	<0.000	83.34	N/A	0.001	56.67	180.370	0.058	20.00	124.052
22	400-171203-c-...	<0.000	60.00	N/A	0.001	50.00	65.231	0.069	23.33	28.879
23	CCV	253.390	92042.11	2.211	52.338	1102170.97	1.410	256.056	69796.27	2.409
24	CCB	<0.000	83.34	N/A	0.006	150.01	45.940	0.103	30.00	114.091
25	400-171203-c-...	<0.000	46.67	N/A	0.003	86.67	46.744	0.281	80.00	47.757
26	400-171203-c-...	<0.000	53.33	N/A	0.000	36.67	2289.303	<0.000	0.00	0.000

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	<0.000	50.00	N/A	0.002	66.67	62.369	0.025	10.00	155.538
28	400-171203-c-...	<0.000	73.33	N/A	0.001	60.00	143.314	<0.000	0.00	0.000
29	400-171203-c-...	<0.000	100.01	N/A	0.001	46.67	166.450	0.022	10.00	160.360
30	400-171203-c-...	<0.000	90.00	N/A	<0.000	13.33	N/A	<0.000	3.33	N/A
31	400-171203-c-...	<0.000	93.34	N/A	<0.000	13.33	N/A	0.011	6.67	395.220
32	400-171203-c-...	<0.000	73.33	N/A	<0.000	23.33	N/A	<0.000	0.00	0.000
33	CCV	250.072	90339.19	1.379	52.258	1094411.21	1.324	248.800	67442.85	1.974
34	CCB	<0.000	60.00	N/A	0.005	136.67	34.244	<0.000	0.00	0.000
35	400-171203-c-...	<0.000	63.33	N/A	0.002	80.00	77.414	<0.000	0.00	0.000
36	400-171203-c-...	<0.000	46.67	N/A	0.002	73.34	62.292	0.021	10.00	160.886
37	400-171203-c-...	0.170	213.34	14.045	0.500	10920.75	3.579	0.649	186.67	42.906
38	400-171203-c-...	0.541	350.02	19.044	0.590	12805.55	3.349	0.653	186.68	22.259
39	400-171203-c-...	<0.000	86.67	N/A	0.001	63.33	162.448	0.022	10.00	161.781
40	400-171203-c-...	<0.000	43.34	N/A	0.000	33.33	7077.710	<0.000	3.33	N/A
41	500-166247-c-...	0.010	136.68	1354.236	0.018	390.02	23.148	0.867	223.34	19.494
42	CCV	251.617	90637.51	3.371	52.170	1089713.21	2.004	251.388	67968.19	2.578
43	CCB	<0.000	63.33	N/A	0.006	150.01	21.337	0.026	10.00	1.288
44	400-171203-c-...	<0.000	96.67	N/A	0.006	146.67	28.979	0.065	20.00	1.481
45	400-171203-c-...	<0.000	93.34	N/A	0.006	146.67	41.914	0.653	173.34	24.437
46	400-171203-c-...	0.070	150.01	206.293	0.009	193.34	9.218	3.845	930.07	19.671
47	400-171203-c-...	<0.000	80.00	N/A	0.006	146.67	62.750	1.356	356.68	25.465
48	400-171203-c-...	<0.000	110.01	N/A	0.004	116.67	62.237	1.436	373.36	27.860
49	400-171203-c-...	<0.000	80.00	N/A	0.009	196.68	53.422	3.655	906.73	7.201
50	400-171203-c-...	<0.000	110.01	N/A	0.004	116.67	37.827	0.087	26.67	90.529
51	400-171203-c-...	<0.000	76.67	N/A	0.001	63.34	210.391	0.044	16.67	43.491
52	400-171203-c-...	<0.000	93.34	N/A	0.002	83.34	41.797	0.023	10.00	273.352
53	CCV	250.532	93670.63	2.615	51.852	1123904.65	0.655	249.561	70017.09	2.503
54	CCB	<0.000	70.00	N/A	0.008	196.68	38.074	0.049	16.67	89.712
55	400-171203-c-...	<0.000	86.67	N/A	0.005	140.01	33.573	0.036	13.33	118.735
56	400-171203-c-...	<0.000	126.67	N/A	0.004	113.34	87.376	0.063	20.00	105.183

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	<0.000	90.00	N/A	0.004	106.67	30.054	0.013	6.67	352.177
58	400-171203-c-...	<0.000	103.34	N/A	0.005	136.67	43.490	0.090	26.67	163.028
59	400-171203-c-...	<0.000	86.67	N/A	0.002	76.67	118.524	0.049	16.67	89.980
60	400-171203-c-...	<0.000	96.67	N/A	0.002	76.67	47.585	0.075	23.33	57.934
61	400-171203-c-...	10.978	4023.99	3.913	10.995	225744.48	2.870	13.968	3713.92	7.043
62	400-171203-c-...	10.769	3720.56	4.240	11.475	221972.09	0.320	14.031	3517.17	3.542
63	400-171203-c-...	<0.000	93.34	N/A	0.002	70.00	48.880	<0.000	0.00	0.000
64	400-171203-c-...	<0.000	66.67	N/A	0.001	63.34	116.976	<0.000	3.33	N/A
65	CCV	248.416	88733.35	1.286	51.788	1072330.19	1.627	246.648	66094.29	4.037
66	CCB	<0.000	60.00	N/A	0.006	140.01	27.880	0.013	6.67	178.281
67	lb 500-493316/...	<0.000	120.01	N/A	0.012	256.68	16.792	0.066	20.00	118.960
68	lcs 500-493494...	51.608	18794.77	3.600	53.999	1133404.49	1.321	64.754	17603.55	2.151
69	500-165912-c-...	0.046	140.01	16.348	0.012	256.68	30.549	0.678	163.34	35.457
70	500-165912-c-...	<0.000	90.00	N/A	0.002	66.67	43.368	0.112	33.33	83.248
71	mb 500-49367...	<0.000	116.67	N/A	0.003	90.00	82.424	<0.000	3.33	N/A
72	lcs 500-493674...	48.439	17927.12	2.633	50.921	1085362.40	2.135	58.792	16225.21	1.568
73	500-166007-a-...	<0.000	83.33	N/A	0.061	1350.11	12.187	0.118	36.67	45.611
74	500-166007-a-...	<0.000	80.00	N/A	0.054	1213.43	2.868	0.117	36.67	35.235
75	500-166007-a-...	48.233	17987.13	3.635	50.078	1075260.56	0.300	61.789	17176.22	1.581
76	500-166007-a-...	<0.000	113.34	N/A	0.019	466.69	34.333	0.033	13.33	244.132
77	CCV	253.032	90539.76	3.342	52.121	1081262.95	1.475	256.984	69005.78	1.986
78	CCB	<0.000	60.00	N/A	0.015	313.35	40.544	0.068	20.00	60.168
79	CCVL	0.379	273.35	23.575	0.529	10844.01	2.841	0.566	153.34	25.066
80	500-164003-f-2	<0.000	83.34	N/A	0.020	460.03	19.626	0.034	13.33	121.287
81	500-164003-f-3	<0.000	76.67	N/A	0.003	103.34	47.516	<0.000	0.00	0.000
82	500-164003-f-5	<0.000	56.67	N/A	0.002	76.67	97.738	0.011	6.67	196.485
83	500-164003-f-6	<0.000	76.67	N/A	0.001	50.00	71.975	<0.000	3.33	N/A
84	500-164003-h-8	<0.000	70.00	N/A	0.001	56.67	186.877	0.048	16.67	158.562
85	500-164003-f-9	<0.000	103.34	N/A	0.003	86.68	73.455	0.023	10.00	157.827

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.035	231.82	37.255	0.043	1670.16	54.415	0.077	1323.44	28.746
2	ICIS	0.000	99.08	N/A	0.000	1183.43	N/A	0.000	193.34	N/A
3	Std1	9.856	39495.55	2.192	9.789	110185.95	1.802	9.716	151808.86	2.089
4	Std2	100.339	397229.19	1.172	99.815	1100819.67	2.282	99.983	1545253.73	2.351
5	Std3	499.935	1929023.71	0.720	500.041	5372070.96	0.541	500.009	7534049.89	0.716
6	S1	499.234	1947772.56	1.603	498.244	5411902.21	2.419	498.804	7599122.18	2.235
7	ICV	199.134	799529.59	1.571	196.236	2194398.09	1.142	196.617	3082689.95	1.480
8	ICB	0.032	217.07	81.985	0.303	4314.09	9.655	0.263	3987.31	14.665
9	ICVL	0.521	2147.00	6.530	4.993	55706.66	3.243	3.027	46521.39	1.484
10	icsa	0.283	1178.35	12.163	0.086	2146.89	5.640	0.165	2650.33	7.237
11	icsab	21.242	80486.51	3.637	21.201	224493.49	2.205	10.353	153167.61	1.094
12	CRI	0.923	3813.38	6.148	9.721	109948.26	2.378	5.854	91970.62	3.257
13	CCV	250.316	1003057.78	0.815	245.560	2740285.90	1.045	244.253	3822119.11	0.958
14	CCB	0.018	164.76	131.411	0.212	3383.84	3.226	0.297	4470.83	8.083
15	500-165700-e-...	0.106	535.56	11.481	0.121	2657.01	12.757	0.321	5251.07	4.378
16	mb 500-49357...	<0.000	88.09	N/A	0.043	1673.48	56.092	0.037	750.06	18.202
17	lcs 500-493579...	51.099	211094.61	0.687	979.700	11262098.16	0.398	498.228	8033725.50	0.705
18	400-171203-c-...	<0.000	75.11	N/A	0.410	6091.34	7.290	0.096	1770.18	19.691
19	400-171203-c-...	<0.000	82.38	N/A	0.156	3133.77	16.787	0.037	816.72	24.754
20	400-171203-c-...	<0.000	76.43	N/A	0.108	2520.30	16.346	0.036	786.72	18.421
21	400-171203-c-...	<0.000	75.54	N/A	0.061	2050.21	29.755	0.019	533.36	30.351
22	400-171203-c-...	<0.000	50.80	N/A	0.055	2023.54	6.389	0.012	416.69	62.428
23	CCV	252.700	1022071.50	1.039	252.166	2840374.64	0.703	250.247	3952598.17	0.753
24	CCB	0.004	121.48	349.628	0.187	3267.14	4.834	0.251	4004.01	10.437
25	400-171203-c-...	<0.000	76.48	N/A	0.099	2423.62	7.166	0.087	1576.81	8.525
26	400-171203-c-...	<0.000	84.08	N/A	0.058	2050.21	36.694	0.039	866.73	6.650

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	<0.000	80.80	N/A	0.030	1566.81	52.580	0.026	600.04	18.425
28	400-171203-c-...	<0.000	92.69	N/A	0.042	1853.52	7.088	0.013	443.36	18.087
29	400-171203-c-...	<0.000	85.67	N/A	0.047	1896.86	46.323	0.016	480.03	11.734
30	400-171203-c-...	<0.000	75.18	N/A	0.037	1763.50	39.116	0.005	296.68	37.332
31	400-171203-c-...	<0.000	87.49	N/A	0.033	1720.17	41.958	0.020	546.70	26.206
32	400-171203-c-...	<0.000	82.69	N/A	0.062	2077.48	54.917	<0.000	200.01	N/A
33	CCV	252.140	1014146.85	1.471	248.636	2785008.08	0.444	247.395	3885774.84	0.630
34	CCB	0.011	142.51	38.612	0.198	3283.81	21.026	0.253	3900.65	14.963
35	400-171203-c-...	<0.000	95.05	N/A	0.092	2290.26	12.870	0.073	1323.44	14.868
36	400-171203-c-...	<0.000	61.59	N/A	0.050	1950.21	23.426	0.033	766.72	29.117
37	400-171203-c-...	0.506	2232.95	11.494	10.234	120628.82	1.955	5.088	83404.73	1.773
38	400-171203-c-...	0.518	2267.36	4.916	11.090	129634.12	2.068	5.481	89158.80	1.527
39	400-171203-c-...	<0.000	68.82	N/A	0.093	2463.62	22.327	0.016	483.36	26.419
40	400-171203-c-...	<0.000	59.53	N/A	0.050	1863.53	24.549	0.006	310.01	107.888
41	500-166247-c-...	0.039	248.12	73.329	0.723	8769.40	6.177	0.631	9449.91	2.556
42	CCV	251.571	1009175.31	2.078	249.162	2783151.52	2.809	247.789	3881344.11	2.560
43	CCB	0.017	167.66	15.831	0.211	3433.84	6.730	0.238	3697.26	12.401
44	400-171203-c-...	<0.000	69.06	N/A	0.125	2526.96	18.458	0.085	1453.46	11.435
45	400-171203-c-...	0.016	168.66	62.074	0.074	2053.57	5.809	0.059	1096.75	24.575
46	400-171203-c-...	0.096	440.10	80.818	0.114	2300.36	41.081	0.125	1933.54	9.660
47	400-171203-c-...	0.013	155.10	213.898	0.252	3980.64	13.928	0.026	596.70	13.780
48	400-171203-c-...	0.013	150.12	324.226	0.069	1973.53	11.757	0.016	440.03	33.878
49	400-171203-c-...	0.103	478.32	18.578	0.061	1813.54	49.405	0.197	3010.40	10.302
50	400-171203-c-...	0.005	128.76	471.341	0.065	2000.21	18.176	0.008	340.02	59.733
51	400-171203-c-...	<0.000	60.69	N/A	0.024	1683.51	51.025	0.000	233.35	1247.266
52	400-171203-c-...	0.002	113.91	969.022	0.114	2530.30	13.231	0.025	596.71	50.388
53	CCV	251.216	1045770.51	1.634	246.995	2863388.91	1.314	245.865	3996829.32	1.190
54	CCB	0.007	135.60	116.721	0.177	3247.12	4.908	0.216	3553.89	11.452
55	400-171203-c-...	0.000	108.57	924.556	0.131	2728.67	16.134	0.085	1516.79	15.310
56	400-171203-c-...	0.004	121.99	203.162	0.127	2636.99	1.712	0.044	866.73	15.268

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	0.020	174.94	54.224	0.073	1956.88	19.919	0.026	580.04	34.432
58	400-171203-c-...	0.006	127.01	230.575	0.112	2443.62	7.323	0.042	833.39	21.490
59	400-171203-c-...	0.004	125.00	530.511	0.135	2800.36	26.249	0.015	453.36	12.554
60	400-171203-c-...	0.009	142.15	54.456	0.066	1983.54	26.017	0.017	473.36	30.661
61	400-171203-c-...	10.825	42785.43	2.417	220.668	2423383.04	1.959	111.709	1720311.43	1.821
62	400-171203-c-...	11.339	42220.15	1.566	231.533	2394997.46	1.831	115.837	1680350.50	1.352
63	400-171203-c-...	<0.000	101.31	N/A	0.196	3537.21	10.391	0.050	1010.07	3.656
64	400-171203-c-...	<0.000	77.36	N/A	0.081	2190.25	28.753	0.019	500.03	12.976
65	CCV	250.553	996419.68	1.411	247.759	2743879.75	1.644	247.205	3839126.50	1.246
66	CCB	0.023	188.69	67.691	0.203	3373.81	8.736	0.232	3630.59	16.231
67	lb 500-493316/...	0.020	173.56	23.537	0.650	7785.51	7.230	0.147	2283.59	10.115
68	lcs 500-493494...	51.669	208356.70	2.056	1039.408	11664202.33	1.467	516.720	8134343.42	1.036
69	500-165912-c-...	0.066	328.39	25.031	1.239	13248.59	17.155	1.096	15244.43	2.311
70	500-165912-c-...	0.009	139.67	181.855	0.176	3187.20	9.995	0.239	3847.28	8.073
71	mb 500-49367...	<0.000	102.23	N/A	0.037	1773.51	78.703	0.093	1726.84	1.385
72	lcs 500-493674...	49.843	204132.60	2.091	982.278	11194895.66	1.585	487.063	7786015.72	2.505
73	500-166007-a-...	0.043	291.00	54.263	92.622	1067559.65	2.141	1.165	19028.56	4.505
74	500-166007-a-...	0.033	251.79	117.712	86.482	1006932.12	0.806	1.077	17787.03	1.182
75	500-166007-a-...	48.500	200099.42	0.427	1078.188	12377583.57	0.738	497.981	8018903.01	1.020
76	500-166007-a-...	0.006	142.28	141.860	21.728	259906.92	0.682	0.378	6538.27	8.178
77	CCV	254.367	1013477.08	1.538	251.200	2787290.27	1.208	249.705	3885371.40	0.838
78	CCB	0.003	111.05	518.173	0.312	4357.42	6.223	0.279	4170.72	10.971
79	CCVL	0.489	2024.51	5.909	4.986	55719.65	2.323	2.967	45668.51	0.803
80	500-164003-f-2	0.022	206.04	15.508	<0.000	1303.44	N/A	0.084	1586.81	10.090
81	500-164003-f-3	<0.000	101.91	N/A	<0.000	826.72	N/A	0.025	616.71	13.639
82	500-164003-f-5	<0.000	96.14	N/A	<0.000	376.69	N/A	0.023	580.04	36.317
83	500-164003-f-6	<0.000	91.66	N/A	<0.000	453.36	N/A	0.010	380.02	32.964
84	500-164003-h-8	0.012	155.60	91.054	<0.000	853.39	N/A	0.017	473.36	75.806
85	500-164003-f-9	0.016	171.56	101.088	0.366	5397.82	10.135	0.030	676.71	38.432

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
1	blk I.S /tune	0.079	446.69	17.763						
2	ICIS	0.000	60.00	N/A						
3	Std1	10.079	53443.99	3.998						
4	Std2	100.404	540627.64	0.833						
5	Std3	499.918	2663951.53	0.312						
6	S1	502.061	2668877.67	2.038						
7	ICV	202.538	1091047.69	1.998						
8	ICB	0.045	280.02	30.937						
9	ICVL	2.482	12935.75	1.461						
10	icsa	0.758	4154.06	5.128						
11	icsab	21.048	114356.22	1.334						
12	CRI	5.136	27167.46	1.295						
13	CCV	250.806	1366324.04	0.159						
14	CCB	0.022	170.01	14.153						
15	500-165700-e-...	0.403	2350.27	8.047						
16	mb 500-49357...	0.016	143.34	59.816						
17	lcs 500-493579...	507.831	2801555.79	0.822						
18	400-171203-c-...	4.013	21982.64	3.541						
19	400-171203-c-...	1.571	8625.96	3.944						
20	400-171203-c-...	0.755	4154.02	5.825						
21	400-171203-c-...	0.850	4750.89	5.830						
22	400-171203-c-...	0.780	4410.78	3.082						
23	CCV	250.017	1404222.01	0.946						
24	CCB	0.040	260.01	8.017						
25	400-171203-c-...	0.719	4010.66	3.686						
26	400-171203-c-...	0.377	2193.57	9.835						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
27	400-171203-c-...	0.017	146.67	67.876						
28	400-171203-c-...	0.965	5457.86	0.906						
29	400-171203-c-...	0.657	3660.58	2.677						
30	400-171203-c-...	0.568	3190.44	9.987						
31	400-171203-c-...	0.842	4690.88	3.550						
32	400-171203-c-...	0.458	2553.65	7.770						
33	CCV	254.802	1387155.29	1.066						
34	CCB	0.025	180.01	35.005						
35	400-171203-c-...	0.486	2580.32	11.445						
36	400-171203-c-...	0.398	2256.92	12.529						
37	400-171203-c-...	5.553	31067.63	2.772						
38	400-171203-c-...	6.009	33506.12	1.727						
39	400-171203-c-...	0.095	593.37	10.195						
40	400-171203-c-...	0.002	73.33	193.370						
41	500-166247-c-...	53.201	278988.73	1.995						
42	CCV	252.356	1377805.81	1.083						
43	CCB	0.047	293.35	28.050						
44	400-171203-c-...	90.004	468230.75	1.749						
45	400-171203-c-...	32.805	173272.15	1.016						
46	400-171203-c-...	13.558	66154.03	1.717						
47	400-171203-c-...	13.586	72214.10	1.802						
48	400-171203-c-...	14.864	78077.32	1.866						
49	400-171203-c-...	12.950	64370.43	1.843						
50	400-171203-c-...	7.090	38443.97	0.531						
51	400-171203-c-...	0.022	186.67	67.169						
52	400-171203-c-...	18.067	97396.06	1.857						
53	CCV	252.652	1426666.90	2.264						
54	CCB	0.038	260.01	8.689						
55	400-171203-c-...	13.250	72076.63	0.591						
56	400-171203-c-...	9.758	50888.53	0.541						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
57	400-171203-c-...	14.917	74986.23	1.755						
58	400-171203-c-...	9.487	50019.63	3.358						
59	400-171203-c-...	8.305	45321.99	2.143						
60	400-171203-c-...	9.060	48714.95	1.810						
61	400-171203-c-...	121.908	653822.09	1.271						
62	400-171203-c-...	123.353	630635.39	1.029						
63	400-171203-c-...	1.702	9303.09	2.477						
64	400-171203-c-...	0.052	326.68	40.991						
65	CCV	249.230	1355927.16	1.414						
66	CCB	0.033	226.68	35.398						
67	lb 500-493316/...	5.423	27354.46	3.511						
68	lcs 500-493494...	506.090	2823183.50	0.414						
69	500-165912-c-...	3.702	18334.46	4.188						
70	500-165912-c-...	0.767	4207.40	5.049						
71	mb 500-49367...	0.222	1266.76	33.803						
72	lcs 500-493674...	484.324	2716476.52	2.323						
73	500-166007-a-...	25.219	140061.79	1.814						
74	500-166007-a-...	24.002	135058.90	1.885						
75	500-166007-a-...	501.687	2856333.29	1.928						
76	500-166007-a-...	5.906	33516.16	1.254						
77	CCV	251.887	1386799.98	0.293						
78	CCB	0.060	353.35	26.509						
79	CCVL	2.501	12979.15	5.033						
80	500-164003-f-2	179.380	1033788.16	2.069						
81	500-164003-f-3	194.593	1103634.78	1.725						
82	500-164003-f-5	121.041	675459.18	0.355						
83	500-164003-f-6	351.926	1978152.26	2.010						
84	500-164003-h-8	151.641	838209.99	0.829						
85	500-164003-f-9	167.093	937304.08	0.711						

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.018	1123.43	16.231	0.025	353.35	8.688	0.028	330.02	48.031
2	ICIS	0.000	580.04	N/A	0.000	103.33	N/A	0.000	90.00	N/A
3	Std1	9.845	302505.82	0.487	9.865	102470.89	1.953	9.873	89329.49	2.100
4	Std2	99.296	3052300.48	0.972	97.591	1014989.80	1.091	97.982	887709.02	1.040
5	Std3	500.144	14568454.37	0.347	500.485	4932634.93	0.386	500.406	4296142.33	0.744
6	S1	496.080	14705148.95	1.391	495.669	4971043.57	2.182	497.292	4345292.75	1.099
7	ICV	199.466	6036427.41	1.678	199.952	2047312.47	2.202	199.600	1780214.92	2.714
8	ICB	0.074	2743.69	9.269	0.060	690.04	16.161	0.088	843.39	15.646
9	ICVL	1.957	60096.07	2.572	0.531	5567.93	0.845	0.515	4710.94	3.784
10	icsa	0.044	1896.87	12.142	0.352	3583.91	9.214	0.377	3347.17	8.814
11	icsab	10.116	298956.55	3.360	20.563	205340.23	2.250	20.394	177403.69	2.444
12	CRI	3.963	123666.54	1.827	0.964	10237.24	3.227	1.018	9413.23	3.920
13	CCV	248.911	7707034.26	1.361	246.717	2584739.23	1.423	245.755	2242854.86	1.368
14	CCB	0.044	1896.86	23.671	0.031	413.36	26.698	0.040	436.69	28.552
15	500-165700-e-...	0.016	1146.75	20.265	0.315	3430.53	4.632	0.286	2723.68	2.517
16	mb 500-49357...	0.010	890.06	36.776	0.017	276.68	18.763	0.022	280.02	30.738
17	lcs 500-493579...	100.729	3245221.93	1.439	101.124	1102394.36	0.697	100.557	954896.83	1.083
18	400-171203-c-...	0.018	1196.76	1.512	0.016	290.01	19.551	0.020	283.35	44.631
19	400-171203-c-...	0.001	690.04	282.075	0.008	203.34	6.060	0.011	200.01	80.072
20	400-171203-c-...	<0.000	540.03	N/A	0.010	220.01	31.238	0.015	236.68	29.142
21	400-171203-c-...	<0.000	540.03	N/A	0.008	206.68	31.489	0.003	130.01	3.589
22	400-171203-c-...	<0.000	570.04	N/A	0.003	153.34	139.892	0.002	123.34	414.106
23	CCV	252.561	7973064.26	1.326	249.717	2667367.56	1.443	249.008	2316968.98	1.581
24	CCB	0.037	1736.84	26.810	0.056	680.04	14.170	0.044	490.03	21.082
25	400-171203-c-...	0.004	783.39	103.301	0.026	393.35	4.754	0.018	270.01	39.066
26	400-171203-c-...	<0.000	603.37	N/A	0.013	260.01	18.350	0.013	226.68	44.861

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	0.003	690.04	29.864	0.009	203.34	55.754	0.008	163.34	57.297
28	400-171203-c-...	<0.000	600.04	N/A	0.009	220.01	77.755	0.007	166.68	49.008
29	400-171203-c-...	<0.000	453.36	N/A	0.003	150.01	94.176	0.005	153.34	70.885
30	400-171203-c-...	<0.000	513.37	N/A	0.008	196.67	103.471	<0.000	100.00	N/A
31	400-171203-c-...	<0.000	503.37	N/A	0.002	136.67	155.910	0.003	126.68	60.446
32	400-171203-c-...	<0.000	463.36	N/A	0.007	190.01	40.157	0.004	136.67	65.470
33	CCV	254.298	7801413.84	1.264	253.001	2626390.69	0.362	252.027	2279072.62	0.789
34	CCB	0.040	1780.18	9.359	0.039	496.70	21.360	0.043	466.69	25.721
35	400-171203-c-...	0.007	836.73	60.630	0.011	220.01	27.097	0.016	236.68	37.237
36	400-171203-c-...	<0.000	580.04	N/A	0.011	236.68	48.030	0.004	143.34	188.163
37	400-171203-c-...	1.028	33778.28	2.891	1.031	11354.64	3.240	1.044	10020.33	4.122
38	400-171203-c-...	1.106	36334.33	2.599	1.150	12669.10	3.100	1.135	10894.30	0.758
39	400-171203-c-...	<0.000	556.70	N/A	0.012	256.68	82.642	0.009	193.34	52.448
40	400-171203-c-...	<0.000	546.70	N/A	0.002	133.34	340.818	0.006	150.01	75.838
41	500-166247-c-...	<0.000	516.69	N/A	0.303	3110.46	4.454	0.265	2380.29	8.637
42	CCV	253.203	7873432.59	0.790	250.857	2639435.27	0.535	249.556	2287303.40	0.902
43	CCB	0.048	2010.22	13.045	0.048	583.37	34.468	0.049	523.37	5.923
44	400-171203-c-...	0.009	820.05	41.433	0.042	496.70	57.420	0.034	370.02	20.766
45	400-171203-c-...	0.002	643.37	70.570	0.024	336.69	34.529	0.021	263.35	21.376
46	400-171203-c-...	0.019	1036.75	0.294	0.054	570.03	21.668	0.064	573.37	14.435
47	400-171203-c-...	<0.000	320.01	N/A	0.025	340.02	44.046	0.029	333.35	22.535
48	400-171203-c-...	<0.000	316.68	N/A	0.020	300.02	42.666	0.015	213.35	46.971
49	400-171203-c-...	0.026	1233.44	9.667	0.039	450.03	23.441	0.039	383.36	12.287
50	400-171203-c-...	<0.000	393.35	N/A	0.022	326.68	48.946	0.021	273.34	2.225
51	400-171203-c-...	<0.000	446.69	N/A	0.015	283.35	34.562	0.019	280.01	63.431
52	400-171203-c-...	<0.000	373.36	N/A	0.027	370.02	13.634	0.026	303.35	67.869
53	CCV	252.638	8077989.25	0.408	247.326	2675811.63	1.378	245.789	2316481.01	1.176
54	CCB	0.043	2000.23	10.076	0.031	440.02	28.445	0.035	420.02	26.777
55	400-171203-c-...	0.002	650.04	228.802	0.033	426.69	23.432	0.026	316.69	19.048
56	400-171203-c-...	<0.000	493.36	N/A	0.030	393.36	35.552	0.018	243.35	31.826

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	<0.000	423.36	N/A	0.018	263.34	6.680	0.021	250.01	26.160
58	400-171203-c-...	<0.000	416.69	N/A	0.050	576.70	13.033	0.040	423.36	13.639
59	400-171203-c-...	<0.000	286.68	N/A	0.028	380.02	18.420	0.024	300.02	10.064
60	400-171203-c-...	<0.000	323.35	N/A	0.032	410.02	39.387	0.026	306.68	13.225
61	400-171203-c-...	23.009	657831.54	2.100	23.214	224500.76	1.738	23.053	194193.96	2.262
62	400-171203-c-...	22.995	634253.44	1.611	23.141	215909.95	0.908	23.077	187536.34	2.280
63	400-171203-c-...	<0.000	626.71	N/A	0.009	206.68	122.622	0.009	180.01	84.793
64	400-171203-c-...	<0.000	493.36	N/A	0.021	323.35	24.300	0.029	356.68	34.161
65	CCV	252.659	7777612.38	0.211	250.303	2607114.34	0.196	248.964	2258965.02	0.711
66	CCB	0.047	1996.88	11.366	0.032	426.69	12.978	0.041	453.36	7.628
67	lb 500-493316/...	0.024	1256.77	23.105	0.153	1566.81	19.205	0.161	1436.80	2.582
68	lcs 500-493494...	103.028	3312839.33	1.181	103.534	1126384.77	1.201	103.154	977652.64	1.181
69	500-165912-c-...	0.109	3840.66	4.599	0.113	1250.10	5.074	0.103	996.74	5.641
70	500-165912-c-...	0.016	1123.42	47.062	0.020	320.02	43.628	0.026	333.35	26.342
71	mb 500-49367...	<0.000	660.05	N/A	0.155	1816.85	2.876	0.158	1616.83	8.823
72	lcs 500-493674...	97.185	3194000.37	0.671	98.024	1089974.59	0.903	97.317	942706.63	0.780
73	500-166007-a-...	0.041	2033.55	14.059	435.081	4848231.39	1.939	381.242	3700767.03	2.016
74	500-166007-a-...	0.027	1540.14	17.380	428.542	4704252.95	1.810	377.271	3607734.43	1.819
75	500-166007-a-...	97.845	3230485.37	0.995	526.340	5879304.29	0.913	474.254	4614568.89	1.146
76	500-166007-a-...	0.012	1093.41	55.765	102.669	1159047.54	0.988	90.180	886860.84	1.145
77	CCV	255.204	8015305.71	0.613	252.847	2687023.09	0.648	251.300	2326406.42	1.026
78	CCB	0.058	2310.26	10.697	0.058	690.05	28.785	0.064	650.04	5.710
79	CCVL	1.976	61387.74	2.770	0.528	5607.94	4.608	0.515	4764.28	2.472
80	500-164003-f-2	0.024	1420.12	35.694	0.122	1420.13	9.675	0.124	1260.10	3.470
81	500-164003-f-3	0.007	880.06	40.426	0.111	1313.45	15.410	0.102	1050.09	3.257
82	500-164003-f-5	0.002	686.71	402.870	0.844	8939.68	6.253	0.643	5958.03	6.136
83	500-164003-f-6	0.065	2653.69	12.034	0.015	266.68	41.651	0.018	263.35	54.564
84	500-164003-h-8	<0.000	396.69	N/A	0.022	340.02	52.301	0.023	306.69	47.457
85	500-164003-f-9	0.008	883.39	19.318	0.017	296.68	16.986	0.010	193.34	87.646

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.024	1456.76	26.396	0.002	106.67	35.996
2	ICIS	0.000	496.69	N/A	0.000	26.67	N/A
3	Std1	9.972	409035.76	1.026	9.397	390843.21	0.269
4	Std2	99.435	4083066.76	0.859	98.316	4097812.54	1.106
5	Std3	500.114	19460195.03	0.695	500.349	19763086.79	1.386
6	S1	496.089	19645363.66	1.546	499.044	20061469.70	1.618
7	ICV	202.024	8167181.80	2.067	203.972	8371136.13	1.495
8	ICB	0.072	3300.28	6.358	0.029	1180.09	20.770
9	ICVL	0.529	22003.88	1.516	9.467	390106.00	1.110
10	icsa	0.357	14453.23	3.746	0.062	2476.99	3.949
11	icsab	20.679	815375.74	2.171	20.173	807098.27	1.427
12	CRI	1.004	42204.76	3.337	19.241	810220.12	1.899
13	CCV	249.488	10319946.30	1.280	247.702	10400672.76	1.328
14	CCB	0.034	1840.13	13.396	0.022	893.40	2.809
15	500-165700-e-...	0.338	14610.30	1.277	88.295	3727408.90	1.205
16	mb 500-49357...	0.019	1250.07	13.251	0.012	486.70	13.835
17	lcs 500-493579...	101.967	4388721.89	0.849	99.828	4361186.81	1.105
18	400-171203-c-...	0.018	1300.07	17.378	0.015	666.71	15.661
19	400-171203-c-...	0.009	920.05	31.625	0.058	2523.65	0.769
20	400-171203-c-...	0.006	810.04	28.358	0.176	7432.15	3.994
21	400-171203-c-...	0.003	713.38	23.465	0.003	176.68	8.838
22	400-171203-c-...	0.002	643.36	253.414	0.002	130.01	30.616
23	CCV	251.996	10627319.79	1.565	250.787	10736242.34	1.554
24	CCB	0.051	2596.87	13.127	0.023	953.40	10.560
25	400-171203-c-...	0.017	1276.73	11.629	0.043	1896.87	3.960
26	400-171203-c-...	0.012	1070.06	25.770	0.016	750.05	5.302

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	0.008	816.72	7.423	0.005	210.01	25.592
28	400-171203-c-...	0.005	763.37	53.002	0.060	2650.36	2.955
29	400-171203-c-...	0.002	643.37	60.922	0.055	2443.64	0.249
30	400-171203-c-...	0.001	586.70	130.951	0.031	1363.46	9.964
31	400-171203-c-...	0.000	576.70	242.103	0.013	583.37	11.421
32	400-171203-c-...	0.003	676.70	52.408	0.020	873.40	6.465
33	CCV	255.208	10459815.32	0.896	255.096	10613252.76	0.751
34	CCB	0.039	2060.15	9.671	0.024	996.74	23.567
35	400-171203-c-...	0.014	1100.07	20.603	0.014	603.37	27.387
36	400-171203-c-...	0.006	823.38	21.192	0.009	420.03	14.402
37	400-171203-c-...	1.032	44984.04	3.122	1.027	44902.00	1.686
38	400-171203-c-...	1.150	50127.46	0.823	1.104	48349.47	0.212
39	400-171203-c-...	0.006	843.38	55.905	0.002	136.68	36.044
40	400-171203-c-...	0.002	643.36	118.195	0.002	96.67	36.801
41	500-166247-c-...	0.279	11418.82	3.315	0.966	38343.52	3.236
42	CCV	252.574	10492418.59	0.438	255.401	10770582.76	0.448
43	CCB	0.044	2243.50	16.027	0.028	1133.42	10.710
44	400-171203-c-...	0.036	1826.78	23.022	0.033	1290.11	12.484
45	400-171203-c-...	0.017	1160.07	22.699	1.318	50567.19	1.070
46	400-171203-c-...	0.055	2366.84	9.768	3.177	111563.46	2.810
47	400-171203-c-...	0.021	1306.75	22.784	0.017	693.38	16.335
48	400-171203-c-...	0.012	956.73	25.445	0.017	680.04	22.842
49	400-171203-c-...	0.037	1770.12	6.567	0.683	24437.68	6.460
50	400-171203-c-...	0.015	1100.06	20.917	0.179	7112.02	3.677
51	400-171203-c-...	0.012	1070.06	33.537	0.000	43.33	92.654
52	400-171203-c-...	0.027	1516.76	22.568	1.250	48322.99	3.641
53	CCV	249.466	10656126.72	1.318	252.397	10944319.42	0.472
54	CCB	0.034	1973.47	16.260	0.029	1266.77	11.573
55	400-171203-c-...	0.030	1683.45	5.693	1.230	48423.39	1.565
56	400-171203-c-...	0.021	1316.76	5.194	0.548	21132.41	1.319

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-171203-c-...	0.019	1170.06	5.814	0.213	7822.38	5.089
58	400-171203-c-...	0.041	2030.14	16.145	0.436	16603.24	4.353
59	400-171203-c-...	0.024	1436.75	5.314	0.138	5464.59	6.029
60	400-171203-c-...	0.026	1490.09	22.779	0.150	5801.39	3.661
61	400-171203-c-...	23.321	890464.89	2.233	23.419	907222.15	3.096
62	400-171203-c-...	23.267	857121.15	1.249	23.725	886788.87	1.161
63	400-171203-c-...	0.007	840.05	58.634	0.030	1263.44	5.549
64	400-171203-c-...	0.022	1400.08	22.861	0.001	76.67	44.868
65	CCV	252.533	10385164.07	0.473	253.802	10595144.01	0.688
66	CCB	0.033	1816.79	10.804	0.031	1296.78	14.775
67	lb 500-493316/...	0.151	6214.10	8.444	0.024	930.07	22.840
68	lcs 500-493494...	104.292	4480068.42	0.769	101.964	4445812.02	1.049
69	500-165912-c-...	0.110	4873.84	5.636	0.012	506.70	24.523
70	500-165912-c-...	0.020	1390.07	15.410	0.003	153.34	44.122
71	mb 500-49367...	0.154	7262.65	3.648	0.003	173.34	28.390
72	lcs 500-493674...	98.421	4321008.95	0.708	95.088	4237304.31	1.441
73	500-166007-a-...	409.179	18001946.19	2.148	0.040	1833.54	7.546
74	500-166007-a-...	404.878	17547626.83	1.920	0.031	1390.12	1.862
75	500-166007-a-...	505.884	22310077.58	0.840	97.301	4355838.37	1.646
76	500-166007-a-...	95.827	4271368.03	0.881	0.016	776.72	5.079
77	CCV	255.106	10703636.51	0.998	259.517	11053787.75	0.571
78	CCB	0.058	2810.22	10.909	0.036	1473.46	6.921
79	CCVL	0.519	21873.67	2.213	9.534	397721.00	1.721
80	500-164003-f-2	0.125	5867.38	1.557	0.602	25900.21	3.297
81	500-164003-f-3	0.104	4960.54	3.389	0.407	17544.44	2.793
82	500-164003-f-5	0.748	31447.27	4.560	0.509	21389.53	3.162
83	500-164003-f-6	0.015	1160.06	5.014	0.191	8079.17	0.190
84	500-164003-h-8	0.016	1180.08	31.523	0.942	39179.75	1.915
85	500-164003-f-9	0.009	946.72	48.319	0.448	19036.19	1.177

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	170545.39	100.0	123047.78	100.0	170979.38	100.0
2	ICIS	166465.64	100.0	119212.70	100.0	165899.41	100.0
3	Std1	182985.41	109.9	133067.30	111.6	182248.44	109.9
4	Std2	183909.49	110.5	137323.31	115.2	180495.88	108.8
5	Std3	187413.30	112.6	134952.72	113.2	175947.60	106.1
6	S1	187795.96	112.8	136494.67	114.5	177949.05	107.3
7	ICV	187283.64	112.5	137850.08	115.6	183088.04	110.4
8	ICB	163657.89	98.3	121150.05	101.6	168411.83	101.5
9	ICVL	177013.65	106.3	129920.38	109.0	178616.24	107.7
10	icsa	193649.67	116.3	139529.40	117.0	172897.33	104.2
11	icsab	195046.25	117.2	138864.79	116.5	172535.99	104.0
12	CRI	181338.36	108.9	132065.91	110.8	183152.54	110.4
13	CCV	187879.24	112.9	136837.64	114.8	182717.82	110.1
14	CCB	165072.21	99.2	121308.43	101.8	168303.47	101.4
15	500-165700-e-...	194859.15	117.1	429705.84	360.5	183055.73	110.3
16	mb 500-49357...	169696.80	101.9	124018.21	104.0	172085.04	103.7
17	lcs 500-493579...	190450.32	114.4	138656.95	116.3	188289.31	113.5
18	400-171203-c-...	189973.14	114.1	137576.53	115.4	189314.06	114.1
19	400-171203-c-...	193607.49	116.3	139229.80	116.8	188332.05	113.5
20	400-171203-c-...	191586.31	115.1	140108.63	117.5	184063.18	110.9
21	400-171203-c-...	195411.88	117.4	140071.15	117.5	189091.10	114.0
22	400-171203-c-...	195435.55	117.4	140920.71	118.2	192260.50	115.9
23	CCV	193983.58	116.5	138749.37	116.4	184435.72	111.2
24	CCB	167631.76	100.7	126126.28	105.8	176221.84	106.2
25	400-171203-c-...	187363.84	112.6	137314.42	115.2	183733.79	110.8
26	400-171203-c-...	194884.57	117.1	142346.85	119.4	192400.56	116.0

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
27	400-171203-c-...	172208.27	103.4	123349.81	103.5	175016.60	105.5
28	400-171203-c-...	194362.06	116.8	139512.91	117.0	191191.31	115.2
29	400-171203-c-...	193696.67	116.4	140180.55	117.6	189501.53	114.2
30	400-171203-c-...	194793.92	117.0	140636.65	118.0	187667.21	113.1
31	400-171203-c-...	194286.96	116.7	140167.01	117.6	188479.27	113.6
32	400-171203-c-...	195703.83	117.6	139711.19	117.2	189705.40	114.3
33	CCV	187987.07	112.9	137493.54	115.3	183403.64	110.6
34	CCB	167414.91	100.6	121033.44	101.5	171036.16	103.1
35	400-171203-c-...	183669.16	110.3	133706.02	112.2	180297.45	108.7
36	400-171203-c-...	193708.65	116.4	139695.91	117.2	191615.11	115.5
37	400-171203-c-...	193861.27	116.5	140929.55	118.2	190959.58	115.1
38	400-171203-c-...	194434.25	116.8	140773.31	118.1	189493.12	114.2
39	400-171203-c-...	194505.99	116.8	139936.50	117.4	192449.02	116.0
40	400-171203-c-...	177394.05	106.6	129204.87	108.4	183024.50	110.3
41	500-166247-c-...	190744.79	114.6	133679.20	112.1	171222.61	103.2
42	CCV	187356.35	112.5	137476.52	115.3	182974.22	110.3
43	CCB	166179.05	99.8	122910.02	103.1	171571.54	103.4
44	400-171203-c-...	187047.52	112.4	136235.72	114.3	171564.67	103.4
45	400-171203-c-...	195718.36	117.6	138104.82	115.8	176082.59	106.1
46	400-171203-c-...	197332.63	118.5	140299.03	117.7	163071.11	98.3
47	400-171203-c-...	204756.88	123.0	143234.01	120.1	176704.84	106.5
48	400-171203-c-...	200910.10	120.7	141367.96	118.6	173770.50	104.7
49	400-171203-c-...	199441.07	119.8	143183.17	120.1	167327.54	100.9
50	400-171203-c-...	210165.39	126.3	147577.78	123.8	180467.43	108.8
51	400-171203-c-...	205228.02	123.3	143098.99	120.0	196418.91	118.4
52	400-171203-c-...	206800.48	124.2	146376.94	122.8	179473.09	108.2
53	CCV	199569.52	119.9	144266.93	121.0	189819.20	114.4
54	CCB	179741.57	108.0	130403.28	109.4	181122.23	109.2
55	400-171203-c-...	202317.05	121.5	147151.87	123.4	179857.96	108.4
56	400-171203-c-...	205119.33	123.2	147228.14	123.5	176999.49	106.7

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
57	400-171203-c-...	199649.41	119.9	144263.06	121.0	168729.86	101.7
58	400-171203-c-...	208177.23	125.1	145065.69	121.7	174841.37	105.4
59	400-171203-c-...	208020.05	125.0	149120.58	125.1	182192.65	109.8
60	400-171203-c-...	203756.15	122.4	145980.09	122.5	177758.53	107.1
61	400-171203-c-...	202760.69	121.8	146192.67	122.6	179832.87	108.4
62	400-171203-c-...	194822.65	117.0	137346.07	115.2	169393.04	102.1
63	400-171203-c-...	201594.84	121.1	141808.08	119.0	185516.79	111.8
64	400-171203-c-...	185165.26	111.2	132683.69	111.3	181435.97	109.4
65	CCV	188321.93	113.1	136452.22	114.5	181355.13	109.3
66	CCB	166679.43	100.1	124392.08	104.3	172778.61	104.1
67	lb 500-493316/...	190098.13	114.2	133510.72	112.0	166223.41	100.2
68	lcs 500-493494...	189508.06	113.8	139748.69	117.2	183844.67	110.8
69	500-165912-c-...	194421.02	116.8	129928.87	109.0	160370.59	96.7
70	500-165912-c-...	195397.35	117.4	140575.67	117.9	178156.13	107.4
71	mb 500-49367...	190349.52	114.3	138151.49	115.9	188446.40	113.6
72	lcs 500-493674...	189246.38	113.7	141032.11	118.3	186699.85	112.5
73	500-166007-a-...	188843.21	113.4	137301.41	115.2	188611.29	113.7
74	500-166007-a-...	187817.72	112.8	140631.39	118.0	190475.90	114.8
75	500-166007-a-...	186883.52	112.3	140427.95	117.8	188039.45	113.3
76	500-166007-a-...	193872.08	116.5	142023.54	119.1	194905.26	117.5
77	CCV	185164.79	111.2	137497.19	115.3	181696.77	109.5
78	CCB	160808.97	96.6	120257.88	100.9	166587.86	100.4
79	CCVL	173929.00	104.5	128816.87	108.1	178907.82	107.8
80	500-164003-f-2	201433.68	121.0	149382.13	125.3	190765.16	115.0
81	500-164003-f-3	197640.82	118.7	153096.54	128.4	189114.69	114.0
82	500-164003-f-5	194053.64	116.6	142380.08	119.4	186301.66	112.3
83	500-164003-f-6	196447.84	118.0	141976.62	119.1	189415.11	114.2
84	500-164003-h-8	193642.49	116.3	144622.45	121.3	180000.67	108.5
85	500-164003-f-9	194307.31	116.7	141605.99	118.8	183225.72	110.4

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	197855.64	100.0	112495.33	100.0
2	ICIS	192278.55	100.0	109040.86	100.0
3	Std1	215322.22	112.0	118833.55	109.0
4	Std2	218932.75	113.9	119099.00	109.2
5	Std3	216687.84	112.7	112874.72	103.5
6	S1	216219.10	112.5	114893.74	105.4
7	ICV	219090.43	113.9	117289.53	107.6
8	ICB	196242.08	102.1	112105.22	102.8
9	ICVL	210812.26	109.6	117741.15	108.0
10	icsa	219079.49	113.9	113203.39	103.8
11	icsab	220812.16	114.8	114332.85	104.9
12	CRI	214584.96	111.6	120338.50	110.4
13	CCV	221515.64	115.2	119992.73	110.0
14	CCB	196596.11	102.2	113415.05	104.0
15	500-165700-e-...	229823.47	119.5	120633.48	110.6
16	mb 500-49357...	199641.47	103.8	113101.57	103.7
17	lcs 500-493579...	224336.96	116.7	124841.67	114.5
18	400-171203-c-...	222063.23	115.5	121514.77	111.4
19	400-171203-c-...	221442.59	115.2	122008.31	111.9
20	400-171203-c-...	220066.26	114.5	120184.59	110.2
21	400-171203-c-...	224012.21	116.5	124205.66	113.9
22	400-171203-c-...	226196.17	117.6	126776.19	116.3
23	CCV	228383.11	118.8	122343.16	112.2
24	CCB	201942.52	105.0	117335.01	107.6
25	400-171203-c-...	222714.78	115.8	122904.75	112.7
26	400-171203-c-...	228471.25	118.8	125277.85	114.9

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
27	400-171203-c-...	200509.20	104.3	113999.52	104.5
28	400-171203-c-...	227053.20	118.1	124477.31	114.2
29	400-171203-c-...	222452.14	115.7	124441.87	114.1
30	400-171203-c-...	223873.53	116.4	121190.03	111.1
31	400-171203-c-...	223272.55	116.1	122373.87	112.2
32	400-171203-c-...	220845.08	114.9	121731.68	111.6
33	CCV	221379.29	115.1	118886.35	109.0
34	CCB	194783.97	101.3	113945.42	104.5
35	400-171203-c-...	211956.04	110.2	116856.40	107.2
36	400-171203-c-...	223636.14	116.3	125384.25	115.0
37	400-171203-c-...	227002.15	118.1	124911.09	114.6
38	400-171203-c-...	226284.97	117.7	125015.88	114.7
39	400-171203-c-...	224671.67	116.8	127120.27	116.6
40	400-171203-c-...	208675.21	108.5	119612.62	109.7
41	500-166247-c-...	213248.44	110.9	113347.91	103.9
42	CCV	222023.21	115.5	120496.98	110.5
43	CCB	198538.65	103.3	114147.66	104.7
44	400-171203-c-...	211567.41	110.0	108191.31	99.2
45	400-171203-c-...	214707.99	111.7	109591.56	100.5
46	400-171203-c-...	198230.59	103.1	100357.64	92.0
47	400-171203-c-...	215982.48	112.3	109486.56	100.4
48	400-171203-c-...	213403.64	111.0	109741.68	100.6
49	400-171203-c-...	201954.22	105.0	102280.97	93.8
50	400-171203-c-...	220104.20	114.5	113297.94	103.9
51	400-171203-c-...	221054.89	115.0	124418.06	114.1
52	400-171203-c-...	219088.43	113.9	110436.70	101.3
53	CCV	229660.79	119.4	123900.39	113.6
54	CCB	209563.27	109.0	121260.09	111.2
55	400-171203-c-...	220979.24	114.9	112463.00	103.1
56	400-171203-c-...	211779.71	110.1	110145.20	101.0

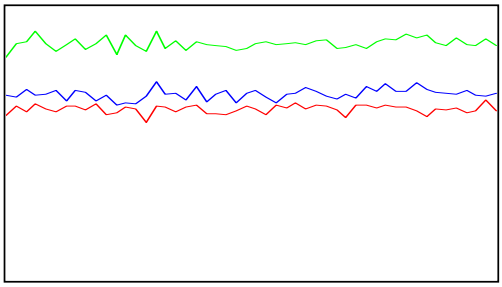
ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
57	400-171203-c-...	204237.97	106.2	104656.72	96.0
58	400-171203-c-...	214108.56	111.4	108653.57	99.6
59	400-171203-c-...	221583.79	115.2	112770.53	103.4
60	400-171203-c-...	218321.06	113.5	109875.94	100.8
61	400-171203-c-...	218090.41	113.4	110726.62	101.5
62	400-171203-c-...	207886.56	108.1	106815.28	98.0
63	400-171203-c-...	220583.03	114.7	118188.54	108.4
64	400-171203-c-...	207603.69	108.0	116753.72	107.1
65	CCV	221237.74	115.1	119283.33	109.4
66	CCB	201960.81	105.0	115192.90	105.6
67	lb 500-493316/...	204732.75	106.5	109856.18	100.7
68	lcs 500-493494...	226838.49	118.0	124601.25	114.3
69	500-165912-c-...	200747.86	104.4	115218.52	105.7
70	500-165912-c-...	219430.71	114.1	120008.58	110.1
71	mb 500-49367...	219678.20	114.2	125731.72	115.3
72	lcs 500-493674...	228136.51	118.6	127338.98	116.8
73	500-166007-a-...	225745.60	117.4	127644.23	117.1
74	500-166007-a-...	228780.63	119.0	125747.54	115.3
75	500-166007-a-...	231567.59	120.4	127930.25	117.3
76	500-166007-a-...	230283.76	119.8	129286.79	118.6
77	CCV	223872.56	116.4	121705.62	111.6
78	CCB	198075.79	103.0	114531.21	105.0
79	CCVL	209889.62	109.2	119216.42	109.3
80	500-164003-f-2	234388.66	121.9	122835.34	112.7
81	500-164003-f-3	230648.10	120.0	122902.81	112.7
82	500-164003-f-5	226897.58	118.0	119890.17	109.9
83	500-164003-f-6	228623.42	118.9	120362.92	110.4
84	500-164003-h-8	224754.42	116.9	118752.29	108.9
85	500-164003-f-9	228086.68	118.6	121118.07	111.1

Tune Report

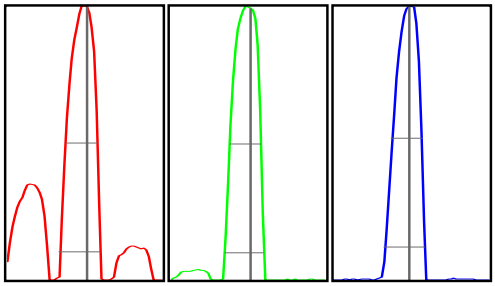
Batch Folder C:\Agilent\ICPMH\1\DATA\MS4070819TUNE.b
Acq. Date-Time 7/8/2019 10:03
Report Comment 072015Atune
Instrument Name G3281A JP11040848

[He]



Mass	Range	Count	RSD%	Background
59	5000	3122	2.487	
89	5000	4314	2.350	
205	5000	3396	2.904	

Ratio 156/140 1.469 %
Integration Time [sec] 0.1 **Sampling Period [sec]** 0.31



Mass	Peak Height	Axis	W-50%	W-10%
59	3165.31	59.05	0.59	0.759
89	4206.95	89.05	0.58	0.750
205	3318.71	205.00	0.54	0.750

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.54 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1500 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-50 V
Extract 2	-200.0 V	Cell Exit	-80 V
Omega Bias	-100 V	Deflect	3.0 V
Omega Lens	8.0 V	Plate Bias	-60 V

Cell Parameters

Use Gas	true	OctP Bias	-18.0 V

Tune Report

He Flow	3.5 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	3.0 V
3rd Gas Flow	0 %		

[no gas]

Mass	Range	Count	RSD%	Background
7	5000	3029	2.444	4.700
89	20000	9728	1.952	5.800
205	10000	5243	2.629	16.100

Ratio 156/140 2.107 % **Ratio** 70/140 20.202 %

Integration Time [sec] 0.1 **Sampling Period [sec]** 0.311

Mass	Peak Height	Axis	W-50%	W-10%
7	3084.26	7.10	0.66	0.790
89	9792.15	89.05	0.58	0.753
205	5309.37	205.00	0.56	0.760

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.74 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1550 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

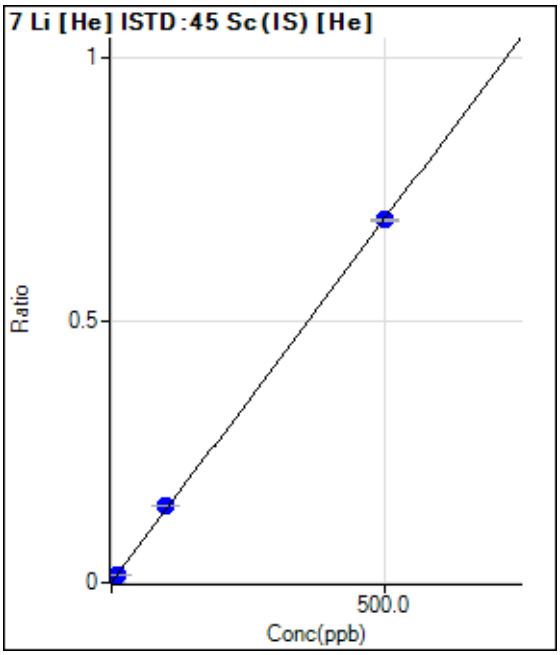
Extract 1	0.0 V	Cell Entrance	-34 V
Extract 2	-200.0 V	Cell Exit	-60 V
Omega Bias	-80 V	Deflect	14.2 V
Omega Lens	10.1 V	Plate Bias	-50 V

Cell Parameters

Use Gas	false	OctP Bias	-8.0 V
He Flow	0.0 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	5.0 V
3rd Gas Flow	0 %		

Batch Folder: C:\Agilent\ICPMH\1\DATA\MS4070919He-1.b\
Analysis File: MS4070919He-1.batch.bin
DA Date-Time: 7/9/2019 12:49:48 PM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

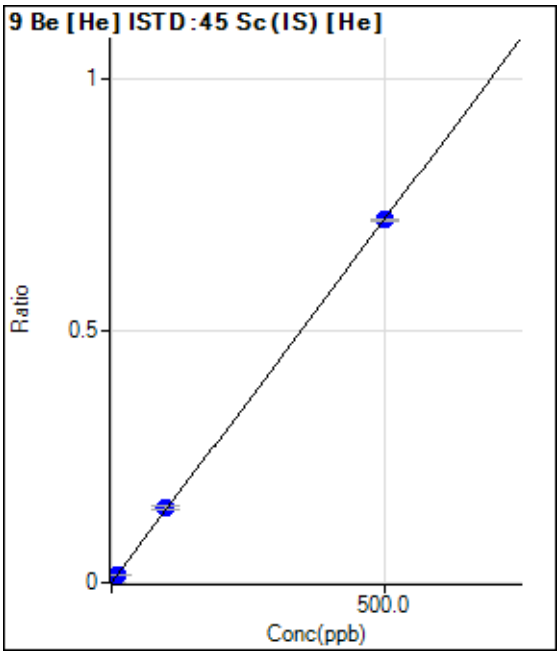
Level	Standard Data File	Sample Name	Acq. Date-Time
1	002CALB.d	ICIS	7/9/2019 10:38:51 AM
2	003CALS.d	Std1	7/9/2019 10:42:36 AM
3	004CALS.d	Std2	7/9/2019 10:46:31 AM
4	005CALS.d	Std3	7/9/2019 10:50:16 AM



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	76.67	0.0006	P	26.9
2	☐	10.000	10.484	2233.55	0.0151	P	9.0
3	☐	100.000	105.809	21700.67	0.1470	P	0.6
4	☐	500.000	498.829	104295.92	0.6911	P	0.6

y = 0.0014 * x + 5.5279E-004
R = 0.9999
DL = 0.3226
BEC = 0.3993

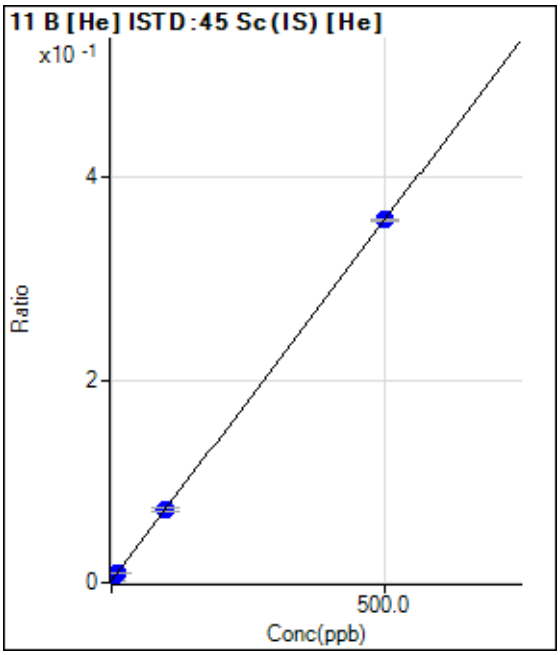
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0001	P	41.8
2	☐	10.000	10.688	2303.58	0.0155	P	2.2
3	☐	100.000	102.880	21930.87	0.1487	P	4.0
4	☐	500.000	499.410	108867.12	0.7214	P	0.7

y = 0.0014 * x + 9.5829E-005
R = 1.0000
DL = 0.08316
BEC = 0.06635

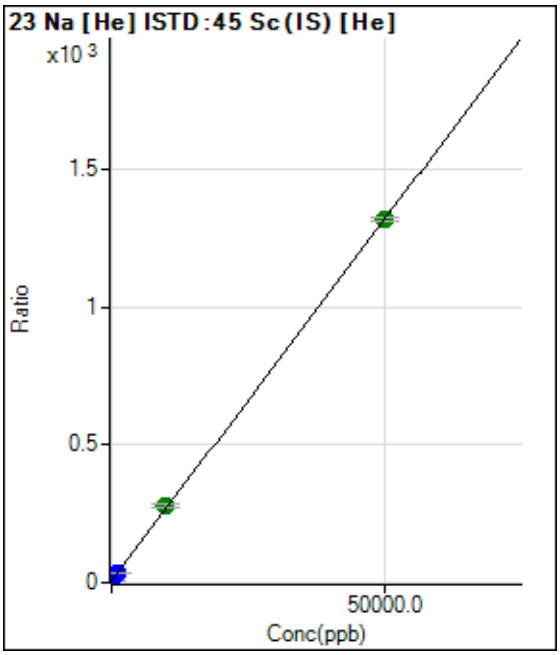
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	276.69	0.0020	P	21.3
2	☐	10.000	10.775	1433.45	0.0097	P	10.9
3	☐	100.000	98.494	10636.92	0.0721	P	6.4
4	☐	500.000	500.286	54023.48	0.3580	P	0.5

y = 7.1154E-004 * x + 0.0020
R = 1.0000
DL = 1.791
BEC = 2.801

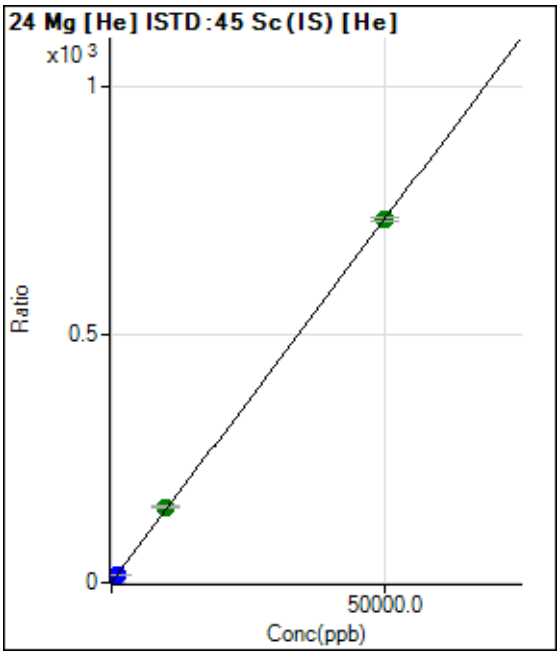
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	878367.05	6.3379	P	1.9
2	☐	1000.000	1043.639	5002855.65	33.7427	P	1.6
3	☐	10000.00	10400.90	41226754.39	279.4539	A	2.7
4	☐	50000.00	49918.94	198761437.0	1,317.152	A	1.1

y = 0.0263 * x + 6.3379
R = 1.0000
DL = 13.47
BEC = 241.4

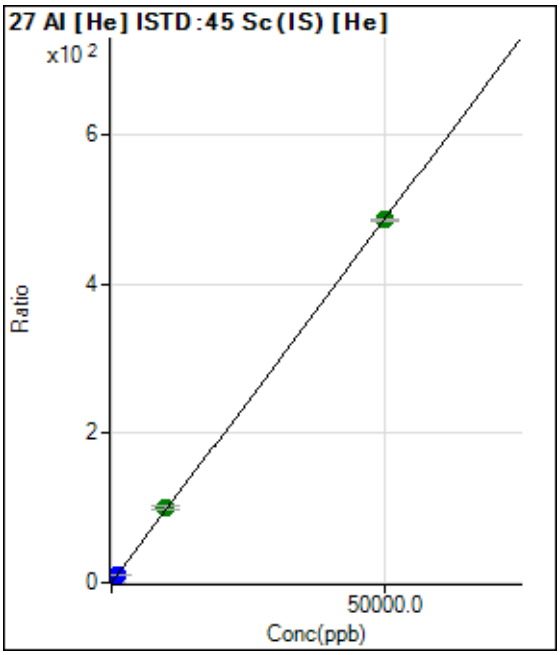
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	93993.05	0.6782	P	2.8
2	☐	1000.000	1073.391	2431874.55	16.4025	P	1.8
3	☐	10000.00	10401.38	22578652.16	153.0501	A	2.8
4	☐	50000.00	49918.25	110454241.6	731.9408	A	1.1

y = 0.0146 * x + 0.6782
R = 1.0000
DL = 3.928
BEC = 46.3

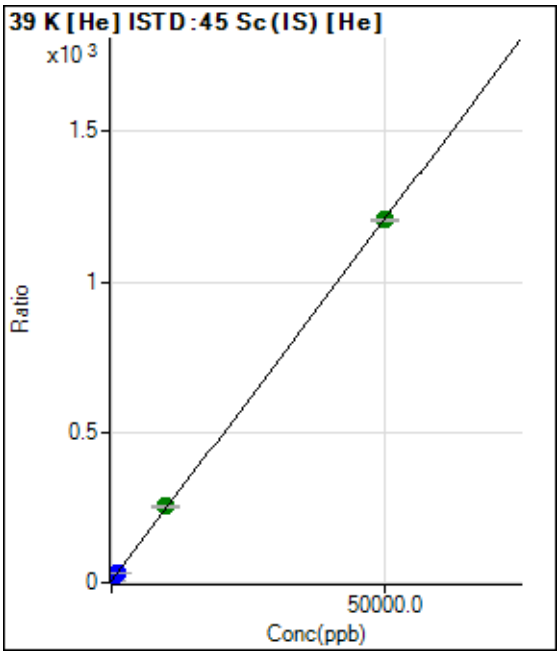
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3173.84	0.0229	P	9.3
2	☐	1000.000	1050.329	1517475.29	10.2350	P	1.7
3	☐	10000.00	10314.38	14797826.03	100.3067	A	2.8
4	☐	50000.00	49936.11	73272362.24	485.5375	A	0.4

y = 0.0097 * x + 0.0229
R = 1.0000
DL = 0.6555
BEC = 2.357

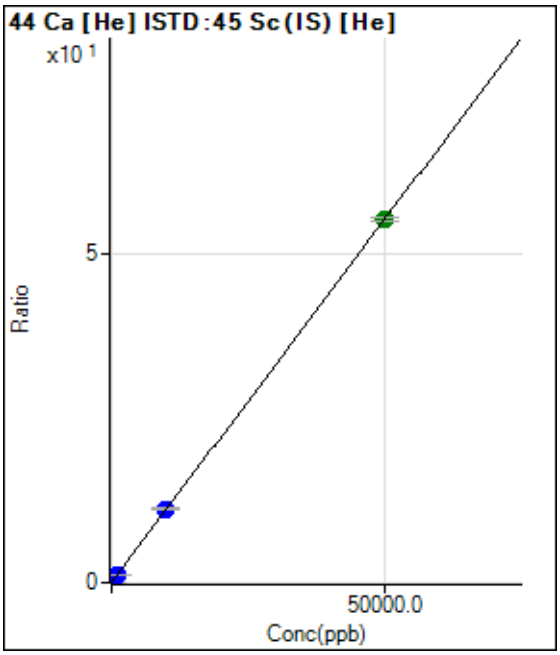
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	739385.95	5.3351	P	1.9
2	☐	1000.000	1068.796	4600443.26	31.0273	P	1.1
3	☐	10000.00	10285.67	37263257.78	252.5863	A	2.7
4	☐	50000.00	49941.49	181972043.9	1,205.849	A	0.5

y = 0.0240 * x + 5.3351
R = 1.0000
DL = 12.91
BEC = 221.9

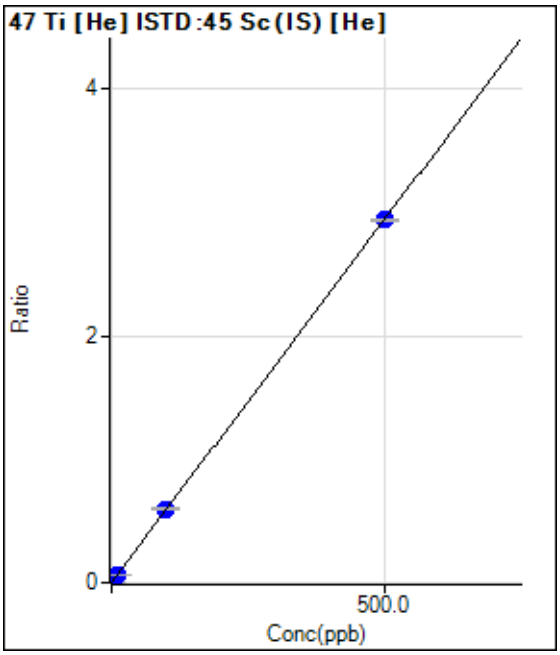
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4172.08	0.0301	P	6.7
2	☐	1000.000	1044.412	175031.85	1.1805	P	1.5
3	☐	10000.00	10161.06	1655866.89	11.2223	P	1.8
4	☐	50000.00	49966.89	8309856.75	55.0677	A	1.0

y = 0.0011 * x + 0.0301
R = 1.0000
DL = 5.513
BEC = 27.34

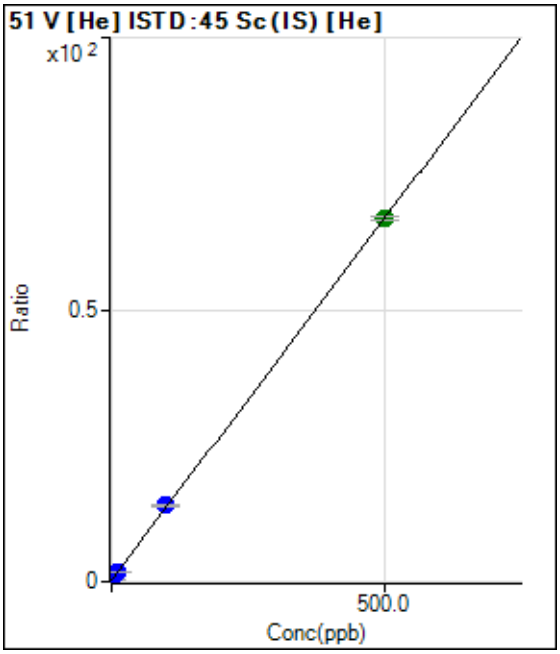
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	53.33	0.0004	P	21.7
2	☐	10.000	10.431	9152.86	0.0617	P	5.8
3	☐	100.000	101.598	88196.72	0.5979	P	3.7
4	☐	500.000	499.672	443528.34	2.9391	P	0.6

y = 0.0059 * x + 3.8483E-004
R = 1.0000
DL = 0.04265
BEC = 0.06543

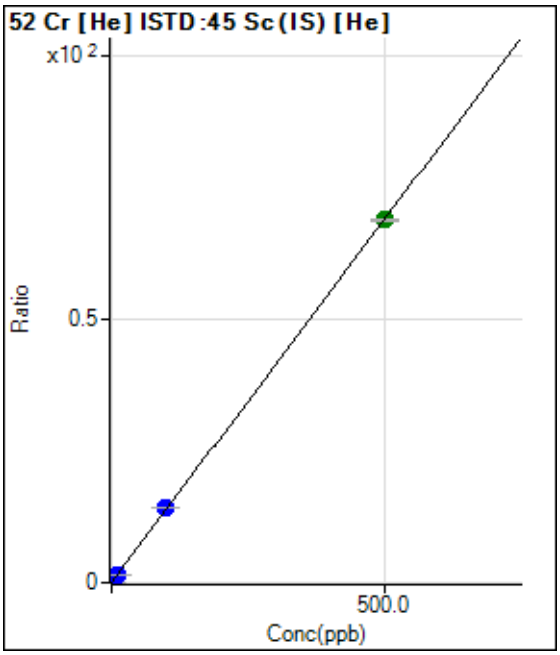
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	37689.15	0.2719	P	1.7
2	☐	10.000	11.122	259692.32	1.7514	P	0.6
3	☐	100.000	103.582	2073009.35	14.0502	P	2.1
4	☐	500.000	499.261	10062742.14	66.6826	A	0.9

y = 0.1330 * x + 0.2719
R = 1.0000
DL = 0.107
BEC = 2.044

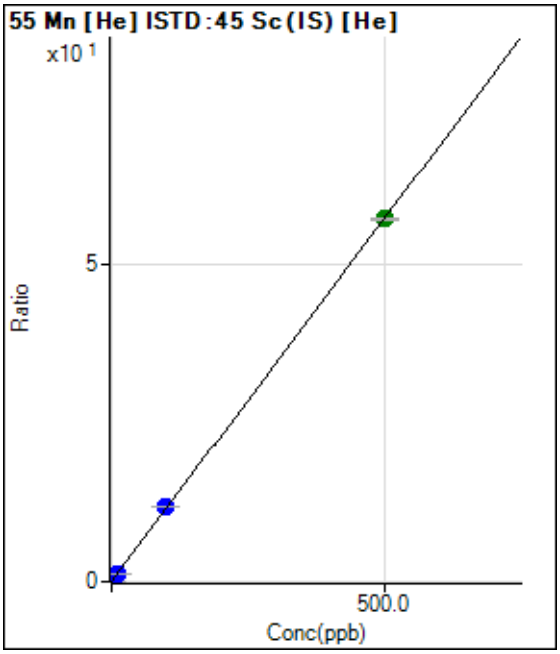
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5274.37	0.0380	P	7.0
2	☐	10.000	10.639	223116.88	1.5048	P	1.4
3	☐	100.000	103.270	2106335.64	14.2757	P	2.0
4	☐	500.000	499.333	10394440.26	68.8800	A	0.6

y = 0.1379 * x + 0.0380
R = 1.0000
DL = 0.05754
BEC = 0.2759

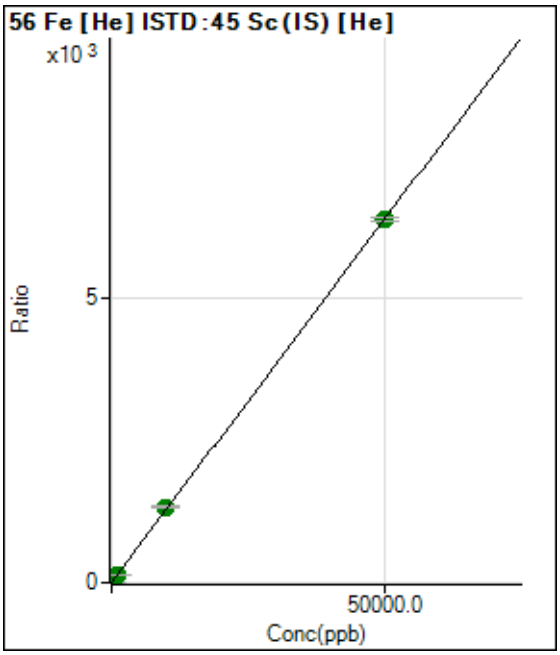
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5701.19	0.0412	P	5.3
2	☐	10.000	10.657	186936.31	1.2607	P	0.5
3	☐	100.000	103.050	1746064.30	11.8343	P	2.1
4	☐	500.000	499.377	8630579.46	57.1903	A	0.3

y = 0.1144 * x + 0.0412
R = 1.0000
DL = 0.05706
BEC = 0.3596

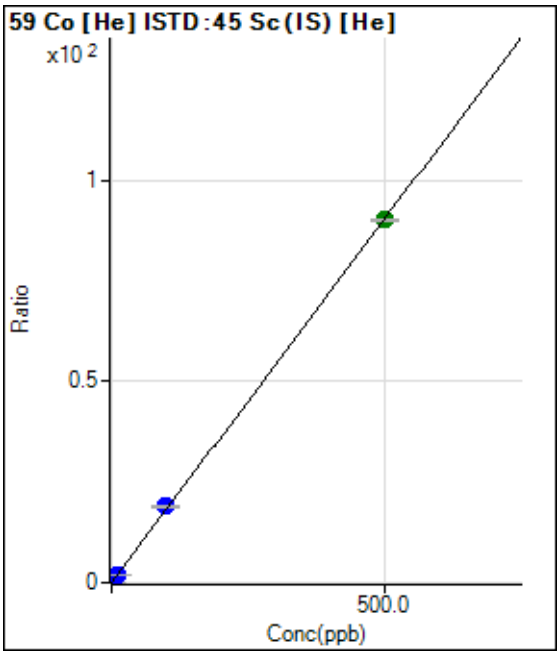
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	201518.25	1.4541	P	2.2
2	☐	1000.000	1079.683	20679397.19	139.4762	A	1.6
3	☐	10000.00	10393.17	196236063.7	1,330.072	A	2.3
4	☐	50000.00	49919.77	963222492.3	6,382.983	A	1.0

y = 0.1278 * x + 1.4541
R = 1.0000
DL = 0.7583
BEC = 11.37

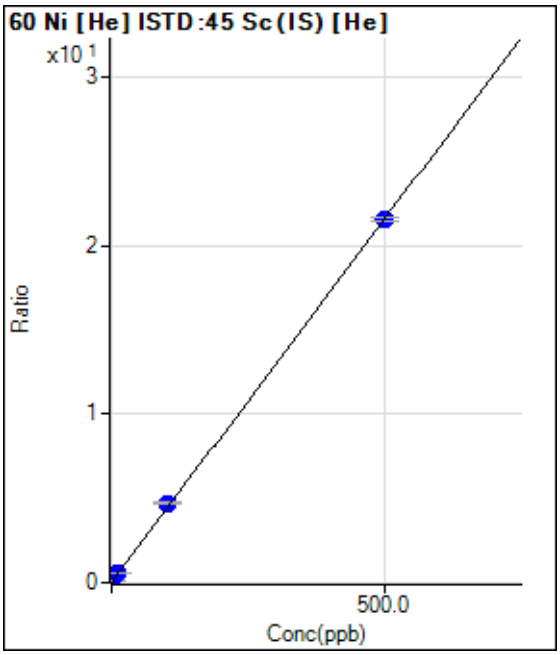
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1233.43	0.0089	P	6.3
2	☐	10.000	10.859	292073.97	1.9700	P	1.9
3	☐	100.000	104.615	2788486.73	18.9012	P	2.6
4	☐	500.000	499.060	13601783.97	90.1340	A	0.7

y = 0.1806 * x + 0.0089
R = 1.0000
DL = 0.009298
BEC = 0.04925

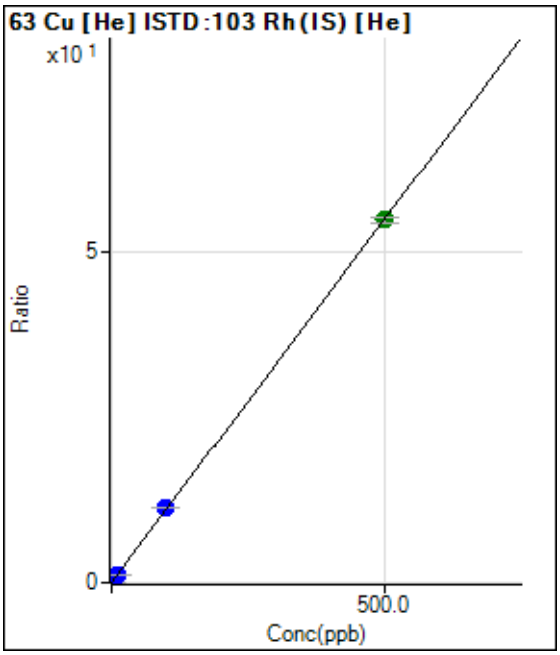
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10680.47	0.0771	P	4.7
2	☐	10.000	10.788	80229.68	0.5411	P	0.7
3	☐	100.000	107.081	690836.76	4.6827	P	2.6
4	☐	500.000	498.568	3247525.68	21.5206	P	1.0

y = 0.0430 * x + 0.0771
R = 0.9999
DL = 0.2544
BEC = 1.792

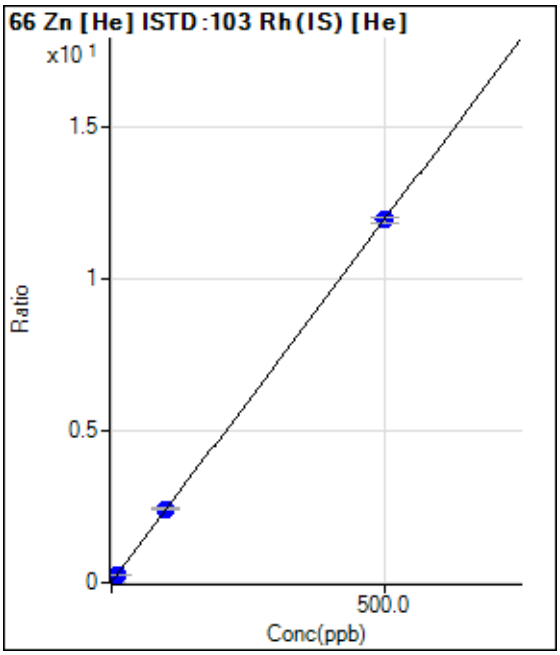
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7352.79	0.0515	P	3.6
2	☐	10.000	10.499	186929.86	1.2069	P	0.7
3	☐	100.000	103.649	1704847.50	11.4579	P	0.4
4	☐	500.000	499.260	8049784.13	54.9946	A	1.8

y = 0.1100 * x + 0.0515
R = 1.0000
DL = 0.05084
BEC = 0.4677

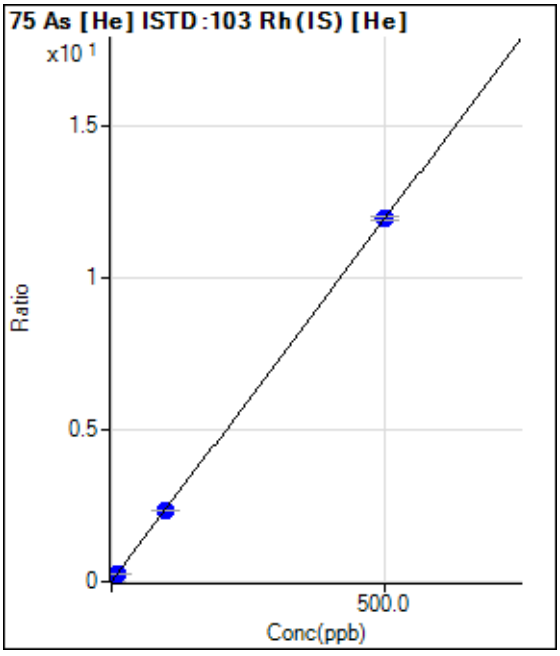
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2320.26	0.0162	P	4.3
2	☐	10.000	10.108	39941.69	0.2579	P	2.2
3	☐	100.000	101.418	363165.33	2.4408	P	0.5
4	☐	500.000	499.714	1751003.88	11.9625	P	1.8

y = 0.0239 * x + 0.0162
R = 1.0000
DL = 0.08779
BEC = 0.6795

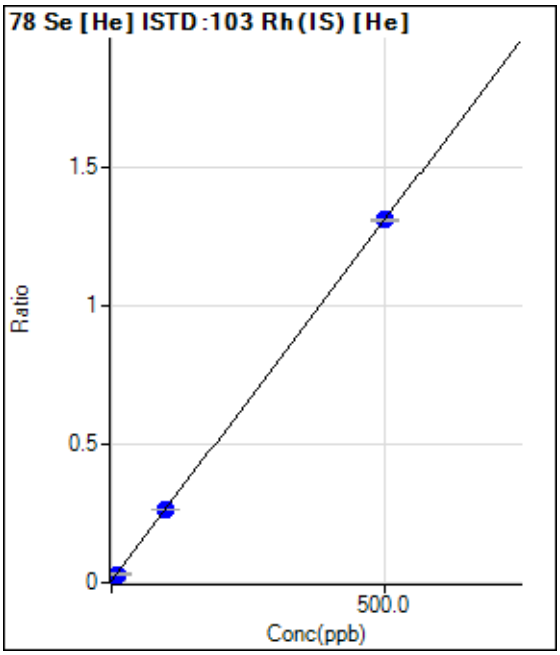
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1054.04	0.0074	P	4.9
2	☐	10.000	9.741	37135.24	0.2398	P	0.6
3	☐	100.000	98.450	350559.27	2.3560	P	0.3
4	☐	500.000	500.315	1748274.00	11.9431	P	1.2

y = 0.0239 * x + 0.0074
R = 1.0000
DL = 0.04531
BEC = 0.3094

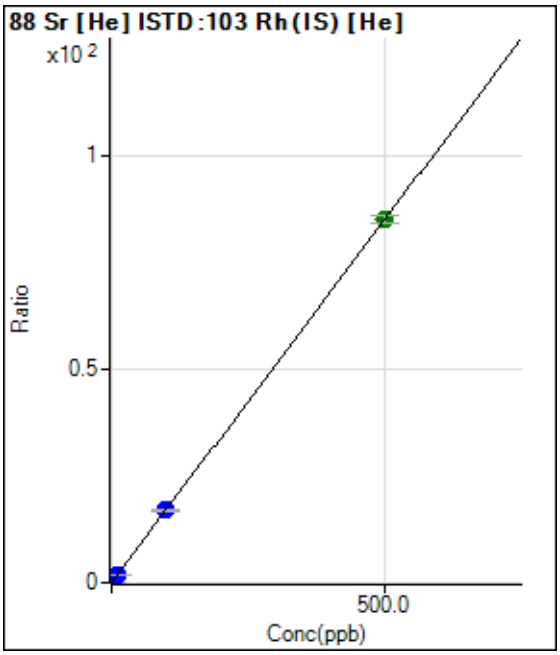
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1003.37	0.0070	P	2.7
2	☐	10.000	9.271	4822.37	0.0311	P	2.2
3	☐	100.000	98.662	39225.71	0.2636	P	0.0
4	☐	500.000	500.282	191510.61	1.3082	P	0.6

y = 0.0026 * x + 0.0070
R = 1.0000
DL = 0.2163
BEC = 2.701

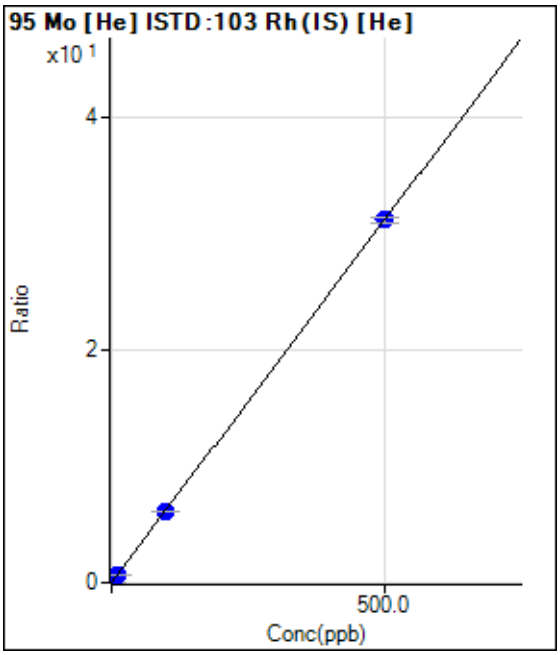
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1220.10	0.0085	P	12.2
2	☐	10.000	9.759	258146.32	1.6667	P	1.9
3	☐	100.000	99.583	2518836.21	16.9286	P	0.7
4	☐	500.000	500.088	12438305.65	84.9774	A	2.1

y = 0.1699 * x + 0.0085
R = 1.0000
DL = 0.01843
BEC = 0.05025

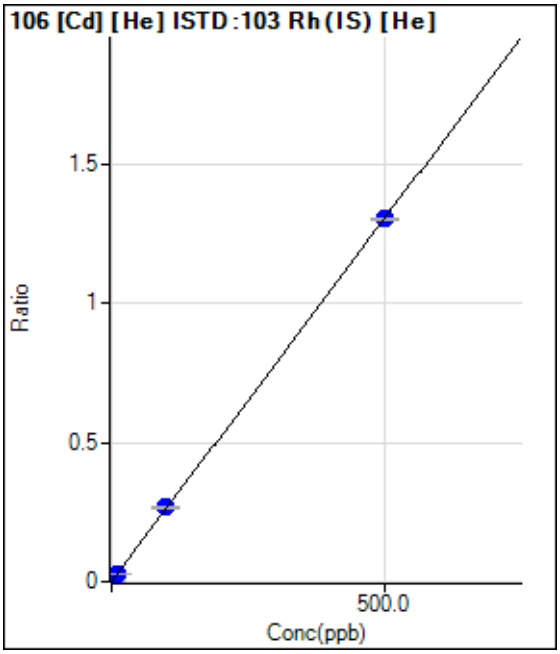
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	213.34	0.0015	P	7.4
2	☐	10.000	9.527	92364.99	0.5963	P	2.0
3	☐	100.000	99.086	920783.53	6.1884	P	0.6
4	☐	500.000	500.192	4571968.37	31.2333	P	1.4

y = 0.0624 * x + 0.0015
R = 1.0000
DL = 0.005314
BEC = 0.02392

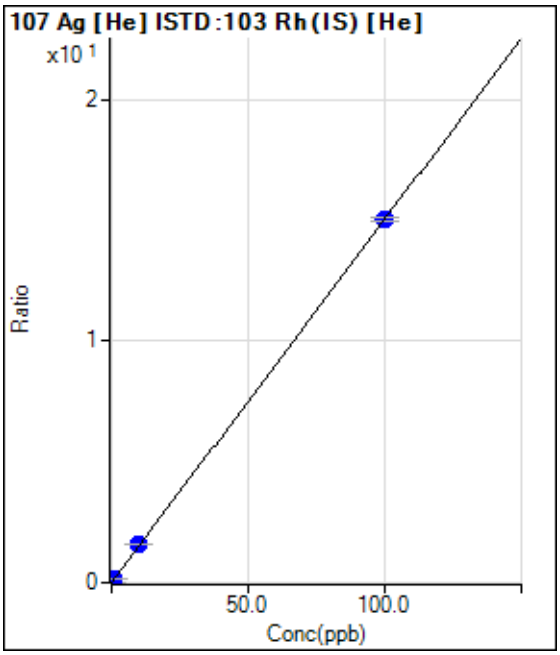
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63.33	0.0004	P	24.3
2	☐	10.000	10.316	4234.07	0.0273	P	10.1
3	☐	100.000	101.844	39558.77	0.2659	P	0.7
4	☐	500.000	499.625	190680.52	1.3025	P	0.8

y = 0.0026 * x + 4.4358E-004
R = 1.0000
DL = 0.1241
BEC = 0.1702

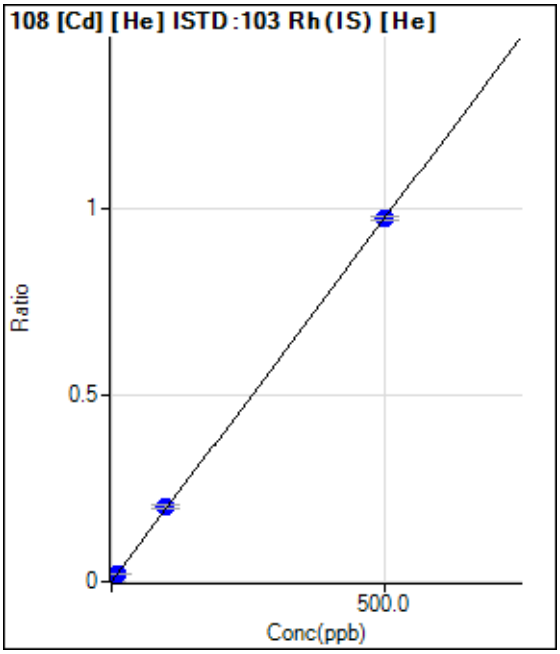
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	53.33	0.0004	P	28.1
2	☐	1.000	1.079	25173.63	0.1625	P	0.9
3	☐	10.000	10.394	232427.00	1.5621	P	0.5
4	☐	100.000	99.960	2198763.77	15.0196	P	0.9

y = 0.1503 * x + 3.7308E-004
R = 1.0000
DL = 0.002094
BEC = 0.002483

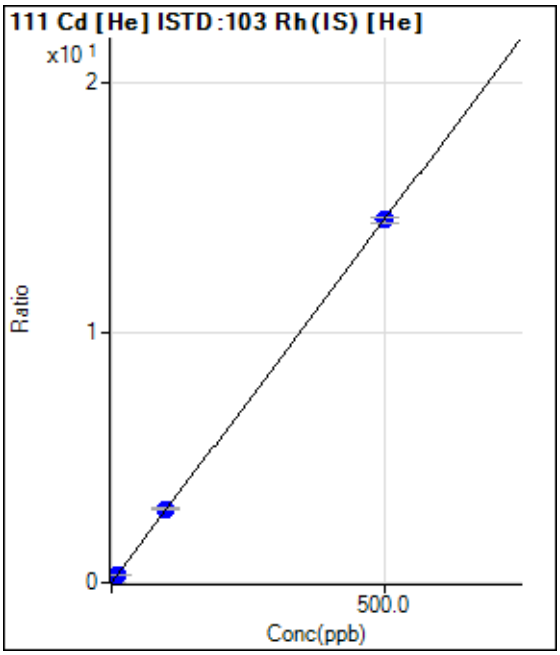
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6.67	0.0000	P	173.
2	☐	10.000	10.304	3110.42	0.0201	P	6.2
3	☐	100.000	103.126	29838.22	0.2005	P	3.4
4	☐	500.000	499.369	142124.53	0.9709	P	1.0

y = 0.0019 * x + 4.6985E-005
R = 1.0000
DL = 0.1256
BEC = 0.02417

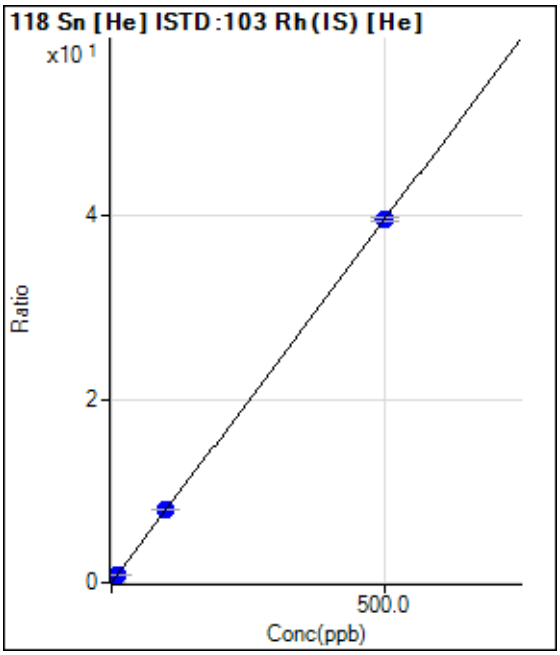
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	64.57	0.0005	P	37.1
2	☐	10.000	9.911	44703.35	0.2886	P	3.9
3	☐	100.000	101.663	439866.85	2.9563	P	0.7
4	☐	500.000	499.669	2126656.62	14.5281	P	1.4

y = 0.0291 * x + 4.5185E-004
R = 1.0000
DL = 0.0173
BEC = 0.01554

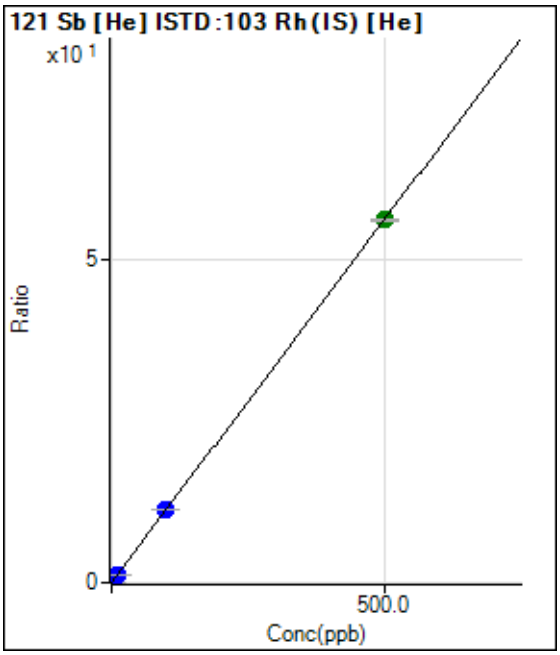
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	760.05	0.0053	P	13.1
2	☐	10.000	10.000	123564.16	0.7978	P	2.2
3	☐	100.000	101.061	1192451.57	8.0142	P	0.5
4	☐	500.000	499.788	5798755.75	39.6127	P	1.1

y = 0.0792 * x + 0.0053
R = 1.0000
DL = 0.02634
BEC = 0.06711

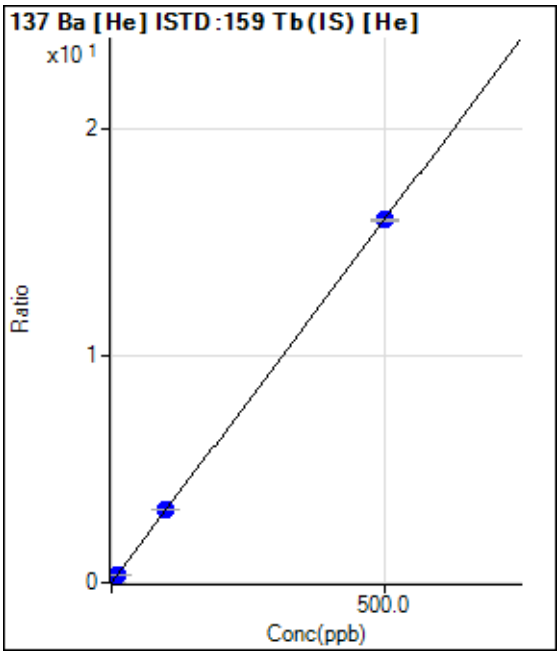
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	180.01	0.0013	P	22.6
2	☐	10.000	9.936	172970.24	1.1168	P	0.2
3	☐	100.000	101.649	1698242.22	11.4135	P	0.2
4	☐	500.000	499.671	8212769.67	56.1000	A	0.5

y = 0.1123 * x + 0.0013
R = 1.0000
DL = 0.007621
BEC = 0.01123

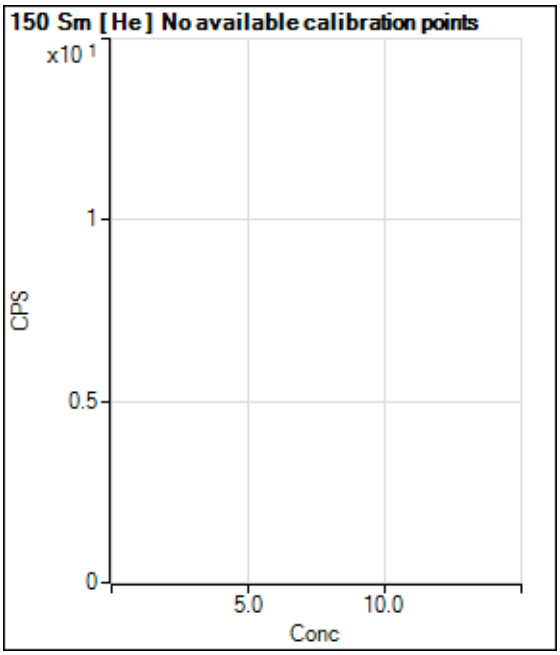
Weight: <None>
Min Conc: 0



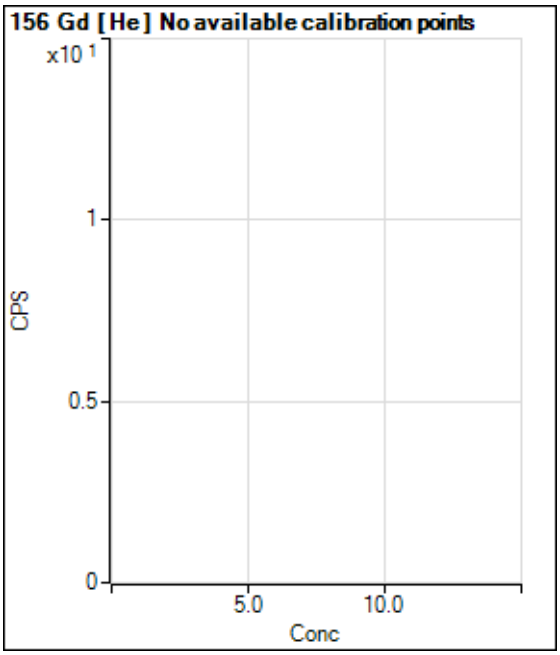
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	80.01	0.0005	P	61.0
2	☐	10.000	10.106	59849.68	0.3233	P	0.8
3	☐	100.000	101.071	591945.99	3.2288	P	0.3
4	☐	500.000	499.784	2875010.48	15.9643	P	0.9

y = 0.0319 * x + 4.7982E-004
R = 1.0000
DL = 0.0275
BEC = 0.01502

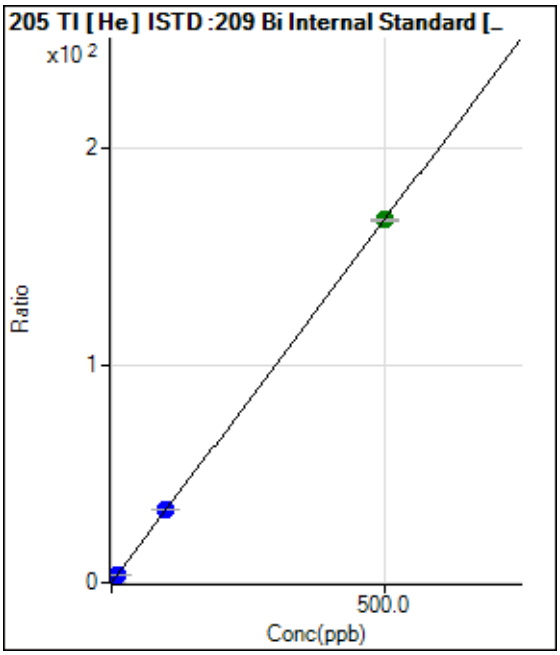
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



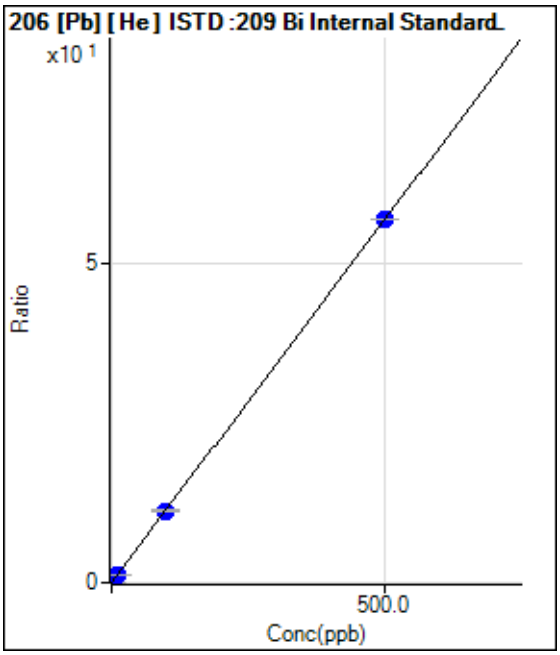
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	680.04	0.0071	P	5.5
2	☐	10.000	9.865	346900.35	3.2974	P	1.3
3	☐	100.000	100.486	3405574.84	33.5236	P	1.2
4	☐	500.000	499.906	16040772.26	166.7475	A	0.6

y = 0.3335 * x + 0.0071
R = 1.0000
DL = 0.003557
BEC = 0.02142

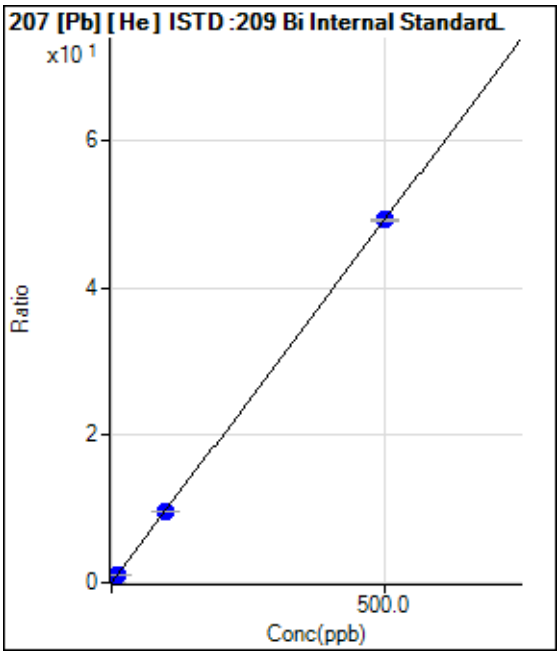
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	506.70	0.0053	P	9.3
2	☐	10.000	9.914	118857.96	1.1297	P	1.0
3	☐	100.000	99.116	1142554.15	11.2468	P	1.0
4	☐	500.000	500.179	5457672.63	56.7342	P	0.2

y = 0.1134 * x + 0.0053
R = 1.0000
DL = 0.01312
BEC = 0.04684

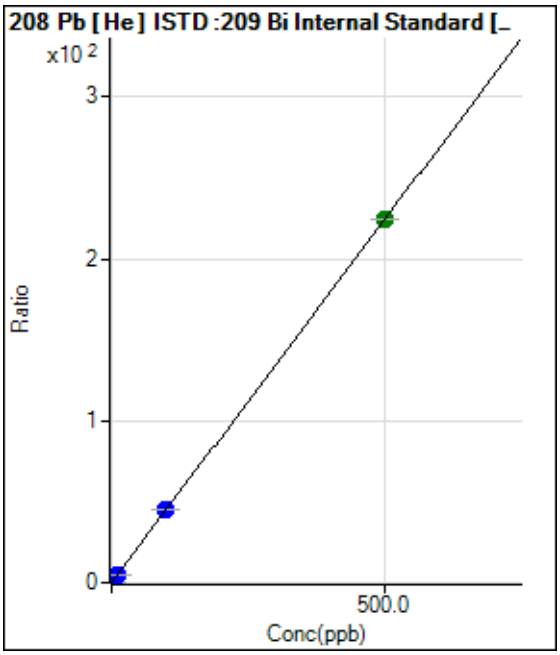
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	443.36	0.0047	P	25.3
2	☐	10.000	9.944	103631.78	0.9850	P	2.1
3	☐	100.000	98.802	989932.75	9.7445	P	1.1
4	☐	500.000	500.241	4744305.14	49.3183	P	0.3

y = 0.0986 * x + 0.0047
R = 1.0000
DL = 0.0359
BEC = 0.0473

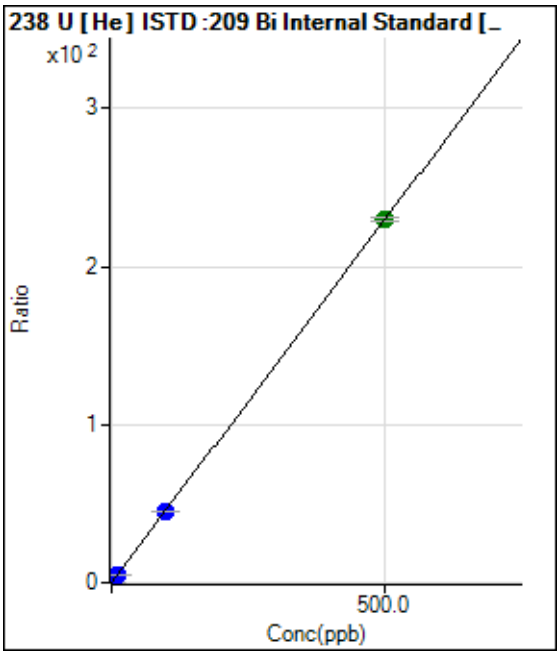
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2040.14	0.0214	P	3.2
2	☐	10.000	10.009	473996.91	4.5051	P	0.2
3	☐	100.000	100.104	4557933.79	44.8661	P	1.0
4	☐	500.000	499.979	21548445.93	224.0029	A	0.1

y = 0.4480 * x + 0.0214
R = 1.0000
DL = 0.004613
BEC = 0.04783

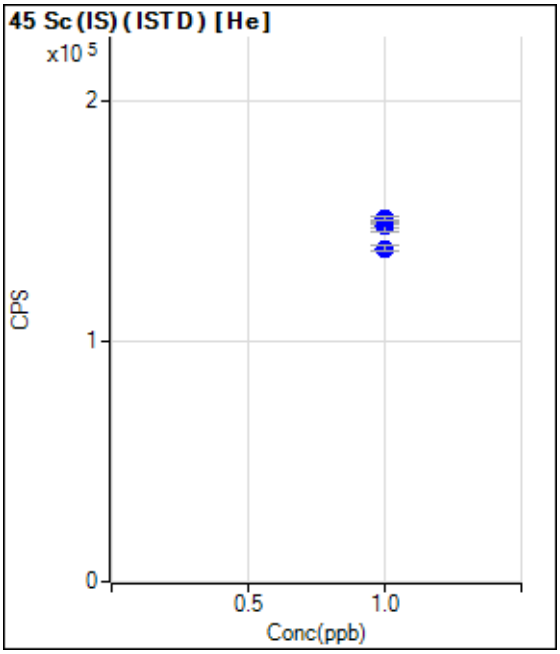
Weight: <None>
Min Conc: 0



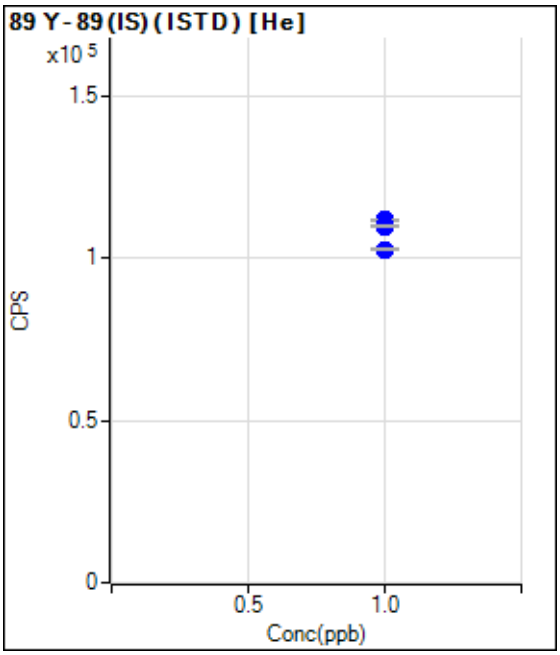
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	26.67	0.0003	P	42.7
2	☐	10.000	9.542	460567.87	4.3778	P	1.3
3	☐	100.000	98.086	4571515.77	44.9982	P	0.4
4	☐	500.000	500.392	22083061.34	229.5592	A	0.9

y = 0.4588 * x + 2.7960E-004
R = 1.0000
DL = 0.0007808
BEC = 0.0006095

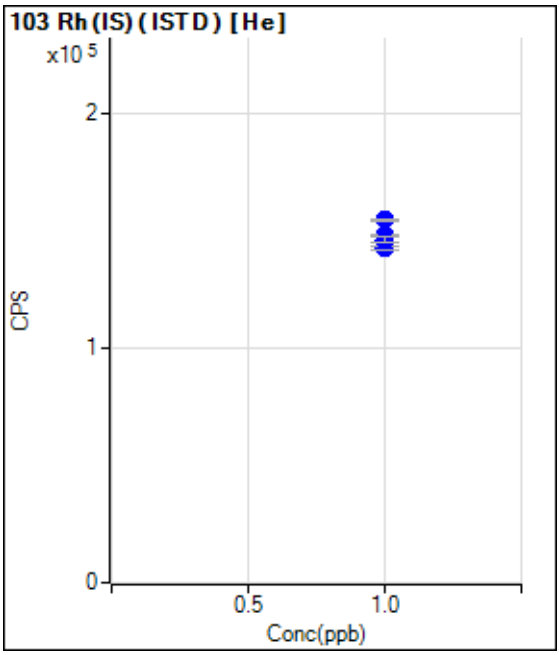
Weight: <None>
Min Conc: 0



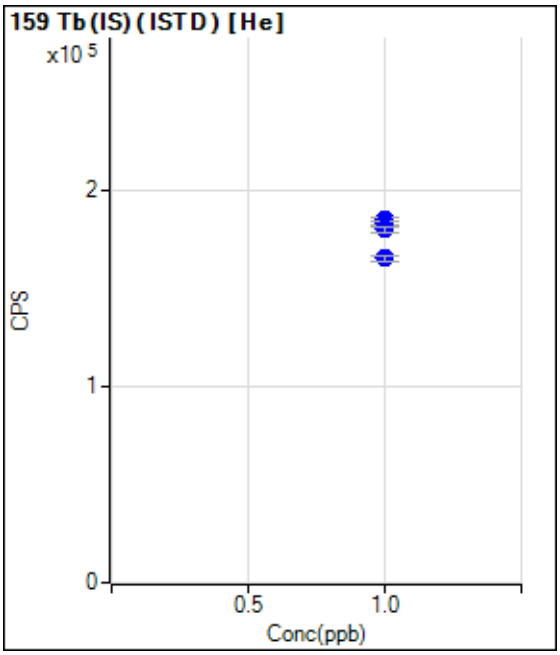
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		138615.45		P	1.6
2	☐	1.000		148282.72		P	1.1
3	☐	1.000		147598.64		P	2.7
4	☐	1.000		150913.21		P	1.1



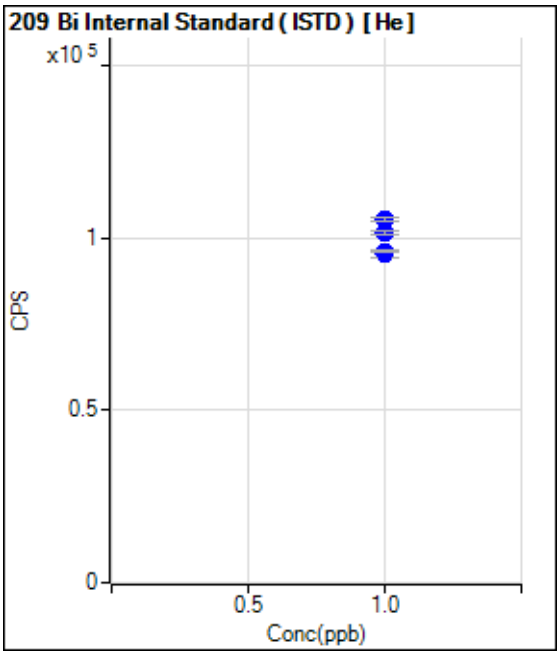
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		102723.51		P	0.3
2	☐	1.000		111843.13		P	0.7
3	☐	1.000		110227.28		P	0.1
4	☐	1.000		109748.06		P	0.5



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		142836.19		P	0.7
2	☐	1.000		154887.94		P	0.4
3	☐	1.000		148791.80		P	0.1
4	☐	1.000		146403.56		P	1.7



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		165396.90		P	2.0
2	☐	1.000		185131.83		P	1.1
3	☐	1.000		183329.62		P	0.7
4	☐	1.000		180103.64		P	1.4



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		95254.52		P	2.3
2	☐	1.000		105214.04		P	1.0
3	☐	1.000		101596.20		P	1.2
4	☐	1.000		96197.35		P	0.2

Batch Summary Report

Batch Folder: C:\Agilent\ICPMH\1\DATA\MS4070919He-1.b\
Analysis File: MS4070919He-1.batch.bin
Tune Step: #1 He

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
1		7/9/2019 10:35:05 AM	001CALB.d	blk I.S /tune	CalBlk	1	1.0000
2		7/9/2019 10:38:51 AM	002CALB.d	ICIS	CalBlk	1	1.0000
3		7/9/2019 10:42:36 AM	003CALS.d	Std1	CalStd	2	1.0000
4		7/9/2019 10:46:31 AM	004CALS.d	Std2	CalStd	3	1.0000
5		7/9/2019 10:50:16 AM	005CALS.d	Std3	CalStd	4	1.0000
6		7/9/2019 10:54:01 AM	006 QCS.d	S1	QCS		1.0000
7		7/9/2019 10:57:47 AM	007 ICV.d	ICV	ICV		1.0000
8		7/9/2019 11:03:25 AM	008 ICB.d	ICB	ICB		1.0000
9		7/9/2019 11:07:12 AM	009LICV.d	ICVL	LLICV		1.0000
10		7/9/2019 11:10:59 AM	010ICSA.d	icsa	ICSA		1.0000
11		7/9/2019 11:14:45 AM	011ICSB.d	icsab	ICSB		1.0000
12		7/9/2019 11:18:32 AM	012SMPL.d	CRI	Sample		1.0000
13		7/9/2019 11:22:18 AM	013 CCV.d	CCV	CCV		1.0000
14		7/9/2019 11:26:04 AM	014 CCB.d	CCB	CCB		1.0000
15		7/9/2019 11:47:16 AM	015SMPL.d	400-171203-c-4-a @5	Sample		1.0000
16		7/9/2019 11:51:02 AM	016SMPL.d	400-171203-c-5-a @5	Sample		1.0000
17		7/9/2019 11:54:46 AM	017SMPL.d	400-171203-c-7-a @5	Sample		1.0000
18		7/9/2019 11:58:32 AM	018SMPL.d	400-171203-c-8-a @5	Sample		1.0000
19		7/9/2019 12:02:17 PM	019SMPL.d	400-171203-c-9-a @5	Sample		1.0000
20		7/9/2019 12:06:02 PM	020SMPL.d	400-171203-c-10-a @5	Sample		1.0000
21		7/9/2019 12:09:47 PM	021SMPL.d	400-171203-c-11-a @5	Sample		1.0000
22		7/9/2019 12:15:10 PM	022 CCV.d	CCV	CCV		1.0000
23		7/9/2019 12:18:55 PM	023 CCB.d	CCB	CCB		1.0000
24		7/9/2019 12:22:40 PM	024SMPL.d	400-171203-c-13-a @5	Sample		1.0000
25		7/9/2019 12:26:26 PM	025SMPL.d	400-171203-c-14-a @5	Sample		1.0000
26		7/9/2019 12:30:11 PM	026SMPL.d	400-171203-c-14-b du @5	Sample		1.0000
27		7/9/2019 12:33:56 PM	027SMPL.d	400-171203-c-14-c ms @5	Sample		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
28		7/9/2019 12:37:42 PM	028SMPL.d	400-171203-c-14-d msd @5	Sample		1.0000
29		7/9/2019 12:41:29 PM	029SMPL.d	400-171203-c-14-a SD@25	Sample		1.0000
30		7/9/2019 12:45:15 PM	030 CCV.d	CCV	CCV		1.0000
31		7/9/2019 12:49:01 PM	031 CCB.d	CCB	CCB		1.0000

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	33.33	N/A	0.016	16.67	638.752	0.237	303.35	101.465
2	ICIS	0.000	76.67	N/A	0.000	13.33	N/A	0.000	276.69	N/A
3	Std1	10.484	2233.55	9.341	10.688	2303.58	2.227	10.775	1433.45	13.769
4	Std2	105.809	21700.67	0.628	102.880	21930.87	3.975	98.494	10636.92	6.606
5	Std3	498.829	104295.92	0.570	499.410	108867.12	0.713	500.286	54023.48	0.536
6	S1	498.520	104551.18	1.723	497.899	108873.23	0.781	503.469	54535.05	2.472
7	ICV	202.066	42782.63	3.848	202.003	44550.44	2.468	207.285	22818.85	2.463
8	ICB	0.193	116.67	10.870	0.421	100.00	34.614	2.936	580.03	11.752
9	ICVL	10.406	2160.21	9.084	1.180	260.01	3.938	51.176	5547.79	1.171
10	icsa	0.190	130.01	107.723	0.020	20.00	430.335	1.502	486.69	33.319
11	icsab	19.180	4227.33	5.768	18.818	4254.04	7.064	49.721	5827.84	4.545
12	CRI	20.192	4327.37	6.692	2.248	506.70	31.626	100.063	11107.26	1.440
13	CCV	248.945	52451.93	1.870	246.369	54076.76	1.206	240.164	26266.85	0.775
14	CCB	<0.000	73.34	N/A	0.179	50.00	98.668	2.868	570.03	25.554
15	400-171203-c-...	76.216	15880.97	1.875	<0.000	10.00	N/A	425.596	45636.54	1.012
16	400-171203-c-...	74.242	16298.13	1.594	<0.000	0.00	0.000	407.428	46021.24	4.672
17	400-171203-c-...	0.866	286.68	42.523	<0.000	0.00	0.000	98.609	11834.49	1.653
18	400-171203-c-...	<0.000	56.67	N/A	<0.000	10.00	N/A	1.891	530.03	62.156
19	400-171203-c-...	0.549	210.01	33.322	<0.000	6.67	N/A	202.628	23326.34	4.412
20	400-171203-c-...	0.519	203.34	50.662	0.021	20.00	544.754	240.718	27802.57	0.688
21	400-171203-c-...	0.967	303.35	13.100	<0.000	0.00	0.000	269.468	31084.80	1.808
22	CCV	242.257	52501.98	1.679	237.025	53515.08	1.174	244.801	27535.54	1.622
23	CCB	0.006	80.00	1565.229	0.224	60.00	73.695	2.614	550.03	17.600
24	400-171203-c-...	0.826	266.68	33.283	0.098	36.67	136.325	139.294	15860.92	3.585
25	400-171203-c-...	0.812	256.68	50.457	0.024	20.00	328.864	100.310	11197.38	5.404
26	400-171203-c-...	0.621	210.01	22.084	<0.000	3.33	N/A	95.590	10423.48	3.073

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	27.487	5644.46	6.341	12.471	2646.97	3.788	362.480	37985.03	0.200
28	400-171203-c-...	25.396	5287.66	10.775	10.487	2256.90	5.576	339.900	36118.01	1.357
29	400-171203-c-...	<0.000	76.67	N/A	0.029	20.00	167.047	21.789	2553.61	13.844
30	CCV	265.277	49232.71	3.053	264.893	51221.86	2.314	258.267	24871.66	3.742
31	CCB	<0.000	53.33	N/A	0.176	46.67	60.361	3.282	576.70	47.892

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	18.811	958975.77	16.942	3.787	102973.57	30.100	1.507	5277.68	19.610
2	ICIS	0.000	878367.05	N/A	0.000	93993.05	N/A	0.000	3173.84	N/A
3	Std1	1043.639	5002855.65	2.019	1073.391	2431874.55	1.912	1050.329	1517475.29	1.705
4	Std2	10400.906	41226754.39	2.798	10401.380	22578652.16	2.807	10314.384	14797826.03	2.778
5	Std3	49918.946	1.98761E+08	1.061	49918.256	1.10454E+08	1.057	49936.117	73272362.24	0.354
6	S1	50447.005	2.01485E+08	0.138	50204.739	1.11433E+08	0.584	50087.957	73721812.23	0.482
7	ICV	19945.250	80924710.46	0.788	20174.406	45221646.00	1.005	20041.314	29750980.39	1.022
8	ICB	<0.000	655555.72	N/A	<0.000	67005.90	N/A	5.392	10723.74	18.978
9	ICVL	104.849	1313171.02	1.225	194.886	510333.90	1.337	102.631	147448.02	0.673
10	icsa	101903.359	4.26629E+08	0.653	101590.091	2.36819E+08	0.822	100132.877	1.54848E+08	1.818
11	icsab	102208.595	4.19478E+08	1.447	101707.156	2.32431E+08	0.372	100986.829	1.53105E+08	0.459
12	CRI	304.576	2175545.33	1.999	409.378	1013015.84	1.060	221.066	329655.48	1.060
13	CCV	25263.390	1.01753E+08	1.076	25306.860	56430159.16	0.305	25309.128	37391006.94	0.617
14	CCB	<0.000	467061.96	N/A	<0.000	72467.68	N/A	12.582	20539.58	7.893
15	400-171203-c-...	1087456.647	4.27610E+09	0.876	17403.084	38270656.93	0.861	2.060	6431.46	7.604
16	400-171203-c-...	1050054.503	4.34878E+09	1.778	16993.285	39359737.75	2.138	2.156	6918.29	9.359
17	400-171203-c-...	566693.611	2.44162E+09	0.577	98232.074	2.36123E+08	0.499	2.006	6954.97	23.260
18	400-171203-c-...	152.479	1639299.09	7.191	<0.000	93087.85	N/A	1.406	5801.20	20.855
19	400-171203-c-...	566841.815	2.37660E+09	2.398	178283.385	4.16957E+08	1.932	84.559	134851.57	3.936
20	400-171203-c-...	689155.247	2.90424E+09	1.706	133374.406	3.13559E+08	1.556	59.871	97111.36	4.268
21	400-171203-c-...	1126570.154	4.74746E+09	1.881	211803.526	4.97928E+08	2.496	17.572	31082.35	6.377
22	CCV	25102.670	1.04010E+08	0.527	25225.188	57859180.80	0.320	25189.213	38280072.76	0.492
23	CCB	48.970	1087778.11	9.880	<0.000	90849.48	N/A	3.737	8452.41	7.507
24	400-171203-c-...	962158.310	3.96386E+09	0.680	167704.563	3.85392E+08	1.448	132.157	205126.77	1.448
25	400-171203-c-...	429760.109	1.72373E+09	1.295	148083.226	3.31265E+08	1.638	133.548	201725.93	2.776
26	400-171203-c-...	415501.275	1.62533E+09	1.321	141602.782	3.08944E+08	1.581	127.385	187833.63	2.718

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	457049.979	1.75470E+09	0.854	159220.345	3.40920E+08	1.217	664.475	947365.80	1.235
28	400-171203-c-...	428166.915	1.66577E+09	2.568	149271.363	3.23895E+08	2.605	552.969	799525.82	2.432
29	400-171203-c-...	75013.256	2.88332E+08	0.527	25706.037	55044170.85	0.610	22.354	35057.77	4.705
30	CCV	27461.316	97377341.88	0.946	27599.775	54211975.86	1.349	27832.903	36227109.46	1.232
31	CCB	<0.000	836144.28	N/A	<0.000	58937.24	N/A	5.192	9776.48	3.181

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.373	750110.61	951.694	7.314	5357.68	25.377	0.024	73.34	110.554
2	ICIS	0.000	739385.95	N/A	0.000	4172.08	N/A	0.000	53.33	N/A
3	Std1	1068.796	4600443.26	1.317	1044.412	175031.85	1.512	10.431	9152.86	5.866
4	Std2	10285.672	37263257.78	2.788	10161.067	1655866.89	1.806	101.598	88196.72	3.663
5	Std3	49941.490	1.81972E+08	0.538	49966.898	8309856.75	0.998	499.672	443528.34	0.620
6	S1	50187.583	1.83431E+08	0.418	50067.615	8352862.20	0.461	498.223	443609.03	0.708
7	ICV	20175.681	74855537.22	1.021	19807.262	3335258.29	1.273	198.731	178498.49	0.288
8	ICB	<0.000	737420.04	N/A	3.469	4825.99	45.954	0.252	266.93	147.919
9	ICVL	521.524	2581464.33	0.856	200.453	36244.01	1.682	4.973	4280.72	7.242
10	icsa	100324.557	3.84431E+08	0.943	100727.386	17652357.67	0.340	2019.597	1889282.37	0.803
11	icsab	100637.668	3.78044E+08	1.598	101553.725	17446205.76	2.406	2023.382	1855689.40	1.479
12	CRI	1058.573	4671295.03	1.108	412.801	73570.28	2.368	10.455	9389.64	2.927
13	CCV	25464.127	93814375.27	0.405	25031.561	4193648.10	0.895	249.577	223068.83	1.112
14	CCB	4.454	769226.05	69.746	7.655	5446.63	43.396	0.099	136.68	17.223
15	400-171203-c-...	205559.331	7.40603E+08	0.865	69668.221	11493868.08	1.240	0.154	193.34	42.404
16	400-171203-c-...	200254.040	7.59920E+08	1.495	68753.418	11946899.13	1.397	0.253	296.68	53.121
17	400-171203-c-...	1988.269	8713384.24	1.103	171243.415	30941704.42	0.030	0.160	216.68	50.320
18	400-171203-c-...	27.288	949523.97	10.012	37.629	11345.09	4.232	0.020	80.01	323.898
19	400-171203-c-...	5968.775	23752390.48	2.060	173960.296	30588259.34	1.865	1.481	1450.12	13.469
20	400-171203-c-...	8903.348	35193584.48	1.514	121165.141	21417266.50	1.340	0.854	866.72	8.728
21	400-171203-c-...	23903.412	93046601.95	2.455	214499.777	37912712.64	2.239	0.355	396.69	15.754
22	CCV	25243.922	95673371.91	0.272	24517.655	4225424.09	0.471	243.462	223842.65	0.295
23	CCB	3.203	772213.95	96.341	24.147	8092.02	7.347	0.006	60.00	522.026
24	400-171203-c-...	2669.667	10901856.92	1.875	179623.966	31034767.05	1.077	3.643	3423.85	6.907
25	400-171203-c-...	1292.769	5558431.38	1.677	252966.645	42545471.66	1.396	4.358	3970.71	4.228
26	400-171203-c-...	1243.215	5243659.61	1.729	241960.437	39684259.69	1.567	4.104	3650.55	2.141

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	4100.961	15186225.61	0.676	269956.533	43456480.28	0.731	268.635	230915.05	1.228
28	400-171203-c-...	3821.428	14393112.70	2.409	253468.184	41345889.67	2.546	253.205	220581.04	2.319
29	400-171203-c-...	225.336	1568778.05	0.530	43990.393	7074467.23	0.944	1.019	930.39	40.874
30	CCV	27820.244	90234885.32	1.052	27174.098	4010750.58	1.060	272.267	214397.68	1.217
31	CCB	9.800	741830.01	15.516	21.305	7137.23	7.149	0.049	90.00	49.709

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	35895.18	N/A	0.063	6551.55	29.362	0.037	6368.13	85.881
2	ICIS	0.000	37689.15	N/A	0.000	5274.37	N/A	0.000	5701.19	N/A
3	Std1	11.122	259692.32	0.705	10.639	223116.88	1.450	10.657	186936.31	0.516
4	Std2	103.582	2073009.35	2.146	103.270	2106335.64	1.972	103.050	1746064.30	2.117
5	Std3	499.261	10062742.14	0.948	499.333	10394440.26	0.631	499.377	8630579.46	0.329
6	S1	501.995	10149370.68	0.504	501.413	10470213.38	0.220	500.166	8671117.58	0.427
7	ICV	198.964	4081887.44	0.970	199.557	4205841.50	1.480	201.081	3519310.05	1.255
8	ICB	0.057	39724.21	123.019	0.041	6208.04	38.319	0.018	6134.68	81.321
9	ICVL	6.305	160434.77	0.915	5.274	110515.37	2.004	2.488	47066.10	1.563
10	icsa	<0.000	26908.61	N/A	1.295	34438.85	3.673	0.467	15050.47	3.304
11	icsab	19.622	449366.73	1.388	21.024	457869.13	1.261	20.916	379619.06	2.062
12	CRI	12.328	290135.95	0.457	10.708	229818.55	0.913	5.080	94470.73	1.179
13	CCV	255.094	5196855.03	0.426	253.291	5311485.96	0.531	253.113	4407276.29	0.711
14	CCB	0.602	49749.74	13.987	0.036	6081.32	128.468	<0.000	5501.11	N/A
15	400-171203-c-...	1.555	71667.57	1.665	0.198	9789.83	9.340	533.382	9145372.37	1.346
16	400-171203-c-...	1.808	80801.17	4.913	0.150	9266.25	13.116	524.594	9472417.15	2.122
17	400-171203-c-...	3.198	114367.25	3.454	0.464	16728.80	6.185	2640.142	49557799.26	1.518
18	400-171203-c-...	4.212	131899.39	0.855	0.155	9426.26	9.223	0.487	15357.43	1.571
19	400-171203-c-...	4.822	145750.18	4.723	0.271	12028.06	14.175	3197.773	58420717.46	1.336
20	400-171203-c-...	5.070	151799.29	3.453	0.418	15360.79	4.744	2239.267	41118719.39	1.022
21	400-171203-c-...	4.936	148979.67	3.355	0.230	11180.81	6.395	3970.296	72907382.25	2.207
22	CCV	249.639	5232304.71	0.465	244.162	5267018.05	0.676	247.750	4437715.14	0.704
23	CCB	1.058	58882.23	3.338	<0.000	5357.74	N/A	0.524	14433.25	8.675
24	400-171203-c-...	4.306	132537.17	4.648	0.249	11340.88	8.928	4300.911	77207183.85	0.797
25	400-171203-c-...	5.210	147308.03	2.345	0.568	17759.85	5.903	3373.278	58939917.46	1.478
26	400-171203-c-...	5.749	154299.60	1.440	0.583	17636.41	0.200	3243.346	55272862.51	2.169

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	138.409	2730140.79	0.679	52.711	1067388.97	1.573	3721.626	62247425.74	0.514
28	400-171203-c-...	130.226	2605432.93	2.287	49.775	1021912.30	1.927	3501.192	59338619.12	2.408
29	400-171203-c-...	7.440	184071.81	0.386	0.219	9949.98	8.920	601.634	10052212.14	0.779
30	CCV	275.860	4948430.86	0.864	271.133	5008995.45	0.861	273.504	4195407.85	0.982
31	CCB	1.238	58133.29	10.368	0.039	5781.26	20.877	0.459	12471.67	6.671

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	2.557	250019.33	4.858	0.023	1826.84	28.421	0.270	12451.68	13.306
2	ICIS	0.000	201518.25	N/A	0.000	1233.43	N/A	0.000	10680.47	N/A
3	Std1	1079.683	20679397.19	1.641	10.859	292073.97	1.890	10.788	80229.68	0.848
4	Std2	10393.170	1.96236E+08	2.318	104.615	2788486.73	2.615	107.081	690836.76	2.663
5	Std3	49919.772	9.63222E+08	0.975	499.060	13601783.97	0.659	498.568	3247525.68	0.976
6	S1	49959.605	9.67014E+08	0.316	500.153	13673975.22	0.322	501.102	3274252.87	0.113
7	ICV	20098.945	3.92460E+08	1.427	198.672	5478661.37	0.945	204.773	1356333.26	1.029
8	ICB	6.189	319320.52	10.516	0.101	3850.59	6.241	<0.000	9002.71	N/A
9	ICVL	107.703	2198801.95	0.119	1.120	30511.63	3.263	1.669	21501.08	3.569
10	icsa	97945.338	1.99174E+09	1.010	0.329	10863.86	7.866	<0.000	10416.91	N/A
11	icsab	98750.056	1.96864E+09	0.193	19.726	556866.37	0.348	19.165	140547.41	1.178
12	CRI	234.319	4766340.76	1.512	2.101	58926.50	0.574	3.665	35618.40	2.958
13	CCV	25562.179	4.96696E+08	1.150	253.919	6968291.36	0.843	258.106	1698378.62	0.610
14	CCB	15.744	490157.03	6.100	0.080	3293.79	16.299	<0.000	7622.06	N/A
15	400-171203-c-...	2677.487	51460242.57	1.197	0.208	6958.35	5.038	0.802	16698.81	7.617
16	400-171203-c-...	2583.204	52301254.22	1.859	0.180	6528.18	1.316	0.540	15807.93	17.052
17	400-171203-c-...	2668.194	56177057.50	1.450	0.787	24762.20	2.594	0.667	17349.49	6.812
18	400-171203-c-...	1.496	260791.06	3.060	<0.000	873.39	N/A	<0.000	3150.44	N/A
19	400-171203-c-...	291.604	6182135.53	1.817	1.997	58980.06	2.021	0.625	16588.69	7.848
20	400-171203-c-...	434.390	9141249.03	1.596	2.212	65487.31	2.234	1.104	19985.75	8.922
21	400-171203-c-...	1659.702	34275580.32	2.027	2.133	63211.46	3.331	2.500	29619.99	1.622
22	CCV	24740.530	4.94522E+08	0.469	243.902	6885410.52	0.732	247.641	1676669.14	0.330
23	CCB	1.772	239802.22	6.218	0.040	2303.58	13.611	<0.000	1933.54	N/A
24	400-171203-c-...	1511.598	30538006.21	0.410	1.370	40195.03	0.498	1.504	22238.73	0.467
25	400-171203-c-...	3274.652	64126144.04	1.746	1.342	38331.02	4.480	0.646	16008.18	5.903
26	400-171203-c-...	3143.735	60056202.44	2.356	1.281	35761.94	1.543	0.568	15110.56	9.780

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	3692.760	69193578.97	1.167	128.554	3393757.66	1.202	128.668	819869.07	1.763
28	400-171203-c-...	3384.484	64281597.38	2.542	119.901	3207646.62	2.509	121.432	784698.61	3.196
29	400-171203-c-...	581.478	11057969.00	0.126	0.261	8162.31	3.536	<0.000	3570.53	N/A
30	CCV	27613.318	4.72730E+08	0.828	270.083	6530219.49	1.001	272.571	1579621.18	1.101
31	CCB	2.988	244503.59	3.832	0.059	2610.31	27.865	<0.000	2020.20	N/A

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.016	7628.47	33.599	<0.000	2103.56	N/A	<0.000	1034.37	N/A
2	ICIS	0.000	7352.79	N/A	0.000	2320.26	N/A	0.000	1054.04	N/A
3	Std1	10.499	186929.86	0.746	10.108	39941.69	2.305	9.741	37135.24	0.579
4	Std2	103.649	1704847.50	0.420	101.418	363165.33	0.546	98.450	350559.27	0.331
5	Std3	499.260	8049784.13	1.780	499.714	1751003.88	1.770	500.315	1748274.00	1.232
6	S1	500.384	8096985.79	0.573	500.612	1760434.09	0.930	499.142	1750375.92	0.454
7	ICV	202.402	3343466.95	1.505	201.756	724761.16	1.421	196.246	702249.04	1.298
8	ICB	<0.000	6153.41	N/A	0.044	2483.61	42.627	0.076	1320.06	14.775
9	ICVL	2.031	41625.25	2.930	19.676	73664.39	0.453	1.135	5215.15	2.139
10	icsa	<0.000	6960.39	N/A	10.967	40055.11	2.482	0.052	1240.05	19.561
11	icsab	20.684	329333.89	1.275	25.107	87225.13	1.465	21.635	74070.35	0.902
12	CRI	4.022	76343.40	1.872	39.693	149138.23	1.818	2.192	9223.88	1.559
13	CCV	252.420	4199211.64	0.582	248.998	900626.73	0.616	246.357	887915.87	0.515
14	CCB	<0.000	4381.72	N/A	<0.000	2016.88	N/A	0.090	1382.40	23.602
15	400-171203-c-...	0.178	9633.97	17.837	1.687	7668.74	6.312	0.898	3903.13	4.265
16	400-171203-c-...	0.084	8492.23	27.434	1.609	7655.40	7.146	0.852	3875.12	0.756
17	400-171203-c-...	<0.000	4586.24	N/A	1.663	8145.62	2.917	3.467	13104.77	1.042
18	400-171203-c-...	<0.000	3622.65	N/A	0.653	4860.91	15.738	0.401	2587.54	4.885
19	400-171203-c-...	0.320	12183.36	9.279	2.428	10440.27	6.002	1.515	6122.80	3.737
20	400-171203-c-...	0.168	10008.60	11.676	1.614	7845.45	1.756	1.816	7255.58	2.433
21	400-171203-c-...	0.039	7654.04	30.858	1.366	6708.24	5.006	2.505	9206.53	4.027
22	CCV	244.527	4149820.67	2.085	242.251	893901.31	1.845	239.053	878931.13	1.916
23	CCB	<0.000	3252.57	N/A	<0.000	2146.90	N/A	0.169	1667.42	6.881
24	400-171203-c-...	0.546	15300.35	9.787	1.939	8589.15	3.863	1.804	6919.77	2.952
25	400-171203-c-...	0.339	11986.57	13.542	3.604	13822.79	8.350	3.080	10922.55	3.207
26	400-171203-c-...	0.305	11091.52	10.680	1.766	7622.03	1.107	3.077	10533.30	2.312

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	69.746	1003001.80	0.860	138.319	431337.88	0.631	32.348	101129.40	1.194
28	400-171203-c-...	64.564	955395.24	1.178	127.400	408757.03	0.957	30.072	96755.70	1.245
29	400-171203-c-...	<0.000	2954.74	N/A	0.446	3713.89	17.643	1.136	4763.35	5.359
30	CCV	272.801	3930545.40	1.576	269.732	844934.83	1.393	266.671	832461.44	1.542
31	CCB	<0.000	3079.21	N/A	<0.000	2156.90	N/A	0.228	1739.10	5.499

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.049	1024.04	52.842	0.022	1750.17	56.664	0.041	583.37	25.050
2	ICIS	0.000	1003.37	N/A	0.000	1220.10	N/A	0.000	213.34	N/A
3	Std1	9.271	4822.37	2.883	9.759	258146.32	1.915	9.527	92364.99	1.983
4	Std2	98.662	39225.71	0.043	99.583	2518836.21	0.698	99.086	920783.53	0.625
5	Std3	500.282	191510.61	0.559	500.088	12438305.65	2.062	500.192	4571968.37	1.356
6	S1	497.462	191101.61	0.438	498.565	12445257.73	0.848	499.395	4580908.16	0.623
7	ICV	197.608	78024.08	0.964	199.425	5075785.03	1.313	197.972	1851425.08	1.608
8	ICB	0.000	1008.70	54858.407	0.061	2723.67	10.584	0.086	983.40	11.577
9	ICVL	2.137	1904.45	4.304	3.915	101988.51	1.618	3.833	36447.76	2.009
10	icsa	0.262	1108.37	17.690	1.887	47348.46	1.401	2006.414	18021468.90	0.987
11	icsab	22.296	9199.20	1.447	23.287	561026.15	0.951	2028.292	17918127.65	1.615
12	CRI	4.376	2844.26	3.928	7.786	205757.67	0.910	8.326	80567.53	2.552
13	CCV	246.892	97950.88	0.518	248.912	6382689.07	0.518	247.824	2335123.19	0.243
14	CCB	<0.000	1000.37	N/A	0.050	2476.96	24.381	0.279	2753.69	16.456
15	400-171203-c-...	0.832	1244.71	28.657	1123.349	25882300.45	1.087	114.686	971189.67	1.603
16	400-171203-c-...	0.955	1330.06	13.312	1117.485	26565263.77	0.881	110.316	963931.65	1.818
17	400-171203-c-...	0.271	1124.37	23.781	889.934	21997166.34	1.003	0.703	6598.24	4.723
18	400-171203-c-...	<0.000	1068.37	N/A	0.276	8469.17	2.435	0.033	543.37	15.450
19	400-171203-c-...	0.496	1169.05	13.086	1814.965	43356679.35	2.038	0.594	5424.43	10.881
20	400-171203-c-...	0.440	1168.71	42.853	1347.409	32759989.51	2.052	1.047	9569.78	2.371
21	400-171203-c-...	0.670	1202.38	11.456	2426.137	56531537.49	2.846	0.966	8479.19	4.752
22	CCV	239.829	97094.64	1.421	245.382	6418661.78	2.098	241.119	2317540.54	2.161
23	CCB	0.100	1064.37	61.318	0.303	8762.72	10.500	0.062	780.05	12.118
24	400-171203-c-...	0.584	1171.71	30.823	1600.745	37319397.78	2.615	0.613	5457.76	2.364
25	400-171203-c-...	0.679	1187.05	23.611	1444.477	33150012.84	3.372	0.339	3057.08	7.586
26	400-171203-c-...	0.801	1187.05	31.517	1423.127	31526210.36	2.618	0.315	2757.03	11.504

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	30.155	11092.00	1.381	1830.472	40372944.40	1.280	275.637	2234248.14	0.715
28	400-171203-c-...	27.896	10624.36	0.838	1681.415	38139707.76	0.905	254.317	2120058.98	1.068
29	400-171203-c-...	0.349	1096.04	11.404	238.635	5601472.21	2.071	0.161	1596.82	14.426
30	CCV	265.467	91154.45	2.052	272.823	6059472.62	1.948	267.257	2181175.02	1.893
31	CCB	0.443	1108.04	56.286	0.247	6860.64	49.837	0.108	1120.09	23.462

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.044	80.00	156.082	0.008	220.01	44.715	<0.000	0.00	0.000
2	ICIS	0.000	63.33	N/A	0.000	53.33	N/A	0.000	6.67	N/A
3	Std1	10.316	4234.07	10.311	1.079	25173.63	0.919	10.304	3110.42	6.253
4	Std2	101.844	39558.77	0.674	10.394	232427.00	0.517	103.126	29838.22	3.365
5	Std3	499.625	190680.52	0.805	99.960	2198763.77	0.887	499.369	142124.53	1.008
6	S1	498.596	190953.07	0.557	99.720	2201135.96	0.568	503.829	143900.73	0.332
7	ICV	200.214	78207.31	2.141	40.616	914000.25	1.416	202.864	59070.76	1.513
8	ICB	0.124	110.00	119.439	0.019	460.02	20.398	0.035	16.67	115.916
9	ICVL	0.480	256.68	51.645	0.521	11914.81	1.746	0.642	196.67	52.730
10	icsa	0.408	216.68	16.840	0.056	1260.10	9.648	25.285	7078.50	2.750
11	icsab	22.075	8202.41	2.469	21.065	447856.71	1.827	48.738	13412.72	4.384
12	CRI	0.866	416.69	19.150	1.062	24709.47	3.016	1.017	313.35	21.921
13	CCV	248.689	97865.20	0.647	51.278	1162602.38	0.736	250.595	73515.90	1.639
14	CCB	0.023	73.33	123.061	0.014	360.02	28.663	0.011	10.00	319.979
15	400-171203-c-...	0.103	96.67	110.715	0.006	180.01	30.579	1.506	403.36	12.689
16	400-171203-c-...	0.022	70.00	782.318	0.003	120.01	52.383	1.595	440.03	16.614
17	400-171203-c-...	0.032	76.67	234.863	0.001	76.67	49.013	<0.000	6.67	N/A
18	400-171203-c-...	<0.000	60.00	N/A	0.001	76.67	151.475	<0.000	0.00	0.000
19	400-171203-c-...	0.176	126.67	118.232	0.003	110.01	50.852	0.061	23.33	91.057
20	400-171203-c-...	0.097	100.00	142.542	0.001	80.00	135.439	0.072	26.67	77.051
21	400-171203-c-...	0.184	126.68	10.530	0.004	133.34	14.791	0.127	40.00	107.779
22	CCV	240.716	96620.73	2.780	49.871	1153496.15	1.362	245.143	73364.91	2.198
23	CCB	0.031	76.67	208.721	0.015	390.02	17.523	<0.000	3.33	N/A
24	400-171203-c-...	0.157	116.67	40.847	0.009	226.68	11.014	0.100	33.33	76.365
25	400-171203-c-...	0.135	106.67	87.397	0.003	106.67	41.003	0.014	10.00	7.827
26	400-171203-c-...	<0.000	50.00	N/A	0.001	73.34	163.479	<0.000	0.00	0.000

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	13.568	4647.49	0.295	13.194	257382.13	1.395	17.406	4397.47	9.588
28	400-171203-c-...	11.739	4144.03	3.684	12.323	247227.24	1.004	15.539	4037.33	9.172
29	400-171203-c-...	<0.000	26.67	N/A	0.002	93.34	10.814	0.038	16.67	55.224
30	CCV	268.288	91464.95	1.111	54.994	1080049.57	1.451	269.065	68373.38	1.895
31	CCB	0.037	73.33	243.169	0.017	390.02	34.254	0.052	20.00	126.852

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.017	137.79	41.062	0.034	1143.42	36.603	0.046	920.07	26.630
2	ICIS	0.000	64.57	N/A	0.000	760.05	N/A	0.000	180.01	N/A
3	Std1	9.911	44703.35	3.936	10.000	123564.16	2.243	9.936	172970.24	0.207
4	Std2	101.663	439866.85	0.698	101.061	1192451.57	0.530	101.649	1698242.22	0.229
5	Std3	499.669	2126656.62	1.368	499.788	5798755.75	1.127	499.671	8212769.67	0.517
6	S1	499.835	2134958.31	0.268	500.291	5825142.20	0.638	500.914	8261774.88	0.283
7	ICV	201.651	878129.56	1.073	199.685	2370755.75	1.192	201.431	3386996.93	1.456
8	ICB	0.075	379.51	32.422	0.165	2647.00	19.371	0.186	3183.78	15.344
9	ICVL	0.549	2485.36	9.855	5.001	60794.71	1.516	3.078	52496.43	0.715
10	icsa	0.446	1926.75	38.090	0.079	1663.49	10.709	0.158	2727.03	13.144
11	icsab	21.118	86924.88	3.265	21.342	240062.28	0.600	10.363	164803.23	0.788
12	CRI	0.962	4392.91	3.869	9.851	121445.14	2.453	5.916	102832.24	1.938
13	CCV	250.065	1097094.14	0.755	248.824	2976200.27	0.328	250.103	4237081.81	0.298
14	CCB	0.079	398.65	6.647	0.157	2580.31	16.251	0.200	3447.17	8.350
15	400-171203-c-...	0.044	234.43	20.930	0.085	1636.82	11.493	0.054	1000.08	22.059
16	400-171203-c-...	<0.000	18.03	N/A	0.061	1423.46	5.444	0.022	523.36	10.843
17	400-171203-c-...	0.013	121.42	29.030	0.077	1663.50	10.107	0.017	456.69	19.097
18	400-171203-c-...	0.006	95.84	146.927	0.063	1573.47	16.630	0.000	196.68	1468.790
19	400-171203-c-...	0.028	178.41	46.291	0.121	2093.54	14.220	0.024	553.37	11.203
20	400-171203-c-...	0.011	111.12	124.337	0.103	1930.20	11.417	0.024	570.04	18.362
21	400-171203-c-...	0.007	90.52	98.015	0.061	1390.12	4.204	0.016	413.36	12.780
22	CCV	240.378	1075827.85	1.627	239.732	2924922.98	2.231	240.966	4164068.37	2.339
23	CCB	0.051	281.67	12.152	0.123	2200.24	1.319	0.178	3103.75	11.597
24	400-171203-c-...	0.026	166.71	75.646	0.182	2703.67	7.870	0.092	1593.48	19.924
25	400-171203-c-...	0.033	190.77	10.132	0.127	2076.88	11.233	0.031	640.04	16.443
26	400-171203-c-...	0.008	88.20	89.165	0.109	1816.86	17.016	0.019	436.69	9.831

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	13.203	49889.76	2.125	272.783	2806694.86	1.957	138.416	2017350.18	1.260
28	400-171203-c-...	12.246	47594.61	0.886	254.212	2690130.79	1.110	127.610	1912851.69	0.708
29	400-171203-c-...	<0.000	45.82	N/A	0.236	3317.14	5.539	0.072	1290.11	14.792
30	CCV	265.281	1008209.54	1.101	269.397	2790988.50	1.901	272.969	4005677.65	1.601
31	CCB	0.074	354.58	24.881	0.179	2640.33	17.785	0.208	3333.84	13.765

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
1	blk I.S /tune	0.033	256.68	38.975						
2	ICIS	0.000	80.01	N/A						
3	Std1	10.106	59849.68	0.769						
4	Std2	101.071	591945.99	0.253						
5	Std3	499.784	2875010.48	0.851						
6	S1	500.407	2907292.46	0.619						
7	ICV	199.736	1167037.79	0.666						
8	ICB	0.096	606.70	23.050						
9	ICVL	2.530	14430.40	6.801						
10	icsa	0.764	4620.85	6.938						
11	icsab	21.173	121736.95	2.111						
12	CRI	5.066	30089.18	3.324						
13	CCV	253.559	1493206.38	1.214						
14	CCB	0.094	593.37	10.979						
15	400-171203-c-...	15.803	84891.76	1.040						
16	400-171203-c-...	15.595	84767.51	0.851						
17	400-171203-c-...	8.497	48708.68	2.822						
18	400-171203-c-...	0.073	493.36	32.562						
19	400-171203-c-...	21.777	119983.87	1.085						
20	400-171203-c-...	15.537	86326.10	2.343						
21	400-171203-c-...	12.271	65284.18	3.351						
22	CCV	247.452	1469634.93	2.087						
23	CCB	0.070	463.36	18.820						
24	400-171203-c-...	9.148	49022.90	3.902						
25	400-171203-c-...	10.396	54390.05	4.151						
26	400-171203-c-...	10.177	52530.53	4.549						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
27	400-171203-c-...	147.787	757522.91	1.465						
28	400-171203-c-...	137.065	707423.30	1.511						
29	400-171203-c-...	1.716	9029.57	4.956						
30	CCV	275.573	1401510.65	0.415						
31	CCB	0.072	436.69	25.026						

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.029	1610.16	8.046	0.027	806.73	10.475	0.013	576.70	67.196
2	ICIS	0.000	680.04	N/A	0.000	506.70	N/A	0.000	443.36	N/A
3	Std1	9.865	346900.35	1.321	9.914	118857.96	1.050	9.944	103631.78	2.096
4	Std2	100.486	3405574.84	1.218	99.116	1142554.15	1.003	98.802	989932.75	1.144
5	Std3	499.906	16040772.26	0.617	500.179	5457672.63	0.155	500.241	4744305.14	0.287
6	S1	502.276	16279151.01	2.169	496.628	5473393.04	2.447	498.690	4776903.78	2.861
7	ICV	201.253	6686360.94	1.779	199.313	2251920.17	2.066	196.960	1934324.03	1.439
8	ICB	0.074	3040.45	13.956	0.067	1226.77	15.973	0.059	993.40	10.660
9	ICVL	2.057	70366.31	2.086	0.507	6371.59	0.850	0.488	5354.49	1.285
10	icsa	0.016	1183.43	37.129	0.301	3720.60	4.532	0.316	3377.18	8.359
11	icsab	10.293	324390.69	2.876	20.514	219883.64	2.616	20.495	190952.06	2.498
12	CRI	3.878	137627.94	2.076	0.932	11755.02	2.977	0.985	10767.63	1.076
13	CCV	253.565	8464460.08	1.200	246.695	2800643.19	0.720	246.811	2435456.42	0.667
14	CCB	0.076	3210.45	4.958	0.059	1186.76	17.585	0.048	930.07	33.704
15	400-171203-c-...	<0.000	316.68	N/A	0.006	526.70	104.352	0.003	440.03	34.413
16	400-171203-c-...	<0.000	266.68	N/A	<0.000	386.69	N/A	<0.000	406.69	N/A
17	400-171203-c-...	<0.000	286.68	N/A	0.001	496.70	1741.556	0.004	470.03	113.261
18	400-171203-c-...	<0.000	363.35	N/A	<0.000	376.69	N/A	<0.000	386.69	N/A
19	400-171203-c-...	<0.000	296.68	N/A	0.004	516.70	115.305	0.009	496.70	7.005
20	400-171203-c-...	<0.000	296.69	N/A	<0.000	420.02	N/A	<0.000	366.69	N/A
21	400-171203-c-...	<0.000	193.34	N/A	<0.000	390.02	N/A	<0.000	300.01	N/A
22	CCV	241.989	8301377.79	1.304	234.236	2732486.52	1.451	235.954	2392434.86	1.521
23	CCB	0.060	2683.70	2.555	0.024	793.39	45.020	0.027	726.72	17.039
24	400-171203-c-...	0.016	1090.09	31.916	0.037	840.06	26.537	0.031	676.71	27.372
25	400-171203-c-...	<0.000	463.36	N/A	0.003	490.03	265.028	0.020	573.38	56.491
26	400-171203-c-...	<0.000	363.35	N/A	0.010	540.03	30.524	0.003	420.03	159.659

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	27.238	761007.18	0.883	27.052	257248.84	0.423	27.326	225860.20	0.342
28	400-171203-c-...	24.706	717617.80	1.792	24.764	244844.18	1.165	24.563	211095.44	1.174
29	400-171203-c-...	<0.000	520.03	N/A	<0.000	300.02	N/A	<0.000	226.68	N/A
30	CCV	268.878	7910975.72	0.671	263.481	2636254.96	0.257	264.085	2296592.78	0.475
31	CCB	0.074	2910.41	7.169	0.034	833.39	39.670	0.042	803.39	9.742

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.026	3210.28	14.254	0.001	76.67	99.862
2	ICIS	0.000	2040.14	N/A	0.000	26.67	N/A
3	Std1	10.009	473996.91	0.216	9.542	460567.87	1.331
4	Std2	100.104	4557933.79	1.016	98.086	4571515.77	0.409
5	Std3	499.979	21548445.93	0.133	500.392	22083061.34	0.919
6	S1	497.342	21649767.91	2.645	497.368	22170584.67	2.252
7	ICV	199.980	8924716.85	1.850	202.177	9238155.07	1.267
8	ICB	0.069	4973.87	11.807	0.067	2950.42	7.957
9	ICVL	0.497	24768.85	2.576	9.566	445460.82	1.050
10	icsa	0.307	14980.12	3.060	0.040	1740.19	14.987
11	icsab	20.766	879219.08	2.440	20.384	881952.12	1.325
12	CRI	0.962	47877.93	1.766	18.827	914055.12	0.745
13	CCV	249.977	11209206.81	0.837	249.742	11465830.66	0.932
14	CCB	0.053	4460.44	20.212	0.061	2810.40	13.415
15	400-171203-c-...	0.003	2000.15	228.023	0.020	846.73	9.685
16	400-171203-c-...	<0.000	1680.11	N/A	0.020	853.40	15.814
17	400-171203-c-...	<0.000	1906.80	N/A	0.210	8929.71	2.196
18	400-171203-c-...	<0.000	1540.10	N/A	0.001	53.33	59.408
19	400-171203-c-...	0.008	2240.16	14.636	1.460	59988.92	1.720
20	400-171203-c-...	<0.000	1800.12	N/A	1.470	60473.67	2.047
21	400-171203-c-...	<0.000	1440.09	N/A	0.705	27649.92	4.334
22	CCV	238.246	10978043.37	0.786	241.012	11370707.75	0.564
23	CCB	0.026	3266.95	9.532	0.042	1946.89	14.898
24	400-171203-c-...	0.032	3123.61	17.462	0.426	17183.94	2.323
25	400-171203-c-...	0.007	2143.49	57.679	0.169	6721.80	1.228
26	400-171203-c-...	0.008	2083.48	48.971	0.163	6321.64	3.781

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-171203-c-...	27.406	1029386.04	1.022	27.970	1074032.30	1.498
28	400-171203-c-...	24.926	973460.84	1.224	25.663	1024452.15	1.316
29	400-171203-c-...	<0.000	1090.07	N/A	0.034	1400.12	17.368
30	CCV	266.048	10514158.49	0.404	265.108	10727059.84	0.693
31	CCB	0.039	3543.64	15.519	0.054	2263.61	9.415

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	140379.53	100.0	103045.19	100.0	143213.62	100.0
2	ICIS	138615.45	100.0	102723.51	100.0	142836.19	100.0
3	Std1	148282.72	107.0	111843.13	108.9	154887.94	108.4
4	Std2	147598.64	106.5	110227.28	107.3	148791.80	104.2
5	Std3	150913.21	108.9	109748.06	106.8	146403.56	102.5
6	S1	151377.69	109.2	111059.67	108.1	146905.06	102.8
7	ICV	152673.10	110.1	111103.40	108.2	149776.93	104.9
8	ICB	142171.27	102.6	104015.30	101.3	143602.70	100.5
9	ICVL	144445.85	104.2	108963.29	106.1	151382.08	106.0
10	icsa	159063.48	114.8	115569.79	112.5	143848.15	100.7
11	icsab	155930.22	112.5	113616.90	110.6	141489.50	99.1
12	CRI	151762.31	109.5	112441.73	109.5	154554.54	108.2
13	CCV	151939.82	109.6	111488.71	108.5	150891.11	105.6
14	CCB	141356.99	102.0	103894.28	101.1	145339.07	101.8
15	400-171203-c-...	149709.46	108.0	106887.02	104.1	135621.73	94.9
16	400-171203-c-...	157695.77	113.8	112023.00	109.1	139904.42	97.9
17	400-171203-c-...	164015.53	118.3	120394.19	117.2	145479.56	101.9
18	400-171203-c-...	158497.56	114.3	112657.49	109.7	152671.31	106.9
19	400-171203-c-...	159641.48	115.2	116073.91	113.0	140617.19	98.4
20	400-171203-c-...	160441.42	115.7	115794.40	112.7	143091.36	100.2
21	400-171203-c-...	160465.96	115.8	117161.09	114.1	137169.00	96.0
22	CCV	156286.79	112.7	114030.71	111.0	153948.02	107.8
23	CCB	142693.84	102.9	105797.23	103.0	146112.16	102.3
24	400-171203-c-...	156855.35	113.2	113322.07	110.3	137238.79	96.1
25	400-171203-c-...	152671.80	110.1	112965.81	110.0	135142.79	94.6
26	400-171203-c-...	148856.34	107.4	111043.24	108.1	130367.37	91.3

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
27	400-171203-c-...	146143.32	105.4	107889.30	105.0	129808.89	90.9
28	400-171203-c-...	148146.49	106.9	108752.24	105.9	133505.59	93.5
29	400-171203-c-...	145906.55	105.3	105873.85	103.1	138149.79	96.7
30	CCV	133871.51	96.6	97786.94	95.2	130723.37	91.5
31	CCB	133172.03	96.1	98776.17	96.2	135579.09	94.9

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	167254.01	100.0	96666.84	100.0
2	ICIS	165396.90	100.0	95254.52	100.0
3	Std1	185131.83	111.9	105214.04	110.5
4	Std2	183329.62	110.8	101596.20	106.7
5	Std3	180103.64	108.9	96197.35	101.0
6	S1	181899.81	110.0	97190.22	102.0
7	ICV	182908.23	110.6	99612.81	104.6
8	ICB	171016.04	103.4	95254.80	100.0
9	ICVL	177614.65	107.4	101505.22	106.6
10	icsa	185840.98	112.4	94359.18	99.1
11	icsab	179937.84	108.8	94322.99	99.0
12	CRI	185381.47	112.1	105831.38	111.1
13	CCV	184371.23	111.5	100082.61	105.1
14	CCB	170393.39	103.0	98767.05	103.7
15	400-171203-c-...	168017.49	101.6	88259.62	92.7
16	400-171203-c-...	170008.22	102.8	90275.53	94.8
17	400-171203-c-...	179175.21	108.3	92481.92	97.1
18	400-171203-c-...	175311.05	106.0	100784.44	105.8
19	400-171203-c-...	172355.93	104.2	89526.85	94.0
20	400-171203-c-...	173799.18	105.1	89600.98	94.1
21	400-171203-c-...	166367.33	100.6	85403.97	89.7
22	CCV	185956.48	112.4	102840.46	108.0
23	CCB	170940.83	103.4	98630.23	103.5
24	400-171203-c-...	167519.41	101.3	87898.00	92.3
25	400-171203-c-...	163697.90	99.0	86486.19	90.8
26	400-171203-c-...	161323.15	97.5	84032.61	88.2

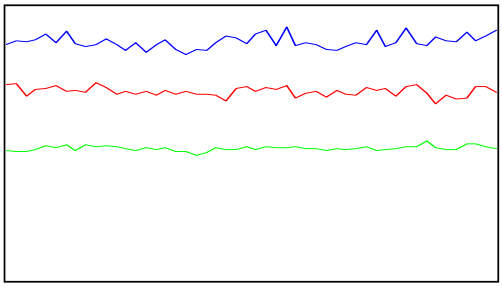
ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
27	400-171203-c-...	160491.56	97.0	83700.36	87.9
28	400-171203-c-...	161592.43	97.7	87015.71	91.4
29	400-171203-c-...	163315.07	98.7	88649.27	93.1
30	CCV	159213.93	96.3	88202.43	92.6
31	CCB	156521.78	94.6	91032.55	95.6

Tune Report

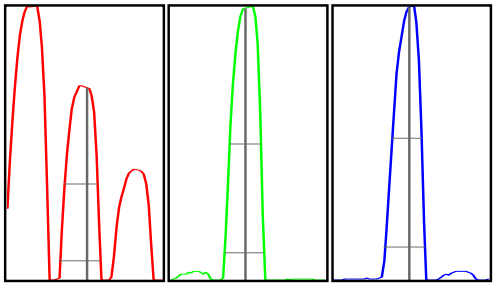
Batch Folder C:\Agilent\ICPMH\1\DATA\MS4070919TUNE.b
Acq. Date-Time 7/9/2019 10:03
Report Comment 072015Atune
Instrument Name G3281A JP11040848

[He]



Mass	Range	Count	RSD%	Background
59	5000	3443	2.488	
89	10000	4818	1.963	
205	5000	4347	2.763	

Ratio 156/140 1.651 %
Integration Time [sec] 0.1 **Sampling Period [sec]** 0.31



Mass	Peak Height	Axis	W-50%	W-10%
59	3345.86	59.05	0.61	0.763
89	4761.43	89.00	0.58	0.749
205	4302.94	205.00	0.54	0.751

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.54 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1500 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-50 V
Extract 2	-200.0 V	Cell Exit	-80 V
Omega Bias	-100 V	Deflect	3.0 V
Omega Lens	8.0 V	Plate Bias	-60 V

Cell Parameters

Use Gas	true	OctP Bias	-18.0 V

Tune Report

He Flow	3.5 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	3.0 V
3rd Gas Flow	0 %		

[no gas]

Mass	Range	Count	RSD%	Background
7	5000	2232	2.659	3.300
89	20000	10627	1.510	3.200
205	10000	6469	1.985	12.500

Ratio 156/140 2.360 % **Ratio** 70/140 11.689 %

Integration Time [sec] 0.1 **Sampling Period [sec]** 0.311

Mass	Peak Height	Axis	W-50%	W-10%
7	2170.38	7.10	0.67	0.793
89	10444.00	89.00	0.58	0.756
205	6345.56	205.00	0.56	0.758

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.74 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1550 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-34 V
Extract 2	-200.0 V	Cell Exit	-60 V
Omega Bias	-80 V	Deflect	14.2 V
Omega Lens	10.1 V	Plate Bias	-50 V

Cell Parameters

Use Gas	false	OctP Bias	-8.0 V
He Flow	0.0 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	5.0 V
3rd Gas Flow	0 %		

Experiment Details

Description	PlasmaLab Template BlankExperiment
Template Filename	C:\Program Files\Thermo Fisher\PlasmaLab\TEMPLATES\6020A.tet
Created By User	ThermoFisher
Analyte Database	STL_CCT.tea
Creation Timestamp	10/31/2007 1:09:22 PM
Last Edited By	CHIINSTICPMS5
Last Edit Timestamp	7/9/2019 9:23:02 AM
Instrument Detector	Simultaneous
Database Version	3,51
Acquisition Mode	Unknown

Numerical Results report key (text indicates meaning)

Blue text indicates that cell is a statistic.
Underlining indicates that a data warning flag is set.

Column headings	Result cells	Data warning flags
No flag	Internal Standard	I - Invalid calibration
Semi Quant	Excluded	T - Tripped
Standard Addition	QC Warning	F - Interference correction failed
Multi Element	QC Failure	M - Result over max
	Transient TRA only:	V - Valley integration failed
	Peak Not Found	D - Different method used
	Manually Edited	
	Merged Peak	

Setup

Main Run Setup

Main Run	Peak Jumping
Sweeps	15
Dwell Time	10000
Channels Per Mass	1
Acquisition Duration	18892
Channel Spacing	0.02

Peak Jump Regions

Analyte	Channels	Dwell ms	Resolution
7Li	1	10000	Standard
9Be	1	100000	Standard
11B	1	80000	Standard
23Na	1	30000	Standard
24Mg	1	30000	Standard
27Al	1	30000	Standard
39K	1	30000	Standard
44Ca	1	30000	Standard
45Sc	1	10000	Standard
47Ti	1	30000	Standard
51V	1	30000	Standard
52Cr	1	30000	Standard
54Fe	1	30000	Standard
55Mn	1	30000	Standard
59Co	1	30000	Standard
60Ni	1	30000	Standard
63Cu	1	30000	Standard
66Zn	1	30000	Standard
75As	1	100000	Standard
78Se	1	250000	Standard
88Sr	1	30000	Standard
89Y	1	10000	Standard
95Mo	1	10000	Standard
103Rh	1	30000	Standard
107Ag	1	10000	Standard
111Cd	1	10000	Standard

115In	1	10000	Standard
118Sn	1	10000	Standard
121Sb	1	10000	Standard
137Ba	1	10000	Standard
159Tb	1	10000	Standard
205Tl	1	10000	Standard
206Pb	1	10000	Standard
207Pb	1	10000	Standard
208Pb	1	10000	Standard
209Bi	1	10000	Standard
238U	1	10000	Standard

Calibration Technique

Use External Drift Correction - Yes
Calibrate by - Element

Symbol	Interference Correction	RSF	Calibration Method	Line Fit	Weighting	Forcing	Use for Semi-Quant	Max Error	Minimum Correlation
7Li	Yes	1.00	Fully-Quantified	Linear	None	Through Blank	Yes		
9Be	Yes	0.75	Fully-Quantified	Linear	None	Through Blank	Yes		0.000000
11B	Yes	0.58	Fully-Quantified	Linear	None	Through Blank	Yes		0.000000
23Na	Yes	1.00	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
24Mg	Yes	0.98	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
27Al	Yes	0.98	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
39K	Yes	1.00	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
44Ca	Yes	0.99	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
47Ti	Yes	0.99	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
51V	Yes	0.99	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
52Cr	Yes	0.98	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
55Mn	Yes	0.95	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
54Fe	Yes	0.96	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
59Co	Yes	0.93	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
60Ni	No	0.91	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
63Cu	Yes	0.90	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
66Zn	Yes	0.38	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
75As	Yes	0.07	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
78Se	Yes	0.10	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
88Sr	Yes	0.96	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
89Y	Yes	0.98	None				No		
95Mo	Yes	0.98	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
103Rh	Yes	0.94	None				No		
107Ag	Yes	0.93	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
111Cd	Yes	0.57	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
115In	Yes	0.99	None				No		
118Sn	Yes	0.96	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
121Sb	Yes	0.39	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
137Ba	Yes	0.91	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
159Tb	Yes	0.99	None				No		
206Pb	Yes	0.97	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
207Pb	Yes	0.97	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
208Pb	Yes	0.97	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
209Bi	Yes	0.92	None				No		
238U	Yes	1.00	None				No		
205Tl	Yes	1.00	Fully-Quantified	Linear	None	Through Blank	Yes		0.995000
45Sc	Yes	1.00	None				No		

Sample List

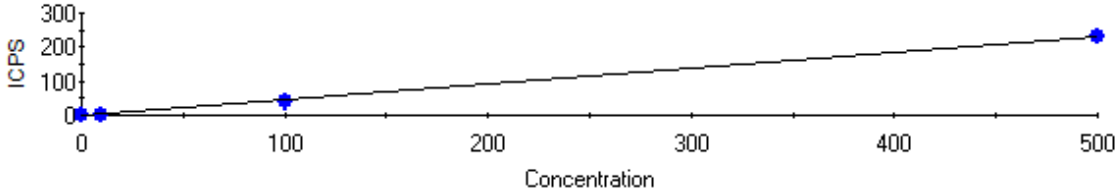
No	Label	Type	Weight	Rack	Row	Col	Height
1	STD0,	Blank	1.000	1	1	1	144
2	STD1,	Fully Quant Standard	1.000	1	1	2	144
3	STD2,	Fully Quant Standard	1.000	1	1	3	144
4	STD3,	Fully Quant Standard	1.000	1	1	4	144
5	S1,	QC Sample	1.000	1	1	4	144
6	ICV,	QC Sample	1.000	1	1	5	144
7	ICB,	QC Sample	1.000	0	1	6	144
8	ICVL,	QC Sample	1.000	0	1	7	144
9	CRI,	QC Sample	1.000	1	1	6	144
10	ICSA,	QC Sample	1.000	1	1	7	144
11	ICSAB,	QC Sample	1.000	1	1	8	144
12	CCV,	QC Sample	1.000	0	1	5	144

13	CCB,	QC Sample	1.000	0	1	6	144
14	mb 500-493579/1-a,	QC Sample	1.000	1	1	9	144
15	lcs 500-493579/2-a,	QC Sample	1.000	1	1	10	144
16	400-171203-c-1-a @5,	Unknown	1.000	1	1	11	144
17	400-171203-c-2-a @5,	Unknown	1.000	1	1	12	144
18	400-171203-c-3-a @5,	Unknown	1.000	1	2	1	144
19	400-171203-c-4-a @5,	Unknown	1.000	1	2	2	144
20	400-171203-c-5-a @5,	Unknown	1.000	1	2	3	144
21	400-171203-c-6-a @5,	Unknown	1.000	1	2	4	144
22	400-171203-c-7-a @5,	Unknown	1.000	1	2	5	144
23	400-171203-c-8-a @5,	Unknown	1.000	1	2	6	144
24	ccv,	QC Sample	1.000	0	1	5	144
25	ccb,	QC Sample	1.000	0	1	6	144
26	400-171203-c-9-a @5,	Unknown	1.000	1	2	7	144
27	400-171203-c-10-a @5,	Unknown	1.000	1	2	8	144
28	400-171203-c-11-a @5,	Unknown	1.000	1	2	9	144
29	400-171203-c-12-a @5,	Unknown	1.000	1	2	10	144
30	400-171203-c-13-a @5,	Unknown	1.000	1	2	11	144
31	400-171203-c-14-a @5,	Unknown	1.000	1	2	12	144
32	400-171203-c-14-b du @5,	Unknown	1.000	1	3	1	144
33	ccv,	QC Sample	1.000	0	1	5	144
34	ccb,	QC Sample	1.000	0	1	6	144
35	400-171203-c-14-c ms @5,	Unknown	1.000	1	3	2	144
36	400-171203-c-14-d msd @5,	Unknown	1.000	1	3	3	144
37	400-171203-c-14-a SD@25,	Unknown	1.000	1	3	4	144
38	400-171203-c-15-a @5,	Unknown	1.000	1	3	5	144
39	ccv,	QC Sample	1.000	0	1	5	144
40	ccb,	QC Sample	1.000	0	1	6	144
41	mb 500-493206/1-a,	QC Sample	1.000	1	3	6	144
42	lcs 500-493206/2-a,	QC Sample	1.000	1	3	7	144
43	500-166099-e-1-a,	Unknown	1.000	1	3	8	144
44	500-166099-f-1-a,	Unknown	1.000	1	3	9	144
45	500-166099-e-2-a,	Unknown	1.000	1	3	10	144
46	500-166099-f-2-a,	Unknown	1.000	1	3	11	144
47	mb 500-493472/1-a,	QC Sample	1.000	1	3	12	144
48	lcs 500-493472/2-a,	QC Sample	1.000	1	4	1	144
49	500-166116-h-1-a,	Unknown	1.000	1	4	2	144
50	ccv,	QC Sample	1.000	0	1	5	144
51	ccb,	QC Sample	1.000	0	1	6	144
52	ccvl,	QC Sample	1.000	0	1	7	144
53	500-166191-i-1-a,	Unknown	1.000	1	4	3	144
54	500-166191-j-1-a,	Unknown	1.000	1	4	4	144
55	500-166191-i-2-a,	Unknown	1.000	1	4	5	144
56	500-166191-j-2-a,	Unknown	1.000	1	4	6	144
57	500-166193-i-1-a,	Unknown	1.000	1	4	7	144
58	500-166193-i-1-b du,	Unknown	1.000	1	4	8	144
59	500-166193-i-1-c ms,	Unknown	1.000	1	4	9	144
60	500-166193-i-1-d msd,	Unknown	1.000	1	4	10	144
61	500-166193-i-1-a SD@5,	Unknown	1.000	1	4	11	144
62	ccv,	QC Sample	1.000	0	1	5	144
63	ccb,	QC Sample	1.000	0	1	6	144
64	500-166193-j-1-a,	Unknown	1.000	1	4	12	144
65	500-166193-j-1-b du,	Unknown	1.000	1	5	1	144
66	500-166193-j-1-c ms,	Unknown	1.000	1	5	2	144
67	500-166193-j-1-d msd,	Unknown	1.000	1	5	3	144
68	500-166193-j-1-a SD@5,	Unknown	1.000	1	5	4	144
69	500-166207-i-1-a,	Unknown	1.000	1	5	5	144
70	500-166207-j-1-a,	Unknown	1.000	1	5	6	144
71	500-166207-i-2-a,	Unknown	1.000	1	5	7	144
72	500-166207-j-2-a,	Unknown	1.000	1	5	8	144
73	500-166207-i-3-a,	Unknown	1.000	1	5	9	144
74	ccv,	QC Sample	1.000	0	1	5	144
75	ccb,	QC Sample	1.000	0	1	6	144
76	500-166207-j-3-a,	Unknown	1.000	1	5	10	144
77	500-166207-i-4-a,	Unknown	1.000	1	5	11	144
78	500-166207-j-4-a,	Unknown	1.000	1	5	12	144
79	500-166215-d-1-a,	Unknown	1.000	2	1	1	144
80	500-166215-d-2-a,	Unknown	1.000	2	1	2	144
81	500-166215-d-3-a,	Unknown	1.000	2	1	3	144
82	500-166215-d-4-a,	Unknown	1.000	2	1	4	144
83	500-166139-b-1-a,	Unknown	1.000	2	1	5	144
84	ccv,	QC Sample	1.000	0	1	5	144

	ccb,	QC Sample	1.000	0	1	6	144
86	ccvl,	QC Sample	1.000	0	1	7	144

Fully Quant Calibration

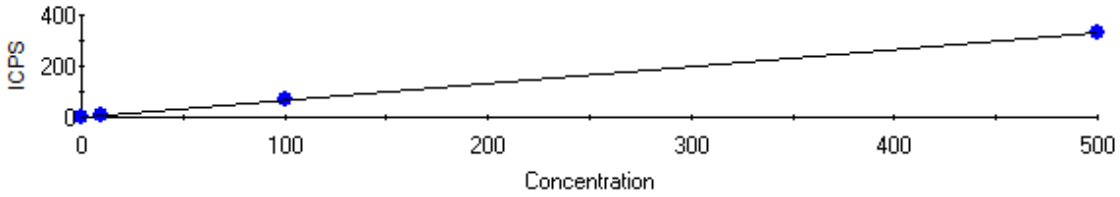
7Li FQ Block 1



Intercept CPS=2.257342 Intercept Conc=4.984324
Sensitivity=0.452888 Correlation Coeff=0.999074

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	2.26	0.00
STD1,	10.000	-4.984	14.984	0.00	149.84
STD2,	100.000	77.868	22.132	37.52	22.13
STD3,	500.000	504.726	4.726	230.84	0.95

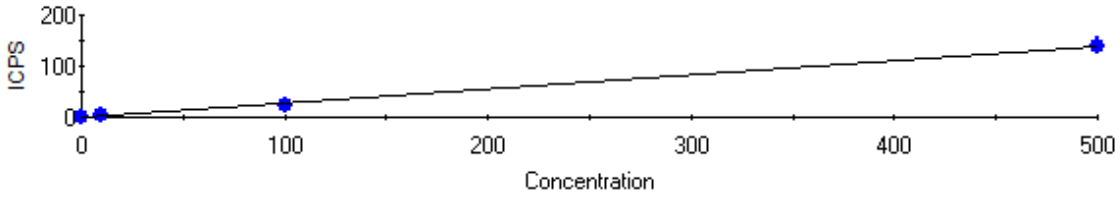
9Be FQ Block 1



Intercept CPS=0.225734 Intercept Conc=0.340840
Sensitivity=0.662287 Correlation Coeff=0.999969

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	0.23	0.00
STD1,	10.000	9.032	0.968	6.21	9.68
STD2,	100.000	103.133	3.133	68.53	3.13
STD3,	500.000	499.393	0.607	330.97	0.12

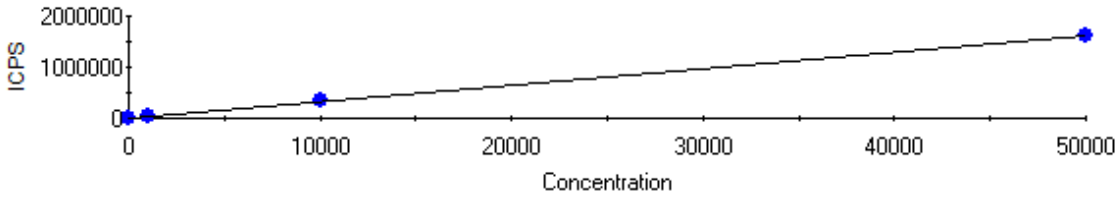
11B FQ Block 1



Intercept CPS=1.056047 Intercept Conc=3.821698
Sensitivity=0.276329 Correlation Coeff=0.999224

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	1.06	0.00
STD1,	10.000	12.496	2.496	4.51	24.96
STD2,	100.000	82.757	17.243	23.92	17.24
STD3,	500.000	503.399	3.399	140.16	0.68

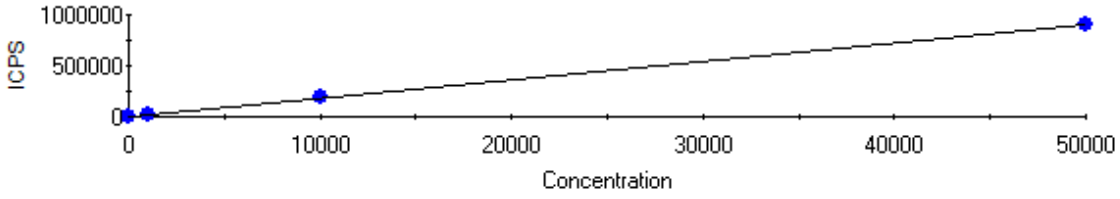
23Na FQ Block 1



Intercept CPS=5825.911271 Intercept Conc=180.532854
Sensitivity=32.270643 Correlation Coeff=1.000000

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	5825.91	0.00
STD1,	1000.000	954.563	45.437	36630.26	4.54
STD2,	10000.000	9985.353	14.647	328059.68	0.15
STD3,	50000.000	50003.838	3.838	1619481.92	0.01

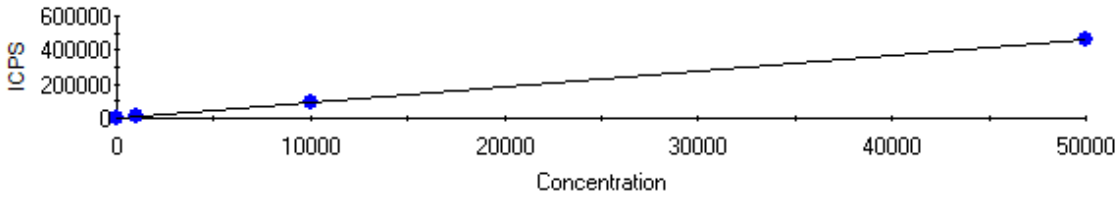
24Mg FQ Block 1



Intercept CPS=218.218725 Intercept Conc=11.962496
Sensitivity=18.241906 Correlation Coeff=0.999995

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	218.22	0.00
STD1,	1000.000	1029.916	29.916	19005.84	2.99
STD2,	10000.000	10150.184	150.184	185376.92	1.50
STD3,	50000.000	49969.365	30.635	911754.69	0.06

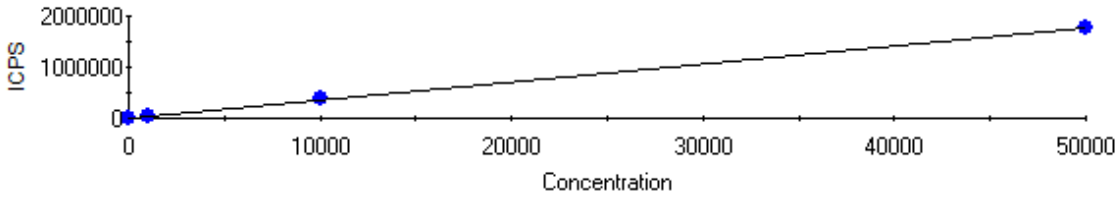
27Al FQ Block 1



Intercept CPS=42.654060 Intercept Conc=4.644818
Sensitivity=9.183149 Correlation Coeff=0.999999

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	42.65	0.00
STD1,	1000.000	1017.843	17.843	9389.66	1.78
STD2,	10000.000	9951.191	48.809	91425.93	0.49
STD3,	50000.000	50009.405	9.405	459286.47	0.02

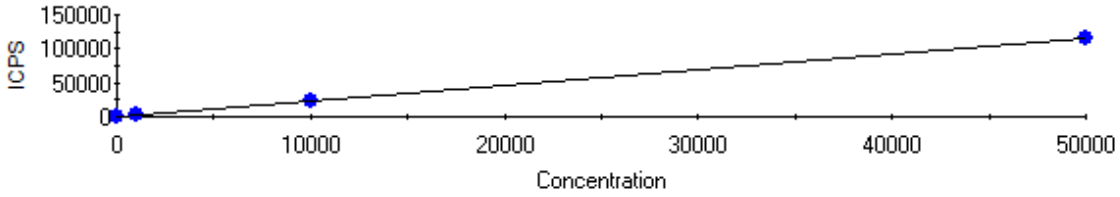
39K FQ Block 1



Intercept CPS=17618.219556 Intercept Conc=499.783416
Sensitivity=35.251709 Correlation Coeff=1.000000

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	17618.22	0.00
STD1,	1000.000	999.064	0.936	52836.92	0.09
STD2,	10000.000	10012.366	12.366	370571.22	0.12
STD3,	50000.000	49997.546	2.454	1780117.15	0.00

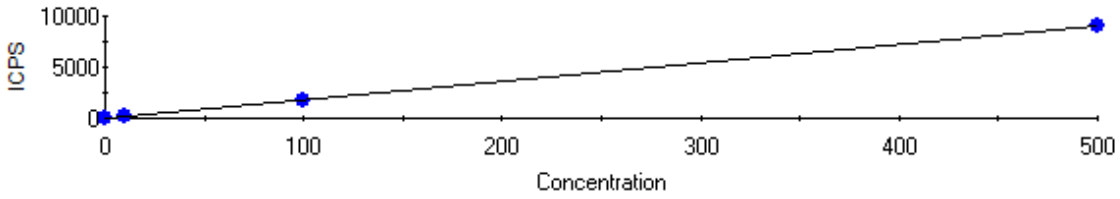
44Ca FQ Block 1



Intercept CPS=66.721982 Intercept Conc=28.913066
Sensitivity=2.307676 Correlation Coeff=1.000000

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	66.72	0.00
STD1,	1000.000	1029.984	29.984	2443.59	3.00
STD2,	10000.000	10008.318	8.318	23162.68	0.08
STD3,	50000.000	49997.737	2.263	115445.29	0.00

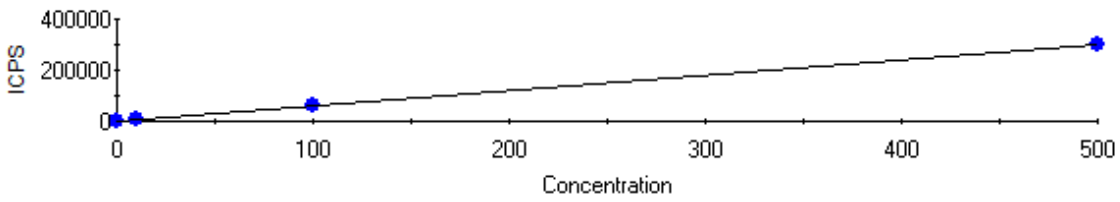
47Ti FQ Block 1



Intercept CPS=2.852766 Intercept Conc=0.158625
Sensitivity=17.984384 Correlation Coeff=0.999996

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	2.85	0.00
STD1,	10.000	8.496	1.504	155.65	15.04
STD2,	100.000	99.722	0.278	1796.28	0.28
STD3,	500.000	500.086	0.086	8996.59	0.02

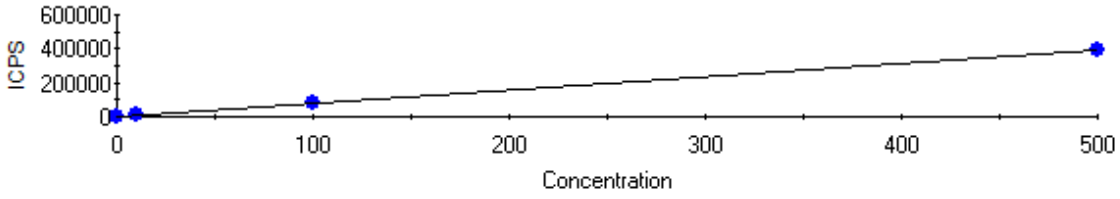
51V FQ Block 1



Intercept CPS=191.577411 Intercept Conc=0.318307
Sensitivity=601.863005 Correlation Coeff=0.999996

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	191.58	0.00
STD1,	10.000	9.945	0.055	6176.88	0.55
STD2,	100.000	98.722	1.278	59608.82	1.28
STD3,	500.000	500.257	0.257	301277.56	0.05

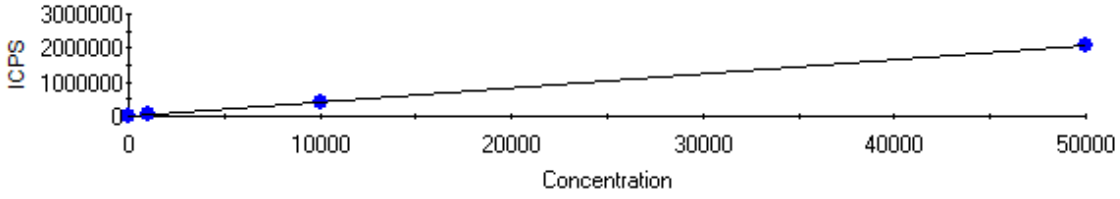
52Cr FQ Block 1



Intercept CPS=315.971164 Intercept Conc=0.403548
Sensitivity=782.982593 Correlation Coeff=0.999999

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	315.97	0.00
STD1,	10.000	10.245	0.245	8337.37	2.45
STD2,	100.000	99.615	0.385	78313.01	0.38
STD3,	500.000	500.072	0.072	391863.68	0.01

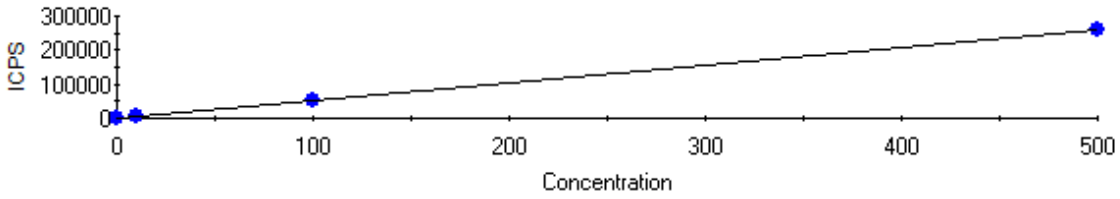
54Fe FQ Block 1



Intercept CPS=147.885727 Intercept Conc=3.569768
Sensitivity=41.427264 Correlation Coeff=0.999994

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	147.89	0.00
STD1,	1000.000	999.813	0.187	41567.42	0.02
STD2,	10000.000	9844.009	155.991	407958.24	1.56
STD3,	50000.000	50031.202	31.202	2072803.70	0.06

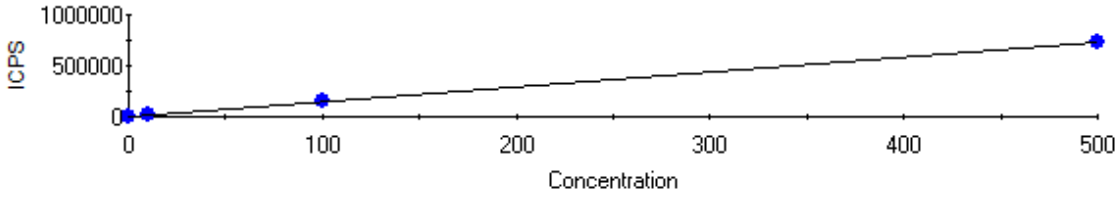
55Mn FQ Block 1



Intercept CPS=99.772083 Intercept Conc=0.192011
Sensitivity=519.616629 Correlation Coeff=1.000000

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	99.77	0.00
STD1,	10.000	10.322	0.322	5463.19	3.22
STD2,	100.000	100.083	0.083	52104.81	0.08
STD3,	500.000	499.977	0.023	259896.07	0.00

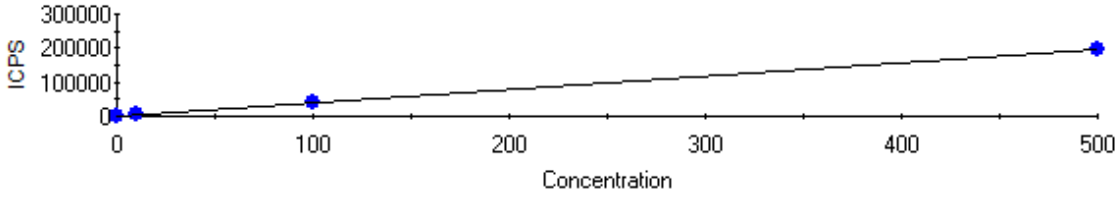
59Co FQ Block 1



Intercept CPS=15.221687 Intercept Conc=0.010451
Sensitivity=1456.456676 Correlation Coeff=0.999999

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	15.22	0.00
STD1,	10.000	10.310	0.310	15031.87	3.10
STD2,	100.000	100.766	0.766	146776.66	0.77
STD3,	500.000	499.841	0.159	728011.36	0.03

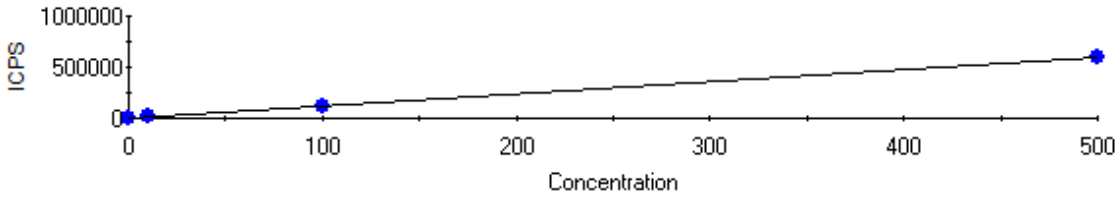
60Ni FQ Block 1



Intercept CPS=39.405229 Intercept Conc=0.099391
Sensitivity=396.466161 Correlation Coeff=0.999999

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	39.41	0.00
STD1,	10.000	10.610	0.610	4245.92	6.10
STD2,	100.000	100.839	0.839	40018.83	0.84
STD3,	500.000	499.820	0.180	198201.09	0.04

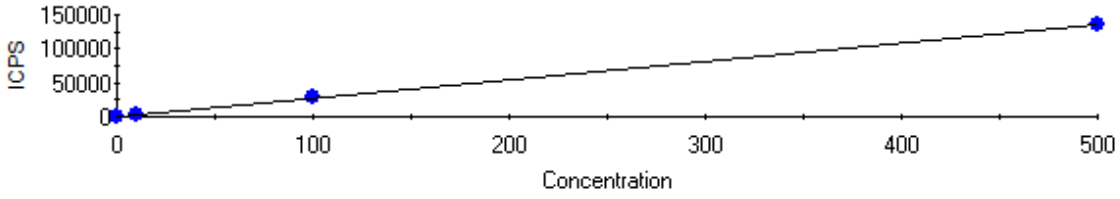
63Cu FQ Block 1



Intercept CPS=53.884851 Intercept Conc=0.045344
Sensitivity=1188.369498 Correlation Coeff=0.999996

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	53.88	0.00
STD1,	10.000	10.598	0.598	12647.97	5.98
STD2,	100.000	101.349	1.349	120493.73	1.35
STD3,	500.000	499.718	0.282	593903.85	0.06

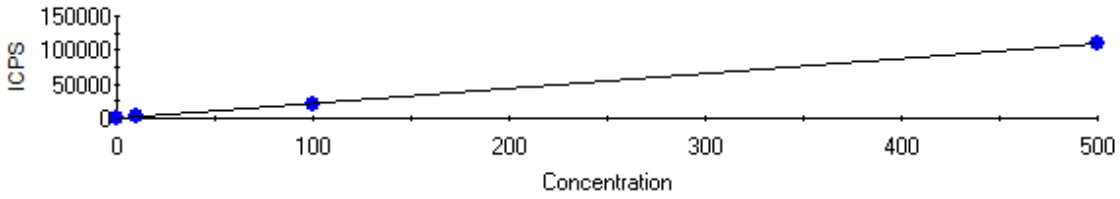
66Zn FQ Block 1



Intercept CPS=39.258873 Intercept Conc=0.145634
Sensitivity=269.571339 Correlation Coeff=0.999994

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	39.26	0.00
STD1,	10.000	10.682	0.682	2918.82	6.82
STD2,	100.000	101.750	1.750	27468.05	1.75
STD3,	500.000	499.636	0.364	134726.92	0.07

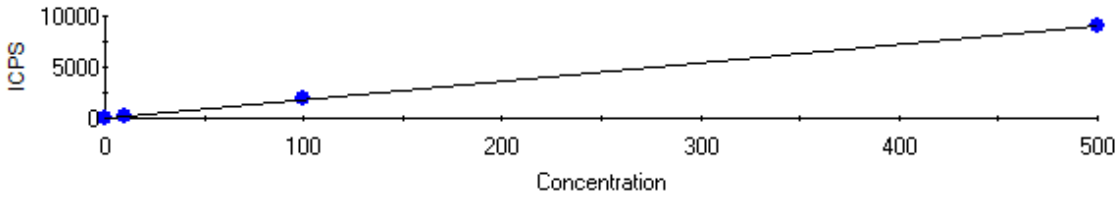
75As FQ Block 1



Intercept CPS=14.896310 Intercept Conc=0.068290
Sensitivity=218.132702 Correlation Coeff=0.999998

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	14.90	0.00
STD1,	10.000	10.016	0.016	2199.74	0.16
STD2,	100.000	99.033	0.967	21617.28	0.97
STD3,	500.000	500.193	0.193	109123.35	0.04

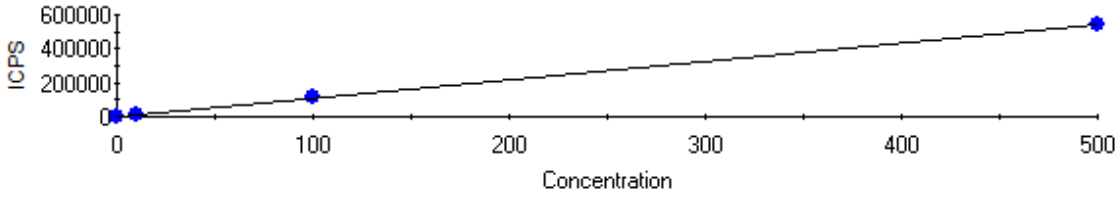
78Se FQ Block 1



Intercept CPS=2.138623 Intercept Conc=0.118307
Sensitivity=18.076869 Correlation Coeff=0.999997

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	2.14	0.00
STD1,	10.000	10.095	0.095	184.62	0.95
STD2,	100.000	101.116	1.116	1829.99	1.12
STD3,	500.000	499.775	0.225	9036.51	0.05

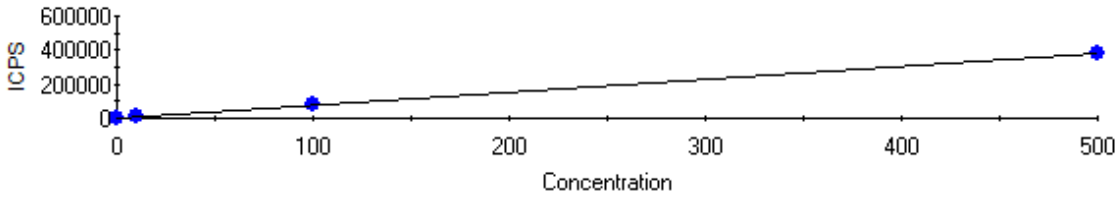
88Sr FQ Block 1



Intercept CPS=48.072594 Intercept Conc=0.044527
Sensitivity=1079.630826 Correlation Coeff=0.999986

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	48.07	0.00
STD1,	10.000	10.348	0.348	11220.57	3.48
STD2,	100.000	102.532	2.532	110744.60	2.53
STD3,	500.000	499.487	0.513	539309.27	0.10

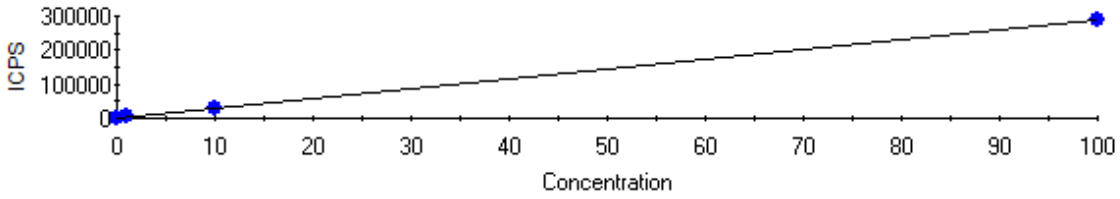
95Mo FQ Block 1



Intercept CPS=59.647584 Intercept Conc=0.078395
Sensitivity=760.856714 Correlation Coeff=0.999978

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	59.65	0.00
STD1,	10.000	10.058	0.058	7712.14	0.58
STD2,	100.000	103.054	3.054	78468.76	3.05
STD3,	500.000	499.388	0.612	380022.44	0.12

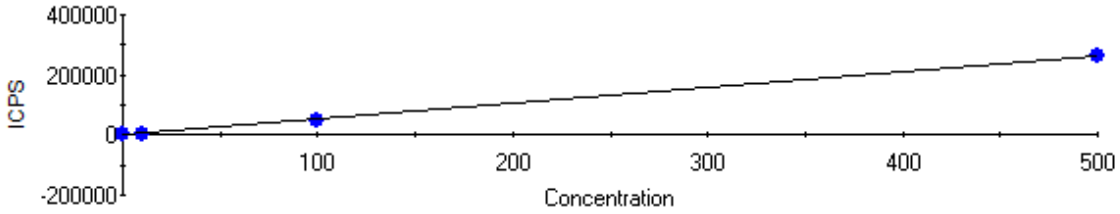
107Ag FQ Block 1



Intercept CPS=2.178011 Intercept Conc=0.000761
Sensitivity=2863.213939 Correlation Coeff=1.000000

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	2.18	0.00
STD1,	1.000	1.012	0.012	2899.96	1.21
STD2,	10.000	10.002	0.002	28640.78	0.02
STD3,	100.000	100.000	0.000	286322.58	0.00

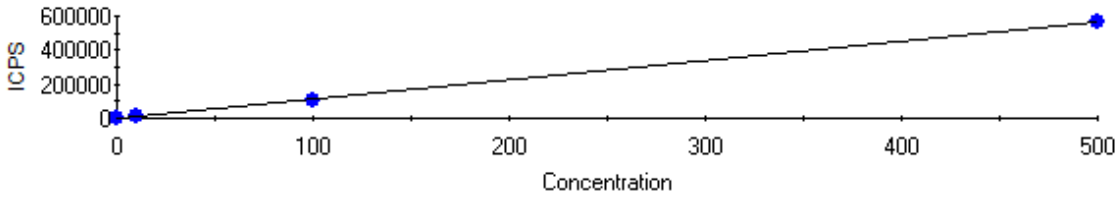
111Cd FQ Block 1



Intercept CPS=2.269241 Intercept Conc=0.004319
Sensitivity=525.405696 Correlation Coeff=0.999943

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	2.27	0.00
STD1,	10.000	10.142	0.142	5330.90	1.42
STD2,	100.000	95.153	4.847	49996.05	4.85
STD3,	500.000	500.967	0.967	263212.98	0.19

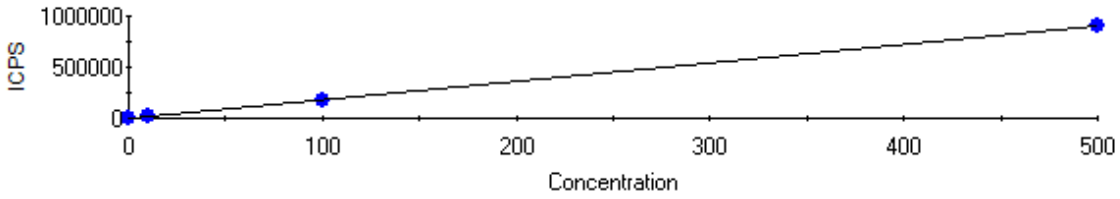
118Sn FQ Block 1



Intercept CPS=89.354869 Intercept Conc=0.079637
Sensitivity=1122.024167 Correlation Coeff=0.999983

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	89.35	0.00
STD1,	10.000	9.829	0.171	11117.77	1.71
STD2,	100.000	97.288	2.712	109249.22	2.71
STD3,	500.000	500.546	0.546	561713.79	0.11

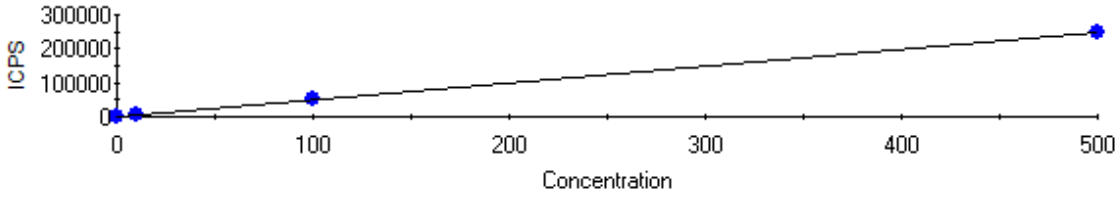
121Sb FQ Block 1



Intercept CPS=175.316954 Intercept Conc=0.097622
Sensitivity=1795.870302 Correlation Coeff=0.999914

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	175.32	0.00
STD1,	10.000	9.722	0.278	17633.87	2.78
STD2,	100.000	93.827	6.173	168676.39	6.17
STD3,	500.000	501.240	1.240	900337.66	0.25

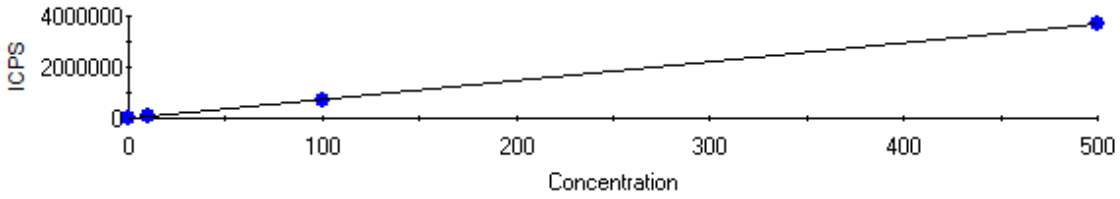
137Ba FQ Block 1



Intercept CPS=11.397108 Intercept Conc=0.023002
Sensitivity=495.482247 Correlation Coeff=0.999991

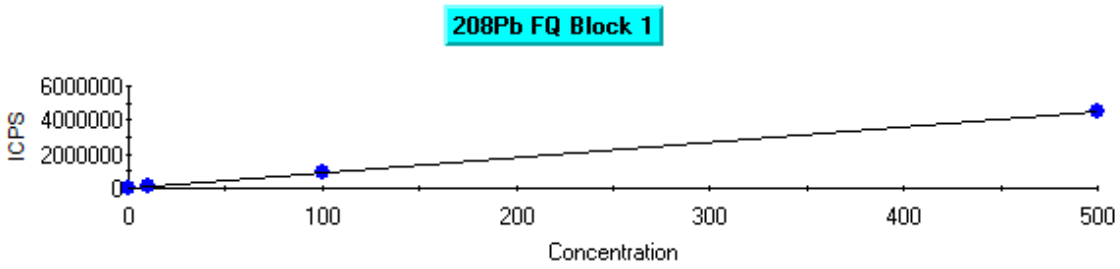
Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	-0.000	0.000	11.40	0.00
STD1,	10.000	10.697	0.697	5311.33	6.97
STD2,	100.000	102.153	2.153	50626.54	2.15
STD3,	500.000	499.555	0.445	247532.23	0.09

205Tl FQ Block 1



Intercept CPS=946.720596 Intercept Conc=0.128360
Sensitivity=7375.511938 Correlation Coeff=0.999941

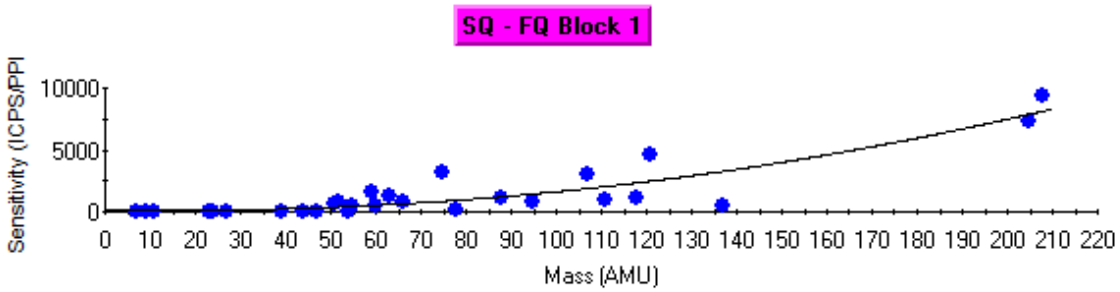
Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	946.72	0.00
STD1,	10.000	9.385	0.615	70162.46	6.15
STD2,	100.000	94.756	5.244	699820.78	5.24
STD3,	500.000	501.061	1.061	3696528.90	0.21



Intercept CPS=93.368916 Intercept Conc=0.010309
Sensitivity=9057.288863 Correlation Coeff=0.999998

Label	Defined	Measured	Error	Mean CPS	% Error
STD0,	0.000	0.000	0.000	93.37	0.00
STD1,	10.000	10.009	0.009	90751.37	0.09
STD2,	100.000	98.982	1.018	896603.42	1.02
STD3,	500.000	500.203	0.203	4530579.87	0.04

Semi Quant Calibration



Coeff 0=237.114732 Coeff 1=-8.463516 Coeff 2=0.223529

Symbol	Mass	RSF	Available	Excluded	Sensitivity Measured	Corrected	Calculated	%Error
7Li	7.02	1.0000	1	1	0.45	0.49	188.74	38440.3
9Be	9.01	0.7500	1	1	0.66	0.88	178.99	20170.1
11B	11.01	0.5800	1	1	0.28	0.59	171.03	28984.8
23Na	22.99	1.0000	1	1	32.27	32.27	160.68	397.9
24Mg	23.99	0.9800	1	1	18.24	23.68	162.71	587.1
27Al	26.98	0.9800	1	1	9.18	9.37	171.49	1730.0
39K	38.96	1.0000	1	1	35.25	37.87	246.70	551.4
44Ca	43.96	0.9900	1	1	2.31	109.44	296.97	171.4
47Ti	46.95	0.9900	1	1	17.98	234.40	332.50	41.9
51V	50.94	0.9900	1	1	601.86	609.41	386.07	-36.6
52Cr	51.94	0.9800	1	1	782.98	953.87	400.56	-58.0
54Fe	53.94	0.9600	1	1	41.43	731.41	430.95	-41.1
55Mn	54.94	0.9500	1	1	519.62	546.96	446.80	-18.3
59Co	58.93	0.9300	1	1	1456.46	1566.08	514.68	-67.1
60Ni	59.93	0.9100	1	1	396.47	1665.43	532.74	-68.0
63Cu	62.93	0.9000	1	1	1188.37	1911.15	589.71	-69.1
66Zn	65.93	0.3750	1	1	269.57	2584.89	650.66	-74.8
75As	74.92	0.0700	1	1	218.13	3116.18	857.74	-72.5
78Se	77.92	0.1000	1	1	18.08	765.64	934.73	22.1
88Sr	87.91	0.9600	1	1	1079.63	1362.18	1220.42	-10.4
95Mo	94.91	0.9800	1	1	760.86	5252.94	1447.23	-72.4
107Ag	106.91	0.9300	1	1	2863.21	5995.57	1886.97	-68.5
111Cd	110.90	0.5660	1	1	525.41	7218.34	2047.82	-71.6
118Sn	117.90	0.9600	1	1	1122.02	4867.87	2346.48	-51.8
121Sb	120.90	0.3900	1	1	1795.87	8043.31	2481.33	-69.2
137Ba	136.91	0.9100	1	1	495.48	4809.95	3268.06	-32.1
205Tl	204.97	1.0000	1	1	7375.51	10461.72	7893.57	-24.5
208Pb	207.98	0.9700	1	1	9057.29	17826.29	8145.48	-54.3

Dilution Corrected Concentrations

STD0, 7/8/2019 5:29:37 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:29:37	-4.984	-0.341	-3.822	56.210	4.908	0.511	30.430	13.820	93.873%
2	17:29:59	-4.984	-0.341	4.580	-23.940	-0.989	-1.274	-40.030	-10.270	107.683%
3	17:30:22	9.969	0.682	-0.758	-32.270	-3.919	0.763	9.597	-3.551	98.444%
x		-0.000	-0.000	-0.000	0.000	-0.000	0.000	0.000	-0.000	100.000%
σ		8.633	0.590	4.252	48.860	4.496	1.110	36.200	12.430	7.035%
%RSD		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.035

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:29:37	-0.027	-0.004	0.011	0.554	0.095	0.006	0.002	-0.004	0.002
2	17:29:59	0.186	-0.027	-0.042	-0.623	-0.037	-0.006	-0.011	-0.005	-0.007
3	17:30:22	-0.159	0.031	0.032	0.069	-0.058	0.000	0.009	0.009	0.005
x		0.000	0.000	0.000	0.000	-0.000	-0.000	-0.000	0.000	0.000
σ		0.174	0.029	0.038	0.591	0.083	0.006	0.010	0.008	0.006
%RSD		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:29:37	0.003	0.006	0.039	93.478%	-0.013	94.895%	-0.001	0.009	97.211%
2	17:29:59	-0.005	0.013	-0.011	102.840%	-0.010	101.247%	-0.001	-0.004	100.759%
3	17:30:22	0.002	-0.019	-0.029	103.682%	0.023	103.858%	0.002	-0.004	102.030%
x		0.000	-0.000	-0.000	100.000%	0.000	100.000%	0.000	0.000	100.000%
σ		0.004	0.017	0.035	5.664%	0.020	4.610%	0.001	0.008	2.498%
%RSD		0.000	0.000	0.000	5.664	0.000	4.610	0.000	0.000	2.498

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:29:37	0.008	-0.010	0.020	93.889%	-0.045	0.000	97.301%	0.000
2	17:29:59	0.020	0.006	-0.023	102.668%	0.023	-0.000	100.965%	0.000
3	17:30:22	-0.028	0.004	0.003	103.442%	0.022	-0.000	101.735%	0.000
x		0.000	0.000	-0.000	100.000%	0.000	0.000	100.000%	0.000
σ		0.025	0.009	0.022	5.306%	0.039	0.000	2.369%	0.000
%RSD		0.000	0.000	0.000	5.306	0.000	0.000	2.369	0.000

STD1, 7/8/2019 5:33:51 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:33:51	-4.984	10.630	5.143	1008.000	1074.000	1088.000	1051.000	1079.000	100.920%
2	17:34:14	-4.984	6.297	7.541	924.800	1006.000	982.900	974.600	979.400	106.159%
3	17:34:36	-4.984	10.170	24.800	931.100	1010.000	982.200	971.200	1032.000	105.349%
x		-4.984	9.032	12.500	954.600	1030.000	1018.000	999.100	1030.000	104.143%
σ		0.000	2.380	10.730	46.240	38.580	61.120	45.350	49.770	2.820%
%RSD		0.000	26.350	85.840	4.844	3.746	6.004	4.539	4.833	2.708

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:33:51	10.490	10.330	10.490	1045.000	10.960	10.570	11.060	11.360	11.280
2	17:34:14	6.825	9.253	10.110	973.000	9.712	10.110	10.280	10.300	10.470
3	17:34:36	8.169	10.250	10.140	981.200	10.290	10.250	10.500	10.140	10.290
x		8.496	9.945	10.240	999.800	10.320	10.310	10.610	10.600	10.680
σ		1.856	0.600	0.209	39.620	0.626	0.234	0.401	0.662	0.528
%RSD		21.840	6.037	2.036	3.963	6.064	2.266	3.780	6.249	4.945

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:33:51	10.620	11.010	11.040	95.161%	10.840	93.566%	1.133	10.920	93.471%
2	17:34:14	9.823	9.809	9.959	101.872%	9.679	99.413%	0.976	9.776	100.402%
3	17:34:36	9.602	9.462	10.040	104.271%	9.657	100.392%	0.928	9.727	102.339%
x		10.020	10.090	10.350	100.435%	10.060	97.790%	1.012	10.140	98.737%
σ		0.538	0.814	0.603	4.722%	0.675	3.691%	0.107	0.676	4.662%
%RSD		5.370	8.061	5.830	4.702	6.714	3.775	10.600	6.668	4.722

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:33:51	10.530	10.640	11.200	97.521%	9.837	10.490	94.302%	0.000
2	17:34:14	9.501	9.454	10.460	101.461%	9.189	9.741	97.926%	0.000
3	17:34:36	9.455	9.070	10.440	106.164%	9.128	9.799	100.432%	0.000
x		9.829	9.722	10.700	101.715%	9.385	10.010	97.553%	0.000
σ		0.609	0.818	0.434	4.327%	0.393	0.416	3.082%	0.000
%RSD		6.196	8.419	4.055	4.254	4.186	4.156	3.159	0.000

STD2, 7/8/2019 5:38:05 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:38:05	88.820	116.200	95.470	10900.000	11130.000	10890.000	11070.000	11120.000	94.159%
2	17:38:27	22.640	95.990	66.910	9329.000	9522.000	9337.000	9329.000	9213.000	106.587%
3	17:38:48	122.200	97.220	85.890	9730.000	9796.000	9625.000	9635.000	9690.000	104.206%
x		77.870	103.100	82.760	9985.000	10150.000	9951.000	10010.000	10010.000	101.651%
σ		50.650	11.320	14.530	814.800	861.700	827.000	931.800	992.900	6.596%
%RSD		65.050	10.980	17.560	8.160	8.490	8.311	9.307	9.921	6.489

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:38:05	108.500	109.200	109.400	10840.000	110.700	110.900	109.800	106.800	108.300
2	17:38:27	91.320	92.330	93.680	9216.000	95.390	95.850	94.710	98.850	99.100
3	17:38:48	99.340	94.620	95.800	9474.000	94.170	95.590	97.960	98.420	97.890
x		99.720	98.720	99.620	9844.000	100.100	100.800	100.800	101.300	101.700
σ		8.603	9.156	8.503	873.400	9.204	8.742	7.967	4.701	5.665
%RSD		8.627	9.274	8.536	8.873	9.197	8.676	7.901	4.639	5.568

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:38:05	105.500	108.400	111.900	94.782%	111.900	92.367%	10.320	99.010	96.626%
2	17:38:27	95.440	98.380	100.500	98.737%	102.200	98.513%	9.679	93.060	101.855%
3	17:38:48	96.200	96.570	95.150	105.008%	95.070	99.303%	10.010	93.390	98.952%
x		99.030	101.100	102.500	99.509%	103.100	96.728%	10.000	95.150	99.144%
σ		5.581	6.372	8.583	5.156%	8.442	3.797%	0.319	3.348	2.620%
%RSD		5.636	6.301	8.371	5.182	8.192	3.925	3.187	3.519	2.642

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:38:05	103.000	98.450	110.100	99.793%	100.000	105.000	94.118%	0.000
2	17:38:27	94.670	91.180	99.290	104.143%	91.700	95.990	98.011%	0.000
3	17:38:48	94.190	91.850	97.050	105.857%	92.540	95.970	100.077%	0.000
x		97.290	93.830	102.200	103.264%	94.760	98.980	97.402%	0.000
σ		4.958	4.020	6.993	3.126%	4.581	5.197	3.026%	0.000
%RSD		5.097	4.285	6.845	3.027	4.835	5.251	3.106	0.000

STD3, 7/8/2019 5:42:17 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:42:17	452.000	496.500	561.000	51480.000	51940.000	51580.000	52140.000	52170.000	96.635%
2	17:42:40	M 523.600	494.700	486.500	48980.000	49060.000	49460.000	49560.000	49490.000	100.254%
3	17:43:01	M 538.600	507.000	462.700	49560.000	48910.000	48990.000	48290.000	48330.000	100.206%
x		M 504.700	499.400	503.400	50000.000	49970.000	50010.000	50000.000	50000.000	99.032%
σ		M 46.260	6.622	51.320	1307.000	1705.000	1380.000	1962.000	1967.000	2.076%
%RSD		M 9.166	1.326	10.190	2.615	3.412	2.760	3.925	3.935	2.096

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:42:17	527.300	524.500	522.700	52430.000	522.900	519.600	516.500	534.700	533.200
2	17:42:40	495.700	486.800	488.900	48350.000	486.300	488.400	490.300	487.700	487.300
3	17:43:01	477.300	489.500	488.600	49320.000	490.600	491.500	492.600	476.700	478.400
x		500.100	500.300	500.100	50030.000	500.000	499.800	499.800	499.700	499.600
σ		25.300	21.070	19.640	2130.000	20.010	17.220	14.520	30.820	29.400
%RSD		5.060	4.213	3.927	4.258	4.002	3.445	2.905	6.167	5.885

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:42:17	541.700	541.200	541.900	95.182%	544.800	89.436%	100.400	515.800	93.189%
2	17:42:40	485.700	489.700	479.300	104.397%	479.000	96.357%	96.730	476.300	97.409%
3	17:43:01	473.200	468.400	477.200	107.239%	474.400	100.183%	102.900	510.800	93.650%
x		500.200	499.800	499.500	102.273%	499.400	95.325%	100.000	501.000	94.749%
σ		36.490	37.440	36.780	6.303%	39.370	5.447%	3.090	21.510	2.315%
%RSD		7.296	7.491	7.363	6.163	7.883	5.714	3.090	4.293	2.443

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:42:17	531.100	516.400	535.000	98.854%	T 538.900	534.500	92.725%	T 0.000
2	17:42:40	495.800	479.700	494.600	106.212%	T 465.300	472.700	101.978%	T 0.000
3	17:43:01	474.700	507.600	469.100	109.602%	T 499.000	493.400	98.735%	T 0.000
x		500.500	501.200	499.600	104.890%	T 501.100	500.200	97.812%	T 0.000
σ		28.500	19.150	33.200	5.495%	T 36.800	31.490	4.695%	T 0.000
%RSD		5.693	3.820	6.647	5.239	T 7.345	6.295	4.800	T 0.000

S1, 7/8/2019 5:46:30 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:46:30	362.200	489.300	469.500	51740.000	51130.000	52430.000	52470.000	53070.000	96.206%
2	17:46:51	400.800	436.600	417.700	47820.000	47670.000	48030.000	47900.000	48750.000	101.587%
3	17:47:13	301.300	433.800	495.300	46440.000	45580.000	45410.000	45960.000	46470.000	105.730%
x		354.800	90.653%	92.171%	48670.000	48130.000	48620.000	48780.000	49430.000	101.174%
σ		50.140	n/a	n/a	2748.000	2801.000	3550.000	3344.000	3351.000	4.775%
%RSD		14.130	6.900	8.576	5.646	5.821	7.302	6.857	6.779	4.720

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:46:30	537.100	517.200	513.800	51690.000	514.700	519.400	516.500	521.300	519.300
2	17:46:51	487.700	479.700	479.000	47660.000	477.300	471.500	475.700	472.500	477.500
3	17:47:13	469.400	460.500	467.000	46770.000	469.800	466.300	463.000	480.700	475.400
x		99.615%	97.158%	97.320%	48700.000	97.456%	97.143%	97.009%	98.303%	98.156%
σ		n/a	n/a	n/a	2620.000	n/a	n/a	n/a	n/a	n/a
%RSD		7.031	5.937	4.992	5.380	4.937	6.024	5.771	5.317	5.046

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:46:30	527.800	533.900	540.800	94.109%	542.000	90.647%	105.700	528.200	89.861%
2	17:46:51	482.200	485.400	492.500	101.978%	494.300	96.388%	95.380	474.200	97.791%
3	17:47:13	483.900	483.900	470.300	107.702%	473.900	97.329%	92.590	464.000	102.392%
x		99.595%	100.212%	100.239%	101.263%	100.682%	94.788%	97.877%	97.758%	96.681%
σ		n/a	n/a	n/a	6.824%	n/a	3.617%	n/a	n/a	6.339%
%RSD		5.198	5.670	7.193	6.739	6.941	3.815	7.035	7.058	6.556

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:46:30	530.000	536.200	517.700	101.569%	T 558.100	543.500	90.884%	T 0.000
2	17:46:51	488.900	472.300	480.100	108.623%	T 458.000	472.800	103.084%	T 0.000
3	17:47:13	495.300	460.600	473.800	109.827%	T 482.000	485.000	102.458%	T 0.000
x		100.951%	97.942%	98.102%	106.673%	T 99.873%	100.086%	98.809%	T 0.000
σ		n/a	n/a	n/a	4.461%	T n/a	n/a	6.870%	T 0.000
%RSD		4.385	8.310	4.839	4.182	T 10.470	7.549	6.953	T 0.000

ICV, 7/8/2019 5:50:43 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:50:43	281.800	183.400	203.300	20510.000	20990.000	20710.000	20690.000	20440.000	97.540%
2	17:51:06	199.000	182.000	232.000	19190.000	19400.000	19240.000	19580.000	19170.000	101.016%
3	17:51:27	193.000	217.200	158.400	19050.000	18990.000	18910.000	18910.000	18870.000	104.111%
x		224.600	97.097%	98.958%	97.936%	98.972%	98.104%	98.649%	97.467%	100.889%
σ		49.610	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.288%
%RSD		22.090	10.270	18.750	4.111	5.336	4.905	4.565	4.276	3.259
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:50:43	207.600	204.100	206.700	20560.000	210.300	207.700	211.600	214.500	211.400
2	17:51:06	192.700	191.700	193.800	19370.000	194.800	194.500	195.100	194.300	192.500
3	17:51:27	189.700	184.900	190.100	18640.000	194.600	188.700	193.700	193.000	188.700
x		98.326%	96.783%	98.434%	97.606%	99.941%	98.497%	100.055%	100.292%	98.768%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		4.899	5.039	4.411	4.954	4.506	4.943	4.973	5.999	6.132
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:50:43	212.700	220.100	216.000	95.876%	209.400	90.808%	42.670	208.900	93.356%
2	17:51:06	190.300	197.100	195.400	102.945%	195.100	96.848%	38.760	190.400	101.458%
3	17:51:27	186.400	189.300	202.900	100.315%	203.900	99.318%	38.570	188.200	100.404%
x		98.228%	101.088%	102.374%	99.712%	101.386%	95.658%	99.997%	97.910%	98.406%
σ		n/a	n/a	n/a	3.573%	n/a	4.378%	n/a	n/a	4.405%
%RSD		7.239	7.919	5.076	3.583	3.555	4.577	5.783	5.796	4.476
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	17:50:43	217.600	201.000	201.800	103.666%	185.200	202.200	97.406%	0.000	
2	17:51:06	197.500	184.100	186.800	110.241%	187.100	195.000	101.195%	0.000	
3	17:51:27	189.900	183.500	198.500	107.045%	187.700	193.000	100.373%	0.000	
x		100.844%	94.756%	97.853%	106.984%	93.324%	98.381%	99.658%	0.000	
σ		n/a	n/a	n/a	3.288%	n/a	n/a	1.993%	0.000	
%RSD		7.093	5.248	4.012	3.073	0.709	2.468	2.000	0.000	

ICB, 7/8/2019 5:54:57 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:54:57	-4.984	0.670	-0.793	96.750	36.970	38.120	-1.513	44.770	99.587%
2	17:55:20	-4.984	-0.341	-3.822	89.260	29.470	29.390	-33.490	35.860	100.254%
3	17:55:42	-4.984	-0.341	-3.822	86.950	30.930	25.410	-30.320	42.030	102.254%
x		-4.984	-0.004	-2.812	90.990	32.460	30.970	-21.770	40.890	100.698%
σ		0.000	0.584	1.748	5.119	3.975	6.502	17.620	4.564	1.388%
%RSD		0.000	14920.000	62.170	5.626	12.250	20.990	80.910	11.160	1.378

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:54:57	0.338	0.323	0.283	36.850	1.361	0.301	0.283	0.395	0.582
2	17:55:20	0.211	0.308	0.180	30.530	1.299	0.271	0.314	0.273	0.430
3	17:55:42	-0.038	0.386	0.238	31.400	1.245	0.273	0.241	0.300	0.459
x		0.170	0.339	0.234	32.920	1.302	0.282	0.279	0.323	0.490
σ		0.191	0.041	0.052	3.424	0.058	0.016	0.037	0.064	0.080
%RSD		112.100	12.200	22.250	10.400	4.441	5.851	13.280	19.870	16.390

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:54:57	0.290	0.418	0.387	95.329%	0.583	96.352%	0.075	0.406	95.794%
2	17:55:20	0.299	0.404	0.303	103.135%	0.491	101.617%	0.039	0.250	99.738%
3	17:55:42	0.228	0.430	0.329	101.851%	0.507	102.270%	0.058	0.339	103.560%
x		0.272	0.417	0.340	100.105%	0.527	100.080%	0.057	0.332	99.698%
σ		0.039	0.013	0.043	4.186%	0.050	3.245%	0.018	0.078	3.883%
%RSD		14.260	3.059	12.730	4.181	9.398	3.242	31.260	23.630	3.895

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:54:57	0.395	0.329	0.379	96.972%	1.023	0.334	100.063%	0.000
2	17:55:20	0.376	0.416	0.371	102.391%	1.222	0.267	104.426%	0.000
3	17:55:42	0.403	0.401	0.452	107.746%	1.087	0.258	105.861%	0.000
x		0.391	0.382	0.401	102.370%	1.111	0.287	103.450%	0.000
σ		0.013	0.047	0.044	5.387%	0.102	0.041	3.020%	0.000
%RSD		3.443	12.220	11.030	5.263	9.136	14.440	2.919	0.000

ICVL, 7/8/2019 5:59:13 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:59:13	26.980	0.752	35.470	227.600	224.800	112.800	594.300	225.000	92.112%
2	17:59:36	-4.984	-0.341	60.420	186.900	204.700	94.770	493.500	190.700	98.587%
3	17:59:57	8.802	-0.341	66.790	155.800	188.300	97.570	425.200	184.800	106.778%
x		10.260	2.343%	108.446%	95.056%	102.970%	101.712%	100.863%	100.079%	99.159%
σ		16.030	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7.350%
%RSD		156.200	2693.000	30.530	18.950	8.882	9.536	16.880	10.830	7.412
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:59:13	5.610	5.571	5.649	119.200	3.340	1.212	2.262	2.180	20.970
2	17:59:36	4.353	5.023	5.047	106.400	3.126	1.036	2.164	2.068	19.510
3	17:59:57	5.859	4.876	4.584	95.750	2.815	1.038	1.953	2.038	19.320
x		105.480%	103.138%	101.872%	107.112%	123.742%	109.548%	106.307%	104.774%	99.657%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		15.300	7.101	10.490	10.980	8.530	9.222	7.414	3.554	4.520
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	17:59:13	1.014	2.486	4.365	94.277%	4.895	93.469%	0.514	0.616	95.856%
2	17:59:36	0.980	2.280	3.962	97.748%	4.279	101.484%	0.470	0.513	100.316%
3	17:59:57	1.019	2.281	3.576	107.807%	3.563	102.055%	0.486	0.453	102.340%
x		100.419%	93.962%	99.186%	99.944%	106.142%	99.003%	98.056%	105.419%	99.504%
σ		n/a	n/a	n/a	7.027%	n/a	4.801%	n/a	n/a	3.318%
%RSD		2.122	5.043	9.935	7.031	15.700	4.849	4.525	15.640	3.334
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	17:59:13	5.160	3.032	2.812	96.359%	2.092	0.552	95.072%	0.000	
2	17:59:36	4.822	2.853	2.595	104.859%	2.151	0.522	100.392%	0.000	
3	17:59:57	4.673	2.751	2.682	105.954%	2.161	0.530	98.965%	0.000	
x		97.699%	95.952%	107.848%	102.391%	106.719%	106.955%	98.143%	0.000	
σ		n/a	n/a	n/a	5.252%	n/a	n/a	2.754%	0.000	
%RSD		5.111	4.957	4.049	5.130	1.750	2.872	2.806	0.000	

CRI, 7/8/2019 6:03:26 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:03:26	10.460	1.772	122.800	343.100	431.300	213.000	1073.000	392.700	95.302%
2	18:03:47	24.190	3.649	73.870	290.500	395.400	199.900	974.300	394.100	100.920%
3	18:04:09	8.951	1.565	110.400	274.000	381.800	188.700	911.500	353.600	105.635%
x		14.530	116.425%	102.333%	75.636%	100.701%	100.269%	98.626%	95.037%	100.619%
σ		8.395	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.173%
%RSD		57.760	49.310	24.830	11.920	6.347	6.057	8.253	6.043	5.141
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:03:26	10.470	10.440	10.700	215.500	5.874	2.183	4.794	4.285	41.230
2	18:03:47	9.514	9.677	9.990	195.900	5.676	1.996	4.505	4.243	38.730
3	18:04:09	9.550	9.398	9.937	184.500	5.370	1.922	4.082	3.901	38.200
x		98.458%	98.371%	102.082%	99.330%	112.803%	101.697%	111.516%	103.575%	98.466%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		5.522	5.462	4.161	7.894	4.501	6.611	8.030	5.080	4.111
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:03:26	2.188	5.366	8.728	95.750%	8.847	96.027%	1.038	0.999	97.047%
2	18:03:47	1.687	4.553	8.631	96.844%	8.040	100.103%	1.040	0.923	102.302%
3	18:04:09	1.746	3.953	7.991	100.715%	8.851	103.275%	0.966	0.751	103.621%
x		93.690%	92.479%	105.629%	97.769%	107.242%	99.802%	101.448%	89.103%	100.990%
σ		n/a	n/a	n/a	2.609%	n/a	3.633%	n/a	n/a	3.478%
%RSD		14.620	15.340	4.741	2.668	5.444	3.640	4.172	14.230	3.444
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	18:03:26	9.733	5.662	5.239	99.734%	4.076	1.047	92.133%	0.000	
2	18:03:47	9.346	5.170	5.285	103.681%	3.439	0.893	106.914%	0.000	
3	18:04:09	8.762	5.397	4.914	104.674%	3.789	0.955	103.064%	0.000	
x		92.803%	90.168%	102.922%	102.696%	94.199%	96.489%	100.704%	0.000	
σ		n/a	n/a	n/a	2.613%	n/a	n/a	7.668%	0.000	
%RSD		5.266	4.552	3.937	2.544	8.470	8.019	7.615	0.000	

ICSA, 7/8/2019 6:07:40 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:07:40	-4.984	-0.341	-3.822	T 110100.000	104900.000	103000.000	T 110000.000	104900.000	99.397%
2	18:08:03	-4.984	-0.341	5.097	T 106200.000	101000.000	97330.000	T 105200.000	100500.000	101.444%
3	18:08:26	-4.984	-0.341	4.543	T 101600.000	95640.000	94650.000	T 101300.000	94910.000	108.159%
x		-4.984	-0.341	1.939	T 105.978%	100.499%	98.321%	T 105.485%	100.085%	103.000%
σ		0.000	0.000	4.997	T n/a	n/a	n/a	T n/a	n/a	4.584%
%RSD		0.000	0.000	257.700	T 4.018	4.614	4.320	T 4.128	4.986	4.450

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:07:40	2174.000	-0.095	1.296	T 108200.000	-0.960	0.390	0.171	0.188	0.523
2	18:08:03	2015.000	-0.115	1.328	T 101700.000	-1.154	0.379	0.260	0.122	0.441
3	18:08:26	1870.000	-0.035	1.202	T 97110.000	-1.019	0.358	0.165	0.107	0.424
x		100.984%	-0.082	1.275	T 102.335%	-1.044	0.376	0.199	0.139	0.463
σ		n/a	0.042	0.065	T n/a	0.100	0.017	0.053	0.043	0.053
%RSD		7.532	50.860	5.120	T 5.420	9.540	4.391	26.690	31.220	11.390

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:07:40	0.069	0.081	1.919	95.834%	2209.000	88.831%	0.057	-0.129	88.123%
2	18:08:03	0.013	0.070	1.650	107.891%	1964.000	94.166%	0.049	-0.156	98.262%
3	18:08:26	0.029	0.049	1.762	107.028%	1990.000	96.953%	0.067	-0.094	100.049%
x		0.037	0.067	1.777	103.584%	102.706%	93.317%	0.058	-0.126	95.478%
σ		0.029	0.016	0.135	6.726%	n/a	4.127%	0.009	0.031	6.432%
%RSD		78.030	24.310	7.607	6.493	6.539	4.423	15.370	24.600	6.736

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:07:40	0.041	0.008	0.536	98.679%	0.010	0.323	86.338%	0.000
2	18:08:03	0.015	0.038	0.667	107.172%	0.119	0.257	100.517%	0.000
3	18:08:26	0.018	0.021	0.570	111.249%	0.103	0.274	102.991%	0.000
x		0.025	0.022	0.591	105.700%	0.077	0.285	96.615%	0.000
σ		0.014	0.015	0.068	6.413%	0.059	0.034	8.986%	0.000
%RSD		56.560	68.700	11.560	6.067	76.300	12.040	9.301	0.000

ICSAB, 7/8/2019 6:11:56 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:11:56	25.050	14.040	39.250	T 110900.000	105700.000	104300.000	T 111500.000	106300.000	98.016%
2	18:12:17	22.420	17.460	71.960	T 99990.000	94780.000	93560.000	T 99950.000	96300.000	107.444%
3	18:12:39	8.281	19.620	45.100	T 96510.000	91380.000	90090.000	T 96530.000	92620.000	110.969%
x		18.580	85.187%	104.207%	T 102.459%	97.281%	95.991%	T 102.646%	98.397%	105.476%
σ		9.019	n/a	n/a	T n/a	n/a	n/a	T n/a	n/a	6.697%
%RSD		48.530	16.510	33.480	T 7.315	7.675	7.731	T 7.622	7.180	6.349
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:11:56	2129.000	21.100	21.720	T 109300.000	20.700	20.330	21.010	20.710	21.890
2	18:12:17	1903.000	18.760	19.330	T 96950.000	17.680	18.810	18.790	19.570	20.690
3	18:12:39	1848.000	18.250	19.150	T 93690.000	17.400	18.020	17.900	19.060	20.440
x		97.999%	96.845%	100.323%	T 99.978%	92.961%	95.256%	96.158%	98.913%	105.041%
σ		n/a	n/a	n/a	T n/a	n/a	n/a	n/a	n/a	n/a
%RSD		7.578	7.836	7.142	T 8.232	9.849	6.157	8.345	4.267	3.688
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:11:56	21.900	23.020	23.180	98.569%	2191.000	90.517%	21.000	20.690	94.929%
2	18:12:17	20.530	20.950	20.730	109.491%	1947.000	96.439%	19.960	18.750	100.546%
3	18:12:39	20.410	19.400	20.920	106.986%	1968.000	98.252%	19.710	18.370	102.718%
x		104.735%	105.617%	108.047%	105.015%	101.778%	95.069%	101.106%	96.338%	99.398%
σ		n/a	n/a	n/a	5.721%	n/a	4.045%	n/a	n/a	4.019%
%RSD		3.952	8.608	6.304	5.448	6.642	4.255	3.381	6.448	4.044
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	18:11:56	20.730	9.449	21.410	101.062%	9.960	21.200	94.072%	0.000	
2	18:12:17	20.650	9.167	19.730	112.229%	9.338	19.400	99.978%	0.000	
3	18:12:39	19.730	8.815	20.220	111.201%	8.980	19.010	104.571%	0.000	
x		20.370	91.436%	102.276%	108.164%	94.261%	99.347%	99.540%	0.000	
σ		0.553	n/a	n/a	6.172%	n/a	n/a	5.263%	0.000	
%RSD		2.716	3.470	4.217	5.706	5.259	5.899	5.287	0.000	

CCV, 7/8/2019 6:16:09 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:16:09	272.200	247.100	295.900	27250.000	26840.000	26870.000	26540.000	26780.000	95.587%
2	18:16:32	239.500	189.500	211.300	24260.000	23870.000	24010.000	24010.000	23660.000	102.349%
3	18:16:53	233.000	219.800	260.000	24380.000	23840.000	23470.000	23880.000	23730.000	105.159%
x		248.200	87.525%	102.292%	101.178%	99.401%	99.127%	99.237%	98.902%	101.032%
σ		21.020	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.920%
%RSD		8.467	13.180	16.610	6.694	6.944	7.365	6.042	7.206	4.869

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:16:09	267.900	265.500	268.700	26530.000	272.100	270.200	271.700	268.900	267.200
2	18:16:32	238.100	237.200	238.900	23880.000	247.100	242.500	246.500	243.300	244.500
3	18:16:53	240.400	234.700	237.300	23420.000	241.700	239.600	239.700	240.900	238.400
x		99.521%	98.323%	99.327%	98.453%	101.454%	100.299%	101.060%	100.402%	100.017%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		6.658	6.968	7.122	6.822	6.394	6.736	6.680	6.180	6.075

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:16:09	268.300	270.100	276.700	94.551%	279.700	91.966%	53.860	260.800	94.175%
2	18:16:32	244.600	244.200	250.500	101.241%	253.100	97.175%	50.610	245.800	97.088%
3	18:16:53	238.900	245.500	239.300	107.659%	237.800	99.722%	52.480	247.200	97.524%
x		100.237%	101.301%	102.188%	101.150%	102.748%	96.288%	104.638%	100.513%	96.262%
σ		n/a	n/a	n/a	6.555%	n/a	3.954%	n/a	n/a	1.821%
%RSD		6.215	5.768	7.512	6.480	8.263	4.106	3.118	3.297	1.892

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:16:09	265.100	253.500	262.700	104.085%	255.700	270.600	94.072%	0.000
2	18:16:32	244.500	239.200	241.800	107.347%	221.100	237.200	104.163%	0.000
3	18:16:53	248.600	244.100	231.600	112.214%	228.200	240.700	104.676%	0.000
x		101.089%	98.241%	98.145%	107.882%	94.014%	99.800%	100.970%	0.000
σ		n/a	n/a	n/a	4.091%	n/a	n/a	5.980%	0.000
%RSD		4.328	2.958	6.460	3.792	7.777	7.364	5.922	0.000

CCB, 7/8/2019 6:20:25 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:20:25	-4.984	-0.341	2.347	115.000	46.850	39.660	24.570	64.820	97.778%
2	18:20:47	-4.984	-0.341	-3.822	88.880	37.080	32.180	-0.498	55.040	103.825%
3	18:21:10	-4.984	0.675	2.264	101.700	41.630	32.470	5.024	56.910	99.111%
x		-4.984	-0.002	0.263	101.900	41.850	34.770	9.698	58.920	100.238%
σ		0.000	0.586	3.538	13.060	4.885	4.235	13.170	5.192	3.177%
%RSD		0.000	25580.000	1345.000	12.820	11.670	12.180	135.800	8.812	3.170

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:20:25	0.347	0.509	0.372	46.440	1.363	0.366	0.382	0.335	0.373
2	18:20:47	0.079	0.357	0.291	36.310	1.289	0.338	0.289	0.400	0.635
3	18:21:10	0.091	0.457	0.393	37.470	1.411	0.308	0.319	0.337	0.430
x		0.172	0.441	0.352	40.080	1.354	0.337	0.330	0.357	0.479
σ		0.151	0.077	0.054	5.544	0.062	0.029	0.047	0.037	0.138
%RSD		87.770	17.430	15.280	13.830	4.546	8.512	14.350	10.460	28.790

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:20:25	0.367	0.688	0.386	97.159%	0.842	96.940%	0.102	0.341	95.371%
2	18:20:47	0.206	0.438	0.295	100.126%	0.858	98.167%	0.053	0.339	95.943%
3	18:21:10	0.224	0.235	0.344	98.590%	1.024	100.321%	0.062	0.340	95.833%
x		0.266	0.454	0.341	98.625%	0.908	98.476%	0.072	0.340	95.716%
σ		0.088	0.227	0.045	1.484%	0.101	1.711%	0.026	0.001	0.304%
%RSD		33.200	50.100	13.320	1.504	11.100	1.738	36.000	0.329	0.317

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:20:25	0.399	0.552	0.430	104.051%	0.722	0.363	99.517%	0.000
2	18:20:47	0.429	0.823	0.330	106.758%	1.022	0.322	101.320%	0.000
3	18:21:10	0.442	0.716	0.321	105.531%	0.842	0.302	104.222%	0.000
x		0.423	0.697	0.360	105.446%	0.862	0.329	101.686%	0.000
σ		0.022	0.136	0.060	1.356%	0.151	0.031	2.374%	0.000
%RSD		5.237	19.560	16.710	1.286	17.520	9.372	2.334	0.000

mb 500-493579/1-a, 7/8/2019 6:24:40 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:24:40	-4.984	-0.341	-3.822	-96.100	0.194	7.183	5.044	-9.505	98.206%
2	18:25:02	-4.984	-0.341	-3.822	-92.410	-1.364	3.057	19.580	-14.800	94.254%
3	18:25:23	-4.984	-0.341	-0.819	-98.250	-1.654	2.342	-16.960	-9.877	100.444%
x		-4.984	-0.341	-2.821	-95.590	-0.941	4.194	2.555	-11.390	97.635%
σ		0.000	0.000	1.733	2.954	0.994	2.613	18.390	2.957	3.134%
%RSD		0.000	0.000	61.450	3.091	105.600	62.300	720.000	25.950	3.210

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:24:40	-0.033	0.197	0.128	8.494	0.056	0.016	0.015	0.096	0.908
2	18:25:02	-0.028	0.183	0.069	5.343	0.071	0.006	0.014	0.062	0.658
3	18:25:23	-0.159	0.204	0.108	5.612	0.042	0.000	-0.010	0.104	0.642
x		-0.073	0.195	0.102	6.483	0.056	0.007	0.006	0.087	0.736
σ		0.074	0.010	0.030	1.746	0.015	0.008	0.014	0.022	0.149
%RSD		101.700	5.380	29.450	26.940	25.910	109.700	230.700	25.570	20.280

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:24:40	0.007	0.086	0.005	95.034%	0.263	93.903%	0.002	-0.004	92.311%
2	18:25:02	-0.031	0.045	-0.001	98.863%	0.232	99.538%	0.007	0.022	96.172%
3	18:25:23	-0.004	0.014	-0.011	98.211%	0.252	100.507%	-0.001	-0.004	97.809%
x		-0.010	0.048	-0.002	97.370%	0.249	97.983%	0.003	0.004	95.431%
σ		0.020	0.036	0.008	2.049%	0.016	3.566%	0.004	0.015	2.823%
%RSD		200.200	75.170	379.000	2.104	6.303	3.640	147.400	351.000	2.958

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:24:40	0.047	0.075	0.085	99.277%	0.073	0.033	93.487%	0.000
2	18:25:02	0.076	0.092	0.067	104.338%	0.135	0.009	102.893%	0.000
3	18:25:23	0.080	0.066	0.079	106.018%	0.116	0.008	105.920%	0.000
x		0.067	0.077	0.077	103.211%	0.108	0.017	100.767%	0.000
σ		0.018	0.013	0.009	3.509%	0.032	0.014	6.484%	0.000
%RSD		26.600	16.920	11.890	3.400	29.610	85.750	6.434	0.000

lcs 500-493579/2-a, 7/8/2019 6:28:56 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:28:56	56.070	50.800	1103.000	10940.000	10960.000	2237.000	10880.000	9505.000	96.444%
2	18:29:17	35.900	41.600	898.000	9339.000	9546.000	1895.000	9199.000	8068.000	108.016%
3	18:29:40	92.080	48.970	908.100	9578.000	9729.000	1897.000	9455.000	8274.000	106.159%
x		61.350	94.242%	96.973%	99.511%	100.771%	100.481%	98.438%	86.156%	103.540%
σ		28.460	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.214%
%RSD		46.390	10.340	11.920	8.652	7.610	9.817	9.180	9.020	6.002
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:28:56	1063.000	537.800	217.800	1091.000	551.200	543.200	552.500	275.700	545.300
2	18:29:17	939.200	466.100	188.100	921.900	481.000	467.800	474.000	246.400	497.200
3	18:29:40	960.800	475.000	191.300	982.400	484.500	486.800	494.500	246.300	489.000
x		98.776%	98.593%	99.522%	99.837%	101.116%	99.857%	101.399%	102.450%	102.099%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		6.712	7.928	8.185	8.569	7.829	7.860	8.032	6.630	5.961
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:28:56	107.400	107.200	1121.000	97.811%	1090.000	92.945%	54.220	53.440	96.482%
2	18:29:17	98.190	97.150	1010.000	103.009%	988.200	99.328%	51.610	48.000	98.785%
3	18:29:40	97.090	98.210	1038.000	102.251%	1016.000	101.147%	51.270	50.170	101.702%
x		100.896%	100.869%	105.643%	101.024%	103.146%	97.807%	104.729%	101.081%	98.990%
σ		n/a	n/a	n/a	2.808%	n/a	4.308%	n/a	n/a	2.616%
%RSD		5.619	5.501	5.439	2.779	5.118	4.404	3.081	5.417	2.642
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	18:28:56	1088.000	490.000	534.800	101.067%	96.540	106.100	97.827%	0.000	
2	18:29:17	1005.000	482.600	483.000	108.506%	92.400	101.900	99.320%	0.000	
3	18:29:40	986.000	475.000	494.700	110.148%	92.580	99.980	103.360%	0.000	
x		102.620%	96.504%	100.831%	106.574%	93.838%	102.649%	100.169%	0.000	
σ		n/a	n/a	n/a	4.839%	n/a	n/a	2.863%	0.000	
%RSD		5.292	1.548	5.391	4.541	2.495	3.050	2.858	0.000	

400-171203-c-1-a @5, 7/8/2019 6:33:11 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:33:11	10.540	0.721	155.200	TM 366400.000	141500.000	7.605	1736.000	162800.000	94.825%
2	18:33:34	-4.984	0.642	84.490	TM 324900.000	127600.000	7.875	1529.000	145100.000	102.444%
3	18:33:55	-4.984	-0.341	143.000	TM 319300.000	123000.000	5.286	1460.000	138700.000	104.778%
x		0.190	0.341	127.600	TM 336900.000	130700.000	6.922	1575.000	148900.000	100.682%
σ		8.963	0.591	37.790	TM 25710.000	9652.000	1.423	143.400	12490.000	5.205%
%RSD		4712.000	173.700	29.630	TM 7.634	7.385	20.560	9.105	8.387	5.169

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:33:11	1.014	0.457	0.081	7253.000	1306.000	0.223	0.575	0.187	1.376
2	18:33:34	-0.159	0.237	0.051	6466.000	1149.000	0.206	0.338	0.150	1.456
3	18:33:55	0.195	0.320	0.114	6358.000	1137.000	0.173	0.318	0.138	1.265
x		0.350	0.338	0.082	6692.000	1197.000	0.201	0.410	0.159	1.366
σ		0.602	0.111	0.032	488.300	94.390	0.025	0.143	0.025	0.096
%RSD		171.800	32.880	38.440	7.296	7.883	12.620	34.760	15.940	7.017

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:33:11	0.272	0.070	1272.000	92.973%	2.042	86.151%	0.015	0.037	89.929%
2	18:33:34	0.288	0.152	1112.000	103.451%	2.344	92.653%	0.004	0.008	93.743%
3	18:33:55	0.177	-0.025	1119.000	103.808%	2.108	94.667%	0.004	-0.005	97.580%
x		0.246	0.066	1167.000	100.077%	2.165	91.157%	0.008	0.013	93.750%
σ		0.060	0.089	90.740	6.155%	0.159	4.451%	0.006	0.022	3.826%
%RSD		24.420	134.600	7.772	6.150	7.336	4.883	80.350	162.500	4.081

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:33:11	0.410	0.154	74.500	97.725%	0.272	0.041	86.272%	0.000
2	18:33:34	0.568	0.112	67.970	104.791%	0.380	0.031	92.435%	0.000
3	18:33:55	0.498	0.093	68.020	103.394%	0.354	0.029	89.084%	0.000
x		0.492	0.120	70.160	101.970%	0.335	0.034	89.264%	0.000
σ		0.079	0.031	3.755	3.742%	0.056	0.006	3.086%	0.000
%RSD		16.090	26.290	5.352	3.669	16.840	18.400	3.457	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:37:27	-4.984	-0.341	209.000	TM 539900.000	78100.000	2.388	3754.000	53100.000	96.349%
2	18:37:48	-4.984	-0.341	139.100	TM 476300.000	69500.000	1.775	3345.000	46390.000	105.540%
3	18:38:10	-4.984	0.577	139.200	TM 468500.000	67660.000	-0.453	3224.000	45510.000	109.683%
x		-4.984	-0.035	162.400	TM 494900.000	71750.000	1.237	3441.000	48340.000	103.857%
σ		0.000	0.530	40.370	TM 39140.000	5572.000	1.495	277.500	4153.000	6.824%
%RSD		0.000	1517.000	24.860	TM 7.910	7.766	120.900	8.064	8.593	6.571

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:37:27	-0.159	1.034	0.027	137.500	209.200	0.469	0.756	1.560	1.055
2	18:37:48	0.193	0.889	-0.003	113.000	180.900	0.392	0.692	1.493	1.282
3	18:38:10	-0.046	0.978	0.008	112.700	175.100	0.332	0.621	1.385	1.347
x		-0.004	0.967	0.011	121.100	188.400	0.398	0.690	1.479	1.228
σ		0.179	0.073	0.015	14.220	18.270	0.069	0.067	0.088	0.153
%RSD		4490.000	7.600	141.300	11.740	9.699	17.360	9.765	5.970	12.470

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:37:27	0.156	19.260	1097.000	96.402%	32.360	88.557%	0.002	0.009	92.391%
2	18:37:48	0.180	18.620	997.900	102.251%	27.470	92.365%	0.004	0.036	96.759%
3	18:38:10	0.151	19.510	1023.000	100.357%	29.340	96.119%	-0.001	0.022	97.455%
x		0.162	19.130	1040.000	99.670%	29.720	92.347%	0.002	0.023	95.535%
σ		0.015	0.461	51.690	2.985%	2.466	3.781%	0.002	0.013	2.745%
%RSD		9.479	2.410	4.973	2.994	8.299	4.094	143.000	59.170	2.873

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:37:27	0.149	0.011	28.920	93.092%	0.010	0.020	86.101%	0.000
2	18:37:48	0.081	0.010	26.230	100.693%	0.106	0.007	93.435%	0.000
3	18:38:10	0.075	0.066	24.400	103.632%	0.100	0.015	93.198%	0.000
x		0.102	0.029	26.520	99.139%	0.072	0.014	90.911%	0.000
σ		0.041	0.032	2.272	5.439%	0.053	0.006	4.167%	0.000
%RSD		40.180	111.400	8.569	5.486	74.410	45.910	4.584	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:41:39	225.400	-0.341	518.800	TM 2213000.000	58770.000	6.718	TM 252100.000	121300.000	89.445%
2	18:42:01	172.500	-0.341	444.600	TM 1959000.000	52040.000	4.350	T 228100.000	109400.000	99.539%
3	18:42:23	232.000	-0.341	521.100	TM 1990000.000	52780.000	5.337	T 227200.000	108800.000	99.397%
x		210.000	-0.341	494.800	TM 2054000.000	54530.000	5.468	TM 235800.000	113100.000	96.127%
σ		32.620	0.000	43.520	TM 138600.000	3691.000	1.189	TM 14160.000	7046.000	5.787%
%RSD		15.540	0.000	8.795	TM 6.748	6.769	21.750	TM 6.006	6.227	6.020

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:41:39	0.394	3.996	0.088	37.910	875.200	1.747	4.356	3.647	2.355
2	18:42:01	0.090	3.655	0.061	29.490	782.600	1.562	4.226	3.243	2.035
3	18:42:23	-0.034	3.780	0.053	36.670	786.400	1.707	4.018	3.129	2.166
x		0.150	3.810	0.068	34.690	814.700	1.672	4.200	3.340	2.185
σ		0.220	0.173	0.018	4.546	52.400	0.097	0.171	0.272	0.161
%RSD		147.100	4.529	27.120	13.100	6.432	5.806	4.070	8.145	7.362

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:41:39	0.289	183.300	2453.000	90.491%	284.300	83.084%	0.005	0.051	86.213%
2	18:42:01	0.319	170.300	2195.000	100.904%	251.500	89.232%	0.004	0.062	92.992%
3	18:42:23	0.325	166.700	2195.000	99.579%	254.000	90.923%	0.007	0.172	92.952%
x		0.311	173.400	2281.000	96.991%	263.200	87.747%	0.005	0.095	90.719%
σ		0.020	8.723	148.900	5.668%	18.250	4.125%	0.001	0.067	3.902%
%RSD		6.275	5.030	6.529	5.844	6.933	4.701	25.860	70.060	4.301

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:41:39	0.071	0.070	13.910	90.716%	-0.020	0.045	81.406%	0.000
2	18:42:01	0.100	0.110	12.240	97.983%	0.046	0.036	89.807%	0.000
3	18:42:23	0.071	0.086	12.600	98.834%	0.036	0.044	87.494%	0.000
x		0.080	0.089	12.920	95.845%	0.021	0.042	86.235%	0.000
σ		0.017	0.020	0.877	4.462%	0.035	0.005	4.339%	0.000
%RSD		21.200	22.490	6.787	4.655	170.000	11.320	5.032	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:45:53	59.980	0.770	338.900	TM 1046000.000	14950.000	2.564	T 196900.000	61570.000	90.636%
2	18:46:16	9.459	-0.341	309.800	TM 893800.000	12650.000	-0.846	T 164700.000	52000.000	101.920%
3	18:46:37	71.410	-0.341	287.300	TM 933600.000	13430.000	1.885	T 177300.000	54370.000	96.349%
x		46.950	0.029	312.000	TM 957700.000	13680.000	1.201	T 179600.000	55980.000	96.302%
σ		32.970	0.641	25.880	TM 78820.000	1166.000	1.805	T 16220.000	4982.000	5.643%
%RSD		70.220	2184.000	8.295	TM 8.230	8.526	150.300	T 9.027	8.899	5.859

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:45:53	0.387	0.643	55.070	2725.000	481.000	0.318	3.333	0.998	1.942
2	18:46:16	-0.037	0.479	45.830	2327.000	409.000	0.262	2.310	0.871	1.646
3	18:46:37	-0.159	0.456	48.090	2451.000	438.100	0.267	2.600	0.838	1.702
x		0.064	0.526	49.660	2501.000	442.700	0.282	2.748	0.903	1.763
σ		0.286	0.102	4.819	204.100	36.220	0.031	0.528	0.085	0.157
%RSD		450.500	19.430	9.703	8.159	8.180	10.970	19.200	9.389	8.922

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:45:53	0.449	0.307	962.800	91.122%	104.100	83.311%	0.002	0.009	89.770%
2	18:46:16	0.325	0.258	902.000	94.761%	95.580	90.175%	-0.001	-0.017	91.327%
3	18:46:37	0.349	0.253	906.500	96.170%	95.440	91.475%	0.004	-0.017	95.816%
x		0.374	0.272	923.800	94.018%	98.390	88.320%	0.002	-0.008	92.304%
σ		0.066	0.030	33.840	2.605%	4.987	4.386%	0.002	0.015	3.139%
%RSD		17.560	10.930	3.664	2.771	5.068	4.966	141.100	186.800	3.401

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:45:53	0.206	-0.015	14.760	92.344%	-0.044	0.025	88.900%	0.000
2	18:46:16	0.138	0.020	12.050	102.333%	-0.007	0.011	91.246%	0.000
3	18:46:37	0.128	0.003	12.230	104.757%	-0.009	0.013	95.992%	0.000
x		0.157	0.003	13.010	99.811%	-0.020	0.016	92.046%	0.000
σ		0.042	0.018	1.512	6.579%	0.021	0.008	3.613%	0.000
%RSD		26.850	624.300	11.620	6.592	106.400	47.140	3.925	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:50:06	29.150	-0.341	303.900	TM 999600.000	14400.000	4.613	T 187800.000	59690.000	86.256%
2	18:50:28	24.950	-0.341	269.100	TM 852700.000	12190.000	0.768	T 162400.000	50560.000	98.349%
3	18:50:49	118.200	-0.341	359.000	TM 889300.000	12790.000	0.418	T 168100.000	52260.000	95.587%
x		57.440	-0.341	310.600	TM 913900.000	13130.000	1.933	T 172700.000	54170.000	93.397%
σ		52.680	0.000	45.340	TM 76480.000	1140.000	2.328	T 13360.000	4857.000	6.337%
%RSD		91.710	0.000	14.600	TM 8.368	8.687	120.400	T 7.733	8.966	6.785

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:50:06	-0.015	0.448	0.156	2233.000	467.900	0.195	1.493	0.162	1.678
2	18:50:28	-0.033	0.399	-0.008	1900.000	392.100	0.129	1.445	0.105	1.515
3	18:50:49	0.229	0.373	0.054	1962.000	415.900	0.162	1.361	0.115	1.566
x		0.060	0.407	0.067	2032.000	425.300	0.162	1.433	0.127	1.586
σ		0.147	0.038	0.083	177.000	38.760	0.033	0.067	0.030	0.083
%RSD		243.100	9.349	123.400	8.710	9.113	20.240	4.665	23.860	5.263

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:50:06	0.274	0.254	882.000	94.193%	90.050	83.158%	0.007	0.015	86.173%
2	18:50:28	0.309	0.349	851.900	94.992%	86.520	88.343%	0.002	-0.027	92.762%
3	18:50:49	0.264	0.389	859.800	94.067%	88.460	90.083%	-0.001	-0.013	93.349%
x		0.282	0.331	864.600	94.417%	88.340	87.195%	0.003	-0.008	90.762%
σ		0.024	0.069	15.620	0.502%	1.771	3.602%	0.004	0.021	3.984%
%RSD		8.339	20.970	1.806	0.532	2.004	4.131	149.400	249.800	4.390

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:50:06	0.035	-0.020	12.530	95.727%	-0.084	0.021	89.090%	0.000
2	18:50:28	0.021	-0.026	11.370	103.939%	-0.026	0.010	94.460%	0.000
3	18:50:49	0.019	-0.018	11.340	104.844%	-0.031	0.005	96.472%	0.000
x		0.025	-0.021	11.750	101.503%	-0.047	0.012	93.341%	0.000
σ		0.008	0.004	0.680	5.023%	0.032	0.008	3.816%	0.000
%RSD		33.400	18.280	5.789	4.949	68.300	68.860	4.088	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:54:18	78.500	-0.341	317.700	TM 1740000.000	30140.000	4.962	T 178500.000	96940.000	88.160%
2	18:54:39	106.400	-0.341	260.100	TM 1619000.000	27880.000	4.769	T 162800.000	90120.000	92.540%
3	18:55:01	100.500	-0.341	274.000	TM 1535000.000	26770.000	4.026	T 156000.000	87840.000	97.682%
x		95.120	-0.341	284.000	TM 1631000.000	28260.000	4.586	T 165800.000	91640.000	92.794%
σ		14.690	0.000	30.050	TM 103000.000	1721.000	0.495	T 11580.000	4736.000	4.766%
%RSD		15.440	0.000	10.580	TM 6.317	6.088	10.780	T 6.989	5.168	5.136

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:54:18	0.122	8.366	29.070	198.600	1183.000	4.051	6.234	3.745	1.279
2	18:54:39	-0.025	7.675	21.390	146.600	1097.000	3.826	5.770	3.149	1.151
3	18:55:01	0.347	7.780	18.120	122.800	1061.000	3.547	5.467	3.261	1.259
x		0.148	7.940	22.860	156.000	1114.000	3.808	5.824	3.385	1.230
σ		0.188	0.372	5.619	38.780	62.350	0.252	0.386	0.317	0.069
%RSD		126.800	4.686	24.580	24.860	5.599	6.627	6.629	9.363	5.599

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:54:18	0.445	103.600	2113.000	90.533%	243.800	82.160%	-0.001	0.096	88.041%
2	18:54:39	0.351	92.800	1878.000	98.863%	213.700	89.005%	0.007	0.133	94.494%
3	18:55:01	0.370	90.350	1877.000	99.873%	217.500	89.217%	-0.001	0.010	93.415%
x		0.389	95.590	1956.000	96.423%	225.000	86.794%	0.002	0.080	91.983%
σ		0.050	7.058	135.900	5.126%	16.420	4.014%	0.004	0.063	3.457%
%RSD		12.820	7.384	6.946	5.316	7.298	4.625	250.600	79.280	3.758

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:54:18	0.079	0.117	10.470	91.081%	-0.042	0.027	86.640%	0.000
2	18:54:39	0.054	0.150	9.383	99.160%	0.002	0.019	93.684%	0.000
3	18:55:01	0.100	0.133	8.777	101.851%	-0.023	0.021	94.460%	0.000
x		0.078	0.133	9.543	97.364%	-0.021	0.022	91.595%	0.000
σ		0.023	0.016	0.857	5.605%	0.022	0.004	4.309%	0.000
%RSD		29.800	12.170	8.978	5.757	104.400	19.440	4.704	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:58:32	-4.984	-0.341	78.880	TM 510500.000	81500.000	1.726	1664.000	147200.000	91.159%
2	18:58:55	-4.984	0.680	87.950	TM 466000.000	73350.000	0.019	1440.000	131500.000	98.587%
3	18:59:17	-4.984	-0.341	93.960	TM 455000.000	70940.000	2.013	1336.000	126800.000	101.777%
x		-4.984	-0.000	86.930	TM 477100.000	75260.000	1.253	1480.000	135200.000	97.175%
σ		0.000	0.590	7.589	TM 29380.000	5535.000	1.078	167.700	10650.000	5.448%
%RSD		0.000	119400.000	8.730	TM 6.158	7.354	86.060	11.330	7.882	5.607

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:58:32	-0.023	0.419	0.350	2204.000	2353.000	0.666	1.567	0.124	1.501
2	18:58:55	-0.033	0.412	0.342	2003.000	2113.000	0.564	1.498	0.105	1.326
3	18:59:17	0.084	0.541	0.188	1919.000	2032.000	0.561	1.344	0.089	1.389
x		0.009	0.458	0.293	2042.000	2166.000	0.597	1.470	0.106	1.406
σ		0.065	0.073	0.092	146.800	166.500	0.060	0.114	0.018	0.089
%RSD		701.800	15.930	31.210	7.186	7.685	10.020	7.787	16.600	6.298

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:58:32	2.219	0.124	721.600	91.753%	0.781	85.099%	-0.001	-0.005	87.892%
2	18:58:55	1.946	0.337	662.900	98.674%	0.863	90.721%	-0.001	0.009	92.790%
3	18:59:17	1.806	0.197	633.200	103.324%	0.617	93.458%	-0.001	0.022	96.433%
x		1.990	0.220	672.600	97.917%	0.754	89.760%	-0.001	0.009	92.372%
σ		0.211	0.108	45.010	5.823%	0.125	4.262%	0.000	0.013	4.286%
%RSD		10.570	49.200	6.692	5.947	16.620	4.748	0.000	152.400	4.640

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	18:58:32	0.018	-0.022	6.965	97.638%	-0.090	0.009	89.892%	0.000
2	18:58:55	0.006	-0.046	6.487	105.433%	-0.045	0.016	96.847%	0.000
3	18:59:17	0.003	-0.048	5.644	107.815%	-0.047	0.010	94.513%	0.000
x		0.009	-0.038	6.365	103.629%	-0.061	0.012	93.751%	0.000
σ		0.008	0.014	0.669	5.323%	0.025	0.003	3.540%	0.000
%RSD		91.210	37.810	10.510	5.137	41.750	29.420	3.776	0.000

400-171203-c-8-a @5, 7/8/2019 7:02:48 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:02:48	-4.984	-0.341	-0.728	438.700	23.030	0.071	12.370	49.410	97.492%
2	19:03:09	-4.984	-0.341	-0.782	333.200	14.440	1.453	3.266	22.320	99.206%
3	19:03:31	-4.984	-0.341	1.916	254.300	10.990	2.032	-19.650	7.726	105.111%
x		-4.984	-0.341	0.135	342.000	16.150	1.185	-1.337	26.490	100.603%
σ		0.000	0.000	1.543	92.500	6.200	1.007	16.500	21.160	3.997%
%RSD		0.000	0.000	1139.000	27.040	38.390	84.970	1234.000	79.870	3.973

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:02:48	-0.159	0.345	-0.013	1.396	1.944	0.001	0.177	0.064	0.497
2	19:03:09	-0.159	0.359	0.066	1.427	1.567	0.005	0.031	0.081	0.708
3	19:03:31	-0.041	0.441	-0.015	0.920	1.443	-0.005	0.071	0.046	0.631
x		-0.119	0.381	0.012	1.247	1.651	0.000	0.093	0.064	0.612
σ		0.068	0.052	0.046	0.284	0.261	0.005	0.075	0.018	0.107
%RSD		56.820	13.560	368.500	22.800	15.800	1824.000	81.210	27.630	17.420

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:02:48	-0.019	0.039	0.362	95.624%	0.050	93.645%	-0.001	-0.004	96.024%
2	19:03:09	-0.007	0.074	0.229	102.230%	0.102	99.523%	0.002	0.008	102.643%
3	19:03:31	-0.029	0.013	0.182	101.872%	0.145	100.868%	0.001	-0.004	103.831%
x		-0.018	0.042	0.258	99.909%	0.099	98.012%	0.001	-0.000	100.833%
σ		0.011	0.031	0.094	3.715%	0.048	3.841%	0.001	0.007	4.206%
%RSD		60.130	72.450	36.300	3.719	48.260	3.919	175.300	2648.000	4.172

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:02:48	-0.010	-0.051	0.076	95.037%	-0.078	0.004	95.137%	0.000
2	19:03:09	0.034	-0.025	0.041	104.528%	-0.042	0.006	100.938%	0.000
3	19:03:31	0.003	-0.044	0.015	105.190%	-0.067	0.008	104.216%	0.000
x		0.009	-0.040	0.044	101.585%	-0.062	0.006	100.097%	0.000
σ		0.022	0.013	0.030	5.681%	0.018	0.002	4.597%	0.000
%RSD		251.500	33.320	68.820	5.592	29.180	29.140	4.593	0.000

ccv, 7/8/2019 7:07:01 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:07:01	187.300	247.300	294.900	26890.000	26410.000	26730.000	26160.000	27010.000	91.873%
2	19:07:22	360.800	218.500	239.700	24850.000	24570.000	24570.000	24300.000	24740.000	96.587%
3	19:07:44	286.000	245.800	275.400	25390.000	24790.000	25310.000	24940.000	25770.000	96.111%
x		278.000	94.878%	108.005%	102.829%	101.017%	102.139%	100.537%	103.366%	94.857%
σ		87.030	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.595%
%RSD		31.300	6.826	10.360	4.108	3.976	4.288	3.754	4.400	2.736
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:07:01	256.900	257.200	258.100	25760.000	272.200	259.300	262.300	268.100	266.600
2	19:07:22	249.200	242.000	241.500	23900.000	246.300	237.200	240.800	239.900	238.800
3	19:07:44	245.700	246.200	246.400	24400.000	248.700	243.200	244.500	233.900	237.900
x		100.249%	99.381%	99.470%	98.755%	102.290%	98.629%	99.673%	98.920%	99.106%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		2.286	3.148	3.428	3.893	5.599	4.651	4.611	7.368	6.578
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:07:01	269.800	277.100	274.800	91.963%	272.500	85.967%	52.340	257.000	91.989%
2	19:07:22	238.200	244.600	253.900	98.106%	242.800	93.660%	48.270	232.800	99.394%
3	19:07:44	234.900	241.900	243.200	101.157%	240.800	95.005%	48.160	236.400	96.327%
x		99.062%	101.807%	102.915%	97.075%	100.814%	91.544%	99.184%	96.829%	95.903%
σ		n/a	n/a	n/a	4.683%	n/a	4.876%	n/a	n/a	3.720%
%RSD		7.774	7.695	6.246	4.824	7.033	5.327	4.795	5.402	3.879
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	19:07:01	273.400	252.100	258.300	99.535%	259.600	273.300	91.410%	0.000	
2	19:07:22	250.700	226.200	240.500	105.755%	222.000	238.700	101.623%	0.000	
3	19:07:44	244.500	243.100	236.700	109.305%	224.800	236.200	103.347%	0.000	
x		102.484%	96.184%	98.072%	104.865%	94.192%	99.762%	98.793%	0.000	
σ		n/a	n/a	n/a	4.946%	n/a	n/a	6.452%	0.000	
%RSD		5.933	5.454	4.711	4.716	8.905	8.321	6.531	0.000	

ccb, 7/8/2019 7:11:14 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:11:14	-4.984	-0.341	-3.822	235.400	41.010	43.190	28.960	54.510	91.064%
2	19:11:35	9.868	-0.341	-0.779	181.900	42.000	37.600	-5.427	62.490	99.111%
3	19:11:58	-4.984	-0.341	-0.836	161.200	41.100	35.360	-19.190	72.520	101.016%
x		-0.034	-0.341	-1.812	192.800	41.370	38.720	1.449	63.170	97.064%
σ		8.575	0.000	1.740	38.260	0.545	4.032	24.800	9.024	5.282%
%RSD		25580.000	0.000	96.030	19.840	1.317	10.410	1712.000	14.290	5.442

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:11:14	0.113	0.509	0.335	43.930	1.661	0.405	0.479	0.426	0.624
2	19:11:35	0.465	0.445	0.272	39.320	1.372	0.387	0.347	0.383	0.478
3	19:11:58	0.575	0.402	0.288	38.340	1.381	0.343	0.356	0.351	0.420
x		0.384	0.452	0.298	40.530	1.471	0.378	0.394	0.386	0.507
σ		0.242	0.054	0.033	2.988	0.164	0.032	0.074	0.038	0.105
%RSD		62.860	11.910	10.980	7.372	11.160	8.432	18.740	9.713	20.720

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:11:14	0.360	0.442	0.472	93.646%	0.670	92.150%	0.100	0.503	95.015%
2	19:11:35	0.287	0.341	0.413	96.360%	0.822	96.457%	0.070	0.232	101.907%
3	19:11:58	0.280	0.402	0.333	97.075%	0.680	99.178%	0.055	0.250	99.640%
x		0.309	0.395	0.406	95.694%	0.724	95.928%	0.075	0.328	98.854%
σ		0.044	0.051	0.070	1.809%	0.085	3.544%	0.023	0.152	3.513%
%RSD		14.310	12.950	17.200	1.890	11.730	3.694	30.130	46.140	3.553

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:11:14	0.481	0.653	0.403	97.823%	0.806	0.401	98.340%	0.000
2	19:11:35	0.456	0.700	0.451	99.462%	1.025	0.319	100.682%	0.000
3	19:11:58	0.478	0.756	0.450	105.292%	0.860	0.363	101.952%	0.000
x		0.472	0.703	0.435	100.859%	0.897	0.361	100.324%	0.000
σ		0.014	0.052	0.027	3.926%	0.114	0.041	1.832%	0.000
%RSD		2.862	7.338	6.212	3.892	12.730	11.350	1.826	0.000

400-171203-c-9-a @5, 7/8/2019 7:15:28 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:15:28	10.110	-0.341	178.700	TM 454000.000	134000.000	57.910	4356.000	133500.000	97.492%
2	19:15:50	-4.984	-0.341	115.700	TM 421900.000	123400.000	71.150	3956.000	117700.000	103.444%
3	19:16:11	-4.984	-0.341	176.300	TM 446600.000	129800.000	70.810	4203.000	124700.000	98.778%
x		0.049	-0.341	156.900	TM 440800.000	129100.000	66.620	4172.000	125300.000	99.905%
σ		8.717	0.000	35.690	TM 16830.000	5382.000	7.551	202.000	7882.000	3.132%
%RSD		17900.000	0.000	22.750	TM 3.817	4.170	11.330	4.843	6.291	3.135

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:15:28	0.855	0.871	0.266	318.500	2546.000	1.530	1.602	0.643	2.407
2	19:15:50	1.275	0.695	0.195	279.700	2276.000	1.462	1.418	0.524	2.151
3	19:16:11	1.468	0.781	0.303	292.600	2433.000	1.419	1.455	0.515	2.369
x		1.199	0.782	0.255	296.900	2418.000	1.470	1.492	0.561	2.309
σ		0.313	0.088	0.055	19.770	135.800	0.056	0.098	0.071	0.138
%RSD		26.100	11.220	21.700	6.658	5.618	3.813	6.539	12.710	5.974

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:15:28	0.246	0.158	1420.000	91.143%	0.354	85.582%	0.002	0.024	89.868%
2	19:15:50	0.293	0.106	1267.000	101.451%	0.423	92.237%	0.004	0.008	98.069%
3	19:16:11	0.336	0.054	1256.000	100.883%	0.451	94.420%	0.002	0.022	97.073%
x		0.292	0.106	1315.000	97.826%	0.409	90.746%	0.002	0.018	95.003%
σ		0.045	0.052	91.610	5.795%	0.050	4.604%	0.001	0.008	4.475%
%RSD		15.490	49.240	6.968	5.923	12.190	5.073	52.500	46.340	4.710

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:15:28	0.087	0.030	16.090	94.969%	0.069	0.047	85.628%	0.000
2	19:15:50	0.081	0.088	16.160	100.591%	0.138	0.027	91.541%	0.000
3	19:16:11	0.078	0.086	14.270	105.117%	0.143	0.033	96.124%	0.000
x		0.082	0.068	15.510	100.225%	0.117	0.036	91.098%	0.000
σ		0.005	0.033	1.072	5.084%	0.042	0.010	5.262%	0.000
%RSD		5.709	47.910	6.916	5.073	35.520	28.740	5.776	0.000

400-171203-c-10-a @5, 7/8/2019 7:19:41 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:19:41	-4.984	-0.341	195.000	TM 565600.000	99430.000	46.290	6572.000	90900.000	94.064%
2	19:20:03	-4.984	-0.341	130.800	TM 492800.000	86110.000	38.350	5743.000	80460.000	105.254%
3	19:20:25	-4.984	0.616	150.900	TM 497000.000	88240.000	39.500	5847.000	81080.000	105.254%
x		-4.984	-0.022	158.900	TM 518500.000	91260.000	41.380	6054.000	84150.000	101.524%
σ		0.000	0.552	32.800	TM 40860.000	7158.000	4.294	451.500	5856.000	6.461%
%RSD		0.000	2504.000	20.640	TM 7.881	7.843	10.380	7.458	6.959	6.364

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:19:41	0.761	0.636	0.170	316.600	1778.000	1.605	2.100	0.440	2.051
2	19:20:03	0.194	0.569	0.136	291.700	1548.000	1.521	1.647	0.388	1.222
3	19:20:25	0.428	0.545	0.128	284.900	1581.000	1.576	1.621	0.322	1.455
x		0.461	0.583	0.144	297.700	1636.000	1.567	1.789	0.383	1.576
σ		0.285	0.047	0.022	16.710	124.500	0.043	0.269	0.059	0.428
%RSD		61.850	8.062	15.460	5.614	7.611	2.745	15.040	15.420	27.130

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:19:41	0.641	0.215	1001.000	95.013%	0.807	84.075%	0.002	0.024	87.249%
2	19:20:03	0.560	0.231	920.000	99.915%	0.772	92.850%	0.002	0.009	94.986%
3	19:20:25	0.626	0.086	915.800	100.189%	0.604	93.742%	-0.001	-0.005	99.160%
x		0.609	0.178	945.600	98.373%	0.728	90.222%	0.001	0.009	93.798%
σ		0.043	0.079	48.080	2.912%	0.109	5.343%	0.001	0.015	6.043%
%RSD		7.016	44.750	5.084	2.961	14.940	5.921	156.700	152.900	6.443

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:19:41	0.090	-0.034	12.060	93.923%	-0.046	0.021	81.130%	0.000
2	19:20:03	0.029	0.012	11.510	101.208%	0.050	0.011	91.469%	0.000
3	19:20:25	0.111	0.026	10.410	104.961%	0.023	0.033	93.474%	0.000
x		0.077	0.001	11.330	100.031%	0.009	0.022	88.691%	0.000
σ		0.042	0.031	0.836	5.612%	0.049	0.011	6.624%	0.000
%RSD		55.280	2385.000	7.380	5.610	565.100	49.190	7.469	0.000

400-171203-c-11-a @5, 7/8/2019 7:23:57 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:23:57	-4.984	-0.341	282.000	TM 963100.000	169400.000	17.260	18610.000	170400.000	93.921%
2	19:24:18	-4.984	-0.341	202.800	TM 899000.000	160400.000	10.950	17440.000	160500.000	97.778%
3	19:24:40	-4.984	-0.341	183.200	TM 882800.000	154100.000	10.120	17060.000	156600.000	101.587%
x		-4.984	-0.341	222.700	TM 915000.000	161300.000	12.780	17700.000	162500.000	97.762%
σ		0.000	0.000	52.280	TM 42480.000	7682.000	3.902	806.900	7081.000	3.833%
%RSD		0.000	0.000	23.480	TM 4.643	4.762	30.540	4.558	4.358	3.921

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:23:57	0.368	0.610	15.850	1409.000	3411.000	1.811	3.529	0.635	1.232
2	19:24:18	-0.032	0.531	11.710	1325.000	3232.000	1.611	3.231	0.533	1.441
3	19:24:40	-0.037	0.547	9.810	1284.000	3113.000	1.666	2.991	0.504	1.414
x		0.099	0.563	12.460	1339.000	3252.000	1.696	3.250	0.557	1.362
σ		0.232	0.041	3.088	63.960	150.200	0.103	0.270	0.069	0.114
%RSD		233.500	7.358	24.790	4.776	4.618	6.088	8.302	12.360	8.349

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:23:57	0.924	0.212	1915.000	92.805%	1.281	84.974%	0.002	-0.005	91.983%
2	19:24:18	0.850	0.125	1669.000	102.819%	1.208	90.913%	0.002	0.008	98.029%
3	19:24:40	0.766	0.203	1743.000	100.463%	1.029	91.979%	0.002	-0.005	99.025%
x		0.847	0.180	1776.000	98.695%	1.173	89.289%	0.002	-0.001	96.346%
σ		0.079	0.048	126.600	5.236%	0.130	3.774%	0.000	0.007	3.811%
%RSD		9.377	26.440	7.129	5.305	11.050	4.227	5.894	1421.000	3.955

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:23:57	0.074	-0.053	11.040	89.444%	-0.053	0.020	83.579%	0.000
2	19:24:18	0.045	0.008	8.975	95.275%	-0.002	0.017	92.639%	0.000
3	19:24:40	0.043	0.015	9.275	99.151%	-0.022	0.019	97.899%	0.000
x		0.054	-0.010	9.762	94.623%	-0.026	0.018	91.373%	0.000
σ		0.018	0.038	1.114	4.886%	0.025	0.002	7.244%	0.000
%RSD		32.540	376.100	11.410	5.164	98.070	8.363	7.927	0.000

400-171203-c-12-a @5, 7/8/2019 7:28:11 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:28:11	-4.984	0.715	160.600	TM 1451000.000	107000.000	33.170	29950.000	105100.000	95.349%
2	19:28:34	-4.984	-0.341	208.300	TM 1440000.000	103800.000	25.840	29650.000	104100.000	95.254%
3	19:28:56	9.213	-0.341	208.500	TM 1338000.000	96750.000	25.700	27600.000	95240.000	103.682%
x		-0.252	0.011	192.500	TM 1410000.000	102500.000	28.240	29070.000	101500.000	98.095%
σ		8.197	0.610	27.570	TM 62440.000	5240.000	4.274	1279.000	5408.000	4.839%
%RSD		3255.000	5509.000	14.330	TM 4.428	5.112	15.140	4.401	5.330	4.933

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:28:11	0.360	0.576	0.129	882.100	3081.000	1.518	2.799	1.263	1.127
2	19:28:34	1.917	0.639	0.163	875.000	2953.000	1.342	2.602	1.160	1.087
3	19:28:56	0.556	0.554	0.051	804.500	2778.000	1.364	2.263	1.158	0.957
x		0.944	0.590	0.114	853.800	2938.000	1.408	2.555	1.194	1.057
σ		0.848	0.044	0.057	42.910	152.200	0.096	0.271	0.060	0.089
%RSD		89.790	7.474	50.210	5.026	5.180	6.815	10.610	5.053	8.432

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:28:11	0.524	0.464	1580.000	91.753%	1.010	86.167%	0.002	0.010	88.847%
2	19:28:34	0.455	0.233	1452.000	97.075%	0.933	92.288%	0.004	-0.005	98.453%
3	19:28:56	0.430	0.317	1353.000	105.597%	0.785	94.995%	0.002	0.008	96.610%
x		0.470	0.338	1462.000	98.142%	0.909	91.150%	0.002	0.004	94.637%
σ		0.049	0.117	114.100	6.983%	0.115	4.523%	0.001	0.008	5.098%
%RSD		10.340	34.540	7.808	7.116	12.610	4.962	51.460	179.900	5.387

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:28:11	0.010	-0.014	14.170	94.526%	-0.060	0.021	85.563%	0.000
2	19:28:34	-0.009	-0.015	13.190	101.359%	-0.026	0.021	94.835%	0.000
3	19:28:56	0.020	-0.028	13.140	104.163%	-0.043	0.016	93.816%	0.000
x		0.007	-0.019	13.500	100.016%	-0.043	0.019	91.404%	0.000
σ		0.015	0.008	0.581	4.957%	0.017	0.003	5.085%	0.000
%RSD		205.700	42.720	4.306	4.956	38.850	12.990	5.563	0.000

400-171203-c-13-a @5, 7/8/2019 7:32:27 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:32:27	-4.984	-0.341	143.500	TM 898800.000	144100.000	111.500	2292.000	157500.000	92.112%
2	19:32:50	-4.984	0.651	153.700	TM 783000.000	124900.000	93.360	1918.000	134300.000	101.492%
3	19:33:12	-4.984	0.588	99.160	TM 726500.000	117500.000	84.700	1783.000	125300.000	108.349%
x		-4.984	0.299	132.100	TM 802800.000	128800.000	96.510	1998.000	139000.000	100.651%
σ		0.000	0.555	28.980	TM 87830.000	13760.000	13.670	263.300	16600.000	8.151%
%RSD		0.000	185.500	21.940	TM 10.940	10.680	14.160	13.180	11.940	8.099

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:32:27	2.256	1.097	0.197	1290.000	3968.000	1.157	2.383	0.589	2.275
2	19:32:50	2.763	0.941	0.072	1113.000	3421.000	1.065	2.253	0.563	1.894
3	19:33:12	2.578	0.779	0.034	1035.000	3214.000	0.954	1.866	0.599	1.776
x		2.533	0.939	0.101	1146.000	3534.000	1.059	2.168	0.584	1.982
σ		0.257	0.159	0.086	130.600	389.700	0.102	0.269	0.018	0.261
%RSD		10.140	16.920	84.650	11.400	11.030	9.608	12.400	3.167	13.140

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:32:27	0.650	0.227	1365.000	89.923%	0.467	85.487%	0.002	0.009	90.675%
2	19:32:50	0.539	0.121	1174.000	100.505%	0.349	92.536%	0.007	0.009	95.273%
3	19:33:12	0.592	0.134	1129.000	105.429%	0.387	93.502%	0.006	0.034	99.217%
x		0.594	0.161	1223.000	98.619%	0.401	90.508%	0.005	0.017	95.055%
σ		0.055	0.058	125.400	7.923%	0.060	4.375%	0.003	0.014	4.275%
%RSD		9.339	35.960	10.260	8.034	15.080	4.834	54.650	82.140	4.498

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:32:27	0.039	-0.061	7.188	99.467%	-0.070	0.033	90.543%	0.000
2	19:32:50	0.010	-0.027	6.576	103.194%	-0.043	0.022	93.960%	0.000
3	19:33:12	0.035	-0.027	6.541	100.873%	-0.044	0.038	94.447%	0.000
x		0.028	-0.038	6.768	101.178%	-0.052	0.031	92.983%	0.000
σ		0.015	0.020	0.364	1.882%	0.016	0.008	2.128%	0.000
%RSD		55.120	50.960	5.381	1.860	29.770	26.790	2.288	0.000

400-171203-c-14-a @5, 7/8/2019 7:36:45 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:36:45	-4.984	-0.341	112.200	TM 373500.000	120400.000	118.600	1028.000	210400.000	96.206%
2	19:37:06	-4.984	-0.341	85.360	TM 344600.000	110500.000	98.890	924.400	188800.000	101.444%
3	19:37:28	-4.984	0.636	57.630	TM 339700.000	108500.000	98.440	870.100	184800.000	103.063%
x		-4.984	-0.015	85.050	TM 352600.000	113100.000	105.300	940.900	194700.000	100.238%
σ		0.000	0.564	27.270	TM 18280.000	6372.000	11.520	80.200	13780.000	3.584%
%RSD		0.000	3692.000	32.060	TM 5.184	5.631	10.940	8.524	7.076	3.576

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:36:45	3.694	1.010	11.430	2675.000	2923.000	1.179	1.666	0.822	3.417
2	19:37:06	2.765	0.748	10.360	2495.000	2689.000	1.026	1.779	0.770	2.862
3	19:37:28	3.678	0.778	10.450	2433.000	2672.000	1.070	1.679	0.651	3.031
x		3.379	0.845	10.750	2534.000	2761.000	1.092	1.708	0.748	3.103
σ		0.532	0.143	0.594	125.700	140.200	0.079	0.062	0.088	0.285
%RSD		15.750	16.930	5.524	4.960	5.077	7.218	3.629	11.720	9.178

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:36:45	1.528	0.278	1146.000	98.527%	0.713	85.610%	0.004	0.009	91.668%
2	19:37:06	1.278	0.089	1100.000	97.412%	0.668	92.383%	0.004	-0.005	98.219%
3	19:37:28	1.330	0.088	1083.000	101.683%	0.663	92.909%	0.006	-0.005	99.530%
x		1.378	0.152	1110.000	99.207%	0.681	90.300%	0.005	-0.000	96.473%
σ		0.132	0.109	33.030	2.215%	0.028	4.071%	0.001	0.008	4.212%
%RSD		9.547	72.010	2.977	2.233	4.059	4.508	25.320	35480.000	4.366

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:36:45	0.129	-0.029	8.789	97.288%	-0.087	0.022	90.326%	0.000
2	19:37:06	0.075	0.001	6.961	105.589%	-0.055	0.023	94.296%	0.000
3	19:37:28	0.035	-0.027	7.886	104.995%	-0.054	0.015	97.557%	0.000
x		0.080	-0.018	7.879	102.624%	-0.065	0.020	94.060%	0.000
σ		0.047	0.016	0.914	4.631%	0.019	0.004	3.622%	0.000
%RSD		58.730	89.830	11.600	4.512	29.090	21.260	3.850	0.000

400-171203-c-14-b du @5, 7/8/2019 7:40:58 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:40:58	-4.984	-0.341	81.470	TM 398300.000	129000.000	110.600	1095.000	219700.000	88.398%
2	19:41:19	-4.984	-0.341	94.080	TM 328800.000	105200.000	86.400	835.400	184100.000	104.730%
3	19:41:41	-4.984	0.645	81.830	TM 338400.000	109200.000	91.580	907.300	192100.000	102.111%
x		-4.984	-0.012	85.790	TM 355200.000	114500.000	96.190	945.700	198600.000	98.413%
σ		0.000	0.569	7.182	TM 37620.000	12760.000	12.750	133.800	18650.000	8.772%
%RSD		0.000	4650.000	8.371	TM 10.590	11.150	13.250	14.150	9.387	8.913

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:40:58	5.433	0.906	0.553	2783.000	3098.000	1.155	1.695	0.565	1.857
2	19:41:19	3.499	0.775	0.334	2301.000	2529.000	0.973	1.223	0.494	1.816
3	19:41:41	3.956	0.814	0.414	2367.000	2634.000	0.937	1.531	0.480	1.869
x		4.296	0.831	0.434	2484.000	2753.000	1.022	1.483	0.513	1.847
σ		1.011	0.067	0.111	261.200	302.600	0.117	0.240	0.046	0.028
%RSD		23.530	8.088	25.650	10.520	10.990	11.420	16.180	8.941	1.512

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:40:58	1.381	0.087	1187.000	91.627%	0.237	86.034%	0.004	0.009	91.015%
2	19:41:19	1.376	0.199	1073.000	99.347%	0.116	92.894%	0.004	-0.004	98.848%
3	19:41:41	1.412	0.071	1078.000	99.810%	0.088	93.305%	0.006	0.008	98.506%
x		1.390	0.119	1113.000	96.928%	0.147	90.744%	0.005	0.005	96.123%
σ		0.020	0.070	64.080	4.597%	0.079	4.085%	0.001	0.008	4.427%
%RSD		1.411	58.350	5.760	4.743	53.860	4.501	26.100	171.000	4.605

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:40:58	0.052	-0.024	8.599	93.185%	-0.095	0.023	90.740%	0.000
2	19:41:19	0.042	-0.041	7.841	104.391%	-0.060	0.026	98.024%	0.000
3	19:41:41	0.048	-0.049	7.405	105.448%	-0.067	0.024	97.347%	0.000
x		0.047	-0.038	7.948	101.008%	-0.074	0.024	95.370%	0.000
σ		0.005	0.013	0.604	6.796%	0.019	0.001	4.024%	0.000
%RSD		10.370	32.940	7.603	6.728	25.240	5.718	4.220	0.000

ccv, 7/8/2019 7:45:11 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:45:11	200.700	282.100	229.600	26900.000	26620.000	26830.000	26620.000	26020.000	93.016%
2	19:45:32	158.400	230.900	260.600	26930.000	26140.000	26840.000	26080.000	26490.000	90.112%
3	19:45:54	209.900	212.200	210.400	24090.000	23690.000	24120.000	23780.000	23720.000	102.778%
x		189.700	96.693%	93.407%	103.888%	101.935%	103.719%	101.979%	101.653%	95.302%
σ		27.470	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.635%
%RSD		14.490	14.970	10.840	6.287	6.177	6.058	5.931	5.827	6.962
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:45:11	262.900	262.500	257.000	26000.000	268.400	266.000	265.500	264.900	265.800
2	19:45:32	260.000	260.800	260.800	26190.000	271.200	264.400	264.400	239.600	244.600
3	19:45:54	232.700	234.100	233.000	23060.000	237.000	237.500	237.500	241.500	243.900
x		100.748%	100.989%	100.110%	100.335%	103.550%	102.388%	102.332%	99.464%	100.573%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		6.633	6.312	6.033	7.008	7.335	6.252	6.203	5.678	4.954
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:45:11	266.700	271.000	274.800	92.321%	271.200	88.110%	51.850	256.600	93.187%
2	19:45:32	241.700	250.500	257.600	97.096%	258.600	93.993%	50.000	237.100	96.564%
3	19:45:54	241.600	248.200	240.200	104.019%	240.600	95.478%	49.470	247.100	96.703%
x		100.004%	102.632%	103.006%	97.812%	102.725%	92.527%	100.875%	98.776%	95.485%
σ		n/a	n/a	n/a	5.882%	n/a	3.896%	n/a	n/a	1.991%
%RSD		5.798	4.894	6.705	6.013	5.991	4.211	2.476	3.948	2.085
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	19:45:11	271.100	256.500	268.500	99.540%	265.800	269.900	94.670%	0.000	
2	19:45:32	245.500	235.100	255.900	103.350%	232.800	241.000	103.393%	0.000	
3	19:45:54	240.100	244.600	242.000	108.594%	226.700	244.200	105.117%	0.000	
x		100.898%	98.163%	102.180%	103.828%	96.693%	100.670%	101.060%	0.000	
σ		n/a	n/a	n/a	4.546%	n/a	n/a	5.600%	0.000	
%RSD		6.559	4.375	5.181	4.378	8.708	6.288	5.542	0.000	

ccb, 7/8/2019 7:49:26 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:49:26	11.180	-0.341	2.802	210.800	60.410	48.500	23.340	84.820	91.064%
2	19:49:49	-4.984	-0.341	-0.782	165.700	42.560	43.170	-11.630	63.440	99.206%
3	19:50:12	-4.984	0.648	8.025	158.300	40.560	43.120	-9.983	46.750	101.825%
x		0.404	-0.011	3.348	178.300	47.850	44.930	0.577	65.000	97.365%
σ		9.333	0.571	4.429	28.430	10.930	3.094	19.730	19.090	5.612%
%RSD		2310.000	5043.000	132.300	15.950	22.850	6.886	3422.000	29.360	5.764

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:49:26	0.656	0.509	0.369	46.510	1.811	0.415	0.609	0.422	0.716
2	19:49:49	0.464	0.445	0.326	43.420	1.431	0.377	0.324	0.353	0.564
3	19:50:12	0.084	0.469	0.226	37.400	1.486	0.351	0.374	0.382	0.472
x		0.401	0.474	0.307	42.440	1.576	0.381	0.436	0.386	0.584
σ		0.291	0.032	0.073	4.631	0.205	0.032	0.152	0.035	0.123
%RSD		72.490	6.841	23.860	10.910	13.030	8.505	34.830	8.973	21.120

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:49:26	0.363	0.570	0.559	92.847%	0.677	89.958%	0.076	0.372	97.648%
2	19:49:49	0.333	0.426	0.395	96.507%	0.639	97.546%	0.069	0.285	100.748%
3	19:50:12	0.355	0.290	0.416	99.284%	0.610	97.508%	0.075	0.283	101.362%
x		0.350	0.429	0.456	96.213%	0.642	95.004%	0.073	0.314	99.919%
σ		0.016	0.140	0.089	3.229%	0.033	4.370%	0.004	0.051	1.991%
%RSD		4.490	32.680	19.520	3.356	5.204	4.600	5.322	16.210	1.993

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:49:26	0.521	0.560	0.459	97.769%	0.797	0.413	99.853%	0.000
2	19:49:49	0.414	0.669	0.438	105.078%	0.998	0.327	103.794%	0.000
3	19:50:12	0.414	0.668	0.486	103.155%	0.960	0.344	100.919%	0.000
x		0.450	0.632	0.461	102.001%	0.919	0.361	101.522%	0.000
σ		0.062	0.063	0.024	3.789%	0.107	0.046	2.039%	0.000
%RSD		13.810	9.885	5.194	3.714	11.630	12.670	2.008	0.000

400-171203-c-14-c ms @5, 7/8/2019 7:53:42 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:53:42	10.290	4.880	268.400	TM 352000.000	114000.000	480.000	2846.000	196200.000	96.397%
2	19:54:04	25.180	9.974	243.400	TM 338700.000	110800.000	466.600	2765.000	188700.000	97.587%
3	19:54:26	-4.984	9.738	264.900	TM 338400.000	109000.000	459.700	2731.000	188200.000	99.873%
x		10.160	8.198	258.900	TM 343100.000	111300.000	468.800	2781.000	191000.000	97.952%
σ		15.080	2.875	13.520	TM 7755.000	2523.000	10.300	58.640	4472.000	1.767%
%RSD		148.400	35.070	5.224	TM 2.260	2.268	2.197	2.109	2.341	1.803

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:53:42	194.500	97.360	38.540	2618.000	2834.000	94.310	96.130	50.770	103.200
2	19:54:04	184.200	94.960	36.120	2518.000	2710.000	91.710	92.160	46.910	93.360
3	19:54:26	192.400	93.790	37.560	2501.000	2718.000	92.060	91.610	45.930	95.060
x		190.400	95.370	37.410	2545.000	2754.000	92.700	93.300	47.870	97.220
σ		5.407	1.820	1.218	63.350	69.620	1.410	2.467	2.560	5.280
%RSD		2.840	1.908	3.256	2.489	2.528	1.521	2.644	5.348	5.431

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:53:42	23.140	20.690	1298.000	95.708%	196.100	85.577%	9.756	10.420	89.732%
2	19:54:04	21.260	19.780	1191.000	101.872%	188.200	90.647%	8.716	9.010	96.849%
3	19:54:26	20.400	19.410	1208.000	101.999%	184.900	93.044%	8.883	8.113	97.712%
x		21.600	19.960	1232.000	99.860%	189.800	89.756%	9.118	9.181	94.765%
σ		1.401	0.655	57.590	3.596%	5.771	3.813%	0.559	1.163	4.380%
%RSD		6.487	3.282	4.673	3.601	3.041	4.248	6.126	12.670	4.621

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:53:42	202.300	98.770	106.400	95.547%	20.040	21.250	84.558%	0.000
2	19:54:04	188.200	87.880	100.300	100.036%	17.640	18.880	93.040%	0.000
3	19:54:26	184.700	87.360	97.750	104.518%	16.920	18.100	96.972%	0.000
x		191.700	91.340	101.500	100.034%	18.200	19.410	91.523%	0.000
σ		9.324	6.441	4.453	4.485%	1.635	1.641	6.345%	0.000
%RSD		4.863	7.052	4.388	4.484	8.983	8.456	6.932	0.000

400-171203-c-14-d msd @5, 7/8/2019 7:57:55 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:57:55	-4.984	5.026	304.900	TM 364500.000	118700.000	431.300	2930.000	199300.000	93.778%
2	19:58:18	9.233	12.300	281.600	TM 320200.000	104500.000	392.500	2611.000	179400.000	103.539%
3	19:58:39	9.882	11.860	270.300	TM 341300.000	109800.000	410.900	2795.000	189500.000	99.016%
x		4.710	9.728	285.600	TM 342000.000	111000.000	411.600	2779.000	189400.000	98.778%
σ		8.402	4.077	17.640	TM 22190.000	7193.000	19.390	159.700	9925.000	4.885%
%RSD		178.400	41.920	6.178	TM 6.488	6.481	4.711	5.748	5.240	4.946

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:57:55	209.900	100.000	83.920	2899.000	2899.000	99.100	100.900	51.420	102.700
2	19:58:18	187.800	89.930	63.980	2493.000	2546.000	86.960	88.850	45.550	89.770
3	19:58:39	191.200	94.380	62.190	2666.000	2700.000	92.400	93.380	46.330	92.270
x		196.300	94.780	70.030	2686.000	2715.000	92.820	94.370	47.770	94.910
σ		11.900	5.070	12.060	203.800	177.300	6.081	6.064	3.186	6.858
%RSD		6.060	5.349	17.220	7.586	6.529	6.551	6.427	6.669	7.225

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:57:55	22.590	22.960	1315.000	95.077%	201.000	86.412%	10.030	9.459	88.636%
2	19:58:18	20.300	20.300	1238.000	99.305%	191.500	94.057%	9.205	8.282	95.869%
3	19:58:39	21.340	19.350	1211.000	102.777%	188.100	94.108%	8.861	8.510	98.502%
x		21.410	20.870	1255.000	99.053%	193.500	91.525%	9.365	8.750	94.335%
σ		1.143	1.872	54.030	3.856%	6.685	4.429%	0.600	0.624	5.109%
%RSD		5.340	8.969	4.306	3.893	3.454	4.839	6.411	7.133	5.415

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	19:57:55	207.600	97.410	109.300	95.912%	18.590	20.270	88.085%	0.000
2	19:58:18	183.800	88.620	96.970	103.043%	18.100	18.900	92.547%	0.000
3	19:58:39	193.100	87.570	96.500	106.529%	16.460	18.350	98.616%	0.000
x		194.800	91.200	100.900	101.828%	17.720	19.170	93.083%	0.000
σ		12.000	5.402	7.276	5.412%	1.112	0.985	5.286%	0.000
%RSD		6.158	5.923	7.208	5.315	6.276	5.139	5.679	0.000

400-171203-c-14-a SD@25, 7/8/2019 8:02:09 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:02:09	-4.984	-0.341	20.970	70800.000	23810.000	21.220	188.200	40340.000	97.301%
2	20:02:31	-4.984	-0.341	5.105	67080.000	22180.000	16.840	177.200	38730.000	101.349%
3	20:02:52	-4.984	0.626	22.250	67560.000	22390.000	16.970	164.900	37540.000	104.111%
x		-4.984	-0.019	16.110	68480.000	22790.000	18.350	176.800	38870.000	100.920%
σ		0.000	0.558	9.551	2023.000	890.500	2.490	11.670	1403.000	3.425%
%RSD		0.000	3009.000	59.290	2.954	3.907	13.580	6.601	3.609	3.394

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:02:09	0.095	0.368	0.264	511.000	566.100	0.209	0.338	0.114	0.793
2	20:02:31	0.451	0.385	0.173	493.700	535.300	0.232	0.327	0.109	0.695
3	20:02:52	0.197	0.441	0.270	481.100	520.100	0.230	0.299	0.101	0.775
x		0.248	0.398	0.236	495.300	540.500	0.224	0.321	0.108	0.755
σ		0.183	0.038	0.054	15.040	23.410	0.013	0.020	0.006	0.052
%RSD		73.860	9.503	22.980	3.037	4.331	5.654	6.288	5.812	6.907

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:02:09	0.310	0.175	236.400	93.331%	0.194	90.435%	0.004	-0.004	95.135%
2	20:02:31	0.225	0.077	209.400	103.366%	0.396	98.029%	0.001	0.008	103.020%
3	20:02:52	0.218	0.015	212.300	102.924%	0.381	99.380%	0.002	-0.005	102.311%
x		0.251	0.089	219.300	99.874%	0.324	95.948%	0.002	-0.000	100.155%
σ		0.051	0.081	14.820	5.671%	0.113	4.822%	0.002	0.007	4.362%
%RSD		20.520	90.340	6.756	5.678	34.830	5.025	63.650	1882.000	4.356

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:02:09	0.091	0.027	1.812	100.479%	0.036	0.004	92.468%	0.000
2	20:02:31	0.199	-0.008	1.553	105.044%	0.124	0.003	98.537%	0.000
3	20:02:52	0.160	0.066	1.356	110.255%	0.122	-0.002	98.393%	0.000
x		0.150	0.028	1.573	105.259%	0.094	0.002	96.466%	0.000
σ		0.055	0.037	0.229	4.892%	0.050	0.003	3.463%	0.000
%RSD		36.430	128.700	14.520	4.647	53.490	194.800	3.590	0.000

400-171203-c-15-a @5, 7/8/2019 8:06:23 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:06:23	-4.984	-0.341	-0.611	50.140	19.430	3.342	31.570	39.670	93.921%
2	20:06:45	-4.984	0.587	-3.822	-12.650	9.044	0.934	-43.140	5.735	108.445%
3	20:07:08	-4.984	-0.341	4.876	-7.223	5.722	1.869	-18.720	13.290	104.016%
x		-4.984	-0.031	0.148	10.090	11.400	2.049	-10.100	19.570	102.127%
σ		0.000	0.536	4.398	34.790	7.149	1.214	38.100	17.820	7.444%
%RSD		0.000	1705.000	2974.000	344.800	62.720	59.270	377.400	91.060	7.289

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:06:23	-0.159	0.492	-0.005	1.873	0.714	0.014	0.133	0.065	2.100
2	20:06:45	-0.159	0.233	0.015	1.155	0.368	-0.001	0.123	0.086	1.705
3	20:07:08	-0.040	0.363	0.047	1.246	0.264	-0.000	0.116	0.043	1.574
x		-0.119	0.363	0.019	1.425	0.449	0.004	0.124	0.065	1.793
σ		0.069	0.129	0.026	0.391	0.236	0.008	0.009	0.021	0.274
%RSD		57.620	35.610	135.700	27.450	52.500	188.800	6.984	33.120	15.270

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:06:23	-0.001	0.053	0.229	92.678%	0.101	94.696%	0.002	-0.004	94.703%
2	20:06:45	0.030	-0.018	0.176	101.788%	0.059	102.436%	0.004	-0.004	98.758%
3	20:07:08	-0.006	0.010	0.043	108.228%	-0.006	103.534%	-0.001	0.008	104.587%
x		0.008	0.015	0.149	100.898%	0.052	100.222%	0.002	-0.000	99.349%
σ		0.020	0.036	0.096	7.813%	0.054	4.817%	0.002	0.007	4.969%
%RSD		251.800	234.600	64.150	7.743	104.100	4.806	144.600	2141.000	5.001

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:06:23	0.410	-0.051	0.110	100.994%	-0.041	0.023	100.603%	0.000
2	20:06:45	0.309	-0.026	0.091	106.018%	0.001	0.023	102.774%	0.000
3	20:07:08	0.282	0.027	0.104	106.115%	0.012	0.009	104.525%	0.000
x		0.334	-0.017	0.102	104.376%	-0.010	0.018	102.634%	0.000
σ		0.067	0.039	0.010	2.929%	0.028	0.008	1.965%	0.000
%RSD		20.200	235.900	9.500	2.806	294.100	45.280	1.914	0.000

ccv, 7/8/2019 8:10:38 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:10:38	305.600	228.000	218.900	26250.000	26200.000	26680.000	26270.000	27040.000	94.778%
2	20:10:59	116.600	262.600	270.100	25640.000	25000.000	25290.000	25090.000	24920.000	96.873%
3	20:11:22	242.000	223.500	293.500	26430.000	25730.000	26460.000	25660.000	25310.000	95.349%
x		221.400	95.205%	104.337%	104.433%	102.567%	104.563%	102.691%	103.024%	95.667%
σ		96.200	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.083%
%RSD		43.450	8.981	14.620	1.592	2.352	2.865	2.300	4.372	1.132
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:10:38	273.600	260.000	259.300	25740.000	270.400	261.000	263.600	264.500	264.300
2	20:10:59	247.400	245.400	244.100	24200.000	249.600	249.300	253.400	244.200	241.600
3	20:11:22	254.200	253.400	249.900	25030.000	257.400	252.100	250.700	238.300	240.400
x		103.343%	101.175%	100.444%	99.947%	103.644%	101.654%	102.358%	99.597%	99.498%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		5.264	2.905	3.059	3.093	4.047	2.406	2.657	5.519	5.418
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:10:38	262.500	273.000	277.700	93.183%	276.200	89.012%	52.340	260.300	93.105%
2	20:10:59	243.000	253.600	260.300	95.203%	256.700	93.594%	52.700	244.300	92.964%
3	20:11:22	238.700	244.700	254.400	99.747%	250.600	96.314%	50.270	238.500	96.599%
x		99.214%	102.840%	105.655%	96.044%	104.455%	92.973%	103.548%	99.077%	94.222%
σ		n/a	n/a	n/a	3.362%	n/a	3.690%	n/a	n/a	2.059%
%RSD		5.115	5.625	4.603	3.500	5.119	3.969	2.535	4.557	2.185
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	20:10:38	268.400	251.300	272.400	97.633%	257.400	270.500	94.046%	0.000	
2	20:10:59	253.900	243.300	229.200	110.411%	214.600	236.600	101.017%	0.000	
3	20:11:22	250.500	235.200	231.800	109.788%	213.800	233.600	105.341%	0.000	
x		103.030%	97.305%	97.798%	105.944%	91.446%	98.764%	100.135%	0.000	
σ		n/a	n/a	n/a	7.204%	n/a	n/a	5.699%	0.000	
%RSD		3.688	3.313	9.915	6.800	10.910	8.284	5.691	0.000	

ccb, 7/8/2019 8:14:55 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:14:55	-4.984	0.719	-0.646	191.500	56.930	49.890	18.130	74.650	94.968%
2	20:15:18	-4.984	-0.341	2.077	164.200	52.970	40.080	4.827	65.850	102.254%
3	20:15:39	-4.984	-0.341	2.060	159.400	51.130	36.890	-13.890	73.110	102.539%
x		-4.984	0.012	1.164	171.700	53.670	42.290	3.024	71.200	99.920%
σ		0.000	0.612	1.567	17.320	2.963	6.772	16.090	4.698	4.291%
%RSD		0.000	4905.000	134.700	10.090	5.520	16.010	532.000	6.598	4.294
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:14:55	1.142	0.471	0.364	50.650	1.787	0.430	0.538	0.484	0.629
2	20:15:18	0.446	0.440	0.285	42.080	1.633	0.384	0.394	0.343	0.453
3	20:15:39	0.564	0.452	0.275	39.860	1.628	0.412	0.343	0.400	0.551
x		0.718	0.454	0.308	44.200	1.683	0.409	0.425	0.409	0.544
σ		0.373	0.016	0.049	5.698	0.090	0.023	0.101	0.071	0.089
%RSD		51.960	3.430	15.990	12.890	5.346	5.719	23.760	17.380	16.280
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:14:55	0.363	0.496	0.652	94.298%	0.693	93.609%	0.067	0.497	96.218%
2	20:15:18	0.375	0.580	0.508	98.443%	0.741	99.231%	0.080	0.259	101.181%
3	20:15:39	0.309	0.340	0.476	104.040%	0.486	103.004%	0.087	0.326	103.599%
x		0.349	0.472	0.545	98.927%	0.640	98.615%	0.078	0.361	100.333%
σ		0.035	0.122	0.094	4.889%	0.135	4.728%	0.010	0.123	3.763%
%RSD		10.160	25.840	17.210	4.942	21.160	4.794	12.940	34.000	3.750
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	20:14:55	0.384	0.605	0.621	98.212%	0.897	0.439	98.222%	0.000	
2	20:15:18	0.537	0.754	0.511	100.756%	1.094	0.338	101.991%	0.000	
3	20:15:39	0.463	0.709	0.534	106.290%	0.928	0.354	104.946%	0.000	
x		0.461	0.689	0.555	101.753%	0.973	0.377	101.720%	0.000	
σ		0.077	0.076	0.058	4.130%	0.106	0.054	3.370%	0.000	
%RSD		16.630	11.100	10.430	4.059	10.900	14.360	3.314	0.000	

mb 500-493206/1-a, 7/8/2019 8:24:37 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:24:37	-4.984	-0.341	-3.822	-49.210	0.218	13.080	-34.630	3.568	101.016%
2	20:24:59	-4.984	-0.341	-1.158	-74.970	1.273	9.463	-74.400	0.216	113.207%
3	20:25:21	-4.984	-0.341	-3.822	-66.290	-1.083	8.808	-63.400	-1.423	109.730%
x		-4.984	-0.341	-2.934	-63.490	0.136	10.450	-57.480	0.787	107.984%
σ		0.000	0.000	1.538	13.110	1.180	2.302	20.540	2.544	6.280%
%RSD		0.000	0.000	52.420	20.650	866.700	22.030	35.730	323.200	5.816

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:24:37	-0.036	0.014	0.128	38.740	0.369	0.009	0.150	1.231	2.719
2	20:24:59	-0.049	-0.113	0.075	32.670	0.324	0.006	0.089	1.141	2.646
3	20:25:21	-0.159	-0.032	0.137	36.330	0.359	0.002	0.095	1.170	2.457
x		-0.081	-0.044	0.113	35.910	0.351	0.006	0.111	1.181	2.607
σ		0.067	0.064	0.033	3.059	0.024	0.004	0.034	0.046	0.136
%RSD		82.420	147.500	29.330	8.519	6.798	62.960	30.510	3.875	5.200

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:24:37	-0.011	0.129	0.172	98.127%	0.056	95.529%	-0.001	-0.004	98.807%
2	20:24:59	0.006	0.039	0.120	105.092%	0.013	103.053%	0.002	-0.004	100.773%
3	20:25:21	-0.021	0.126	0.103	104.945%	0.114	102.638%	-0.001	0.008	103.694%
x		-0.008	0.098	0.131	102.721%	0.061	100.407%	0.000	-0.000	101.091%
σ		0.013	0.051	0.036	3.979%	0.050	4.229%	0.001	0.007	2.459%
%RSD		157.500	52.010	27.290	3.874	82.800	4.212	14060.000	2370.000	2.433

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:24:37	0.051	0.053	0.305	98.494%	0.065	0.102	95.933%	0.000
2	20:24:59	0.013	0.160	0.200	102.513%	0.166	0.091	100.478%	0.000
3	20:25:21	0.019	0.146	0.191	100.741%	0.161	0.079	104.834%	0.000
x		0.027	0.120	0.232	100.583%	0.131	0.090	100.415%	0.000
σ		0.021	0.058	0.063	2.014%	0.057	0.011	4.451%	0.000
%RSD		75.040	48.840	27.330	2.002	43.690	12.640	4.433	0.000

lcs 500-493206/2-a, 7/8/2019 8:28:52 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:28:52	99.790	39.580	1066.000	10490.000	10930.000	2189.000	10710.000	9356.000	98.349%
2	20:29:14	52.020	46.430	950.800	9607.000	10020.000	2006.000	9825.000	8751.000	103.301%
3	20:29:36	124.600	51.860	905.000	10010.000	10230.000	2009.000	10030.000	8453.000	102.206%
x		92.150	91.911%	97.405%	100.360%	103.947%	103.401%	101.876%	88.536%	101.285%
σ		36.910	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.601%
%RSD		40.060	13.390	8.537	4.402	4.564	5.070	4.563	5.196	2.568
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:28:52	1058.000	527.600	213.700	1085.000	557.000	538.700	547.800	275.200	542.700
2	20:29:14	969.100	487.500	199.300	1027.000	516.900	499.800	506.900	248.000	499.100
3	20:29:36	995.700	492.600	202.700	1050.000	518.400	515.300	516.800	249.800	492.100
x		100.765%	100.515%	102.612%	105.389%	106.151%	103.591%	104.767%	103.066%	102.258%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		4.538	4.350	3.675	2.759	4.291	3.781	4.065	5.888	5.358
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:28:52	109.000	111.600	1129.000	97.159%	1096.000	92.850%	52.890	50.100	97.785%
2	20:29:14	99.620	100.900	1003.000	108.122%	969.700	100.587%	47.420	46.520	103.716%
3	20:29:36	99.220	100.000	1022.000	106.649%	982.700	100.576%	49.370	48.850	103.650%
x		102.612%	104.170%	105.160%	103.977%	101.617%	98.004%	99.781%	96.979%	101.717%
σ		n/a	n/a	n/a	5.950%	n/a	4.464%	n/a	n/a	3.406%
%RSD		5.392	6.231	6.452	5.723	6.844	4.555	5.561	3.749	3.348
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	20:28:52	1108.000	501.900	560.600	100.328%	101.200	105.800	96.637%	0.000	
2	20:29:14	960.600	466.000	526.600	103.617%	100.500	103.500	99.142%	0.000	
3	20:29:36	991.300	457.700	506.500	107.708%	94.810	98.160	103.498%	0.000	
x		102.001%	95.039%	106.247%	103.884%	98.850%	102.491%	99.759%	0.000	
σ		n/a	n/a	n/a	3.697%	n/a	n/a	3.472%	0.000	
%RSD		7.626	4.947	5.154	3.559	3.553	3.838	3.480	0.000	

500-166099-e-1-a, 7/8/2019 8:33:08 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:33:08	10.310	-0.341	36.910	6566.000	26910.000	4.657	1063.000	59400.000	96.254%
2	20:33:29	8.970	-0.341	59.070	5947.000	24310.000	3.613	942.200	52650.000	105.492%
3	20:33:52	-4.984	-0.341	50.960	6175.000	24990.000	2.528	953.800	54250.000	104.587%
x		4.765	-0.341	48.980	6229.000	25400.000	3.599	986.200	55430.000	102.111%
σ		8.469	0.000	11.210	313.000	1348.000	1.065	66.460	3526.000	5.092%
%RSD		177.800	0.000	22.890	5.025	5.305	29.580	6.738	6.361	4.987

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:33:08	-0.030	0.430	0.033	16.710	75.560	2.715	9.033	0.349	1.062
2	20:33:29	0.310	0.326	0.043	14.090	66.100	2.313	8.191	0.302	1.065
3	20:33:52	0.787	0.381	0.052	13.270	69.060	2.308	7.973	0.288	0.997
x		0.355	0.379	0.043	14.690	70.240	2.445	8.399	0.313	1.042
σ		0.410	0.052	0.010	1.796	4.840	0.234	0.560	0.032	0.038
%RSD		115.400	13.740	22.820	12.220	6.890	9.552	6.666	10.150	3.678

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:33:08	0.219	0.308	679.600	98.106%	4.754	93.492%	0.013	0.058	98.148%
2	20:33:29	0.249	0.412	651.100	100.862%	4.596	100.103%	0.011	0.031	101.464%
3	20:33:52	0.262	0.349	591.500	109.848%	4.533	100.975%	0.009	0.006	99.351%
x		0.243	0.356	640.700	102.939%	4.628	98.190%	0.011	0.032	99.655%
σ		0.022	0.053	44.990	6.140%	0.114	4.092%	0.002	0.026	1.679%
%RSD		8.920	14.760	7.022	5.965	2.464	4.168	22.290	81.190	1.684

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:33:08	0.664	0.356	1.765	95.581%	0.209	0.059	97.801%	0.000
2	20:33:29	0.645	0.246	1.649	104.596%	0.372	0.045	102.899%	0.000
3	20:33:52	0.544	0.287	1.453	107.586%	0.261	0.048	104.143%	0.000
x		0.618	0.297	1.622	102.588%	0.281	0.050	101.614%	0.000
σ		0.064	0.056	0.158	6.249%	0.083	0.007	3.361%	0.000
%RSD		10.420	18.740	9.725	6.092	29.700	14.840	3.307	0.000

500-166099-f-1-a, 7/8/2019 8:37:22 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:37:22	9.671	-0.341	89.250	6468.000	26520.000	2.824	1041.000	58670.000	100.444%
2	20:37:44	-4.984	-0.341	56.760	6171.000	24900.000	1.605	953.800	54350.000	104.539%
3	20:38:06	8.894	-0.341	72.950	6103.000	25280.000	0.603	954.500	54930.000	106.063%
x		4.527	-0.341	72.990	6247.000	25570.000	1.677	983.000	55980.000	103.682%
σ		8.246	0.000	16.250	194.100	847.300	1.112	50.040	2347.000	2.906%
%RSD		182.200	0.000	22.260	3.107	3.314	66.310	5.090	4.192	2.803

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:37:22	-0.036	0.321	0.150	5.430	74.390	2.422	8.730	0.657	1.464
2	20:37:44	-0.159	0.484	0.112	6.009	68.270	2.262	8.910	0.618	1.280
3	20:38:06	-0.042	0.375	0.078	4.267	70.300	2.346	8.204	0.540	1.144
x		-0.079	0.393	0.114	5.236	70.990	2.344	8.615	0.605	1.296
σ		0.069	0.083	0.036	0.887	3.119	0.080	0.367	0.060	0.161
%RSD		87.860	21.030	31.780	16.940	4.394	3.405	4.257	9.884	12.420

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:37:22	0.289	0.515	670.100	100.757%	3.679	93.193%	0.002	0.007	95.663%
2	20:37:44	0.222	0.270	631.300	103.156%	3.490	98.904%	0.004	0.007	98.579%
3	20:38:06	0.183	0.358	630.500	104.250%	3.788	102.295%	0.004	0.042	105.366%
x		0.231	0.381	644.000	102.721%	3.652	98.131%	0.003	0.019	99.869%
σ		0.054	0.124	22.680	1.787%	0.151	4.600%	0.001	0.020	4.979%
%RSD		23.270	32.660	3.522	1.739	4.140	4.688	40.140	107.300	4.985

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:37:22	0.226	0.197	1.879	99.068%	0.050	0.026	90.286%	0.000
2	20:37:44	0.377	0.159	1.575	104.426%	0.085	0.023	98.478%	0.000
3	20:38:06	0.257	0.117	1.711	105.545%	0.062	0.025	105.223%	0.000
x		0.287	0.158	1.721	103.013%	0.065	0.025	97.996%	0.000
σ		0.080	0.040	0.152	3.462%	0.018	0.002	7.480%	0.000
%RSD		27.720	25.370	8.838	3.361	27.080	7.753	7.633	0.000

500-166099-e-2-a, 7/8/2019 8:41:36 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:41:36	-4.984	-0.341	40.920	6799.000	13550.000	200.200	891.900	29350.000	101.111%
2	20:41:59	36.010	0.594	49.370	6198.000	12340.000	179.800	782.000	26310.000	107.730%
3	20:42:20	-4.984	-0.341	66.330	6097.000	12130.000	338.300	736.900	25930.000	111.778%
x		8.680	-0.029	52.200	6365.000	12680.000	239.500	803.600	27190.000	106.873%
σ		23.670	0.539	12.940	379.500	767.400	86.240	79.740	1875.000	5.385%
%RSD		272.700	1836.000	24.790	5.962	6.053	36.020	9.923	6.895	5.039

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:41:36	1.186	0.507	0.270	67.920	37.690	1.373	4.785	0.426	2.356
2	20:41:59	0.530	0.422	0.237	55.800	33.520	1.267	4.074	0.374	2.008
3	20:42:20	0.836	0.498	0.310	59.600	33.430	1.258	4.088	0.317	1.939
x		0.851	0.476	0.272	61.110	34.880	1.299	4.316	0.372	2.101
σ		0.328	0.047	0.037	6.197	2.434	0.064	0.407	0.055	0.223
%RSD		38.600	9.798	13.480	10.140	6.977	4.944	9.420	14.680	10.620

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:41:36	0.318	0.467	389.700	98.253%	3.302	93.274%	0.009	0.059	97.317%
2	20:41:59	0.296	0.328	346.000	106.565%	2.783	99.126%	0.002	0.007	101.084%
3	20:42:20	0.271	0.298	351.600	105.934%	2.883	102.810%	-0.001	0.007	101.860%
x		0.295	0.364	362.400	103.584%	2.989	98.403%	0.003	0.024	100.087%
σ		0.024	0.090	23.760	4.627%	0.275	4.808%	0.005	0.030	2.430%
%RSD		8.101	24.740	6.556	4.467	9.205	4.886	156.200	124.000	2.428

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:41:36	0.131	0.127	2.213	93.282%	-0.008	0.085	90.773%	0.000
2	20:41:59	0.118	0.086	2.320	103.379%	0.035	0.075	97.919%	0.000
3	20:42:20	0.175	0.143	2.159	109.744%	0.010	0.062	101.004%	0.000
x		0.141	0.119	2.231	102.135%	0.013	0.074	96.565%	0.000
σ		0.030	0.029	0.082	8.301%	0.022	0.011	5.248%	0.000
%RSD		21.030	24.770	3.662	8.128	172.100	15.460	5.435	0.000

500-166099-f-2-a, 7/8/2019 8:45:51 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:45:51	9.868	-0.341	72.250	7104.000	13880.000	7.563	823.600	29910.000	99.111%
2	20:46:14	-4.984	0.592	77.220	6397.000	12700.000	6.342	717.200	27030.000	107.921%
3	20:46:36	-4.984	0.628	68.730	6745.000	13370.000	6.300	769.100	29150.000	103.920%
x		-0.034	0.293	72.730	6748.000	13320.000	6.735	769.900	28700.000	103.651%
σ		8.575	0.549	4.265	353.400	590.400	0.718	53.200	1497.000	4.411%
%RSD		25580.000	187.500	5.864	5.236	4.433	10.650	6.909	5.218	4.256

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:45:51	-0.034	0.427	0.089	2.989	40.910	1.400	4.510	1.538	1.874
2	20:46:14	0.070	0.486	0.067	3.040	38.290	1.279	4.217	1.479	1.498
3	20:46:36	-0.159	0.350	0.124	2.500	40.050	1.345	4.211	1.519	1.886
x		-0.041	0.421	0.093	2.843	39.750	1.341	4.313	1.512	1.753
σ		0.115	0.068	0.028	0.298	1.334	0.060	0.171	0.030	0.221
%RSD		281.400	16.220	30.470	10.480	3.355	4.509	3.969	1.998	12.580

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:45:51	0.309	0.617	393.000	97.222%	3.284	92.252%	-0.001	-0.006	95.476%
2	20:46:14	0.288	0.364	364.000	102.840%	3.364	97.799%	0.002	-0.006	98.069%
3	20:46:36	0.275	0.485	363.600	103.724%	3.267	97.804%	-0.001	0.007	103.501%
x		0.291	0.489	373.500	101.262%	3.305	95.952%	0.000	-0.002	99.015%
σ		0.017	0.127	16.890	3.526%	0.052	3.204%	0.001	0.007	4.096%
%RSD		5.899	25.870	4.520	3.482	1.570	3.339	4461.000	434.900	4.136

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:45:51	0.094	0.124	1.889	96.422%	-0.037	0.083	91.896%	0.000
2	20:46:14	0.072	0.080	1.700	105.448%	-0.012	0.057	98.077%	0.000
3	20:46:36	0.078	0.110	1.743	108.974%	-0.031	0.058	106.138%	0.000
x		0.082	0.105	1.777	103.615%	-0.027	0.066	98.704%	0.000
σ		0.011	0.022	0.099	6.474%	0.013	0.014	7.141%	0.000
%RSD		13.930	21.330	5.580	6.248	48.220	21.700	7.235	0.000

mb 500-493472/1-a, 7/8/2019 8:50:08 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:50:08	-4.984	0.662	8.199	-53.000	10.010	17.540	-14.300	45.180	100.349%
2	20:50:29	-4.984	0.570	1.637	-66.330	2.701	22.290	-54.010	16.280	110.492%
3	20:50:52	-4.984	-0.341	-1.116	-71.510	0.171	16.200	-69.430	23.020	111.445%
x		-4.984	0.297	2.907	-63.620	4.294	18.680	-45.910	28.160	107.429%
σ		0.000	0.554	4.786	9.548	5.110	3.202	28.450	15.120	6.150%
%RSD		0.000	186.600	164.600	15.010	119.000	17.140	61.960	53.690	5.725

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:50:08	-0.159	0.230	0.256	22.120	0.339	0.014	0.102	0.597	4.705
2	20:50:29	-0.047	0.170	0.187	18.400	0.198	0.007	0.063	0.536	4.200
3	20:50:52	-0.159	0.228	0.131	19.160	0.294	0.014	0.157	0.577	4.408
x		-0.121	0.209	0.191	19.890	0.277	0.012	0.107	0.570	4.438
σ		0.065	0.034	0.062	1.963	0.072	0.004	0.047	0.031	0.253
%RSD		53.210	16.440	32.510	9.868	26.100	31.850	44.130	5.480	5.709

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:50:08	0.010	0.109	0.360	101.346%	0.017	97.227%	0.006	-0.004	96.282%
2	20:50:29	-0.018	0.024	0.209	103.030%	0.015	103.951%	-0.001	-0.004	103.108%
3	20:50:52	-0.018	0.052	0.146	108.333%	-0.014	103.743%	-0.001	-0.004	99.871%
x		-0.009	0.062	0.238	104.236%	0.006	101.640%	0.002	-0.004	99.754%
σ		0.016	0.044	0.110	3.646%	0.017	3.824%	0.004	0.000	3.415%
%RSD		188.600	70.630	46.190	3.498	282.600	3.762	252.700	0.146	3.423

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:50:08	0.043	0.030	0.122	102.177%	-0.081	0.079	95.749%	0.000
2	20:50:29	-0.017	0.018	0.115	107.094%	-0.035	0.081	106.737%	0.000
3	20:50:52	0.035	0.051	0.163	108.316%	-0.049	0.088	103.571%	0.000
x		0.020	0.033	0.134	105.862%	-0.055	0.083	102.019%	0.000
σ		0.032	0.017	0.026	3.250%	0.024	0.005	5.656%	0.000
%RSD		159.400	51.760	19.540	3.070	42.810	5.545	5.544	0.000

lcs 500-493472/2-a, 7/8/2019 8:54:23 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:54:23	54.710	39.460	965.400	10530.000	10810.000	2120.000	10570.000	9323.000	98.635%
2	20:54:46	51.490	51.800	901.600	9605.000	9982.000	1989.000	9620.000	8633.000	104.254%
3	20:55:07	115.400	42.660	854.200	9113.000	9297.000	1820.000	9037.000	8173.000	110.016%
x		73.880	89.281%	90.706%	97.506%	100.301%	98.801%	97.415%	87.095%	104.302%
σ		36.020	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.691%
%RSD		48.760	14.340	6.154	7.404	7.557	7.605	7.929	6.647	5.456
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:54:23	1033.000	516.200	211.900	1063.000	544.100	524.600	533.300	267.200	538.800
2	20:54:46	951.100	474.800	191.200	968.500	499.000	486.000	489.800	241.800	486.800
3	20:55:07	920.500	456.200	183.500	916.200	467.200	463.900	473.500	248.300	506.400
x		96.833%	96.482%	97.760%	98.246%	100.682%	98.301%	99.768%	100.962%	102.128%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		6.030	6.360	7.502	7.555	7.677	6.251	6.197	5.225	5.146
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:54:23	104.700	108.700	1107.000	97.328%	1065.000	92.986%	53.840	51.040	95.623%
2	20:54:46	95.750	98.570	1033.000	101.388%	1026.000	99.656%	47.240	44.790	105.168%
3	20:55:07	97.650	99.950	999.100	104.924%	958.800	98.689%	49.630	48.660	101.288%
x		99.378%	102.419%	104.624%	101.213%	101.660%	97.110%	100.475%	96.323%	100.693%
σ		n/a	n/a	n/a	3.801%	n/a	3.604%	n/a	n/a	4.800%
%RSD		4.762	5.387	5.278	3.755	5.275	3.712	6.655	6.543	4.767
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	20:54:23	1084.000	497.200	516.200	102.960%	96.660	102.800	98.596%	0.000	
2	20:54:46	942.300	444.500	517.200	105.229%	89.060	93.970	106.302%	0.000	
3	20:55:07	989.300	465.500	480.000	110.406%	88.010	94.710	105.650%	0.000	
x		100.518%	93.809%	100.899%	106.199%	91.246%	97.146%	103.516%	0.000	
σ		n/a	n/a	n/a	3.817%	n/a	n/a	4.273%	0.000	
%RSD		7.175	5.661	4.203	3.594	5.172	5.014	4.128	0.000	

500-166116-h-1-a, 7/8/2019 8:58:37 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:58:37	9.657	-0.341	104.200	61360.000	38510.000	19910.000	10380.000	71420.000	100.539%
2	20:59:00	-4.984	1.613	81.040	57530.000	36510.000	18510.000	9647.000	66050.000	103.063%
3	20:59:21	-4.984	1.456	71.560	53780.000	34490.000	17540.000	8957.000	63060.000	112.016%
x		-0.104	0.909	85.590	57560.000	36500.000	18660.000	9661.000	66840.000	105.206%
σ		8.453	1.086	16.770	3789.000	2010.000	1192.000	711.000	4237.000	6.031%
%RSD		8138.000	119.400	19.590	6.583	5.505	6.391	7.360	6.339	5.733

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:58:37	486.200	40.190	26.120	17000.000	365.400	9.845	32.200	44.930	112.300
2	20:59:00	445.400	39.160	24.550	16160.000	349.500	9.446	30.850	40.860	103.500
3	20:59:21	426.700	36.720	22.830	15030.000	322.800	8.800	29.090	40.510	99.940
x		452.800	38.690	24.500	16060.000	345.900	9.364	30.710	42.100	105.200
σ		30.390	1.783	1.646	991.900	21.540	0.528	1.562	2.459	6.366
%RSD		6.711	4.609	6.720	6.175	6.226	5.634	5.084	5.841	6.050

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:58:37	5.633	1.638	146.000	170.488%	2.836	88.195%	0.062	0.157	92.898%
2	20:59:00	4.772	1.872	139.800	175.572%	2.672	95.608%	0.071	0.107	100.677%
3	20:59:21	4.975	1.526	139.300	181.543%	2.731	98.661%	0.059	0.163	105.082%
x		5.126	1.679	141.700	175.868%	2.746	94.155%	0.064	0.142	99.552%
σ		0.450	0.176	3.695	5.533%	0.083	5.382%	0.006	0.031	6.170%
%RSD		8.777	10.510	2.608	3.146	3.029	5.717	9.690	21.530	6.197

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	20:58:37	2.178	13.960	301.000	102.143%	0.142	13.050	92.863%	0.000
2	20:59:00	1.984	13.220	275.000	112.487%	0.192	11.730	104.235%	0.000
3	20:59:21	2.071	12.690	270.700	112.263%	0.208	12.560	99.846%	0.000
x		2.077	13.290	282.200	108.964%	0.181	12.450	98.981%	0.000
σ		0.097	0.636	16.410	5.909%	0.034	0.668	5.735%	0.000
%RSD		4.670	4.783	5.813	5.423	18.860	5.368	5.794	0.000

ccv, 7/8/2019 9:02:52 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:02:52	204.400	265.500	225.900	25210.000	25540.000	25830.000	25630.000	26090.000	98.444%
2	21:03:13	268.500	250.700	241.000	23750.000	23370.000	23530.000	23340.000	23600.000	102.254%
3	21:03:35	186.600	234.500	228.800	22650.000	22590.000	22750.000	22860.000	22610.000	107.587%
x		219.800	100.095%	92.764%	95.483%	95.337%	96.157%	95.762%	96.403%	102.762%
σ		43.120	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.593%
%RSD		19.620	6.199	3.439	5.363	6.395	6.660	6.188	7.445	4.469

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:02:52	257.000	251.800	255.800	25220.000	258.700	256.300	258.000	257.200	257.500
2	21:03:13	235.200	238.800	242.700	23910.000	241.700	241.700	240.400	243.500	239.100
3	21:03:35	229.900	225.900	226.600	22780.000	233.500	230.400	231.700	239.300	239.100
x		96.277%	95.539%	96.679%	95.885%	97.858%	97.123%	97.341%	98.662%	98.097%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		5.954	5.411	6.067	5.102	5.248	5.354	5.516	3.798	4.339

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:02:52	254.500	261.300	272.200	94.593%	271.800	93.188%	53.270	253.800	93.321%
2	21:03:13	240.500	243.200	249.400	99.958%	249.700	97.035%	50.910	247.200	95.875%
3	21:03:35	235.600	238.200	237.000	106.460%	232.800	98.697%	48.990	244.500	99.996%
x		97.406%	99.031%	101.147%	100.337%	100.580%	96.306%	102.113%	99.410%	96.397%
σ		n/a	n/a	n/a	5.943%	n/a	2.826%	n/a	n/a	3.368%
%RSD		4.022	4.919	7.073	5.923	7.786	2.934	4.206	1.936	3.494

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:02:52	264.400	255.700	265.400	100.240%	237.000	249.100	100.109%	0.000
2	21:03:13	242.800	239.400	227.700	109.359%	225.100	239.000	100.070%	0.000
3	21:03:35	248.300	235.500	229.000	109.856%	231.000	246.900	101.188%	0.000
x		100.739%	97.417%	96.267%	106.485%	92.409%	98.003%	100.456%	0.000
σ		n/a	n/a	n/a	5.414%	n/a	n/a	0.635%	0.000
%RSD		4.463	4.403	8.890	5.084	2.576	2.169	0.632	0.000

ccb, 7/8/2019 9:07:05 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:07:05	-4.984	0.702	2.429	-96.520	-1.231	3.130	-7.261	-22.220	96.492%
2	21:07:28	-4.984	-0.341	2.507	-102.600	-5.827	0.941	18.710	-17.900	95.302%
3	21:07:49	-4.984	-0.341	2.232	-103.600	-5.971	-1.730	-13.350	-23.230	99.635%
x		-4.984	0.007	2.389	-100.900	-4.343	0.780	-0.635	-21.120	97.143%
σ		0.000	0.602	0.142	3.820	2.696	2.434	17.020	2.832	2.239%
%RSD		0.000	8734.000	5.937	3.786	62.070	311.900	2680.000	13.410	2.304

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:07:05	-0.159	0.156	0.052	5.417	-0.077	0.056	0.034	0.078	0.079
2	21:07:28	-0.159	0.108	0.016	1.443	-0.103	0.023	0.030	0.016	0.043
3	21:07:49	-0.159	0.208	0.015	0.570	-0.098	0.006	0.036	0.028	0.012
x		-0.159	0.157	0.028	2.477	-0.093	0.029	0.033	0.041	0.045
σ		0.000	0.050	0.021	2.584	0.013	0.025	0.003	0.033	0.034
%RSD		0.000	31.810	75.530	104.300	14.530	88.430	8.792	81.030	75.310

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:07:05	0.050	0.037	0.028	93.709%	0.174	95.230%	0.021	0.089	94.641%
2	21:07:28	0.011	-0.001	-0.022	99.621%	0.247	100.420%	0.007	-0.004	95.380%
3	21:07:49	0.002	0.065	-0.018	101.999%	0.205	104.629%	0.006	0.008	101.057%
x		0.021	0.034	-0.004	98.443%	0.209	100.093%	0.011	0.031	97.026%
σ		0.026	0.033	0.028	4.268%	0.037	4.708%	0.009	0.051	3.510%
%RSD		123.000	98.180	686.600	4.336	17.550	4.704	76.340	164.200	3.618

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:07:05	0.164	0.185	0.059	98.363%	0.532	0.082	96.479%	0.000
2	21:07:28	0.092	0.222	0.041	105.258%	0.715	0.018	103.018%	0.000
3	21:07:49	0.108	0.218	-0.023	101.087%	0.628	0.011	100.425%	0.000
x		0.121	0.208	0.026	101.569%	0.625	0.037	99.974%	0.000
σ		0.038	0.020	0.043	3.473%	0.091	0.039	3.293%	0.000
%RSD		31.120	9.769	168.000	3.419	14.630	106.600	3.294	0.000

ccvl, 7/8/2019 9:11:20 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:11:20	-4.984	1.697	41.970	125.300	208.700	103.600	524.200	148.600	98.778%
2	21:11:43	9.020	0.617	44.950	95.420	201.700	88.600	447.200	151.100	105.111%
3	21:12:06	-4.984	0.595	63.450	94.320	190.900	93.200	445.000	171.900	107.587%
x		-0.316	96.964%	100.252%	52.512%	100.212%	95.149%	94.422%	78.609%	103.825%
σ		8.086	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.543%
%RSD		2558.000	65.000	23.210	16.750	4.485	8.102	9.561	8.141	4.376
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:11:20	4.595	5.376	5.181	101.900	2.712	1.038	2.329	2.284	20.480
2	21:11:43	4.779	4.822	4.598	96.640	2.244	0.987	2.071	1.938	18.830
3	21:12:06	4.780	4.882	4.525	95.210	2.542	0.992	2.084	2.030	18.450
x		94.358%	100.528%	95.361%	97.933%	99.981%	100.587%	108.068%	104.193%	96.264%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		2.257	6.046	7.531	3.626	9.478	2.818	6.739	8.595	5.604
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:11:20	1.068	2.293	4.023	100.463%	4.013	96.035%	0.505	0.478	97.073%
2	21:11:43	0.964	2.235	4.113	102.020%	3.950	101.548%	0.431	0.475	102.887%
3	21:12:06	1.009	2.612	4.072	103.429%	4.116	102.664%	0.440	0.376	102.963%
x		101.375%	95.203%	101.734%	101.971%	100.658%	100.082%	91.809%	88.577%	100.974%
σ		n/a	n/a	n/a	1.484%	n/a	3.549%	n/a	n/a	3.379%
%RSD		5.134	8.521	1.099	1.455	2.075	3.546	8.793	13.080	3.346
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	21:11:20	4.921	3.081	2.742	95.878%	1.985	0.537	96.663%	0.000	
2	21:11:43	4.673	2.472	2.793	104.635%	1.976	0.477	105.815%	0.000	
3	21:12:06	4.818	2.878	2.407	109.096%	1.861	0.439	105.302%	0.000	
x		96.079%	93.677%	105.892%	103.203%	97.033%	96.873%	102.593%	0.000	
σ		n/a	n/a	n/a	6.724%	n/a	n/a	5.142%	0.000	
%RSD		2.595	11.040	7.928	6.516	3.547	10.220	5.012	0.000	

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:15:36	10.260	-0.341	111.700	T 126600.000	105300.000	25.920	1756.000	207800.000	96.587%
2	21:15:58	9.811	-0.341	108.300	T 122600.000	100300.000	21.380	1610.000	201500.000	99.492%
3	21:16:20	8.596	-0.341	85.210	T 113400.000	92830.000	23.930	1447.000	184900.000	108.397%
x		9.554	-0.341	101.700	T 120900.000	99490.000	23.740	1605.000	198100.000	101.492%
σ		0.860	0.000	14.420	T 6796.000	6289.000	2.276	154.600	11840.000	6.154%
%RSD		8.996	0.000	14.180	T 5.623	6.322	9.586	9.636	5.977	6.063

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:15:36	0.353	1.505	0.531	25320.000	216.900	1.791	0.562	1.180	7.817
2	21:15:58	0.214	1.367	0.438	23710.000	201.600	1.692	0.560	1.109	7.010
3	21:16:20	0.753	1.491	0.379	22430.000	191.500	1.639	0.444	1.065	6.753
x		0.440	1.454	0.449	23820.000	203.300	1.707	0.522	1.118	7.193
σ		0.280	0.076	0.076	1448.000	12.790	0.077	0.068	0.058	0.555
%RSD		63.620	5.236	17.000	6.081	6.290	4.495	12.990	5.205	7.721

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:15:36	11.500	0.146	522.200	101.809%	2.685	89.247%	0.004	-0.006	89.337%
2	21:15:58	11.170	0.052	493.900	105.765%	2.639	95.404%	0.014	-0.006	94.845%
3	21:16:20	11.110	0.036	497.200	104.818%	2.756	95.485%	-0.001	0.007	99.829%
x		11.260	0.078	504.400	104.131%	2.693	93.379%	0.006	-0.001	94.670%
σ		0.209	0.060	15.440	2.066%	0.059	3.578%	0.007	0.007	5.248%
%RSD		1.857	76.250	3.061	1.984	2.181	3.832	126.900	558.100	5.543

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:15:36	0.040	0.027	243.100	98.256%	0.018	0.130	91.574%	0.000
2	21:15:58	0.182	0.118	216.400	105.346%	0.091	0.119	98.268%	0.000
3	21:16:20	0.107	0.077	220.700	106.203%	0.077	0.109	99.024%	0.000
x		0.110	0.074	226.700	103.268%	0.062	0.119	96.289%	0.000
σ		0.071	0.045	14.330	4.362%	0.039	0.011	4.100%	0.000
%RSD		64.620	61.380	6.322	4.224	62.710	8.812	4.258	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:19:49	9.918	0.678	93.880	T 126100.000	103000.000	17.160	1720.000	207400.000	98.778%
2	21:20:10	8.466	-0.341	54.040	T 112000.000	92300.000	11.720	1395.000	180200.000	109.445%
3	21:20:33	10.290	-0.341	115.100	T 127400.000	104200.000	15.440	1699.000	207000.000	96.397%
x		9.557	-0.001	87.660	T 121800.000	99830.000	14.770	1605.000	198200.000	101.540%
σ		0.963	0.588	30.980	T 8520.000	6544.000	2.781	181.900	15610.000	6.949%
%RSD		10.070	51160.000	35.340	T 6.993	6.556	18.830	11.330	7.879	6.843

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:19:49	0.217	1.248	0.438	23500.000	211.500	1.626	0.576	0.690	5.148
2	21:20:10	0.632	1.186	0.273	20510.000	185.100	1.575	0.454	0.561	4.822
3	21:20:33	0.482	1.379	0.397	23860.000	213.600	1.766	0.564	0.641	5.141
x		0.444	1.271	0.370	22620.000	203.400	1.655	0.531	0.631	5.037
σ		0.210	0.098	0.086	1839.000	15.900	0.099	0.067	0.065	0.186
%RSD		47.390	7.721	23.250	8.129	7.818	5.971	12.660	10.280	3.700

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:19:49	9.929	0.145	555.100	95.855%	3.258	89.554%	-0.001	0.008	90.416%
2	21:20:10	9.310	0.238	508.800	103.640%	3.245	95.263%	0.002	-0.006	94.316%
3	21:20:33	9.320	0.361	511.500	101.956%	3.153	95.429%	0.006	0.007	102.670%
x		9.520	0.248	525.100	100.484%	3.219	93.415%	0.002	0.003	95.801%
σ		0.354	0.108	25.980	4.096%	0.057	3.345%	0.003	0.008	6.260%
%RSD		3.723	43.620	4.947	4.076	1.775	3.581	147.800	251.300	6.535

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:19:49	-0.000	-0.016	230.300	100.688%	-0.022	0.098	88.788%	0.000
2	21:20:10	0.070	0.048	203.100	108.209%	0.010	0.093	93.040%	0.000
3	21:20:33	0.045	0.065	216.500	106.412%	0.025	0.081	102.129%	0.000
x		0.038	0.033	216.600	105.103%	0.004	0.091	94.652%	0.000
σ		0.036	0.042	13.600	3.928%	0.024	0.009	6.815%	0.000
%RSD		92.670	130.600	6.278	3.737	608.900	9.577	7.200	0.000

500-166191-i-2-a, 7/8/2019 9:24:03 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:24:03	-4.984	-0.341	25.310	113.900	84.680	22.370	-4.011	198.700	93.159%
2	21:24:26	-4.984	-0.341	10.910	52.090	56.120	21.130	-55.380	135.400	102.349%
3	21:24:48	-4.984	-0.341	15.470	33.360	45.810	12.160	-80.670	113.600	109.445%
x		-4.984	-0.341	17.230	66.440	62.210	18.550	-46.680	149.200	101.651%
σ		0.000	0.000	7.361	42.140	20.140	5.571	39.060	44.170	8.165%
%RSD		0.000	0.000	42.720	63.420	32.370	30.030	83.670	29.590	8.033

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:24:03	0.107	0.102	0.102	25.530	0.312	0.140	0.177	0.486	4.710
2	21:24:26	-0.159	-0.015	0.035	18.530	0.200	0.127	0.076	0.486	4.606
3	21:24:48	-0.159	-0.001	0.061	14.570	0.229	0.107	0.080	0.535	4.335
x		-0.070	0.028	0.066	19.540	0.247	0.125	0.111	0.502	4.550
σ		0.153	0.064	0.034	5.553	0.058	0.017	0.057	0.029	0.194
%RSD		218.200	224.700	51.800	28.420	23.500	13.570	51.780	5.691	4.258

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:24:03	-0.003	0.062	0.636	95.245%	0.133	98.139%	0.002	0.048	97.769%
2	21:24:26	0.014	0.081	0.460	105.765%	0.013	103.577%	0.004	0.021	100.432%
3	21:24:48	-0.010	0.049	0.383	106.418%	0.037	105.621%	0.001	-0.004	105.195%
x		0.000	0.064	0.493	102.476%	0.061	102.446%	0.002	0.021	101.132%
σ		0.013	0.016	0.130	6.271%	0.064	3.867%	0.001	0.026	3.762%
%RSD		3735.000	24.940	26.360	6.119	104.600	3.775	58.420	121.500	3.720

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:24:03	0.048	0.047	0.608	102.328%	-0.053	0.130	98.965%	0.000
2	21:24:26	0.012	0.080	0.377	111.050%	-0.004	0.116	103.867%	0.000
3	21:24:48	0.027	0.114	0.283	105.716%	-0.022	0.120	108.989%	0.000
x		0.029	0.080	0.423	106.364%	-0.027	0.122	103.940%	0.000
σ		0.018	0.034	0.168	4.397%	0.025	0.007	5.012%	0.000
%RSD		61.250	42.060	39.660	4.134	94.480	6.081	4.822	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:28:18	-4.984	1.735	8.618	15.110	13.160	19.560	-34.750	60.740	96.968%
2	21:28:39	-4.984	-0.341	4.876	-7.090	10.520	26.300	-61.590	28.570	104.016%
3	21:29:00	-4.984	-0.341	15.900	-1.601	11.590	21.120	-65.450	33.270	107.063%
x		-4.984	0.351	9.797	2.139	11.760	22.330	-53.930	40.860	102.682%
σ		0.000	1.199	5.603	11.560	1.328	3.526	16.720	17.380	5.178%
%RSD		0.000	341.300	57.200	540.500	11.290	15.790	31.000	42.530	5.043

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:28:18	0.096	0.021	0.208	9.328	0.151	0.104	0.265	1.819	4.138
2	21:28:39	-0.040	0.058	0.145	9.239	0.091	0.089	0.105	1.686	3.687
3	21:29:00	0.072	0.020	0.148	8.264	0.131	0.081	0.084	1.672	3.789
x		0.043	0.033	0.167	8.944	0.124	0.091	0.151	1.726	3.871
σ		0.073	0.022	0.036	0.591	0.031	0.012	0.099	0.081	0.237
%RSD		169.400	66.760	21.390	6.604	24.650	13.090	65.310	4.690	6.114

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:28:18	-0.017	-0.046	0.117	101.851%	0.068	101.418%	0.006	-0.004	100.146%
2	21:28:39	0.002	0.108	0.147	108.670%	0.099	104.329%	0.004	-0.004	102.835%
3	21:29:00	-0.025	-0.048	0.136	109.238%	0.138	105.176%	0.002	-0.004	100.487%
x		-0.013	0.005	0.133	106.586%	0.102	103.641%	0.004	-0.004	101.156%
σ		0.014	0.089	0.015	4.110%	0.035	1.971%	0.002	0.000	1.464%
%RSD		103.900	1892.000	11.270	3.856	34.660	1.902	60.580	0.401	1.447

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:28:18	-0.003	0.077	0.538	103.043%	-0.089	0.108	103.018%	0.000
2	21:28:39	-0.006	0.123	0.425	105.185%	-0.011	0.127	101.491%	0.000
3	21:29:00	-0.023	0.146	0.439	107.873%	-0.035	0.116	105.585%	0.000
x		-0.011	0.115	0.467	105.367%	-0.045	0.117	103.364%	0.000
σ		0.011	0.035	0.062	2.420%	0.040	0.010	2.069%	0.000
%RSD		100.500	30.740	13.290	2.297	89.000	8.240	2.001	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:32:31	9.554	-0.341	496.600	72190.000	75160.000	32.880	4427.000	167200.000	101.254%
2	21:32:54	23.730	-0.341	466.700	T 71360.000	71830.000	34.530	4231.000	157300.000	102.539%
3	21:33:16	-4.984	-0.341	486.400	70410.000	72260.000	29.070	4361.000	158200.000	103.349%
x		9.432	-0.341	483.200	T 71320.000	73080.000	32.160	4340.000	160900.000	102.381%
σ		14.360	0.000	15.150	T 890.400	1816.000	2.799	99.360	5491.000	1.057%
%RSD		152.200	0.000	3.136	T 1.248	2.484	8.703	2.290	3.413	1.032

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:32:31	0.452	0.685	0.353	33060.000	240.200	1.310	1.949	1.075	5.363
2	21:32:54	0.444	0.557	0.432	31910.000	233.500	1.359	2.076	1.040	4.852
3	21:33:16	0.678	0.707	0.462	32260.000	237.800	1.358	2.086	0.974	5.130
x		0.525	0.649	0.416	32410.000	237.200	1.342	2.037	1.030	5.115
σ		0.133	0.081	0.056	587.400	3.407	0.028	0.077	0.051	0.256
%RSD		25.390	12.490	13.470	1.812	1.436	2.097	3.761	5.000	4.998

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:32:31	26.550	0.341	641.800	97.601%	9.729	89.950%	0.002	-0.009	91.901%
2	21:32:54	24.300	0.125	576.100	107.007%	8.129	96.830%	0.004	-0.008	100.403%
3	21:33:16	24.030	0.194	607.700	104.355%	9.018	99.083%	0.002	-0.008	97.590%
x		24.960	0.220	608.500	102.988%	8.959	95.288%	0.002	-0.008	96.631%
σ		1.383	0.110	32.860	4.850%	0.801	4.758%	0.001	0.000	4.332%
%RSD		5.541	49.960	5.399	4.709	8.946	4.993	51.950	4.133	4.483

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:32:31	0.099	0.145	173.600	97.876%	-0.089	0.281	90.372%	0.000
2	21:32:54	0.062	0.154	153.600	107.975%	-0.038	0.256	100.741%	0.000
3	21:33:16	0.112	0.127	151.700	111.576%	-0.068	0.264	103.709%	0.000
x		0.091	0.142	159.600	105.809%	-0.065	0.267	98.274%	0.000
σ		0.026	0.014	12.140	7.102%	0.026	0.013	7.002%	0.000
%RSD		28.940	9.688	7.606	6.712	39.860	4.879	7.125	0.000

500-166193-i-1-b du, 7/8/2019 9:36:46 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:36:46	-4.984	-0.341	564.300	70560.000	72450.000	20.390	4308.000	161700.000	102.444%
2	21:37:08	8.602	1.517	441.500	66090.000	67650.000	13.670	4021.000	149400.000	108.349%
3	21:37:29	8.407	-0.341	446.100	T 66910.000	67350.000	17.590	3949.000	146500.000	109.921%
x		4.008	0.279	484.000	T 67850.000	69150.000	17.220	4093.000	152500.000	106.905%
σ		7.788	1.073	69.620	T 2379.000	2861.000	3.378	190.100	8099.000	3.942%
%RSD		194.300	385.200	14.380	T 3.505	4.137	19.620	4.645	5.309	3.687

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:36:46	0.927	0.716	0.392	32190.000	236.200	1.372	2.242	1.440	4.359
2	21:37:08	0.184	0.653	0.359	29680.000	216.600	1.333	1.939	1.264	4.326
3	21:37:29	0.179	0.632	0.420	30070.000	215.400	1.342	1.951	1.363	3.904
x		0.430	0.667	0.390	30650.000	222.700	1.349	2.044	1.356	4.197
σ		0.431	0.044	0.031	1350.000	11.640	0.020	0.172	0.088	0.254
%RSD		100.200	6.545	7.875	4.404	5.226	1.508	8.414	6.477	6.052

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:36:46	25.780	0.300	618.600	100.210%	8.625	91.682%	0.007	-0.008	93.663%
2	21:37:08	23.570	0.260	561.700	107.470%	7.931	97.518%	0.002	0.005	97.415%
3	21:37:29	23.380	0.192	566.300	108.796%	8.123	99.753%	0.004	0.018	99.163%
x		24.240	0.251	582.200	105.492%	8.226	96.318%	0.004	0.005	96.747%
σ		1.335	0.054	31.610	4.622%	0.358	4.167%	0.003	0.013	2.810%
%RSD		5.506	21.730	5.430	4.381	4.355	4.326	62.080	263.300	2.905

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:36:46	0.018	0.049	163.200	101.778%	-0.095	0.247	92.363%	0.000
2	21:37:08	0.024	0.146	155.700	108.984%	-0.066	0.233	97.570%	0.000
3	21:37:29	-0.002	0.078	148.300	112.629%	-0.060	0.219	103.728%	0.000
x		0.013	0.091	155.700	107.797%	-0.074	0.233	97.887%	0.000
σ		0.014	0.050	7.472	5.522%	0.019	0.014	5.689%	0.000
%RSD		104.000	54.690	4.798	5.123	25.650	6.050	5.812	0.000

500-166193-i-1-c ms, 7/8/2019 9:40:59 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:40:59	40.670	50.650	1455.000	T 92260.000	92250.000	2198.000	15470.000	181100.000	96.730%
2	21:41:22	95.650	52.740	1460.000	T 84820.000	84640.000	2049.000	14190.000	166600.000	102.397%
3	21:41:44	78.210	32.850	1383.000	T 82140.000	82090.000	1898.000	13720.000	160000.000	106.159%
x		71.510	45.410	1433.000	T 86400.000	86330.000	2049.000	14460.000	169200.000	101.762%
σ		28.090	10.930	43.430	T 5241.000	5287.000	150.000	906.300	10790.000	4.746%
%RSD		39.290	24.080	3.031	T 6.066	6.124	7.323	6.268	6.378	4.664

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:40:59	1081.000	538.700	216.400	39040.000	800.400	531.600	535.900	273.400	542.100
2	21:41:22	999.400	485.400	198.500	36190.000	747.900	494.400	500.900	249.600	498.400
3	21:41:44	960.700	485.000	194.700	34470.000	710.400	476.000	479.900	246.400	488.900
x		1014.000	503.000	203.200	36570.000	752.900	500.700	505.500	256.500	509.800
σ		61.330	30.920	11.610	2309.000	45.190	28.290	28.270	14.770	28.340
%RSD		6.051	6.147	5.711	6.315	6.002	5.650	5.592	5.761	5.559

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:40:59	142.100	114.100	1725.000	100.273%	1084.000	90.844%	55.160	54.450	92.413%
2	21:41:22	127.700	100.500	1662.000	103.303%	1053.000	97.830%	50.450	49.280	98.446%
3	21:41:44	129.100	102.600	1596.000	107.028%	997.600	98.863%	50.870	50.010	97.843%
x		133.000	105.700	1661.000	103.535%	1045.000	95.846%	52.160	51.250	96.234%
σ		7.945	7.283	64.150	3.383%	43.750	4.362%	2.604	2.800	3.323%
%RSD		5.975	6.888	3.862	3.268	4.186	4.551	4.992	5.464	3.453

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:40:59	1136.000	532.700	703.800	102.284%	101.500	108.000	95.617%	0.000
2	21:41:22	1012.000	483.100	652.500	105.789%	89.110	95.480	105.749%	0.000
3	21:41:44	1013.000	497.400	635.800	111.030%	95.870	102.100	101.465%	0.000
x		1054.000	504.400	664.000	106.368%	95.480	101.900	100.944%	0.000
σ		71.270	25.510	35.430	4.402%	6.188	6.283	5.086%	0.000
%RSD		6.763	5.058	5.336	4.138	6.481	6.167	5.038	0.000

500-166193-i-1-d msd, 7/8/2019 9:45:15 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:45:15	100.900	55.520	1453.000	T 88010.000	88820.000	2117.000	15690.000	187900.000	97.301%
2	21:45:36	50.360	41.290	1445.000	T 78070.000	77860.000	1920.000	13730.000	168200.000	106.397%
3	21:45:59	64.070	41.210	1295.000	T 77740.000	78580.000	1888.000	13830.000	168100.000	106.587%
x		71.780	46.010	1397.000	T 81270.000	81750.000	1975.000	14420.000	174700.000	103.428%
σ		26.150	8.241	88.940	T 5838.000	6130.000	124.100	1102.000	11420.000	5.307%
%RSD		36.430	17.910	6.364	T 7.183	7.498	6.282	7.644	6.538	5.131

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:45:15	1065.000	531.300	211.700	33740.000	806.400	524.600	531.000	259.300	516.500
2	21:45:36	966.400	477.800	191.800	30230.000	726.800	469.700	480.800	244.600	481.200
3	21:45:59	965.000	476.200	192.900	30420.000	725.600	469.000	472.400	241.300	485.500
x		998.700	495.100	198.800	31460.000	752.900	487.800	494.700	248.400	494.400
σ		57.190	31.330	11.170	1976.000	46.340	31.910	31.670	9.611	19.230
%RSD		5.727	6.329	5.617	6.280	6.155	6.542	6.402	3.869	3.891

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:45:15	129.800	107.600	1662.000	105.113%	1041.000	93.211%	54.750	52.710	94.175%
2	21:45:36	120.200	99.800	1572.000	107.281%	999.200	98.681%	48.090	48.240	100.371%
3	21:45:59	120.300	98.810	1512.000	111.680%	955.900	99.070%	53.420	51.700	95.061%
x		123.400	102.100	1582.000	108.024%	998.700	96.987%	52.090	50.880	96.536%
σ		5.523	4.793	75.810	3.346%	42.610	3.277%	3.526	2.346	3.351%
%RSD		4.475	4.697	4.792	3.097	4.267	3.378	6.768	4.611	3.471

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:45:15	1088.000	523.300	709.400	103.223%	96.870	102.600	99.498%	0.000
2	21:45:36	979.000	481.800	653.500	109.685%	92.290	97.550	103.334%	0.000
3	21:45:59	1010.000	511.200	620.300	113.428%	87.790	96.760	105.249%	0.000
x		1026.000	505.400	661.100	108.779%	92.320	98.970	102.693%	0.000
σ		56.330	21.350	45.030	5.162%	4.537	3.163	2.929%	0.000
%RSD		5.492	4.225	6.813	4.746	4.914	3.196	2.852	0.000

500-166193-i-1-a SD@5, 7/8/2019 9:49:30 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:49:30	-4.984	-0.341	118.200	14770.000	15670.000	3.921	932.500	33610.000	98.873%
2	21:49:53	-4.984	0.633	127.400	13460.000	14150.000	1.674	831.000	30900.000	103.397%
3	21:50:16	-4.984	-0.341	121.100	13630.000	14230.000	4.921	824.400	30740.000	106.254%
x		-4.984	-0.016	122.200	13950.000	14680.000	3.505	862.600	31750.000	102.841%
σ		0.000	0.562	4.731	711.500	857.900	1.663	60.600	1614.000	3.722%
%RSD		0.000	3443.000	3.871	5.099	5.843	47.430	7.025	5.084	3.619

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:49:30	0.466	0.231	0.185	6836.000	51.230	0.429	0.643	0.326	1.473
2	21:49:53	-0.039	0.232	0.091	6291.000	46.980	0.426	0.508	0.282	1.295
3	21:50:16	0.074	0.304	0.075	6314.000	46.580	0.395	0.491	0.264	1.080
x		0.167	0.255	0.117	6480.000	48.260	0.417	0.547	0.290	1.283
σ		0.265	0.042	0.060	308.500	2.575	0.019	0.083	0.032	0.197
%RSD		158.800	16.410	51.100	4.760	5.335	4.635	15.220	11.000	15.370

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:49:30	5.451	0.179	131.600	94.677%	2.837	94.195%	0.019	-0.006	94.439%
2	21:49:53	4.915	0.208	116.800	105.113%	3.173	99.538%	0.015	0.031	103.897%
3	21:50:16	4.423	0.085	115.700	107.870%	2.659	101.597%	0.008	0.019	101.998%
x		4.930	0.157	121.400	102.553%	2.890	98.443%	0.014	0.015	100.112%
σ		0.514	0.064	8.861	6.959%	0.261	3.821%	0.005	0.019	5.003%
%RSD		10.430	40.840	7.301	6.786	9.028	3.881	37.950	124.700	4.998

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:49:30	0.558	0.209	34.720	104.284%	0.198	0.077	99.037%	0.000
2	21:49:53	0.547	0.206	32.910	103.038%	0.363	0.072	103.518%	0.000
3	21:50:16	0.575	0.154	29.490	113.628%	0.292	0.069	103.557%	0.000
x		0.560	0.190	32.370	106.984%	0.284	0.073	102.037%	0.000
σ		0.014	0.031	2.656	5.788%	0.082	0.004	2.598%	0.000
%RSD		2.551	16.480	8.205	5.410	28.950	5.624	2.547	0.000

ccv, 7/8/2019 9:53:46 PM QC Status: PASS (Initial: WARNING)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:53:46	354.600	255.800	275.500	25740.000	25640.000	26070.000	26140.000	25920.000	98.254%
2	21:54:07	365.200	241.100	252.800	23770.000	24020.000	23740.000	24100.000	23960.000	103.397%
3	21:54:29	164.800	246.400	265.800	23670.000	23440.000	23500.000	24180.000	24330.000	104.016%
x		294.900	99.110%	105.886%	97.578%	97.468%	97.743%	99.223%	98.940%	101.889%
σ		112.700	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.163%
%RSD		38.230	3.000	4.292	4.790	4.671	5.804	4.667	4.216	3.104

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:53:46	259.900	259.300	261.500	25680.000	264.300	259.800	260.600	261.500	257.600
2	21:54:07	235.900	240.400	244.800	24000.000	243.800	243.900	244.900	238.900	236.000
3	21:54:29	239.400	240.400	242.000	24010.000	247.000	245.900	242.400	242.000	237.000
x		98.022%	98.675%	99.770%	98.260%	100.678%	99.951%	99.725%	98.985%	97.409%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		5.278	4.411	4.231	3.944	4.391	3.474	3.959	4.950	5.004

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:53:46	261.800	264.700	267.800	99.410%	273.300	93.967%	51.840	250.300	98.574%
2	21:54:07	237.300	236.700	241.400	107.007%	242.100	100.715%	51.400	250.300	98.129%
3	21:54:29	237.000	242.500	246.800	104.987%	248.000	101.318%	48.960	233.500	103.310%
x		98.152%	99.202%	100.804%	103.801%	101.793%	98.667%	101.467%	97.875%	100.004%
σ		n/a	n/a	n/a	3.935%	n/a	4.081%	n/a	n/a	2.872%
%RSD		5.813	5.960	5.523	3.790	6.505	4.136	3.057	3.966	2.871

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:53:46	260.900	243.200	272.700	101.223%	238.400	254.600	101.629%	0.000
2	21:54:07	238.500	239.800	236.200	108.511%	236.900	248.700	99.715%	0.000
3	21:54:29	241.500	233.400	243.300	108.292%	236.400	247.200	102.281%	0.000
x		98.794%	95.527%	100.302%	106.009%	94.898%	100.066%	101.208%	0.000
σ		n/a	n/a	n/a	4.146%	n/a	n/a	1.334%	0.000
%RSD		4.906	2.092	7.715	3.911	0.434	1.559	1.318	0.000

ccb, 7/8/2019 9:58:02 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:58:02	-4.984	0.749	2.709	-88.730	2.812	6.361	39.520	-14.790	92.350%
2	21:58:23	-4.984	-0.341	-3.822	-98.910	-1.101	3.597	-7.826	-17.680	99.825%
3	21:58:46	-4.984	0.649	-0.857	-100.900	-1.544	1.302	-10.150	-11.130	101.730%
x		-4.984	0.352	-0.657	-96.190	0.055	3.753	7.183	-14.540	97.968%
σ		0.000	0.602	3.270	6.537	2.397	2.533	28.030	3.284	4.958%
%RSD		0.000	171.000	498.100	6.796	4332.000	67.490	390.200	22.590	5.061
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:58:02	0.109	0.221	0.113	7.368	0.030	0.069	0.058	0.111	0.050
2	21:58:23	-0.159	0.129	0.054	3.711	-0.055	0.040	0.075	0.042	0.015
3	21:58:46	-0.159	0.183	-0.005	3.549	-0.037	0.042	-0.000	0.045	0.043
x		-0.069	0.178	0.054	4.876	-0.021	0.050	0.044	0.066	0.036
σ		0.155	0.046	0.059	2.160	0.045	0.016	0.039	0.039	0.018
%RSD		222.500	26.040	108.400	44.290	215.000	32.020	88.940	58.800	51.310
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	21:58:02	0.071	0.171	0.060	100.105%	0.377	96.766%	0.009	0.085	98.995%
2	21:58:23	0.018	0.083	0.037	101.199%	0.311	102.543%	0.018	0.073	97.684%
3	21:58:46	0.007	0.092	0.002	105.365%	0.288	105.151%	0.008	0.056	105.766%
x		0.032	0.116	0.033	102.223%	0.325	101.487%	0.012	0.071	100.815%
σ		0.034	0.049	0.029	2.776%	0.046	4.291%	0.006	0.015	4.337%
%RSD		105.800	42.030	87.900	2.715	14.220	4.228	49.360	20.950	4.302
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	21:58:02	0.129	0.127	0.060	97.181%	0.530	0.060	100.978%	0.000	
2	21:58:23	0.152	0.176	0.077	108.078%	0.686	0.042	107.296%	0.000	
3	21:58:46	0.135	0.166	0.003	104.348%	0.621	0.037	108.442%	0.000	
x		0.139	0.156	0.046	103.202%	0.612	0.046	105.572%	0.000	
σ		0.012	0.026	0.039	5.538%	0.078	0.013	4.020%	0.000	
%RSD		8.603	16.380	83.330	5.366	12.800	27.100	3.808	0.000	

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:02:17	-4.984	-0.341	391.900	T 80110.000	74130.000	25.220	4377.000	160700.000	102.111%
2	22:02:39	8.674	-0.341	393.500	T 73590.000	68000.000	21.850	4040.000	146200.000	107.778%
3	22:03:02	9.239	-0.341	334.200	T 77200.000	73040.000	24.580	4209.000	151100.000	103.492%
x		4.310	-0.341	373.200	T 76970.000	71720.000	23.880	4209.000	152700.000	104.460%
σ		8.054	0.000	33.800	T 3264.000	3266.000	1.789	168.300	7352.000	2.955%
%RSD		186.900	0.000	9.055	T 4.241	4.553	7.491	3.999	4.816	2.829

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:02:17	0.083	0.658	0.397	39460.000	312.700	1.563	1.849	0.548	4.320
2	22:02:39	0.300	0.548	0.331	37400.000	289.400	1.492	1.778	0.502	3.490
3	22:03:02	0.080	0.638	0.408	39040.000	309.600	1.383	1.775	0.522	3.733
x		0.155	0.615	0.379	38630.000	303.900	1.479	1.801	0.524	3.848
σ		0.126	0.058	0.042	1092.000	12.660	0.091	0.042	0.023	0.427
%RSD		81.540	9.487	10.990	2.826	4.166	6.136	2.343	4.413	11.090

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:02:17	21.560	0.175	578.700	101.346%	6.633	90.458%	0.007	0.007	91.354%
2	22:02:39	19.530	0.184	561.600	103.514%	6.856	97.733%	0.009	0.006	98.301%
3	22:03:02	19.450	0.316	569.700	101.599%	7.142	98.615%	0.004	0.018	102.244%
x		20.180	0.225	570.000	102.153%	6.877	95.602%	0.006	0.010	97.300%
σ		1.199	0.079	8.563	1.185%	0.256	4.476%	0.002	0.007	5.514%
%RSD		5.941	35.010	1.502	1.160	3.715	4.682	38.470	67.080	5.666

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:02:17	0.117	0.106	170.500	102.707%	0.140	0.075	94.099%	0.000
2	22:02:39	0.054	0.046	157.000	107.854%	0.226	0.050	102.945%	0.000
3	22:03:02	0.119	0.051	158.900	107.912%	0.186	0.080	102.524%	0.000
x		0.097	0.068	162.100	106.158%	0.184	0.069	99.856%	0.000
σ		0.037	0.033	7.299	2.988%	0.043	0.016	4.991%	0.000
%RSD		38.260	48.870	4.503	2.815	23.380	23.130	4.998	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:06:32	24.490	-0.341	352.500	T 80720.000	75130.000	24.430	4329.000	157800.000	99.873%
2	22:06:53	8.734	-0.341	308.100	69730.000	67660.000	20.610	3897.000	141600.000	107.302%
3	22:07:16	-4.984	-0.341	376.700	T 71540.000	67060.000	18.980	3845.000	139500.000	108.587%
x		9.415	-0.341	345.800	T 74000.000	69950.000	21.340	4024.000	146300.000	105.254%
σ		14.750	0.000	34.750	T 5889.000	4496.000	2.798	265.400	9988.000	4.704%
%RSD		156.700	0.000	10.050	T 7.958	6.427	13.110	6.596	6.828	4.470

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:06:32	0.336	0.602	0.480	39590.000	314.400	1.557	1.764	0.635	4.003
2	22:06:53	0.072	0.494	0.401	36720.000	287.000	1.456	1.724	0.574	3.449
3	22:07:16	0.183	0.508	0.310	36420.000	282.500	1.489	1.589	0.514	3.270
x		0.197	0.535	0.397	37570.000	294.600	1.501	1.692	0.575	3.574
σ		0.133	0.059	0.085	1749.000	17.280	0.052	0.092	0.061	0.382
%RSD		67.470	11.030	21.460	4.654	5.865	3.445	5.429	10.590	10.690

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:06:32	20.740	0.432	602.400	96.507%	6.279	91.210%	0.004	-0.007	96.022%
2	22:06:53	18.880	0.139	522.300	108.207%	5.057	97.459%	0.004	-0.006	103.311%
3	22:07:16	18.880	0.074	526.200	107.239%	5.046	99.689%	0.002	-0.007	101.549%
x		19.500	0.215	550.300	103.984%	5.460	96.119%	0.003	-0.007	100.294%
σ		1.077	0.191	45.160	6.493%	0.709	4.396%	0.001	0.000	3.803%
%RSD		5.522	88.630	8.206	6.245	12.980	4.573	44.450	3.507	3.792

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:06:32	0.070	0.030	170.000	101.787%	-0.011	0.083	97.426%	0.000
2	22:06:53	0.067	0.039	147.800	112.799%	0.074	0.067	103.426%	0.000
3	22:07:16	0.081	0.030	155.300	107.522%	0.047	0.054	102.261%	0.000
x		0.073	0.033	157.700	107.370%	0.036	0.068	101.037%	0.000
σ		0.008	0.005	11.300	5.507%	0.043	0.014	3.182%	0.000
%RSD		10.490	15.340	7.165	5.129	119.800	21.380	3.149	0.000

500-166193-j-1-c ms, 7/8/2019 10:10:45 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:10:45	114.600	52.830	1510.000	T 90500.000	85320.000	2118.000	14690.000	168200.000	98.444%
2	22:11:07	92.560	40.630	1235.000	T 80880.000	77510.000	1973.000	13580.000	153700.000	105.635%
3	22:11:29	133.800	34.770	1213.000	T 82200.000	77400.000	1877.000	13470.000	150800.000	106.063%
x		113.700	42.750	1319.000	T 84530.000	80080.000	1989.000	13920.000	157600.000	103.381%
σ		20.640	9.211	165.100	T 5211.000	4540.000	121.800	669.600	9317.000	4.281%
%RSD		18.160	21.550	12.520	T 6.165	5.669	6.123	4.812	5.913	4.141

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:10:45	1051.000	524.300	207.500	38940.000	828.300	515.300	518.600	264.500	532.700
2	22:11:07	944.400	481.500	191.000	35430.000	753.000	473.300	471.500	244.000	488.900
3	22:11:29	965.700	481.900	191.600	35420.000	762.300	470.600	483.600	241.200	485.400
x		986.900	495.900	196.700	36600.000	781.200	486.400	491.200	249.900	502.300
σ		56.270	24.600	9.325	2030.000	41.050	25.060	24.470	12.720	26.350
%RSD		5.702	4.961	4.741	5.547	5.255	5.152	4.981	5.089	5.245

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:10:45	133.800	110.600	1689.000	99.410%	1092.000	91.764%	52.910	53.550	94.014%
2	22:11:07	120.200	101.300	1520.000	106.986%	989.100	97.945%	49.070	48.400	101.048%
3	22:11:29	119.100	99.900	1508.000	109.343%	972.900	99.625%	50.610	49.940	99.810%
x		124.400	103.900	1572.000	105.247%	1018.000	96.445%	50.860	50.630	98.291%
σ		8.215	5.795	101.000	5.190%	64.550	4.140%	1.930	2.645	3.755%
%RSD		6.605	5.575	6.422	4.931	6.341	4.292	3.794	5.224	3.821

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:10:45	1074.000	528.100	703.800	104.017%	103.500	109.200	94.973%	0.000
2	22:11:07	1025.000	477.900	631.900	111.206%	89.660	96.440	104.610%	0.000
3	22:11:29	1007.000	499.700	609.800	116.012%	94.990	101.700	100.432%	0.000
x		1035.000	501.900	648.500	110.411%	96.050	102.400	100.005%	0.000
σ		34.380	25.160	49.130	6.037%	6.978	6.391	4.833%	0.000
%RSD		3.321	5.013	7.576	5.468	7.265	6.240	4.833	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:14:59	25.530	54.950	1443.000	T 95420.000	91490.000	2256.000	15770.000	183300.000	96.492%
2	22:15:22	105.800	46.060	1338.000	T 84890.000	80440.000	1933.000	13740.000	164100.000	106.301%
3	22:15:44	22.190	47.970	1257.000	T 82990.000	79540.000	1942.000	13610.000	157500.000	108.349%
x		51.170	49.660	1346.000	T 87770.000	83820.000	2044.000	14370.000	168300.000	103.714%
σ		47.340	4.680	93.360	T 6694.000	6655.000	183.700	1213.000	13410.000	6.338%
%RSD		92.510	9.424	6.935	T 7.627	7.940	8.990	8.436	7.966	6.111

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:14:59	1113.000	553.700	221.100	38470.000	854.400	536.400	542.600	267.800	532.400
2	22:15:22	967.100	486.900	193.400	34490.000	759.500	477.300	480.600	248.800	492.600
3	22:15:44	976.800	474.300	188.500	33360.000	742.000	462.300	475.800	245.600	484.000
x		1019.000	505.000	201.000	35440.000	785.300	492.000	499.700	254.100	503.000
σ		81.450	42.670	17.550	2686.000	60.460	39.200	37.240	12.020	25.810
%RSD		7.994	8.450	8.732	7.579	7.699	7.967	7.452	4.732	5.132

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:14:59	134.800	110.200	1743.000	100.063%	1127.000	93.507%	51.870	49.890	98.305%
2	22:15:22	125.200	102.800	1589.000	108.375%	1005.000	99.103%	48.070	48.160	102.900%
3	22:15:44	122.700	99.590	1601.000	108.291%	992.500	99.643%	52.800	51.580	96.332%
x		127.600	104.200	1644.000	105.576%	1042.000	97.418%	50.910	49.880	99.179%
σ		6.393	5.414	85.380	4.775%	74.230	3.398%	2.508	1.711	3.370%
%RSD		5.012	5.196	5.193	4.523	7.127	3.488	4.927	3.431	3.398

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:14:59	1094.000	512.900	734.900	104.489%	101.500	105.100	99.129%	0.000
2	22:15:22	1005.000	474.900	662.400	109.539%	95.900	100.200	101.925%	0.000
3	22:15:44	1008.000	509.400	632.400	111.600%	91.930	98.090	104.327%	0.000
x		1036.000	499.100	676.600	108.543%	96.450	101.100	101.794%	0.000
σ		50.440	21.000	52.700	3.659%	4.822	3.571	2.602%	0.000
%RSD		4.871	4.207	7.789	3.371	4.999	3.532	2.556	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:19:13	-4.984	-0.341	89.740	15250.000	15270.000	4.074	899.100	31940.000	99.920%
2	22:19:35	-4.984	-0.341	79.080	14260.000	14030.000	4.760	803.400	28650.000	105.492%
3	22:19:57	8.876	-0.341	84.200	14210.000	13860.000	2.874	808.000	29490.000	106.206%
x		-0.364	-0.341	84.340	14580.000	14390.000	3.903	836.800	30030.000	103.873%
σ		8.002	0.000	5.331	583.400	767.200	0.955	54.000	1711.000	3.442%
%RSD		2197.000	0.000	6.321	4.003	5.333	24.460	6.453	5.699	3.313

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:19:13	0.212	0.288	0.136	8039.000	64.160	0.516	0.613	0.214	1.371
2	22:19:35	0.076	0.277	0.075	7416.000	60.420	0.392	0.342	0.168	1.025
3	22:19:57	-0.042	0.134	0.013	7393.000	59.900	0.342	0.434	0.154	1.109
x		0.082	0.233	0.075	7616.000	61.490	0.417	0.463	0.179	1.168
σ		0.127	0.086	0.061	366.600	2.326	0.090	0.138	0.031	0.180
%RSD		155.600	36.940	81.930	4.814	3.783	21.620	29.830	17.380	15.440

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:19:13	4.064	0.116	119.600	98.927%	2.304	94.591%	0.020	0.020	98.861%
2	22:19:35	3.599	-0.016	108.800	103.998%	2.761	100.689%	0.013	-0.005	104.389%
3	22:19:57	3.731	0.013	104.000	109.133%	2.194	101.203%	0.011	-0.005	100.187%
x		3.798	0.038	110.800	104.019%	2.420	98.828%	0.015	0.003	101.145%
σ		0.240	0.069	7.982	5.103%	0.301	3.678%	0.005	0.015	2.886%
%RSD		6.320	183.800	7.205	4.906	12.430	3.722	34.820	465.300	2.853

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:19:13	0.555	0.244	35.040	99.870%	0.276	0.055	95.946%	0.000
2	22:19:35	0.534	0.137	31.580	106.164%	0.411	0.035	100.234%	0.000
3	22:19:57	0.455	0.162	30.890	106.310%	0.361	0.026	100.050%	0.000
x		0.515	0.181	32.500	104.115%	0.349	0.039	98.744%	0.000
σ		0.053	0.056	2.225	3.676%	0.068	0.015	2.424%	0.000
%RSD		10.280	30.960	6.847	3.531	19.560	37.460	2.455	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:23:28	-4.984	-0.341	878.500	T 114000.000	32460.000	420.700	9881.000	74890.000	96.730%
2	22:23:49	8.327	-0.341	620.700	T 96090.000	28170.000	374.700	8559.000	64530.000	110.588%
3	22:24:10	-4.984	-0.341	725.400	T 98730.000	T 27770.000	385.600	8743.000	65160.000	109.588%
x		-0.547	-0.341	741.500	T 102900.000	T 29470.000	393.700	9061.000	68190.000	105.635%
σ		7.685	0.000	129.700	T 9664.000	T 2602.000	24.070	715.800	5809.000	7.728%
%RSD		1404.000	0.000	17.490	T 9.388	T 8.832	6.114	7.900	8.518	7.316

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:23:28	9.039	2.033	1.378	510.100	67.520	0.838	2.734	4.232	81.500
2	22:23:49	8.780	1.909	1.283	426.300	57.510	0.623	2.202	3.656	72.490
3	22:24:10	6.494	2.030	1.267	442.600	59.840	0.634	2.013	3.709	73.160
x		8.104	1.991	1.309	459.700	61.620	0.698	2.316	3.866	75.720
σ		1.401	0.071	0.060	44.420	5.236	0.121	0.374	0.318	5.023
%RSD		17.280	3.565	4.569	9.663	8.496	17.350	16.150	8.236	6.634

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:23:28	0.854	0.529	2374.000	101.283%	26.200	93.405%	0.019	0.024	95.670%
2	22:23:49	0.673	0.521	2168.000	108.543%	24.290	101.461%	0.006	0.059	103.600%
3	22:24:10	0.703	0.440	2152.000	112.332%	24.160	103.091%	0.004	0.022	104.582%
x		0.743	0.497	2231.000	107.386%	24.880	99.319%	0.009	0.035	101.284%
σ		0.097	0.050	123.600	5.615%	1.140	5.186%	0.008	0.021	4.887%
%RSD		13.110	9.974	5.539	5.228	4.579	5.222	85.520	59.710	4.825

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:23:28	1.460	0.861	67.280	103.364%	0.079	1.553	96.472%	0.000
2	22:23:49	1.355	0.823	66.090	110.134%	0.134	1.454	103.860%	0.000
3	22:24:10	1.350	0.737	64.870	113.764%	0.100	1.344	106.138%	0.000
x		1.388	0.807	66.080	109.087%	0.104	1.450	102.157%	0.000
σ		0.062	0.064	1.207	5.278%	0.028	0.104	5.053%	0.000
%RSD		4.469	7.900	1.826	4.839	26.610	7.183	4.946	0.000

500-166207-j-1-a, 7/8/2019 10:27:41 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:41	25.500	0.701	767.400	T 117200.000	32150.000	25.420	10380.000	72620.000	96.587%
2	22:28:03	36.800	-0.341	729.600	T 104200.000	28790.000	26.950	9152.000	63950.000	105.682%
3	22:28:25	-4.984	0.588	778.300	T 100700.000	T 27490.000	20.590	8928.000	63310.000	108.349%
x		19.100	0.316	758.400	T 107400.000	T 29480.000	24.320	9487.000	66630.000	103.540%
σ		21.610	0.572	25.580	T 8697.000	T 2407.000	3.320	781.800	5200.000	6.167%
%RSD		113.100	180.800	3.373	T 8.100	T 8.166	13.650	8.241	7.804	5.956

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:41	0.353	1.478	1.022	10.560	22.820	0.178	2.286	2.766	36.630
2	22:28:03	0.309	1.261	1.197	10.200	20.810	0.147	1.921	2.387	33.070
3	22:28:25	0.297	1.444	0.940	8.294	20.570	0.150	1.815	2.552	34.070
x		0.320	1.394	1.053	9.686	21.400	0.158	2.007	2.568	34.590
σ		0.029	0.117	0.131	1.218	1.230	0.017	0.247	0.190	1.836
%RSD		9.165	8.379	12.470	12.580	5.748	10.640	12.300	7.393	5.310

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:41	0.490	0.405	2357.000	100.063%	25.330	93.011%	0.011	0.025	96.056%
2	22:28:03	0.526	0.364	2237.000	101.978%	25.550	100.876%	0.004	-0.015	98.945%
3	22:28:25	0.526	0.394	2106.000	109.006%	23.200	100.756%	0.011	0.010	102.210%
x		0.514	0.388	2234.000	103.682%	24.690	98.214%	0.009	0.007	99.070%
σ		0.021	0.021	125.800	4.709%	1.298	4.506%	0.004	0.020	3.079%
%RSD		3.997	5.446	5.631	4.542	5.256	4.588	47.260	301.200	3.108

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:27:41	0.329	0.679	66.490	105.307%	-0.004	0.107	97.025%	0.000
2	22:28:03	0.439	0.634	57.800	112.517%	0.053	0.091	104.545%	0.000
3	22:28:25	0.333	0.778	58.730	113.423%	0.047	0.110	105.387%	0.000
x		0.367	0.697	61.010	110.415%	0.032	0.103	102.319%	0.000
σ		0.062	0.073	4.772	4.447%	0.031	0.010	4.604%	0.000
%RSD		16.920	10.540	7.822	4.028	96.420	9.766	4.500	0.000

500-166207-i-2-a, 7/8/2019 10:31:55 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:31:55	10.060	0.688	1997.000	TM 234000.000	9721.000	50.520	6157.000	32870.000	97.825%
2	22:32:18	-4.984	-0.341	1922.000	TM 211700.000	8702.000	33.520	5573.000	30040.000	105.254%
3	22:32:39	9.097	-0.341	1819.000	TM 211500.000	8766.000	34.010	5596.000	30120.000	104.539%
x		4.725	0.002	1913.000	TM 219100.000	9063.000	39.350	5775.000	31010.000	102.540%
σ		8.423	0.594	89.110	TM 12960.000	570.800	9.675	330.300	1614.000	4.098%
%RSD		178.200	27550.000	4.659	TM 5.917	6.298	24.590	5.720	5.205	3.997

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:31:55	5.525	5.318	0.441	304.600	233.500	1.668	10.110	1.277	5.899
2	22:32:18	2.189	4.573	0.338	281.000	214.100	1.487	9.030	1.226	5.461
3	22:32:39	2.324	5.108	0.286	285.300	215.300	1.592	9.114	1.242	5.296
x		3.346	4.999	0.355	290.300	221.000	1.583	9.419	1.249	5.552
σ		1.889	0.384	0.079	12.560	10.900	0.091	0.603	0.026	0.312
%RSD		56.440	7.686	22.180	4.327	4.932	5.738	6.397	2.098	5.614

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:31:55	5.950	0.407	272.700	100.294%	354.600	92.743%	0.004	0.030	97.275%
2	22:32:18	5.148	0.241	247.700	108.207%	323.000	98.671%	0.002	-0.020	96.115%
3	22:32:39	5.166	0.208	245.400	109.659%	310.500	99.385%	0.013	-0.041	99.418%
x		5.421	0.285	255.300	106.053%	329.400	96.933%	0.006	-0.010	97.603%
σ		0.458	0.106	15.120	5.040%	22.700	3.646%	0.006	0.037	1.676%
%RSD		8.442	37.330	5.922	4.752	6.891	3.762	97.150	354.500	1.717

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:31:55	0.164	0.116	19.370	99.734%	-0.053	0.871	95.328%	0.000
2	22:32:18	0.149	0.080	16.470	109.851%	0.013	0.799	101.695%	0.000
3	22:32:39	0.136	0.093	16.510	107.367%	0.002	0.796	100.498%	0.000
x		0.149	0.096	17.450	105.651%	-0.012	0.822	99.174%	0.000
σ		0.014	0.018	1.663	5.272%	0.035	0.042	3.384%	0.000
%RSD		9.441	18.980	9.530	4.990	280.900	5.146	3.412	0.000

500-166207-j-2-a, 7/8/2019 10:36:09 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:36:09	9.748	-0.341	2088.000	TM 233500.000	8206.000	15.460	6334.000	30440.000	99.920%
2	22:36:31	9.200	-0.341	1903.000	TM 218300.000	7749.000	16.110	5943.000	28000.000	103.778%
3	22:36:53	8.851	-0.341	1870.000	TM 216600.000	7540.000	15.600	5759.000	27920.000	106.397%
x		9.266	-0.341	1953.000	TM 222800.000	7832.000	15.720	6012.000	28790.000	103.365%
σ		0.452	0.000	117.600	TM 9300.000	340.300	0.343	293.900	1432.000	3.258%
%RSD		4.878	0.000	6.019	TM 4.175	4.345	2.182	4.889	4.976	3.152

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:36:09	1.573	5.000	0.389	172.600	215.400	1.466	9.175	1.608	5.591
2	22:36:31	1.985	4.254	0.387	156.500	204.100	1.456	9.160	1.475	5.132
3	22:36:53	1.119	4.301	0.389	151.200	198.000	1.445	8.874	1.561	4.992
x		1.559	4.519	0.388	160.100	205.800	1.456	9.070	1.548	5.238
σ		0.433	0.418	0.001	11.140	8.828	0.011	0.170	0.068	0.314
%RSD		27.780	9.243	0.298	6.958	4.289	0.723	1.870	4.382	5.985

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:36:09	5.314	0.251	258.600	97.685%	386.900	91.828%	0.004	-0.072	95.749%
2	22:36:31	5.094	0.209	228.500	107.891%	342.700	99.045%	0.008	0.098	101.384%
3	22:36:53	5.101	0.205	230.500	108.817%	344.900	100.451%	-0.001	-0.004	106.000%
x		5.170	0.222	239.200	104.798%	358.200	97.108%	0.004	0.007	101.044%
σ		0.125	0.026	16.850	6.177%	24.950	4.626%	0.005	0.085	5.134%
%RSD		2.412	11.530	7.043	5.894	6.966	4.764	117.200	1156.000	5.081

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:36:09	0.095	0.038	19.030	102.581%	-0.055	0.526	99.241%	0.000
2	22:36:31	0.112	0.053	16.730	103.997%	-0.020	0.496	99.688%	0.000
3	22:36:53	0.068	0.088	16.710	105.146%	-0.032	0.508	100.662%	0.000
x		0.092	0.060	17.490	103.908%	-0.035	0.510	99.864%	0.000
σ		0.022	0.026	1.336	1.285%	0.018	0.015	0.727%	0.000
%RSD		24.180	43.160	7.639	1.237	50.000	2.933	0.728	0.000

500-166207-i-3-a, 7/8/2019 10:40:25 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:40:25	45.160	0.802	4808.000	TM 481700.000	60470.000	55.530	15610.000	M 590900.000	88.065%
2	22:40:47	24.650	-0.341	4316.000	TM 413000.000	52550.000	44.070	13600.000	M 528900.000	99.349%
3	22:41:09	54.200	-0.341	4231.000	TM 416400.000	52750.000	45.460	13470.000	M 518800.000	99.492%
x		41.340	0.040	4452.000	TM 437000.000	55260.000	48.360	14230.000	M 546200.000	95.635%
σ		15.140	0.660	311.400	TM 38750.000	4515.000	6.256	1198.000	M 38990.000	6.557%
%RSD		36.630	1643.000	6.996	TM 8.867	8.172	12.940	8.423	M 7.138	6.856

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:40:25	3.209	0.403	0.206	33320.000	1679.000	10.730	20.240	0.633	9.359
2	22:40:47	2.080	0.202	0.171	29530.000	1509.000	9.745	17.850	0.608	8.135
3	22:41:09	2.077	0.324	0.130	29350.000	1491.000	9.534	18.720	0.554	8.431
x		2.455	0.310	0.169	30730.000	1560.000	10.000	18.940	0.599	8.642
σ		0.653	0.101	0.038	2239.000	103.700	0.637	1.209	0.040	0.638
%RSD		26.580	32.690	22.450	7.286	6.649	6.368	6.385	6.713	7.386

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:40:25	10.600	0.253	962.200	95.729%	6.944	83.536%	0.005	0.007	88.027%
2	22:40:47	9.336	0.221	907.100	99.474%	6.521	91.296%	-0.001	0.032	97.414%
3	22:41:09	9.647	0.347	856.300	105.639%	6.210	91.992%	0.004	0.033	94.181%
x		9.860	0.273	908.500	100.280%	6.558	88.941%	0.003	0.024	93.207%
σ		0.657	0.065	52.960	5.004%	0.368	4.694%	0.003	0.015	4.768%
%RSD		6.665	23.920	5.830	4.990	5.614	5.278	111.600	61.490	5.116

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:40:25	0.091	0.088	22.550	100.094%	-0.078	0.372	91.969%	0.000
2	22:40:47	0.090	0.078	20.940	107.742%	-0.039	0.293	99.958%	0.000
3	22:41:09	0.037	0.080	21.440	107.001%	-0.031	0.302	96.880%	0.000
x		0.072	0.082	21.640	104.946%	-0.049	0.322	96.269%	0.000
σ		0.031	0.005	0.820	4.218%	0.025	0.043	4.030%	0.000
%RSD		42.820	6.631	3.788	4.019	50.940	13.450	4.186	0.000

ccv, 7/8/2019 10:44:40 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:44:40	320.400	214.100	271.900	24700.000	24830.000	24940.000	25120.000	25100.000	99.539%
2	22:45:02	197.200	204.100	209.200	23860.000	23780.000	24020.000	23550.000	24360.000	101.920%
3	22:45:23	232.700	232.900	282.600	23260.000	23180.000	23090.000	23130.000	22920.000	105.301%
x		250.100	86.808%	101.823%	95.754%	95.709%	96.058%	95.739%	96.504%	102.254%
σ		63.390	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.895%
%RSD		25.350	6.742	15.570	3.019	3.497	3.839	4.374	4.602	2.832
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:44:40	246.100	253.500	254.200	25060.000	253.500	253.700	256.300	258.900	255.100
2	22:45:02	232.100	236.300	236.900	23510.000	240.100	240.900	242.600	238.800	237.700
3	22:45:23	233.200	233.600	233.000	23150.000	234.400	233.100	232.500	238.300	241.300
x		94.840%	96.452%	96.539%	95.618%	97.068%	97.021%	97.505%	98.121%	97.885%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		3.282	4.470	4.673	4.253	4.025	4.282	4.904	4.788	3.751
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:44:40	255.400	257.000	267.100	97.706%	259.600	94.448%	55.400	270.800	92.697%
2	22:45:02	237.600	236.300	239.700	104.250%	237.600	98.467%	49.700	237.400	101.076%
3	22:45:23	238.500	242.100	246.300	104.776%	241.100	98.935%	48.350	236.200	102.029%
x		97.538%	98.060%	100.420%	102.244%	98.430%	97.283%	102.304%	99.253%	98.601%
σ		n/a	n/a	n/a	3.939%	n/a	2.467%	n/a	n/a	5.135%
%RSD		4.125	4.354	5.706	3.852	4.797	2.535	7.317	7.904	5.207
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	22:44:40	263.700	260.800	243.400	106.198%	245.200	257.500	98.412%	0.000	
2	22:45:02	248.400	232.000	238.800	110.182%	218.900	234.600	105.618%	0.000	
3	22:45:23	238.300	228.600	236.000	111.118%	226.300	235.300	105.644%	0.000	
x		100.050%	96.182%	95.774%	109.166%	92.061%	96.986%	103.225%	0.000	
σ		n/a	n/a	n/a	2.613%	n/a	n/a	4.168%	0.000	
%RSD		5.117	7.360	1.560	2.393	5.894	5.365	4.037	0.000	

ccb, 7/8/2019 10:48:55 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:48:55	-4.984	-0.341	5.915	-51.930	8.752	19.310	5.483	2.383	92.921%
2	22:49:17	-4.984	-0.341	11.440	-76.780	2.467	12.260	-22.240	-12.820	98.778%
3	22:49:39	-4.984	-0.341	8.552	-73.720	3.907	14.720	-7.389	-9.718	97.492%
x		-4.984	-0.341	8.637	-67.470	5.042	15.430	-8.048	-6.719	96.397%
σ		0.000	0.000	2.765	13.550	3.293	3.581	13.870	8.034	3.078%
%RSD		0.000	0.000	32.020	20.080	65.300	23.210	172.400	119.600	3.193

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:48:55	0.373	0.194	0.012	9.373	0.088	0.073	0.208	0.076	0.088
2	22:49:17	0.092	0.164	-0.044	7.102	-0.041	0.051	0.111	0.061	0.069
3	22:49:39	-0.032	0.125	0.013	6.884	-0.008	0.052	0.131	0.066	0.128
x		0.144	0.161	-0.007	7.786	0.013	0.059	0.150	0.068	0.095
σ		0.208	0.035	0.033	1.378	0.067	0.012	0.052	0.008	0.030
%RSD		143.900	21.640	496.600	17.700	519.500	21.130	34.450	11.240	32.110

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:48:55	0.057	0.083	0.151	93.604%	0.212	95.452%	0.024	0.115	95.514%
2	22:49:17	0.005	0.088	0.067	101.746%	0.326	100.062%	0.019	0.044	103.661%
3	22:49:39	0.048	0.112	0.084	101.115%	0.355	102.387%	0.006	0.045	101.545%
x		0.037	0.094	0.101	98.822%	0.298	99.301%	0.016	0.068	100.240%
σ		0.028	0.016	0.045	4.530%	0.076	3.530%	0.009	0.041	4.227%
%RSD		75.620	16.710	44.420	4.584	25.440	3.555	55.750	59.240	4.217

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:48:55	0.176	0.124	0.111	100.425%	0.553	0.077	98.281%	0.000
2	22:49:17	0.223	0.200	0.042	104.279%	0.793	0.052	105.361%	0.000
3	22:49:39	0.199	0.199	0.115	107.118%	0.631	0.052	104.966%	0.000
x		0.199	0.174	0.089	103.941%	0.659	0.060	102.869%	0.000
σ		0.024	0.043	0.041	3.359%	0.123	0.014	3.979%	0.000
%RSD		11.950	24.930	46.370	3.232	18.590	23.590	3.868	0.000

500-166207-j-3-a, 7/8/2019 10:53:09 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:53:09	11.750	-0.341	4940.000	TM 473600.000	60450.000	15.440	15470.000	M 588300.000	87.969%
2	22:53:32	26.250	-0.341	4645.000	TM 421000.000	54800.000	17.180	14160.000	M 537500.000	94.254%
3	22:53:53	-4.984	-0.341	4261.000	TM 415400.000	52640.000	9.654	13750.000	M 522300.000	98.159%
x		11.010	-0.341	4615.000	TM 436700.000	55960.000	14.090	14460.000	M 549300.000	93.461%
σ		15.630	0.000	340.500	TM 32110.000	4033.000	3.939	897.900	M 34580.000	5.141%
%RSD		142.000	0.000	7.378	TM 7.353	7.206	27.960	6.209	M 6.295	5.500

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:53:09	0.263	0.143	0.132	26350.000	1681.000	10.750	19.950	0.484	8.153
2	22:53:32	0.104	0.183	0.196	24190.000	1557.000	9.829	19.080	0.464	7.425
3	22:53:53	-0.159	0.201	0.045	23780.000	1498.000	9.463	18.000	0.402	7.391
x		0.069	0.176	0.124	24770.000	1579.000	10.010	19.010	0.450	7.657
σ		0.213	0.029	0.076	1382.000	93.660	0.662	0.977	0.043	0.431
%RSD		307.300	16.730	61.110	5.578	5.932	6.610	5.138	9.443	5.626

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:53:09	4.087	0.338	982.000	91.059%	5.947	84.141%	0.020	0.021	90.743%
2	22:53:32	3.772	0.189	915.100	95.981%	5.592	91.363%	0.002	0.007	93.063%
3	22:53:53	3.841	0.265	899.200	97.307%	5.335	92.329%	0.004	0.007	97.443%
x		3.900	0.264	932.100	94.782%	5.624	89.278%	0.009	0.012	93.749%
σ		0.166	0.075	43.930	3.292%	0.307	4.474%	0.010	0.008	3.403%
%RSD		4.246	28.260	4.713	3.473	5.464	5.012	115.400	72.350	3.629

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:53:09	0.047	0.062	19.720	101.004%	0.077	0.252	91.463%	0.000
2	22:53:32	0.011	0.046	18.100	107.391%	0.141	0.219	102.254%	0.000
3	22:53:53	0.010	0.085	18.340	108.930%	0.129	0.220	100.780%	0.000
x		0.023	0.064	18.720	105.775%	0.116	0.230	98.166%	0.000
σ		0.021	0.020	0.871	4.203%	0.034	0.019	5.852%	0.000
%RSD		91.290	30.670	4.650	3.973	29.360	8.250	5.961	0.000

500-166207-i-4-a, 7/8/2019 10:57:24 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:57:24	-4.984	-0.341	1303.000	T 89490.000	68090.000	51.190	7384.000	135000.000	95.778%
2	22:57:46	66.930	-0.341	1281.000	T 81810.000	61620.000	49.500	6591.000	121000.000	102.349%
3	22:58:08	-4.984	-0.341	1178.000	T 77770.000	59000.000	48.040	6514.000	118000.000	106.111%
x		18.990	-0.341	1254.000	T 83020.000	62900.000	49.580	6830.000	124700.000	101.413%
σ		41.520	0.000	66.390	T 5955.000	4678.000	1.580	481.400	9085.000	5.230%
%RSD		218.700	0.000	5.294	T 7.173	7.437	3.187	7.049	7.287	5.157

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:57:24	3.970	0.252	0.343	2404.000	152.000	3.932	7.006	2.502	9.562
2	22:57:46	1.894	0.223	0.287	2234.000	143.000	3.803	6.424	2.263	8.250
3	22:58:08	3.102	0.291	0.289	2151.000	136.200	3.646	5.770	2.388	7.579
x		2.988	0.255	0.306	2263.000	143.700	3.793	6.400	2.384	8.463
σ		1.043	0.034	0.032	128.700	7.914	0.143	0.618	0.120	1.009
%RSD		34.890	13.320	10.390	5.689	5.506	3.776	9.663	5.022	11.920

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:57:24	6.395	0.278	T 4830.000	98.001%	10.810	89.429%	0.004	0.005	92.905%
2	22:57:46	5.778	0.033	T 4416.000	103.913%	9.631	97.812%	0.001	-0.008	104.192%
3	22:58:08	5.728	0.124	T 4344.000	105.534%	9.166	97.237%	-0.001	-0.008	99.824%
x		5.967	0.145	T 4530.000	102.483%	9.868	94.826%	0.002	-0.004	98.974%
σ		0.371	0.124	T 262.500	3.965%	0.846	4.683%	0.003	0.007	5.691%
%RSD		6.222	85.480	T 5.795	3.869	8.572	4.938	151.700	189.300	5.750

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	22:57:24	0.286	0.186	72.950	104.299%	-0.016	0.639	96.393%	0.000
2	22:57:46	0.285	0.209	69.030	111.927%	0.049	0.578	104.077%	0.000
3	22:58:08	0.250	0.192	66.030	110.947%	0.042	0.599	101.682%	0.000
x		0.274	0.196	69.340	109.058%	0.025	0.605	100.717%	0.000
σ		0.020	0.012	3.469	4.150%	0.036	0.031	3.932%	0.000
%RSD		7.382	5.985	5.003	3.805	141.800	5.101	3.904	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:01:38	27.080	-0.341	1546.000	T 92970.000	70540.000	17.230	7829.000	139600.000	91.826%
2	23:01:59	85.700	0.693	1393.000	83410.000	66040.000	19.210	7233.000	129200.000	97.397%
3	23:02:22	38.180	-0.341	1276.000	T 83340.000	63050.000	12.860	6816.000	123000.000	102.301%
x		50.320	0.004	1405.000	T 86570.000	66540.000	16.430	7293.000	130600.000	97.175%
σ		31.140	0.597	135.800	T 5535.000	3770.000	3.248	509.100	8405.000	5.241%
%RSD		61.880	16280.000	9.666	T 6.394	5.665	19.770	6.982	6.437	5.394

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:01:38	0.380	0.241	0.403	2044.000	162.500	4.181	8.026	0.988	15.870
2	23:01:59	0.476	0.349	0.380	1850.000	148.500	3.837	7.625	0.984	13.880
3	23:02:22	0.325	0.252	0.287	1787.000	144.000	3.657	7.194	0.928	13.510
x		0.393	0.281	0.357	1894.000	151.700	3.892	7.615	0.966	14.420
σ		0.077	0.060	0.061	134.100	9.639	0.267	0.416	0.034	1.271
%RSD		19.460	21.220	17.200	7.084	6.355	6.852	5.464	3.474	8.819

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:01:38	5.965	0.215	TM 5071.000	95.182%	10.690	88.501%	0.004	0.032	94.506%
2	23:01:59	4.815	0.035	T 4805.000	97.580%	10.990	96.142%	0.011	-0.009	101.520%
3	23:02:22	5.369	0.018	T 4448.000	104.776%	9.426	97.242%	0.013	-0.008	101.396%
x		5.383	0.089	TM 4774.000	99.179%	10.370	93.962%	0.009	0.005	99.141%
σ		0.575	0.109	TM 312.700	4.993%	0.830	4.761%	0.005	0.023	4.014%
%RSD		10.690	121.900	TM 6.550	5.035	8.001	5.067	49.380	473.900	4.049

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:01:38	0.129	0.154	75.200	103.072%	-0.048	0.572	99.827%	0.000
2	23:01:59	0.143	0.122	70.670	111.415%	0.008	0.489	111.768%	0.000
3	23:02:22	0.183	0.115	68.410	111.990%	-0.006	0.486	109.140%	0.000
x		0.152	0.130	71.420	108.826%	-0.015	0.516	106.912%	0.000
σ		0.028	0.021	3.456	4.991%	0.029	0.049	6.275%	0.000
%RSD		18.690	16.000	4.838	4.586	188.000	9.489	5.869	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:05:52	-4.984	-0.341	448.700	T 113200.000	29000.000	103.200	18290.000	M 254200.000	87.303%
2	23:06:13	10.320	-0.341	416.200	97690.000	26110.000	81.630	16370.000	228500.000	96.206%
3	23:06:35	71.140	-0.341	407.900	T 100300.000	26000.000	93.720	16430.000	228300.000	96.682%
x		25.490	-0.341	424.300	T 103800.000	27030.000	92.850	17030.000	M 237000.000	93.397%
σ		40.270	0.000	21.550	T 8314.000	1704.000	10.800	1089.000	M 14900.000	5.283%
%RSD		158.000	0.000	5.079	T 8.013	6.304	11.630	6.392	M 6.288	5.657

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:05:52	2.247	5.354	3.231	6309.000	519.400	0.682	4.594	55.350	496.000
2	23:06:13	1.126	4.917	2.798	5581.000	464.400	0.565	4.189	50.880	459.400
3	23:06:35	0.864	4.880	2.879	5545.000	464.100	0.581	4.058	50.640	448.100
x		1.412	5.051	2.969	5811.000	482.600	0.609	4.280	52.290	467.800
σ		0.735	0.264	0.231	430.900	31.840	0.063	0.280	2.654	25.060
%RSD		52.040	5.217	7.767	7.414	6.597	10.350	6.534	5.076	5.357

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:05:52	1132.000	0.585	484.600	92.573%	14.950	88.159%	0.002	0.194	93.245%
2	23:06:13	1046.000	0.368	450.100	99.705%	13.480	93.970%	0.004	0.285	98.866%
3	23:06:35	1024.000	0.437	442.300	100.147%	14.210	95.670%	-0.001	0.308	99.713%
x		1067.000	0.463	459.000	97.475%	14.210	92.599%	0.002	0.262	97.275%
σ		57.000	0.111	22.520	4.251%	0.736	3.938%	0.002	0.060	3.515%
%RSD		5.340	23.850	4.907	4.361	5.175	4.253	143.500	23.060	3.614

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:05:52	0.338	0.858	66.260	104.377%	-0.043	8.469	98.064%	0.000
2	23:06:13	0.376	0.950	63.580	110.197%	-0.006	7.570	108.244%	0.000
3	23:06:35	0.324	0.803	62.400	111.474%	0.001	8.048	103.854%	0.000
x		0.346	0.871	64.080	108.682%	-0.016	8.029	103.387%	0.000
σ		0.027	0.074	1.976	3.783%	0.023	0.450	5.106%	0.000
%RSD		7.700	8.517	3.084	3.481	147.400	5.600	4.939	0.000

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User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:10:05	11.640	-0.341	479.800	T 147500.000	50490.000	32.530	34510.000	241300.000	88.541%
2	23:10:27	26.900	0.749	417.400	T 138200.000	47500.000	21.820	32270.000	228100.000	92.350%
3	23:10:49	24.480	-0.341	337.200	T 128700.000	44120.000	18.850	30590.000	215200.000	99.920%
x		21.010	0.022	411.500	T 138100.000	47370.000	24.400	32460.000	228200.000	93.604%
σ		8.199	0.629	71.490	T 9368.000	3187.000	7.194	1966.000	13090.000	5.793%
%RSD		39.030	2798.000	17.370	T 6.783	6.728	29.490	6.056	5.737	6.188

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:10:05	0.121	2.684	1.635	562.400	655.500	0.484	2.471	2.258	27.460
2	23:10:27	0.109	2.409	1.576	525.900	614.500	0.464	2.365	1.937	24.970
3	23:10:49	-0.159	2.409	1.480	489.200	582.900	0.521	2.150	1.968	24.810
x		0.024	2.501	1.564	525.800	617.600	0.490	2.329	2.054	25.740
σ		0.158	0.159	0.078	36.580	36.420	0.029	0.163	0.177	1.487
%RSD		668.800	6.364	5.018	6.956	5.897	5.924	7.018	8.624	5.776

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:10:05	3310.000	0.243	513.300	93.625%	20.130	85.740%	0.018	0.331	88.450%
2	23:10:27	2988.000	0.244	493.800	96.255%	20.200	93.594%	0.004	0.179	99.351%
3	23:10:49	2967.000	0.362	476.300	99.158%	19.600	95.312%	0.004	0.194	104.689%
x		3088.000	0.283	494.500	96.346%	19.980	91.549%	0.008	0.235	97.496%
σ		192.000	0.068	18.540	2.768%	0.330	5.103%	0.008	0.084	8.277%
%RSD		6.217	24.060	3.749	2.873	1.652	5.574	94.970	35.670	8.489

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:10:05	0.087	1.275	49.290	98.718%	-0.047	1.683	93.185%	0.000
2	23:10:27	0.105	1.087	44.730	107.995%	-0.003	1.542	104.959%	0.000
3	23:10:49	0.101	1.222	46.640	108.219%	-0.035	1.542	105.934%	0.000
x		0.097	1.195	46.880	104.977%	-0.028	1.589	101.359%	0.000
σ		0.009	0.097	2.290	5.422%	0.023	0.081	7.096%	0.000
%RSD		9.707	8.110	4.885	5.165	81.550	5.124	7.001	0.000

500-166215-d-3-a, 7/8/2019 11:14:20 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:14:20	11.370	0.777	471.900	T 144300.000	48750.000	24.120	34010.000	239300.000	90.017%
2	23:14:42	10.710	-0.341	420.700	T 134000.000	45090.000	20.900	31590.000	224500.000	93.778%
3	23:15:04	88.670	0.727	427.900	T 134300.000	45520.000	20.250	31810.000	226800.000	94.302%
x		36.920	0.388	440.200	T 137500.000	46450.000	21.760	32470.000	230200.000	92.699%
σ		44.820	0.632	27.730	T 5872.000	2003.000	2.073	1335.000	7985.000	2.338%
%RSD		121.400	162.900	6.300	T 4.269	4.311	9.529	4.112	3.468	2.522

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:14:20	0.253	2.496	1.293	485.000	630.300	0.473	2.746	7.997	69.460
2	23:14:42	0.105	2.257	1.382	453.000	592.100	0.452	2.339	7.280	62.310
3	23:15:04	0.235	2.407	1.294	459.300	592.300	0.473	2.516	7.442	61.970
x		0.198	2.387	1.323	465.800	604.900	0.466	2.534	7.573	64.580
σ		0.081	0.121	0.051	16.920	21.980	0.012	0.204	0.376	4.229
%RSD		40.880	5.060	3.874	3.633	3.633	2.647	8.055	4.964	6.548

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:14:20	3151.000	0.278	526.300	90.344%	20.930	85.610%	0.004	0.208	92.174%
2	23:14:42	2859.000	0.231	471.000	98.800%	18.980	92.889%	-0.001	0.193	99.270%
3	23:15:04	2835.000	0.404	470.900	99.410%	20.000	93.254%	0.006	0.127	99.885%
x		2948.000	0.304	489.400	96.185%	19.970	90.584%	0.003	0.176	97.110%
σ		176.000	0.089	31.950	5.068%	0.975	4.312%	0.004	0.043	4.285%
%RSD		5.968	29.340	6.529	5.269	4.882	4.760	110.900	24.270	4.413

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:14:20	0.080	1.256	46.240	101.204%	-0.069	2.203	97.084%	0.000
2	23:14:42	0.080	1.241	43.630	108.813%	-0.055	2.025	107.020%	0.000
3	23:15:04	0.048	1.155	43.450	110.903%	-0.039	2.026	108.429%	0.000
x		0.069	1.217	44.440	106.973%	-0.054	2.085	104.177%	0.000
σ		0.019	0.054	1.557	5.105%	0.015	0.103	6.184%	0.000
%RSD		26.920	4.476	3.503	4.772	27.300	4.919	5.936	0.000

500-166215-d-4-a, 7/8/2019 11:18:35 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:18:35	96.520	-0.341	536.800	T 148300.000	39340.000	54.310	27830.000	M 284400.000	87.017%
2	23:18:58	9.671	-0.341	458.500	T 126400.000	33760.000	49.560	24230.000	240600.000	100.444%
3	23:19:19	25.970	-0.341	557.400	T 134000.000	35650.000	55.150	25090.000	M 256400.000	95.111%
x		44.050	-0.341	517.600	T 136200.000	36250.000	53.010	25710.000	M 260500.000	94.191%
σ		46.160	0.000	52.160	T 11130.000	2836.000	3.012	1883.000	M 22200.000	6.761%
%RSD		104.800	0.000	10.080	T 8.170	7.823	5.682	7.324	M 8.522	7.178

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:18:35	0.125	2.402	1.302	244.300	536.000	0.366	2.181	6.482	40.010
2	23:18:58	-0.159	1.994	0.947	204.100	461.700	0.263	1.770	6.012	36.010
3	23:19:19	0.101	2.295	1.109	213.300	482.100	0.333	2.046	5.967	35.950
x		0.023	2.230	1.120	220.600	493.300	0.321	1.999	6.154	37.320
σ		0.158	0.211	0.178	21.030	38.400	0.053	0.209	0.285	2.327
%RSD		695.100	9.478	15.880	9.535	7.785	16.470	10.480	4.635	6.236

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:18:35	1831.000	0.263	533.700	89.818%	19.910	85.058%	0.002	0.058	89.499%
2	23:18:58	1657.000	0.185	488.600	98.422%	17.870	92.551%	0.004	0.027	97.482%
3	23:19:19	1641.000	0.194	501.000	96.570%	18.720	94.586%	0.004	0.028	94.356%
x		1710.000	0.214	507.800	94.937%	18.830	90.732%	0.003	0.038	93.779%
σ		105.300	0.043	23.310	4.529%	1.021	5.018%	0.001	0.018	4.023%
%RSD		6.157	20.140	4.590	4.770	5.422	5.530	39.000	46.540	4.290

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:18:35	0.123	1.898	16.120	100.615%	-0.009	0.593	94.624%	0.000
2	23:18:58	0.068	1.662	14.430	107.683%	0.015	0.570	98.636%	0.000
3	23:19:19	0.103	1.697	14.120	112.814%	0.010	0.545	102.754%	0.000
x		0.098	1.752	14.890	107.037%	0.005	0.569	98.672%	0.000
σ		0.028	0.127	1.081	6.125%	0.012	0.024	4.065%	0.000
%RSD		28.380	7.266	7.262	5.722	242.100	4.192	4.120	0.000

500-166139-b-1-a, 7/8/2019 11:22:48 PM

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:22:48	10.480	-0.341	84.910	78600.000	20240.000	53.850	2146.000	46250.000	95.159%
2	23:23:09	9.014	-0.341	73.610	70080.000	18090.000	38.390	1858.000	40660.000	105.159%
3	23:23:32	9.378	-0.341	108.000	T 76050.000	19120.000	42.580	2007.000	42790.000	102.492%
x		9.626	-0.341	88.840	T 74910.000	19150.000	44.940	2004.000	43230.000	100.936%
σ		0.766	0.000	17.520	T 4371.000	1077.000	7.994	143.600	2820.000	5.178%
%RSD		7.959	0.000	19.720	T 5.835	5.623	17.790	7.169	6.524	5.130

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:22:48	0.491	0.733	0.372	535.000	854.300	0.673	1.897	2.065	44.040
2	23:23:09	0.076	0.756	0.296	473.600	748.600	0.612	1.580	1.899	40.960
3	23:23:32	0.685	0.809	0.305	502.200	779.900	0.640	1.443	1.911	40.720
x		0.417	0.766	0.324	503.600	794.300	0.642	1.640	1.958	41.910
σ		0.311	0.039	0.042	30.750	54.310	0.030	0.233	0.093	1.852
%RSD		74.500	5.094	12.820	6.105	6.837	4.727	14.220	4.728	4.420

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:22:48	2.780	0.189	278.600	94.992%	1.951	91.194%	0.009	-0.005	95.737%
2	23:23:09	2.437	0.153	251.000	102.314%	1.934	97.723%	0.008	0.020	101.319%
3	23:23:32	2.444	0.235	248.500	105.492%	1.907	100.106%	0.008	-0.005	103.707%
x		2.554	0.193	259.400	100.933%	1.931	96.341%	0.009	0.003	100.254%
σ		0.196	0.041	16.670	5.384%	0.022	4.614%	0.000	0.014	4.090%
%RSD		7.683	21.330	6.426	5.335	1.154	4.789	4.513	450.400	4.080

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:22:48	0.025	0.185	51.270	100.688%	-0.099	0.611	97.584%	0.000
2	23:23:09	0.012	0.159	48.290	107.732%	-0.073	0.615	99.938%	0.000
3	23:23:32	0.051	0.174	45.470	114.535%	-0.078	0.552	108.929%	0.000
x		0.029	0.173	48.340	107.651%	-0.083	0.593	102.150%	0.000
σ		0.020	0.013	2.901	6.924%	0.014	0.035	5.988%	0.000
%RSD		69.080	7.726	6.000	6.432	16.360	5.942	5.862	0.000

ccv, 7/8/2019 11:27:04 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:27:04	330.600	259.000	312.400	27000.000	27070.000	27270.000	27410.000	27040.000	87.731%
2	23:27:25	129.900	265.000	229.400	23460.000	23380.000	23780.000	23750.000	24000.000	98.254%
3	23:27:48	202.400	234.600	251.000	23570.000	23130.000	23180.000	23570.000	23970.000	99.397%
x		220.900	101.145%	105.721%	98.715%	98.103%	98.978%	99.650%	100.022%	95.127%
σ		101.700	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.430%
%RSD		46.010	6.364	16.290	8.154	8.986	8.926	8.707	7.049	6.760
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:27:04	276.400	270.300	273.600	26770.000	275.500	274.400	273.600	254.500	255.500
2	23:27:25	238.800	232.500	235.800	23450.000	241.500	240.700	243.300	236.200	234.800
3	23:27:48	243.100	236.900	237.600	23580.000	241.500	242.000	236.900	234.300	235.400
x		101.104%	98.634%	99.601%	98.395%	101.132%	100.954%	100.495%	96.663%	96.761%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		8.137	8.385	8.560	7.651	7.753	7.557	7.809	4.617	4.869
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:27:04	251.500	258.800	274.000	92.321%	275.900	91.138%	53.750	260.900	92.519%
2	23:27:25	232.500	232.900	254.900	96.128%	253.100	95.984%	49.050	235.700	98.714%
3	23:27:48	233.400	237.700	249.600	98.695%	247.000	97.262%	48.940	232.200	99.580%
x		95.666%	97.249%	103.799%	95.715%	103.474%	94.795%	101.161%	97.176%	96.937%
σ		n/a	n/a	n/a	3.207%	n/a	3.231%	n/a	n/a	3.851%
%RSD		4.486	5.675	4.940	3.351	5.890	3.408	5.424	6.437	3.973
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	23:27:04	270.300	255.300	253.200	104.518%	242.700	257.200	100.037%	0.000	
2	23:27:25	245.000	234.900	236.700	109.062%	222.500	238.000	105.190%	0.000	
3	23:27:48	250.300	233.800	232.600	114.545%	228.400	240.000	106.500%	0.000	
x		102.077%	96.536%	96.327%	109.375%	92.487%	98.023%	103.909%	0.000	
σ		n/a	n/a	n/a	5.021%	n/a	n/a	3.416%	0.000	
%RSD		5.219	5.016	4.520	4.590	4.497	4.301	3.288	0.000	

ccb, 7/8/2019 11:31:19 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:19	-4.984	-0.341	-0.661	-71.510	9.619	16.410	-2.600	9.783	95.397%
2	23:31:42	-4.984	0.649	-3.822	-77.960	6.479	9.628	-13.440	-4.079	101.730%
3	23:32:03	-4.984	-0.341	2.055	-83.030	5.960	13.510	-9.169	1.264	102.635%
x		-4.984	-0.011	-0.809	-77.500	7.353	13.180	-8.402	2.323	99.920%
σ		0.000	0.571	2.941	5.771	1.980	3.403	5.459	6.991	3.944%
%RSD		0.000	5190.000	363.500	7.446	26.920	25.810	64.970	301.000	3.947
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:19	-0.029	0.224	0.049	7.887	0.090	0.073	0.065	0.084	0.175
2	23:31:42	-0.037	0.281	-0.030	5.988	0.009	0.068	0.099	0.078	0.138
3	23:32:03	-0.038	0.193	-0.003	7.142	0.016	0.070	0.108	0.097	0.114
x		-0.035	0.232	0.005	7.005	0.038	0.070	0.091	0.086	0.142
σ		0.005	0.045	0.040	0.957	0.045	0.003	0.023	0.010	0.031
%RSD		14.340	19.230	727.800	13.660	116.800	3.705	24.960	11.460	21.640
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:31:19	0.092	0.176	0.117	94.151%	0.173	95.289%	0.019	0.155	95.733%
2	23:31:42	0.076	0.027	0.129	100.610%	0.157	101.822%	0.009	0.085	99.883%
3	23:32:03	0.074	0.121	0.138	105.050%	0.164	104.992%	0.015	0.044	103.922%
x		0.081	0.108	0.128	99.937%	0.164	100.701%	0.014	0.095	99.846%
σ		0.010	0.075	0.010	5.481%	0.008	4.948%	0.005	0.056	4.095%
%RSD		12.200	70.100	8.025	5.484	4.929	4.913	36.420	59.020	4.101
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	
1	23:31:19	0.164	0.189	0.046	97.297%	0.134	0.070	102.083%	0.000	
2	23:31:42	0.101	0.233	0.052	107.737%	0.251	0.074	103.367%	0.000	
3	23:32:03	0.152	0.177	0.101	108.277%	0.205	0.078	106.217%	0.000	
x		0.139	0.200	0.066	104.437%	0.197	0.074	103.889%	0.000	
σ		0.033	0.029	0.030	6.189%	0.059	0.004	2.116%	0.000	
%RSD		23.880	14.680	45.590	5.926	30.080	5.866	2.036	0.000	

ccvl, 7/8/2019 11:35:35 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.000

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:35:35	-4.984	0.732	41.180	158.000	218.900	108.600	547.400	204.800	93.826%
2	23:35:57	-4.984	1.663	50.200	131.200	197.900	103.700	503.800	151.400	100.492%
3	23:36:19	8.901	1.558	44.540	119.400	189.900	96.480	452.300	180.400	106.016%
x		-0.356	131.757%	90.606%	68.105%	101.119%	102.929%	100.237%	89.439%	100.111%
σ		8.017	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.104%
%RSD		2252.000	38.690	10.060	14.520	7.423	5.919	9.499	14.950	6.097

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:35:35	5.241	5.499	5.052	108.100	2.856	1.081	2.225	2.047	19.470
2	23:35:57	3.530	5.051	4.961	100.600	2.514	1.025	2.355	1.938	17.640
3	23:36:19	4.154	4.872	4.655	97.610	2.320	1.029	2.000	1.952	18.430
x		86.166%	102.810%	97.781%	102.111%	102.540%	104.489%	109.652%	98.944%	92.576%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		20.100	6.285	4.254	5.281	10.590	2.982	8.195	2.996	4.961

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:35:35	1.070	2.416	4.305	96.086%	4.190	96.628%	0.551	0.596	97.010%
2	23:35:57	0.954	2.018	3.925	102.840%	3.594	102.866%	0.498	0.484	103.579%
3	23:36:19	0.939	2.766	4.023	104.208%	3.857	102.275%	0.472	0.379	105.393%
x		98.764%	96.012%	102.116%	101.045%	97.014%	100.590%	101.447%	97.282%	101.994%
σ		n/a	n/a	n/a	4.348%	n/a	3.443%	n/a	n/a	4.411%
%RSD		7.294	15.590	4.827	4.303	7.693	3.423	7.960	22.240	4.324

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1	23:35:35	4.718	2.972	2.503	100.688%	1.935	0.549	95.065%	0.000
2	23:35:57	4.762	2.849	2.080	109.412%	1.751	0.507	102.142%	0.000
3	23:36:19	4.389	2.527	2.616	108.107%	1.706	0.439	107.797%	0.000
x		92.462%	92.764%	95.980%	106.069%	89.861%	99.663%	101.668%	0.000
σ		n/a	n/a	n/a	4.706%	n/a	n/a	6.379%	0.000
%RSD		4.409	8.259	11.770	4.437	6.738	11.120	6.274	0.000

Mass Uncorrected ICPS

STD0, 7/8/2019 5:29:37 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:29:37	0.000	0.000	0.000	7171.717	288.893	44.445	17545.805	93.334	13162.856
2	17:29:59	0.000	0.000	2.500	5441.628	215.558	33.333	17452.292	46.667	15099.195
3	17:30:22	6.667	0.667	0.833	4710.109	144.446	48.889	17677.170	57.778	13803.805
x		2.222	0.222	1.111	5774.485	216.299	42.222	17558.422	65.926	14021.952
σ		3.849	0.385	1.273	1264.110	72.227	8.012	112.969	24.377	986.430
%RSD		173.205	173.205	114.564	21.891	33.392	18.977	0.643	36.977	7.035

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:29:37	2.222	177.780	304.450	168.890	140.001	22.222	37.778	46.667	37.778
2	17:29:59	6.667	188.891	304.450	140.001	86.667	6.667	37.778	48.889	37.778
3	17:30:22	0.000	206.669	335.562	157.779	68.889	15.556	42.222	66.667	42.222
x		2.963	191.113	314.820	155.557	98.519	14.815	39.259	54.074	39.259
σ		3.395	14.572	17.963	14.572	37.008	7.804	2.566	10.962	2.566
%RSD		114.564	7.625	5.706	9.368	37.564	52.678	6.536	20.272	6.536

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:29:37	14.667	2.133	84.445	29721.840	46.667	83252.802	0.000	6.667	47738.347
2	17:29:59	14.000	2.400	37.778	32698.701	53.333	88825.169	0.000	0.000	49480.961
3	17:30:22	16.000	1.867	17.778	32966.331	80.000	91116.568	6.667	0.000	50104.362
x		14.889	2.133	46.667	31795.624	60.000	87731.513	2.222	2.222	49107.890
σ		1.018	0.267	34.211	1800.928	17.638	4044.350	3.849	3.849	1226.333
%RSD		6.840	12.500	73.309	5.664	29.397	4.610	173.205	173.205	2.497

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:29:37	93.334	153.335	20.000	130638.630	600.020	46.667	99717.244	73.334
2	17:29:59	113.334	186.669	0.000	142853.640	1126.737	66.667	103472.190	73.334
3	17:30:22	60.000	186.669	13.333	143930.430	1126.737	53.333	104261.130	66.667
x		88.889	175.557	11.111	139140.900	951.164	55.556	102483.520	71.111
σ		26.943	19.245	10.184	7382.843	304.100	10.184	2427.926	3.849
%RSD		30.311	10.962	91.652	5.306	31.971	18.330	2.369	5.413

STD1, 7/8/2019 5:33:51 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:33:51	0.000	7.333	2.500	38702.207	19999.753	10130.085	55184.766	2682.618	14151.005
2	17:34:14	0.000	4.667	3.333	37865.361	19705.779	9627.317	55175.823	2569.252	14885.510
3	17:34:36	0.000	7.333	8.333	37791.722	19634.514	9547.233	54628.085	2680.395	14771.992
x		0.000	6.444	4.722	38119.764	19780.015	9768.212	54996.225	2644.088	14602.836
σ		0.000	1.540	3.155	505.753	193.606	315.939	318.849	64.820	395.392
%RSD		0.000	23.890	66.811	1.327	0.979	3.234	0.580	2.451	2.708

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:33:51	193.335	6468.968	8604.070	44093.340	5877.455	15548.841	4463.318	12677.723	2882.679
2	17:34:14	133.334	6115.390	8739.755	43191.247	5490.546	15651.239	4367.716	12223.768	2844.890
3	17:34:36	157.779	6700.246	8695.267	43220.274	5766.273	15744.734	4425.521	12145.886	2824.883
x		161.483	6428.201	8679.697	43501.620	5711.425	15648.271	4418.851	12349.126	2850.817
σ		30.172	294.552	69.170	512.650	199.200	97.980	48.149	287.225	29.350
%RSD		18.684	4.582	0.797	1.178	3.488	0.626	1.090	2.326	1.030

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:33:51	2182.262	188.269	11391.577	30256.935	7903.434	82086.715	3033.840	5368.251	46042.970
2	17:34:14	2144.920	178.402	11002.209	32390.935	7563.145	87216.371	2807.100	5161.465	49440.743
3	17:34:36	2117.580	173.868	11355.977	33153.677	7723.279	88075.707	2720.407	5234.840	50392.615
x		2148.254	180.180	11249.921	31933.849	7729.953	85792.931	2853.782	5254.852	48625.443
σ		32.470	7.363	215.262	1501.491	170.243	3238.309	161.847	104.836	2286.567
%RSD		1.511	4.086	1.913	4.702	2.202	3.775	5.671	1.995	4.702

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:33:51	11140.155	18024.518	5421.616	135691.840	69309.876	47537.298	96644.324	89686.901
2	17:34:14	10686.277	17222.966	5268.193	141174.380	67294.821	45533.748	100357.570	85533.831
3	17:34:36	10739.673	16848.933	5501.664	147717.110	68564.253	46089.873	102926.040	87552.916
x		10855.368	17365.472	5397.158	141527.780	68389.650	46386.973	99975.978	87591.216
σ		248.073	600.609	118.642	6020.421	1018.811	1034.289	3158.197	2076.800
%RSD		2.285	3.459	2.198	4.254	1.490	2.230	3.159	2.371

STD2, 7/8/2019 5:38:05 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:38:05	40.000	72.667	25.833	336605.060	191420.980	94216.819	384155.370	25259.488	13202.914
2	17:38:27	13.333	68.000	20.833	327084.600	185366.320	91437.544	369293.690	23697.513	14945.609
3	17:38:48	60.000	67.334	25.833	333274.550	186450.380	92149.120	372283.090	24343.661	14611.733
x		37.778	69.334	24.167	332321.400	187745.890	92601.161	375244.050	24433.554	14253.419
σ		23.413	2.906	2.887	4831.268	3228.544	1443.727	7860.841	784.858	924.953
%RSD		61.975	4.191	11.945	1.454	1.720	1.559	2.095	3.212	6.489

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:38:05	1840.186	62071.185	80920.776	425303.390	54520.777	152045.380	41043.554	117249.040	26991.120
2	17:38:27	1753.502	59435.883	78522.101	409311.610	53197.416	148808.020	40065.874	115779.270	26355.927
3	17:38:48	1864.636	59545.486	78497.445	411354.100	51357.995	145097.650	40512.290	116200.140	26244.495
x		1819.441	60350.851	79313.441	415323.030	53025.396	148650.350	40540.573	116409.480	26530.514
σ		58.399	1490.860	1392.048	8703.366	1588.393	3476.545	489.453	756.917	402.769
%RSD		3.210	2.470	1.755	2.096	2.996	2.339	1.207	0.650	1.518

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:38:05	21262.837	1811.914	114602.270	30136.536	80743.656	81035.121	28544.744	50292.061	48817.388
2	17:38:27	20523.808	1754.036	107179.210	31394.114	76843.403	86426.660	28230.431	49822.821	51357.995
3	17:38:48	20851.887	1735.632	107919.000	33387.866	76016.495	87119.897	28364.180	48576.101	49936.777
x		20879.511	1767.194	109900.160	31639.505	77867.851	84860.559	28379.785	49563.661	50037.387
σ		370.288	39.807	4088.912	1639.497	2524.606	3331.010	157.736	886.850	1273.288
%RSD		1.773	2.253	3.721	5.182	3.242	3.925	0.556	1.789	2.545

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:38:05	106837.450	171013.520	54462.653	138852.360	695224.490	479149.580	96455.670	865691.540
2	17:38:27	104726.430	166965.980	51244.021	144905.740	663815.460	444312.060	100445.190	889030.860
3	17:38:48	105036.650	163388.530	50915.517	147290.270	684027.780	462674.900	102561.960	890277.810
x		105533.510	167122.680	52207.397	143682.790	681022.580	462045.510	99820.942	881666.740
σ		1139.848	3814.912	1960.003	4349.860	15918.709	17427.289	3100.641	13848.967
%RSD		1.080	2.283	3.754	3.027	2.337	3.772	3.106	1.571

STD3, 7/8/2019 5:42:17 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:42:17	200.002	318.006	150.835	1610905.100	915746.470	457764.330	1793201.900	121414.290	13550.091
2	17:42:40	M 240.003	328.673	135.834	1590438.100	897442.420	455408.080	1769327.000	119428.240	14057.527
3	17:43:01	M 246.670	336.673	129.168	1608337.800	894296.080	450825.720	1723399.000	116807.860	14050.850
x		M 228.892	327.784	138.612	1603227.000	902494.990	454666.040	1761976.000	119216.800	13886.156
σ		M 25.240	9.365	11.097	11149.659	11583.447	3528.319	35477.319	2310.484	291.060
%RSD		M 11.027	2.857	8.006	0.695	1.283	0.776	2.013	1.938	2.096

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:42:17	9166.842	305262.790	395831.720	2110015.700	264028.110	731387.750	197933.800	568382.970	128587.470
2	17:42:40	8939.949	293899.610	384053.410	2018935.100	254739.760	713185.620	194927.660	558507.090	126608.880
3	17:43:01	8604.070	295391.250	383682.690	2058241.100	256878.710	717271.260	195744.940	567607.830	129245.590
x		8903.620	298184.550	387855.940	2062397.300	258548.860	720614.880	196202.130	564832.630	128147.310
σ		283.139	6175.142	6909.713	45682.307	4864.193	9550.615	1554.345	5491.775	1372.360
%RSD		3.180	2.071	1.782	2.215	1.881	1.325	0.792	0.972	1.071

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:42:17	105694.880	8751.944	556946.700	30263.623	394574.340	78463.823	267882.890	252649.290	52584.980
2	17:42:40	102100.820	8532.002	540303.800	33193.824	380555.260	84535.671	269784.570	243874.480	54697.389
3	17:43:01	103418.920	8484.758	552538.420	34097.158	387124.070	87891.717	275842.350	251456.910	52819.668
x		103738.210	8589.568	549929.640	32518.201	387417.890	83630.404	271169.940	249326.890	53367.345
σ		1818.178	142.592	8622.693	2004.082	7014.157	4778.695	4156.642	4759.415	1157.813
%RSD		1.753	1.660	1.568	6.163	1.810	5.714	1.533	1.909	2.170

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:42:17	533042.270	864381.950	262036.140	137546.060	T 3686145.200	2424331.400	95027.413	T 4898323.400
2	17:42:40	536157.700	839366.190	260300.670	147784.870	T 3501044.500	2354199.800	104510.640	T 4862584.000
3	17:43:01	533685.050	853867.910	254767.180	152501.820	T 3634498.300	2298068.600	101186.680	T 4895337.100
x		534295.010	852538.680	259034.670	145944.250	T 3607229.300	2358866.600	100241.580	T 4885414.900
σ		1644.844	12560.742	3796.250	7645.886	T 95515.785	63260.622	4811.736	T 19828.389
%RSD		0.308	1.473	1.466	5.239	T 2.648	2.682	4.800	T 0.406

S1, 7/8/2019 5:46:30 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:46:30	160.001	312.005	125.834	1611861.100	897491.360	463259.110	1796523.000	122837.660	13490.001
2	17:46:51	186.669	294.005	118.334	1573685.700	883695.230	448114.250	1733104.100	119243.620	14244.484
3	17:47:13	146.668	304.005	145.835	1590677.300	879339.490	440900.730	1731627.200	118385.850	14825.412
x		164.446	303.338	130.001	1592074.700	886842.030	450758.030	1753751.400	120155.710	14186.633
σ		20.367	9.019	14.216	19126.037	9476.249	11411.243	37048.653	2361.905	669.582
%RSD		12.385	2.973	10.935	1.201	1.069	2.532	2.113	1.966	4.720

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:46:30	9295.861	299656.370	387318.770	2070933.200	258725.540	727752.690	197052.740	561623.920	126942.370
2	17:46:51	8913.256	293479.700	381361.340	2016433.700	253325.500	697658.550	191616.140	541272.270	124121.590
3	17:47:13	8928.827	293236.480	386924.740	2059485.900	259539.360	718027.610	194103.640	556071.010	124779.400
x		9045.982	295457.510	385201.620	2048950.900	257196.800	714479.620	194257.510	552989.070	125281.120
σ		216.542	3638.348	3331.607	28736.526	3377.247	15357.591	2721.565	10520.037	1475.800
%RSD		2.394	1.231	0.865	1.402	1.313	2.149	1.401	1.902	1.178

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:46:30	104385.210	8749.809	549502.440	29922.497	388139.350	79526.329	271865.200	249490.490	51029.486
2	17:46:51	101395.660	8460.202	542320.970	32424.387	383620.130	84562.586	267059.180	243737.550	54791.285
3	17:47:13	102746.700	8515.720	546861.210	34244.376	388403.620	85388.026	271446.290	249737.130	57206.092
x		102842.520	8575.243	546228.210	32197.087	386721.030	83158.980	270123.560	247655.060	54342.288
σ		1497.077	153.705	3632.338	2169.887	2688.710	3172.925	2662.078	3394.902	3112.686
%RSD		1.456	1.792	0.665	6.739	0.695	3.815	0.986	1.371	5.728

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:46:30	539182.290	865493.990	260533.880	141323.340	T 3741833.100	2374691.400	93141.377	T 5039065.500
2	17:46:51	528840.550	829601.310	258407.800	151139.350	T 3482909.000	2329115.700	105643.620	T 4825688.600
3	17:47:13	540998.920	847198.460	257818.080	152813.660	T 3643664.700	2406441.600	105002.930	T 4896204.100
x		536340.590	847431.260	258919.920	148425.450	T 3622802.200	2370082.900	101262.640	T 4920319.400
σ		6558.423	17947.472	1428.493	6207.318	T 130716.700	38868.406	7040.512	T 108713.300
%RSD		1.223	2.118	0.552	4.182	T 3.608	1.640	6.953	T 2.209

ICV, 7/8/2019 5:50:43 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:50:43	126.668	118.667	55.834	651375.510	373704.100	185588.560	728743.060	48084.609	13676.947
2	17:51:06	93.334	122.001	65.834	631599.460	357713.050	178538.350	715185.010	46717.509	14164.359
3	17:51:27	93.334	150.001	46.667	646210.150	360915.980	180793.380	712381.660	47376.462	14598.378
x		104.445	130.223	56.111	643061.710	364111.040	181640.100	718769.910	47392.860	14146.562
σ		19.245	17.209	9.586	10257.074	8460.775	3600.566	8749.998	683.698	460.973
%RSD		18.426	13.215	17.085	1.595	2.324	1.982	1.217	1.443	3.259

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:50:43	3645.175	120020.410	158148.180	835237.320	107206.200	295122.730	81855.757	231478.880	51773.676
2	17:51:06	3502.897	116729.080	153593.300	814838.140	102847.380	286199.690	78165.716	223641.880	50298.764
3	17:51:27	3554.028	116056.100	155329.080	808525.710	105895.410	286199.690	79985.890	227869.390	50571.382
x		3567.367	117601.860	155690.190	819533.720	105316.330	289174.040	80002.454	227663.380	50881.274
σ		72.071	2121.380	2298.811	13961.156	2236.362	5151.719	1845.076	3922.557	784.772
%RSD		2.020	1.804	1.477	1.704	2.123	1.782	2.306	1.723	1.542

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:50:43	42149.486	3615.119	223582.670	30484.359	152779.760	79667.558	114050.960	102494.540	48683.339
2	17:51:06	40216.760	3452.656	217256.480	32732.154	152854.330	84966.324	112606.450	101517.000	52571.569
3	17:51:27	40386.845	3401.170	219750.920	31895.856	155674.930	87133.358	110872.000	99346.552	52015.048
x		40917.697	3489.648	220196.690	31704.123	153769.670	83922.413	112509.800	101119.370	51089.985
σ		1070.145	111.669	3186.569	1136.097	1650.419	3840.815	1591.685	1611.225	2102.710
%RSD		2.615	3.200	1.447	3.583	1.073	4.577	1.415	1.593	4.116

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:50:43	221799.790	337137.590	103660.990	144241.980	1331164.600	939420.060	99825.085	1933381.100
2	17:51:06	214746.780	335540.090	102069.800	153389.910	1397246.900	939847.730	103708.190	1894907.600
3	17:51:27	211723.770	331025.690	105286.170	148943.550	1390500.400	922388.010	102865.360	1887017.800
x		216090.110	334567.790	103672.320	148858.480	1372970.600	933885.270	102132.880	1905102.200
σ		5170.586	3169.833	1608.215	4574.558	36361.875	9959.212	2042.554	24805.956
%RSD		2.393	0.947	1.551	3.073	2.648	1.066	2.000	1.302

ICB, 7/8/2019 5:54:57 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:54:57	0.000	0.667	0.833	8911.032	888.932	391.120	17492.368	173.335	13964.050
2	17:55:20	0.000	0.000	0.000	8728.633	757.809	313.339	16479.367	153.335	14057.527
3	17:55:42	0.000	0.000	0.000	8826.505	800.035	282.227	16922.402	171.113	14337.965
x		0.000	0.222	0.278	8822.057	815.592	328.895	16964.713	165.927	14119.847
σ		0.000	0.385	0.481	91.281	66.932	56.088	507.824	10.962	194.592
%RSD		0.000	173.205	173.205	1.035	8.206	17.054	2.993	6.607	1.378

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:54:57	8.889	384.453	535.571	1682.378	804.480	451.122	151.112	504.458	188.891
2	17:55:20	6.667	377.786	457.789	1429.001	777.811	411.120	164.446	384.453	157.779
3	17:55:42	2.222	433.344	513.348	1495.679	764.477	422.232	137.779	420.010	166.668
x		5.926	398.527	502.236	1535.686	782.256	428.158	151.112	436.307	171.113
σ		3.395	30.336	40.064	131.341	20.369	20.649	13.334	61.640	16.025
%RSD		57.282	7.612	7.977	8.553	2.604	4.823	8.824	14.128	9.365

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:54:57	75.334	9.333	444.455	30310.446	480.013	84531.185	206.669	206.669	47048.096
2	17:55:20	81.334	9.600	386.675	32792.371	446.678	89150.553	113.334	133.334	48984.953
3	17:55:42	66.000	10.133	411.120	32384.245	453.345	89722.808	173.335	186.669	50861.884
x		74.223	9.689	414.084	31829.020	460.012	87801.515	164.446	175.557	48964.978
σ		7.727	0.407	29.004	1330.862	17.639	2846.606	47.298	37.909	1906.973
%RSD		10.410	4.204	7.004	4.181	3.835	3.242	28.762	21.594	3.895

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:54:57	513.348	733.363	193.335	134927.250	8497.303	1633.480	102548.480	2647.052
2	17:55:20	520.015	920.047	200.002	142467.660	10399.278	1393.440	107019.570	2440.328
3	17:55:42	553.350	926.714	253.337	149919.390	9491.619	1320.096	108490.180	2553.692
x		528.904	860.041	215.558	142438.100	9462.733	1449.005	106019.410	2547.024
σ		21.432	109.757	32.887	7496.115	951.317	163.915	3094.544	103.523
%RSD		4.052	12.762	15.257	5.263	10.053	11.312	2.919	4.064

ICVL, 7/8/2019 5:59:13 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:59:13	13.333	0.667	10.000	12132.535	3978.648	993.388	35527.062	580.019	12915.835
2	17:59:36	0.000	0.000	17.500	11689.733	3896.390	900.045	34518.744	537.794	13823.836
3	17:59:57	6.667	0.000	20.833	11589.605	3900.837	1002.278	34815.428	564.462	14972.319
x		6.667	0.222	16.111	11803.958	3925.292	965.237	34953.745	560.758	13903.997
σ		6.667	0.385	5.549	288.927	46.261	56.633	518.194	21.355	1030.583
%RSD		100.000	173.205	34.440	2.448	1.179	5.867	1.483	3.808	7.412

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:59:13	95.556	3265.031	4365.492	4807.938	1693.491	1640.148	862.263	2471.447	5319.334
2	17:59:36	80.000	3169.441	4207.640	4607.834	1702.382	1502.346	884.487	2549.246	5377.145
3	17:59:57	115.556	3338.391	4169.845	4510.007	1671.265	1631.258	868.930	2527.018	5354.910
x		97.038	3257.621	4247.659	4641.926	1689.046	1591.251	871.894	2515.904	5350.463
σ		17.824	84.718	103.782	151.863	16.028	77.122	11.405	40.073	29.161
%RSD		18.368	2.601	2.443	3.272	0.949	4.847	1.308	1.593	0.545

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:59:13	220.669	44.000	4487.774	29976.006	3567.367	82001.506	1413.443	313.339	47141.914
2	17:59:36	232.003	44.000	4227.650	31079.703	3240.578	89033.862	1353.434	273.337	49333.496
3	17:59:57	242.003	44.267	4214.310	34277.835	2987.157	89534.296	1426.779	246.670	50325.579
x		231.559	44.089	4309.911	31777.848	3265.034	86856.555	1397.885	277.782	48933.663
σ		10.674	0.154	154.178	2234.276	290.877	4212.034	39.069	33.556	1629.058
%RSD		4.610	0.349	3.577	7.031	8.909	4.849	2.795	12.080	3.329

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:59:13	5494.994	5388.263	1353.434	134074.780	15566.650	2400.317	97432.672	87674.075
2	17:59:36	5581.713	5314.887	1360.102	145901.480	16875.649	2507.012	102885.590	90023.537
3	17:59:57	5441.628	5234.840	1420.111	147425.770	16708.674	2707.070	101422.620	92319.726
x		5506.112	5312.663	1377.882	142467.340	16383.657	2538.133	100580.290	90005.780
σ		70.701	76.736	36.723	7308.025	712.458	155.726	2822.360	2322.876
%RSD		1.284	1.444	2.665	5.130	4.349	6.135	2.806	2.581

CRI, 7/8/2019 6:03:26 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:03:26	6.667	1.333	33.333	16103.138	7705.486	1904.644	52837.549	1008.945	13363.148
2	18:03:47	13.333	2.667	21.667	15341.823	7498.647	1895.753	52441.935	1066.729	14151.005
3	18:04:09	6.667	1.333	33.333	15495.417	7587.610	1875.749	52553.688	1011.167	14812.057
x		8.889	1.778	29.444	15646.793	7597.248	1892.049	52611.057	1028.947	14108.737
σ		3.849	0.770	6.736	402.599	103.756	14.799	203.951	32.739	725.379
%RSD		43.301	43.301	22.876	2.573	1.366	0.782	0.388	3.182	5.141

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:03:26	182.224	6168.759	8283.772	8882.115	3009.387	3044.954	1849.077	4941.343	10710.750
2	18:03:47	175.557	6070.915	8212.597	8570.705	3082.745	2949.367	1842.409	5101.431	10490.494
3	18:04:09	184.446	6177.654	8552.910	8470.611	3058.292	2973.820	1751.280	4843.512	10675.153
x		180.743	6139.109	8349.760	8641.144	3050.141	2989.380	1814.255	4962.095	10625.466
σ		4.626	59.225	179.497	214.604	37.352	49.657	54.640	130.206	118.236
%RSD		2.559	0.965	2.150	2.484	1.225	1.661	3.012	2.624	1.113

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:03:26	472.679	95.200	9068.966	30444.225	6502.325	84246.337	2887.125	513.348	47791.961
2	18:03:47	383.341	84.534	9071.190	30792.060	5981.968	87822.161	3047.177	500.014	50372.504
3	18:04:09	408.676	76.000	8737.530	32022.968	6842.574	90604.825	2867.119	413.343	51016.078
x		421.565	85.245	8959.229	31086.418	6442.289	87557.774	2933.807	475.568	49726.848
σ		46.042	9.620	192.000	829.513	433.433	3187.478	98.690	54.300	1706.279
%RSD		10.922	11.285	2.143	2.668	6.728	3.640	3.364	11.418	3.431

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:03:26	10572.811	10038.873	2600.372	138771.140	28571.494	4774.587	94421.144	181099.380
2	18:03:47	10586.160	9678.483	2727.076	144262.290	28130.121	4554.474	109569.680	172147.970
3	18:04:09	10245.770	10225.748	2560.361	145644.070	29775.348	4754.576	105623.390	171278.440
x		10468.247	9981.034	2629.269	142892.500	28825.655	4694.546	103204.740	174841.930
σ		192.786	278.179	87.033	3635.457	851.552	121.718	7858.558	5436.523
%RSD		1.842	2.787	3.310	2.544	2.954	2.593	7.615	3.109

ICSA, 7/8/2019 6:07:40 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:07:40	0.000	0.000	0.000	T 3538547.700	1901789.600	939968.160	T 3870850.100	240618.310	13937.342
2	18:08:03	0.000	0.000	2.500	T 3481522.200	1868940.300	906792.130	T 3780015.000	235315.510	14224.453
3	18:08:26	0.000	0.000	2.500	T 3553491.400	1887215.400	940186.920	T 3880562.400	236977.870	15165.973
x		0.000	0.000	1.667	T 3524520.500	1885981.800	928982.410	T 3843809.200	237637.230	14442.589
σ		0.000	0.000	1.443	T 37979.796	16459.326	19217.653	T 55460.393	2712.191	642.706
%RSD		0.000	0.000	86.603	T 1.078	0.873	2.069	T 1.443	1.141	4.450

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:07:40	38865.122	133.334	1322.318	T 4453768.100	2453.664	580.019	106.667	246.670	160.001
2	18:08:03	36767.535	124.445	1375.660	T 4275751.900	2229.162	575.574	144.446	186.669	148.890
3	18:08:26	36374.849	184.446	1360.102	T 4351517.000	2320.296	580.019	113.334	175.557	148.890
x		37335.836	147.409	1352.693	T 4360345.700	2334.374	578.537	121.482	202.965	152.594
σ		1338.876	32.382	27.431	T 89335.877	112.911	2.566	20.164	38.255	6.415
%RSD		3.586	21.968	2.028	T 2.049	4.837	0.444	16.598	18.848	4.204

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:07:40	26.667	3.200	2031.338	30470.981	1610404.800	77932.616	146.668	393.342	43276.094
2	18:08:03	16.667	3.200	1973.548	34304.602	1612356.300	82613.678	140.001	373.341	48254.394
3	18:08:26	20.667	2.933	2086.906	34030.241	1620403.200	85058.290	193.335	406.676	49132.412
x		21.333	3.111	2030.597	32935.275	1614388.100	81868.195	160.001	391.120	46887.633
σ		5.033	0.154	56.683	2138.545	5299.865	3620.858	29.060	16.778	3158.345
%RSD		23.593	4.949	2.791	6.493	0.328	4.423	18.162	4.290	6.736

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:07:40	120.001	166.668	273.337	137302.420	880.043	1460.117	88481.845	206.669
2	18:08:03	100.001	240.003	366.674	149119.740	1833.518	1333.431	103013.700	220.003
3	18:08:26	106.667	213.336	326.673	154793.400	1753.502	1213.414	105549.200	233.336
x		108.890	206.669	322.228	147071.850	1489.021	1335.654	99014.913	220.003
σ		10.184	37.119	46.827	8923.505	528.906	123.366	9209.578	13.334
%RSD		9.352	17.961	14.532	6.067	35.520	9.236	9.301	6.061

ICSAB, 7/8/2019 6:11:56 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:11:56	13.333	9.333	11.667	T 3512784.100	1889679.500	939044.030	T 3868481.200	240666.220	13743.714
2	18:12:17	13.333	12.667	22.500	T 3473215.800	1857995.600	923200.120	T 3804608.100	239067.070	15065.807
3	18:12:39	6.667	14.667	15.000	T 3462513.700	1850078.100	918095.500	T 3795520.300	237465.910	15559.971
x		11.111	12.222	16.389	T 3482837.900	1865917.700	926779.880	T 3822869.900	239066.400	14789.831
σ		3.849	2.694	5.549	T 26480.510	20955.670	10923.424	T 39761.094	1600.153	939.052
%RSD		34.641	22.044	33.856	T 0.760	1.123	1.179	T 1.040	0.669	6.349

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:11:56	37523.950	12633.216	16975.835	T 4438478.700	13481.099	29032.953	8203.700	22327.385	5377.145
2	18:12:17	36776.460	12337.255	16597.359	T 4316186.600	12737.806	29447.617	8045.781	22485.551	5417.169
3	18:12:39	36890.253	12401.787	16991.420	T 4307601.000	12900.258	29139.961	7916.779	22309.563	5452.746
x		37063.554	12457.419	16854.871	T 4354088.800	13039.721	29206.844	8055.420	22374.166	5415.687
σ		402.753	155.626	223.148	T 73209.758	390.780	215.271	143.703	96.873	37.822
%RSD		1.087	1.249	1.324	T 1.681	2.997	0.737	1.784	0.433	0.698

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:11:56	4337.701	378.675	24713.546	31340.597	1643394.500	79412.003	57071.919	10779.721	46887.269
2	18:12:17	4332.365	367.207	24557.569	34813.197	1622206.400	84607.445	57467.734	10359.232	49661.944
3	18:12:39	4389.726	346.673	24214.428	34016.858	1602255.400	86197.837	57957.495	10365.906	50721.101
x		4353.264	364.185	24495.181	33390.217	1622618.800	83405.762	57499.049	10501.620	49090.105
σ		31.689	16.213	255.341	1819.134	20572.638	3548.932	443.618	240.866	1979.853
%RSD		0.728	4.452	1.042	5.448	1.268	4.255	0.772	2.294	4.033

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:11:56	21131.197	16274.554	10732.999	140619.210	69995.096	96644.324	96408.507	190556.430
2	18:12:17	22427.631	16728.711	10986.635	156156.410	69806.991	92339.930	102460.830	179521.880
3	18:12:39	21839.535	16441.521	11153.505	154725.590	70250.387	94293.160	107167.970	183881.050
x		21799.454	16481.595	10957.713	150500.400	70017.491	94425.805	102012.440	184653.120
σ		649.146	229.715	211.740	8587.217	222.545	2155.261	5393.730	5557.643
%RSD		2.978	1.394	1.932	5.706	0.318	2.282	5.287	3.010

CCV, 7/8/2019 6:16:09 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:16:09	120.001	156.668	79.167	846090.990	468263.770	235865.040	911084.460	61684.119	13403.207
2	18:16:32	113.334	128.668	60.834	807124.590	445898.060	225734.890	884306.120	58422.681	14351.319
3	18:16:53	113.334	153.335	76.667	833426.340	457505.090	226661.980	903743.100	60160.627	14745.282
x		115.556	146.223	72.223	828880.640	457222.310	229420.640	899711.230	60089.142	14166.602
σ		3.849	15.295	9.942	19876.937	11185.537	5600.232	13836.975	1631.894	689.842
%RSD		3.331	10.460	13.766	2.398	2.446	2.441	1.538	2.716	4.869

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:16:09	4607.834	152944.720	201417.970	1056501.600	135915.140	376150.860	103015.940	293890.430	66285.222
2	18:16:32	4385.502	146307.930	191790.880	1018153.800	132173.910	361482.270	100081.210	280992.070	64082.848
3	18:16:53	4550.027	148742.520	195726.780	1026057.200	132823.270	366948.180	99968.874	285505.020	64129.844
x		4514.454	149331.720	196311.870	1033570.900	133637.440	368193.770	101022.010	286795.840	64832.638
σ		115.356	3357.397	4840.143	20247.965	1999.086	7413.193	1727.710	6545.345	1258.194
%RSD		2.555	2.248	2.466	1.959	1.496	2.013	1.710	2.282	1.941

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:16:09	53832.248	4492.310	282465.590	30062.959	201283.940	80683.122	145244.410	129110.360	49749.085
2	18:16:32	51858.826	4291.679	273824.940	32190.224	195043.430	85253.438	140700.450	125459.780	51089.824
3	18:16:53	51986.217	4426.944	278162.580	34230.992	194825.500	87487.850	146538.260	126717.030	51451.857
x		52559.097	4403.645	278151.040	32161.392	197050.960	84474.803	144161.040	127095.720	50763.589
σ		1104.419	102.324	4320.334	2084.166	3667.488	3468.542	3065.988	1854.519	897.039
%RSD		2.101	2.324	1.553	6.480	1.861	4.106	2.127	1.459	1.767

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:16:09	273664.670	428925.530	135495.610	144824.460	1775311.800	1224025.500	96408.507	2416396.500
2	18:16:32	266647.360	417288.950	128596.480	149363.690	1699919.000	1187867.300	106749.760	2375373.200
3	18:16:53	278206.100	427612.460	128799.320	156136.070	1762958.000	1193195.400	107275.900	2465903.000
x		272839.380	424608.980	130963.810	150108.070	1746062.900	1201696.100	103478.060	2419224.200
σ		5823.400	6373.241	3925.969	5692.423	40436.362	19520.539	6128.059	45331.086
%RSD		2.134	1.501	2.998	3.792	2.316	1.624	5.922	1.874

CCB, 7/8/2019 6:20:25 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:20:25	0.000	0.000	1.667	9324.780	1048.949	397.786	18073.504	215.558	13710.331
2	18:20:47	0.000	0.000	0.000	9026.702	928.936	351.118	18273.904	204.447	14558.314
3	18:21:10	0.000	0.667	1.667	9026.702	968.941	337.784	17637.092	200.002	13897.281
x		0.000	0.222	1.111	9126.061	982.275	362.229	17994.833	206.669	14055.309
σ		0.000	0.385	0.962	172.096	61.108	31.507	325.613	8.013	445.532
%RSD		0.000	173.205	86.603	1.886	6.221	8.698	1.809	3.877	3.170

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:20:25	8.889	486.680	593.353	2042.452	791.146	535.571	186.669	437.788	135.557
2	18:20:47	4.444	422.232	564.462	1731.276	800.035	526.682	160.001	520.015	206.669
3	18:21:10	4.444	462.234	617.799	1702.382	826.704	460.012	164.446	455.567	155.557
x		5.926	457.049	591.871	1825.370	805.962	507.422	170.372	471.123	165.927
σ		2.566	32.535	26.699	188.553	18.505	41.298	14.287	43.264	36.673
%RSD		43.301	7.119	4.511	10.330	2.296	8.139	8.386	9.183	22.102

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:20:25	92.000	14.133	451.122	30892.400	680.025	85047.074	280.004	173.335	46840.361
2	18:20:47	58.667	9.867	366.674	31835.646	713.361	86123.807	146.668	173.335	47121.810
3	18:21:10	64.000	6.400	413.343	31347.286	826.704	88012.881	173.335	173.335	47068.200
x		71.556	10.133	410.380	31358.444	740.030	86394.587	200.002	173.335	47010.124
σ		17.905	3.874	42.302	471.722	76.890	1501.331	70.555	0.000	149.442
%RSD		25.023	38.226	10.308	1.504	10.390	1.738	35.277	0.000	0.318

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:20:25	520.015	1113.401	233.336	144777.050	6242.142	1700.159	101988.900	3173.887
2	18:20:47	560.017	1586.805	186.669	148543.750	8597.397	1633.480	103836.310	2873.788
3	18:21:10	586.686	1400.108	180.002	146836.350	7456.390	1540.130	106810.470	2953.813
x		555.573	1366.772	200.002	146719.050	7431.976	1624.590	104211.890	3000.496
σ		33.557	238.456	29.060	1886.091	1177.817	80.384	2432.626	155.401
%RSD		6.040	17.447	14.530	1.286	15.848	4.948	2.334	5.179

mb 500-493579/1-a, 7/8/2019 6:24:40 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:24:40	0.000	0.000	0.000	2675.949	217.780	106.667	17476.783	44.445	13770.421
2	18:25:02	0.000	0.000	0.000	2680.395	182.224	66.667	17256.362	31.111	13216.267
3	18:25:23	0.000	0.000	0.833	2667.058	188.891	64.445	17096.060	44.445	14084.235
x		0.000	0.000	0.278	2674.467	196.298	79.260	17276.402	40.000	13690.308
σ		0.000	0.000	0.481	6.791	18.900	23.762	191.151	7.698	439.495
%RSD		0.000	0.000	173.205	0.254	9.628	29.980	1.106	19.245	3.210

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:24:40	2.222	304.450	408.898	502.236	126.668	37.778	44.445	157.779	266.671
2	18:25:02	2.222	284.449	348.896	357.785	128.890	22.222	42.222	126.668	215.558
3	18:25:23	0.000	315.561	402.231	393.342	122.223	15.556	35.556	177.780	213.336
x		1.481	301.486	386.675	417.788	125.927	25.185	40.741	154.075	231.855
σ		1.283	15.766	32.887	75.264	3.395	11.404	4.626	25.756	30.172
%RSD		86.603	5.230	8.505	18.015	2.696	45.279	11.355	16.717	13.013

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:24:40	15.333	3.467	51.111	30216.801	246.670	82382.707	6.667	0.000	45332.747
2	18:25:02	8.000	2.933	46.667	31434.252	233.336	87326.308	20.000	13.333	47229.031
3	18:25:23	14.000	2.400	35.556	31226.873	246.670	88176.679	0.000	0.000	48033.228
x		12.444	2.933	44.445	30959.309	242.225	85961.898	8.889	4.444	46865.002
σ		3.906	0.533	8.012	651.337	7.698	3128.696	10.184	7.698	1386.556
%RSD		31.390	18.182	18.028	2.104	3.178	3.640	114.564	173.205	2.959

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:24:40	133.334	286.671	53.333	138134.890	1386.772	180.002	95808.884	106.667
2	18:25:02	173.335	326.673	46.667	145176.680	2000.220	100.001	105448.030	60.000
3	18:25:23	180.002	286.671	53.333	147513.850	1906.867	100.001	108550.900	40.000
x		162.224	300.005	51.111	143608.470	1764.620	126.668	103269.270	68.889
σ		25.240	23.095	3.849	4882.181	330.538	46.189	6644.547	34.211
%RSD		15.559	7.698	7.531	3.400	18.731	36.465	6.434	49.661

lcs 500-493579/2-a, 7/8/2019 6:28:56 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:28:56	26.667	32.667	295.005	345969.170	192966.480	19857.219	386781.030	31871.326	13523.384
2	18:29:17	20.000	30.000	269.171	331841.300	188326.230	18841.728	369321.450	30294.838	15145.940
3	18:29:40	46.667	34.667	267.504	334316.210	188643.820	18534.430	372539.970	30656.046	14885.510
x		31.111	32.445	277.226	337375.560	189978.840	19077.792	376214.150	30940.737	14518.278
σ		13.878	2.341	15.419	7544.459	2592.234	692.270	9291.609	825.902	871.387
%RSD		44.607	7.216	5.562	2.236	1.364	3.629	2.470	2.669	6.002

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:28:56	18445.360	312353.200	164746.030	48337.054	276371.400	763090.170	211300.760	304603.440	136666.270
2	18:29:17	18247.183	303202.190	159391.840	45877.693	270079.820	735923.920	203035.580	290887.230	133156.990
3	18:29:40	18347.385	303714.430	159355.660	47823.236	267418.400	752740.650	208151.570	296052.230	133375.720
x		18346.643	306423.270	161164.510	47345.994	271289.870	750584.910	207495.970	297180.970	134399.660
σ		99.091	5141.850	3101.741	1297.280	4597.520	13710.825	4171.409	6927.419	1965.988
%RSD		0.540	1.678	1.925	2.740	1.695	1.827	2.010	2.331	1.463

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:28:56	21790.751	1803.912	1183585.700	31099.772	811454.660	81541.844	149777.080	27320.992	61903.380
2	18:29:17	21288.898	1746.568	1123546.700	32752.226	774576.620	87142.333	145969.220	25134.698	62843.128
3	18:29:40	21435.909	1797.778	1146226.700	32511.364	790395.050	88737.654	149295.930	27033.468	64266.359
x		21505.186	1782.753	1151119.700	32121.121	792142.110	85807.277	148347.410	26496.386	63004.289
σ		257.999	31.487	30317.108	892.675	18500.992	3779.114	2073.574	1187.987	1189.705
%RSD		1.200	1.766	2.634	2.779	2.336	4.404	1.398	4.484	1.888

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:28:56	1134686.900	849111.890	267827.980	140625.980	697481.240	490118.420	100256.460	956645.010
2	18:29:17	1119761.900	856294.320	259683.390	150976.680	677785.230	475266.850	101786.660	957051.290
3	18:29:40	1119055.700	867769.690	269983.690	153261.090	706729.490	488972.450	105926.890	962607.910
x		1124501.500	857725.300	265831.690	148287.920	693998.650	484785.910	102656.670	958768.070
σ		8827.916	9410.852	5432.581	6733.023	14783.062	8263.631	2933.620	3331.596
%RSD		0.785	1.097	2.044	4.541	2.130	1.705	2.858	0.347

400-171203-c-1-a @5, 7/8/2019 6:33:11 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:33:11	6.667	0.667	41.667	TM 11217180.000	2448232.800	106.667	74725.860	367847.920	13296.383
2	18:33:34	0.000	0.667	25.000	TM 10746189.000	2384052.600	117.779	73249.473	354178.620	14364.673
3	18:33:55	0.000	0.000	42.500	TM 10803529.000	2351093.200	95.556	72398.251	346804.560	14691.862
x		2.222	0.444	36.389	TM 10922299.000	2394459.500	106.667	73457.861	356277.030	14117.640
σ		3.849	0.385	9.872	TM 256978.390	49398.921	11.111	1177.714	10677.465	729.801
%RSD		173.205	86.603	27.129	TM 2.353	2.063	10.417	1.603	2.997	5.169

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:33:11	20.000	442.233	360.007	285057.980	643875.110	322.228	253.337	237.781	353.340
2	18:33:34	0.000	342.229	364.452	274578.270	611701.070	322.228	177.780	215.558	400.009
3	18:33:55	6.667	402.231	424.454	276149.240	619513.270	280.004	173.335	206.669	360.007
x		8.889	395.564	382.971	278595.160	625029.820	308.153	201.484	220.003	371.119
σ		10.184	50.334	35.994	5651.814	16781.429	24.378	44.961	16.025	25.241
%RSD		114.564	12.725	9.399	2.029	2.685	7.911	22.315	7.284	6.801

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:33:11	64.000	2.933	1277022.500	29561.318	1500.124	75581.782	40.000	20.000	44167.030
2	18:33:34	72.000	4.533	1241559.300	32892.732	1906.867	81286.237	13.333	6.667	46042.970
3	18:33:55	50.667	1.600	1253849.300	33006.477	1726.831	83053.211	13.333	0.000	47925.997
x		62.222	3.022	1257477.100	31820.176	1711.274	79973.743	22.222	8.889	46045.332
σ		10.777	1.469	18007.770	1957.054	203.817	3904.811	15.396	10.184	1879.485
%RSD		17.321	48.596	1.432	6.150	11.910	4.883	69.282	114.564	4.082

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:33:11	473.346	406.676	36084.808	135976.040	2547.023	240.003	88414.528	560.017
2	18:33:34	673.358	353.340	35301.742	145806.640	3467.328	193.335	94731.010	373.341
3	18:33:55	613.354	333.339	34860.043	143862.700	3167.218	200.002	91296.134	360.007
x		586.686	364.452	35415.531	141881.790	3060.523	211.114	91480.557	431.122
σ		102.638	37.910	620.261	5206.072	469.338	25.240	3162.277	111.826
%RSD		17.495	10.402	1.751	3.669	15.335	11.956	3.457	25.938

400-171203-c-2-a @5, 7/8/2019 6:37:27 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:37:27	0.000	0.000	56.667	TM 16790993.000	1372845.800	62.222	144472.260	128416.180	13510.031
2	18:37:48	0.000	0.000	41.667	TM 16228632.000	1338262.200	62.222	143059.060	122977.310	14798.702
3	18:38:10	0.000	0.667	43.333	TM 16588183.000	1353971.100	42.222	143986.870	125238.980	15379.665
x		0.000	0.222	47.222	TM 16535936.000	1355026.400	55.556	143839.390	125544.160	14562.799
σ		0.000	0.385	8.222	TM 284797.940	17315.938	11.547	718.048	2732.249	956.880
%RSD		0.000	173.205	17.410	TM 1.722	1.278	20.785	0.499	2.176	6.571

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:37:27	0.000	784.478	324.450	5639.526	104843.320	673.358	326.673	1689.046	286.671
2	18:37:48	6.667	766.699	331.117	5105.878	99315.100	617.799	331.117	1689.046	355.563
3	18:38:10	2.222	855.596	353.340	5294.875	99881.252	546.683	313.339	1633.480	386.675
x		2.963	802.258	336.303	5346.760	101346.560	612.613	323.709	1670.524	342.970
σ		3.395	47.040	15.127	270.581	3041.488	63.497	9.252	32.081	51.177
%RSD		114.564	5.863	4.498	5.061	3.001	10.365	2.858	1.920	14.922

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:37:27	43.333	310.139	1142187.000	30651.587	23791.090	77692.799	6.667	13.333	45372.947
2	18:37:48	50.000	312.805	1101609.700	32511.364	21431.900	81032.879	13.333	26.667	47517.193
3	18:38:10	46.000	341.073	1108904.000	31909.236	22461.047	84327.080	0.000	20.000	47858.979
x		46.445	321.339	1117566.900	31690.729	22561.346	81017.586	6.667	20.000	46916.373
σ		3.355	17.142	21631.281	948.948	1182.789	3317.167	6.667	6.667	1347.527
%RSD		7.225	5.335	1.936	2.994	5.243	4.094	100.000	33.333	2.872

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:37:27	226.669	180.002	13349.795	129529.590	880.043	86.667	88239.507	9324.780
2	18:37:48	166.668	186.669	13096.093	140104.690	1613.477	80.000	95754.987	8737.530
3	18:38:10	166.668	286.671	12541.979	144194.570	1566.802	100.001	95512.456	9224.678
x		186.669	217.781	12995.955	137942.950	1353.440	88.889	93168.983	9095.663
σ		34.642	59.754	413.113	7567.709	410.638	10.184	4270.774	314.164
%RSD		18.558	27.438	3.179	5.486	30.340	11.456	4.584	3.454

400-171203-c-3-a @5, 7/8/2019 6:41:39 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:41:39	93.334	0.000	129.168	TM 63883748.000	959171.590	93.334	TM 7965945.300	271943.030	12541.979
2	18:42:01	80.000	0.000	123.334	TM 62935247.000	945163.180	82.223	T 8020945.900	272831.280	13957.373
3	18:42:23	106.667	0.000	144.168	TM 63831475.000	957285.210	91.112	T 7977035.900	270814.530	13937.342
x		93.334	0.000	132.223	TM 63550157.000	953873.330	88.889	TM 7987975.700	271862.950	13478.898
σ		13.333	0.000	10.748	TM 533168.300	7601.944	5.880	TM 29086.570	1010.759	811.458
%RSD		14.286	0.000	8.128	TM 0.839	0.797	6.614	TM 0.364	0.372	6.020

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:41:39	8.889	2322.519	344.451	1546.798	406863.070	2289.177	1580.137	3645.175	560.017
2	18:42:01	4.444	2380.312	362.229	1373.437	404868.000	2280.286	1706.827	3487.335	524.460
3	18:42:23	2.222	2451.442	355.563	1666.820	406277.740	2487.007	1622.367	3429.536	566.684
x		5.185	2384.757	354.081	1529.018	406002.940	2352.157	1636.444	3520.682	550.387
σ		3.395	64.576	8.981	147.497	1025.528	116.868	64.507	111.620	22.700
%RSD		65.465	2.708	2.537	9.647	0.253	4.969	3.942	3.170	4.124

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:41:39	64.667	2754.551	2396402.400	28772.126	195772.180	72891.054	13.333	80.000	42338.360
2	18:42:01	75.334	2749.216	2391473.200	32083.180	193109.460	78284.509	13.333	86.667	45667.751
3	18:42:23	78.000	2741.747	2359445.800	31661.706	192510.290	79768.437	20.000	140.001	45647.650
x		72.667	2748.504	2382440.500	30839.004	193797.310	76981.333	15.556	102.223	44551.254
σ		7.055	6.432	20065.889	1802.332	1736.329	3619.157	3.849	32.886	1916.448
%RSD		9.709	0.234	0.842	5.844	0.896	4.701	24.744	32.171	4.302

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:41:39	140.001	260.004	6262.156	126223.570	653.357	220.003	83427.728	25689.580
2	18:42:01	180.002	346.673	5955.283	136334.680	1153.407	166.668	92036.880	24673.437
3	18:42:23	153.335	306.672	6182.101	137518.990	1060.062	186.669	89666.703	26893.053
x		157.779	304.450	6133.180	133359.080	955.608	191.113	88377.104	25752.023
σ		20.367	43.377	159.178	6207.839	265.886	26.944	4447.097	1111.124
%RSD		12.909	14.248	2.595	4.655	27.824	14.098	5.032	4.315

400-171203-c-4-a @5, 7/8/2019 6:45:53 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:45:53	26.667	0.667	85.834	TM 30593232.000	247325.870	60.000	T 6306385.000	137358.820	12708.877
2	18:46:16	6.667	0.000	88.334	TM 29402726.000	235486.520	35.556	T 5935528.900	130683.710	14291.224
3	18:46:37	33.333	0.000	77.500	TM 29034711.000	236277.770	57.778	T 6038359.000	129421.400	13510.031
x		22.222	0.222	83.889	TM 29676890.000	239696.720	51.111	T 6093424.300	132487.980	13503.378
σ		13.878	0.385	5.672	TM 814629.480	6618.871	13.517	T 191462.030	4265.229	791.195
%RSD		62.450	173.205	6.762	TM 2.745	2.761	26.447	T 3.142	3.219	5.859

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:45:53	8.889	524.460	39369.508	103571.090	226705.260	433.344	1233.417	1033.392	468.901
2	18:46:16	2.222	488.902	36892.484	99422.936	216794.530	404.453	973.385	982.275	435.566
3	18:46:37	0.000	448.900	36586.808	98989.354	219502.820	388.897	1031.170	960.051	455.567
x		3.704	487.421	37616.267	100661.130	221000.870	408.898	1079.324	991.906	453.345
σ		4.626	37.802	1526.024	2529.407	5122.378	22.554	136.540	37.607	16.778
%RSD		124.900	7.755	4.057	2.513	2.318	5.516	12.651	3.791	3.701

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:45:53	94.000	6.400	947197.210	28972.761	72259.374	73090.423	6.667	26.667	44086.641
2	18:46:16	77.334	6.133	922895.880	30129.847	68967.285	79111.623	0.000	13.333	44850.363
3	18:46:37	83.334	6.133	941273.410	30578.006	69894.325	80252.670	13.333	13.333	47054.797
x		84.889	6.222	937122.170	29893.538	70373.661	77484.906	6.667	17.778	45330.601
σ		8.442	0.154	12671.359	828.302	1697.583	3848.260	6.667	7.698	1541.252
%RSD		9.944	2.474	1.352	2.771	2.412	4.966	100.000	43.301	3.400

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:45:53	266.671	133.334	6762.514	128488.300	553.350	140.001	91107.590	253.337
2	18:46:16	220.003	193.335	6122.061	142386.400	820.037	113.334	93511.818	133.334
3	18:46:37	213.336	173.335	6362.226	145759.220	846.706	86.667	98376.084	133.334
x		233.336	166.668	6415.600	138877.980	740.031	113.334	94331.831	173.335
σ		29.060	30.551	323.546	9154.395	162.219	26.667	3702.981	69.284
%RSD		12.454	18.330	5.043	6.592	21.921	23.530	3.925	39.971

400-171203-c-5-a @5, 7/8/2019 6:50:06 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:50:06	13.333	0.000	73.334	TM 27830145.000	226712.100	73.334	T 5725755.300	126942.370	12094.707
2	18:50:28	13.333	0.000	74.167	TM 27069628.000	218942.890	48.889	T 5645967.800	122675.500	13790.452
3	18:50:49	53.333	0.000	95.834	TM 27437545.000	223220.600	44.445	T 5679799.400	123191.290	13403.207
x		26.667	0.000	81.111	TM 27445773.000	222958.530	55.556	T 5683840.800	124269.720	13096.122
σ		23.094	0.000	12.757	TM 380325.290	3891.229	15.556	T 40047.029	2328.906	888.602
%RSD		86.603	0.000	15.727	TM 1.386	1.745	28.000	T 0.705	1.874	6.785

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:50:06	2.222	397.786	377.786	79929.845	209859.050	257.781	544.461	204.447	408.898
2	18:50:28	2.222	424.454	304.450	77580.737	200541.120	200.002	602.242	157.779	395.564
3	18:50:49	6.667	397.786	342.229	77842.964	206728.540	240.003	553.350	171.113	415.565
x		3.704	406.676	341.488	78451.182	205709.570	232.596	566.684	177.780	406.676
σ		2.566	15.397	36.674	1287.254	4741.799	29.593	31.113	24.037	10.184
%RSD		69.282	3.786	10.739	1.641	2.305	12.723	5.490	13.521	2.504

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:50:06	62.000	5.600	896984.840	29949.252	64595.345	72956.016	20.000	26.667	42318.267
2	18:50:28	72.667	7.467	873711.490	30203.424	62588.044	77504.536	6.667	6.667	45553.848
3	18:50:49	65.334	8.267	873198.910	29909.120	63366.744	79030.926	0.000	13.333	45841.958
x		66.667	7.111	881298.410	30020.598	63516.711	76497.159	8.889	15.556	44571.358
σ		5.457	1.368	13587.258	159.598	1012.019	3160.259	10.184	10.184	1956.544
%RSD		8.185	19.244	1.542	0.532	1.593	4.131	114.564	65.465	4.390

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:50:06	106.667	120.001	5955.283	133195.330	293.338	146.668	91302.868	140.001
2	18:50:28	100.001	120.001	5868.560	144621.260	713.361	93.334	96806.031	146.668
3	18:50:49	100.001	133.334	5901.915	145881.160	693.360	73.334	98868.045	166.668
x		102.223	124.445	5908.586	141232.580	566.686	104.445	95658.981	151.112
σ		3.849	7.698	43.745	6988.916	236.938	37.909	3910.853	13.878
%RSD		3.765	6.186	0.740	4.949	41.811	36.295	4.088	9.184

400-171203-c-6-a @5, 7/8/2019 6:54:18 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:54:18	33.333	0.000	78.334	TM 49498117.000	484942.750	77.778	T 5564091.300	215870.710	12361.732
2	18:54:39	46.667	0.000	67.500	TM 48359923.000	470810.380	80.000	T 5326192.900	210550.320	12975.921
3	18:55:01	46.667	0.000	75.000	TM 48381288.000	477164.720	77.778	T 5387352.600	216298.480	13696.977
x		42.222	0.000	73.611	TM 48746443.000	477639.280	78.519	T 5425878.900	214239.840	13011.543
σ		7.698	0.000	5.549	TM 651056.360	7078.126	1.283	T 123539.940	3202.369	668.335
%RSD		18.232	0.000	7.538	TM 1.336	1.482	1.634	T 2.277	1.495	5.136

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:54:18	4.444	4607.834	20344.962	7954.590	541811.930	5214.829	2213.603	3700.753	315.561
2	18:54:39	2.222	4452.201	15793.707	6199.891	527675.710	5170.359	2153.588	3378.405	311.116
3	18:55:01	8.889	4761.247	14171.036	5510.559	538713.460	5061.409	2155.811	3505.120	337.784
x		5.185	4607.094	16769.902	6555.013	536067.030	5148.865	2174.334	3528.093	321.487
σ		3.395	154.524	3200.634	1260.121	7430.402	78.936	34.026	162.397	14.287
%RSD		65.465	3.354	19.086	19.224	1.386	1.533	1.565	4.603	4.444

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:54:18	92.000	1540.664	2065050.800	28785.501	168011.650	72080.183	0.000	93.334	43235.903
2	18:54:39	81.334	1495.056	2004335.700	31434.252	160789.460	78085.027	20.000	113.334	46404.802
3	18:55:01	85.334	1459.050	2023953.600	31755.365	165329.820	78271.061	0.000	53.333	45875.459
x		86.223	1498.257	2031113.400	30658.373	164710.310	76145.424	6.667	86.667	45172.055
σ		5.389	40.901	30984.334	1629.882	3650.732	3521.831	11.547	30.551	1697.517
%RSD		6.250	2.730	1.525	5.316	2.216	4.625	173.205	35.251	3.758

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:54:18	146.668	340.006	4734.566	126730.550	553.350	166.668	88791.509	4354.376
2	18:54:39	133.334	420.010	4621.174	137972.450	900.045	106.667	96011.000	4381.055
3	18:55:01	180.002	386.675	4441.084	141716.050	733.363	146.668	96806.031	4461.094
x		153.335	382.230	4598.942	135473.020	728.919	140.001	93869.513	4398.842
σ		24.037	40.186	147.998	7799.142	173.390	30.551	4415.610	55.538
%RSD		15.676	10.514	3.218	5.757	23.787	21.822	4.704	1.263

400-171203-c-7-a @5, 7/8/2019 6:58:32 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:58:32	0.000	0.000	20.833	TM 15021984.000	1355454.100	53.333	69536.037	316092.500	12782.313
2	18:58:55	0.000	0.667	25.000	TM 14829896.000	1319290.500	42.222	67408.995	305646.470	13823.836
3	18:59:17	0.000	0.000	27.500	TM 14949622.000	1317250.700	62.222	65864.402	304288.710	14271.193
x		0.000	0.222	24.444	TM 14933834.000	1330665.100	52.593	67603.145	308675.900	13625.781
σ		0.000	0.385	3.368	TM 97012.378	21492.077	10.021	1843.501	6458.747	763.944
%RSD		0.000	173.205	13.778	TM 0.650	1.615	19.053	2.727	2.092	5.607

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:58:32	2.222	404.453	537.794	83400.816	1114511.600	897.822	602.242	171.113	377.786
2	18:58:55	2.222	433.344	575.574	81985.810	1082728.300	824.482	624.466	162.224	360.007
3	18:59:17	4.444	526.682	471.123	81064.268	1075045.000	846.706	582.241	148.890	386.675
x		2.963	454.826	528.164	82150.298	1090761.600	856.337	602.983	160.742	374.823
σ		1.283	63.883	52.887	1176.927	20923.787	37.607	21.122	11.185	13.579
%RSD		43.301	14.046	10.013	1.433	1.918	4.392	3.503	6.958	3.623

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:58:32	424.677	3.733	714870.550	29173.401	600.020	74658.645	0.000	0.000	43162.221
2	18:58:55	398.675	7.467	706283.410	31374.045	706.694	79591.339	0.000	6.667	45567.248
3	18:59:17	382.008	5.333	706343.370	32852.587	546.683	81992.537	0.000	13.333	47356.357
x		401.787	5.511	709165.780	31133.345	617.799	78747.507	0.000	6.667	45361.942
σ		21.504	1.873	4940.571	1851.366	81.474	3739.055	0.000	6.667	2104.592
%RSD		5.352	33.986	0.697	5.947	13.188	4.748	0.000	100.000	4.640

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:58:32	93.334	120.001	3380.629	135854.240	253.337	93.334	92124.427	1493.456
2	18:58:55	86.667	86.667	3400.636	146700.860	593.353	126.668	99252.197	1333.431
3	18:59:17	86.667	86.667	3027.171	150014.270	566.684	93.334	96859.934	1240.085
x		88.889	97.778	3269.478	144189.790	471.125	104.445	96078.852	1355.657
σ		3.849	19.245	210.083	7406.466	189.081	19.245	3627.512	128.140
%RSD		4.330	19.683	6.426	5.137	40.134	18.426	3.776	9.452

400-171203-c-8-a @5, 7/8/2019 7:02:48 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:02:48	0.000	0.000	0.833	19480.850	622.244	42.222	17601.468	180.002	13670.270
2	19:03:09	0.000	0.000	0.833	16445.974	477.790	55.556	17592.562	120.001	13910.635
3	19:03:31	0.000	0.000	1.667	14749.734	440.011	64.445	17790.724	91.112	14738.604
x		0.000	0.000	1.111	16892.186	513.348	54.074	17661.584	130.371	14106.503
σ		0.000	0.000	0.481	2396.914	96.179	11.185	111.927	45.343	560.453
%RSD		0.000	0.000	43.301	14.189	18.736	20.685	0.634	34.780	3.973

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:02:48	0.000	388.897	297.783	208.891	1082.287	15.556	106.667	122.223	162.224
2	19:03:09	0.000	404.453	364.452	215.558	906.712	22.222	51.111	148.890	228.892
3	19:03:31	2.222	480.013	320.006	204.447	893.377	8.889	71.111	108.890	211.114
x		0.741	424.454	327.413	209.632	960.792	15.556	76.297	126.668	200.743
σ		1.283	48.739	33.946	5.593	105.429	6.667	28.139	20.367	34.523
%RSD		173.205	11.483	10.368	2.668	10.973	42.857	36.881	16.079	17.197

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:02:48	10.000	2.667	420.010	30404.091	93.334	82156.227	0.000	0.000	47155.316
2	19:03:09	13.333	3.467	302.227	32504.673	140.001	87312.846	6.667	6.667	50406.023
3	19:03:31	8.667	2.400	248.892	32390.935	173.335	88493.065	6.667	0.000	50989.262
x		10.667	2.844	323.710	31766.567	135.557	85987.379	4.444	2.222	49516.867
σ		2.404	0.555	87.558	1181.308	40.185	3369.944	3.849	3.849	2065.849
%RSD		22.535	19.516	27.048	3.719	29.645	3.919	86.603	173.205	4.172

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:02:48	73.334	80.000	46.667	132234.790	353.340	53.333	97500.056	6.667
2	19:03:09	126.668	133.334	33.333	145440.850	640.023	93.334	103445.220	13.333
3	19:03:31	93.334	100.001	20.000	146362.130	473.346	93.334	106803.720	20.000
x		97.778	104.445	33.333	141345.920	488.903	80.000	102583.000	13.333
σ		26.943	26.943	13.333	7903.908	143.973	23.094	4711.383	6.667
%RSD		27.556	25.797	40.000	5.592	29.448	28.868	4.593	50.000

ccv, 7/8/2019 7:07:01 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:07:01	80.000	150.668	75.834	802459.730	442763.630	225523.060	863382.210	59789.301	12882.455
2	19:07:22	160.001	140.001	65.000	780059.190	433089.480	217989.270	844404.480	57635.458	13543.414
3	19:07:44	126.668	156.668	74.167	793090.900	434792.390	223393.670	862068.060	59605.880	13476.648
x		122.223	149.112	71.667	791869.940	436881.830	222302.000	856618.250	59010.213	13300.839
σ		40.185	8.442	5.833	11250.073	5164.460	3883.727	10597.824	1194.100	363.866
%RSD		32.879	5.661	8.140	1.421	1.182	1.747	1.237	2.024	2.736

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:07:01	4247.659	142372.860	185960.490	985824.890	130665.680	347039.950	95570.843	273895.920	61811.648
2	19:07:22	4332.143	140878.740	182956.000	961767.800	124322.080	333634.050	92250.136	267077.490	60332.874
3	19:07:44	4249.882	142585.030	185729.170	976883.690	124907.810	340476.410	93190.768	264167.630	60965.966
x		4276.561	141945.540	184881.890	974825.460	126631.860	340383.470	93670.582	268380.350	61036.829
σ		48.148	929.951	1671.872	12159.898	3505.645	6703.436	1711.560	4993.296	741.929
%RSD		1.126	0.655	0.904	1.247	2.768	1.969	1.827	1.861	1.216

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:07:01	50607.135	4307.687	272849.600	29240.283	190706.190	75420.450	137850.620	124283.790	48549.292
2	19:07:22	48684.009	4143.077	269015.620	31193.425	181296.580	82169.681	137383.630	121634.990	52182.671
3	19:07:44	48701.435	4156.150	265601.850	32163.463	185418.480	83349.236	132843.570	119682.660	50640.654
x		49330.860	4202.305	269155.690	30865.724	185807.080	80313.122	136025.940	121867.150	50457.539
σ		1105.321	91.498	3625.901	1488.888	4716.825	4278.028	2765.890	2309.330	1823.598
%RSD		2.241	2.177	1.347	4.824	2.539	5.327	2.033	1.895	3.614

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:07:01	263785.660	416598.330	127413.330	138493.620	1751332.600	1210630.500	93680.205	2422096.600
2	19:07:22	263566.100	404008.790	126054.590	147148.000	1664707.400	1166614.400	104146.490	2291498.500
3	19:07:44	260732.790	420645.100	128190.810	152088.310	1714709.300	1172399.100	105913.400	2334844.000
x		262694.850	413750.740	127219.580	145909.970	1710249.800	1183214.700	101246.700	2349479.700
σ		1702.734	8676.015	1081.214	6881.383	43484.457	23918.326	6612.062	66517.831
%RSD		0.648	2.097	0.850	4.716	2.543	2.021	6.531	2.831

ccb, 7/8/2019 7:11:14 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:11:14	0.000	0.000	0.000	12221.543	880.043	400.009	16973.609	180.002	12768.961
2	19:11:35	6.667	0.000	0.833	11591.830	975.608	384.453	17271.948	213.336	13897.281
3	19:11:58	0.000	0.000	0.833	11140.155	977.830	371.119	17113.871	240.003	14164.359
x		2.222	0.000	0.556	11651.176	944.494	385.193	17119.809	211.114	13610.201
σ		3.849	0.000	0.481	543.131	55.827	14.459	149.258	30.062	740.672
%RSD		173.205	0.000	86.603	4.662	5.911	3.754	0.872	14.240	5.442

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:11:14	4.444	453.345	526.682	1806.846	877.820	551.128	208.891	515.570	191.113
2	19:11:35	11.111	455.567	524.460	1775.729	806.702	573.351	175.557	491.124	162.224
3	19:11:58	13.333	437.788	546.683	1769.061	826.704	520.015	182.224	466.679	151.112
x		9.630	448.900	532.608	1783.879	837.076	548.165	188.891	491.124	168.150
σ		4.626	9.687	12.240	20.168	36.676	26.791	17.639	24.446	20.648
%RSD		48.038	2.158	2.298	1.131	4.381	4.887	9.338	4.978	12.280

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:11:14	86.000	9.333	522.237	29775.348	533.349	80844.547	273.337	253.337	46666.135
2	19:11:35	74.667	8.000	475.568	30638.208	660.024	84623.146	206.669	126.668	50050.734
3	19:11:58	75.334	9.333	395.564	30865.642	560.017	87009.963	160.001	133.334	48938.034
x		78.667	8.889	464.456	30426.400	584.463	84159.218	213.336	171.113	48551.635
σ		6.360	0.770	64.063	575.180	66.782	3108.780	56.961	71.286	1725.067
%RSD		8.084	8.660	13.793	1.890	11.426	3.694	26.700	41.660	3.553

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:11:14	580.019	1280.090	206.669	136111.380	6775.858	1800.178	100782.230	3507.343
2	19:11:35	580.019	1460.117	233.336	138392.090	8564.032	1580.137	103182.260	3187.225
3	19:11:58	620.021	1526.795	246.670	146504.390	7429.702	1813.514	104483.660	2940.476
x		593.353	1422.334	228.892	140335.950	7589.864	1731.277	102816.050	3211.681
σ		23.096	127.619	20.368	5462.385	904.782	131.060	1877.695	284.224
%RSD		3.892	8.972	8.898	3.892	11.921	7.570	1.826	8.850

400-171203-c-9-a @5, 7/8/2019 7:15:28 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:15:28	6.667	0.000	49.167	TM 14289234.000	2383990.100	560.017	166889.040	312884.340	13670.270
2	19:15:50	0.000	0.000	34.167	TM 14089154.000	2327942.100	720.029	162474.590	293585.250	14504.896
3	19:16:11	0.000	0.000	49.167	TM 14242027.000	2339777.200	684.470	163739.200	296614.570	13850.543
x		2.222	0.000	44.167	TM 14206805.000	2350569.800	654.839	164367.610	301028.050	14008.570
σ		3.849	0.000	8.660	TM 104587.150	29541.565	84.020	2273.327	10378.960	439.180
%RSD		173.205	0.000	19.608	TM 0.736	1.257	12.831	1.383	3.448	3.135

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:15:28	17.778	697.805	511.125	13022.654	1289928.300	2186.930	657.802	700.027	588.908
2	19:15:50	26.667	631.133	484.457	12152.562	1223273.700	2218.048	622.244	624.466	571.129
3	19:16:11	28.889	653.357	546.683	12134.760	1248637.600	2055.788	608.909	628.911	640.023
x		24.444	660.765	514.089	12436.659	1253946.500	2153.589	629.651	651.134	600.020
σ		5.879	33.947	31.219	507.565	33642.967	86.115	25.274	42.400	35.766
%RSD		24.052	5.138	6.073	4.081	2.683	3.999	4.014	6.512	5.961

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:15:28	58.667	4.267	1397615.400	28979.449	300.005	75082.111	6.667	13.333	44133.535
2	19:15:50	72.667	3.733	1388298.900	32257.127	386.675	80920.776	13.333	6.667	48160.566
3	19:16:11	83.334	2.933	1368435.900	32076.490	406.676	82835.685	6.667	13.333	47671.330
x		71.556	3.644	1384783.400	31104.356	364.452	79612.857	8.889	11.111	46655.143
σ		12.371	0.671	14904.038	1842.438	56.702	4038.869	3.849	3.849	2197.435
%RSD		17.288	18.414	1.076	5.923	15.558	5.073	43.301	34.641	4.710

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:15:28	160.001	206.669	7583.161	132140.090	1246.752	180.002	87754.849	8911.032
2	19:15:50	166.668	326.673	8063.575	139962.530	1800.178	120.001	93814.917	8410.555
3	19:16:11	166.668	320.006	7443.046	146260.510	1926.871	226.669	98510.865	9458.251
x		164.446	284.449	7696.594	139454.380	1657.934	175.557	93360.210	8926.613
σ		3.849	67.442	325.445	7073.911	361.684	53.473	5392.406	524.022
%RSD		2.341	23.710	4.228	5.073	21.815	30.459	5.776	5.870

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:19:41	0.000	0.000	51.667	TM 17174050.000	1706402.000	440.011	234501.550	206617.160	13189.561
2	19:20:03	0.000	0.000	39.167	TM 16745298.000	1653521.500	415.565	231642.980	204423.960	14758.637
3	19:20:25	0.000	0.667	45.000	TM 16887234.000	1694542.300	426.677	235504.760	205930.730	14758.637
x		0.000	0.222	45.278	TM 16935527.000	1684822.000	427.417	233883.100	205657.280	14235.612
σ		0.000	0.385	6.255	TM 218417.580	27747.983	12.240	2003.799	1121.878	905.906
%RSD		0.000	173.205	13.814	TM 1.290	1.647	2.864	0.857	0.546	6.364

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:19:41	15.556	540.016	422.232	12488.572	869140.730	2213.603	820.037	484.457	497.791
2	19:20:03	6.667	562.240	444.455	12886.905	846568.040	2346.970	728.918	477.790	342.229
3	19:20:25	11.111	546.683	437.788	12588.710	864772.130	2431.436	717.806	408.898	404.453
x		11.111	549.646	434.825	12654.729	860160.300	2330.670	755.587	457.049	414.825
σ		4.444	11.404	11.404	207.211	11972.189	109.828	56.091	41.833	78.298
%RSD		40.000	2.075	2.623	1.637	1.392	4.712	7.424	9.153	18.875

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:19:41	130.001	5.067	1026952.500	30210.113	640.023	73760.245	6.667	13.333	42847.404
2	19:20:03	127.334	5.867	992460.900	31768.745	646.690	81458.883	6.667	6.667	46646.032
3	19:20:25	142.001	3.467	990624.790	31855.716	520.015	82241.437	0.000	0.000	48696.744
x		133.112	4.800	1003346.100	31278.191	602.242	79153.522	4.444	6.667	46063.393
σ		7.813	1.222	20464.396	926.005	71.289	4687.075	3.849	6.667	2967.877
%RSD		5.869	25.459	2.040	2.961	11.837	5.921	86.603	100.000	6.443

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:19:41	160.001	100.001	5621.738	130685.970	493.347	133.334	83145.157	9491.619
2	19:20:03	113.334	186.669	5781.838	140822.320	1200.079	66.667	93740.825	8997.784
3	19:20:25	200.002	220.003	5428.287	146043.730	1040.060	253.337	95795.410	9565.029
x		157.779	168.891	5610.621	139184.010	911.162	151.113	90893.797	9351.477
σ		43.377	61.945	177.038	7808.862	370.579	94.596	6788.696	308.499
%RSD		27.492	36.678	3.155	5.610	40.671	62.600	7.469	3.299

400-171203-c-11-a @5, 7/8/2019 7:23:57 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:23:57	0.000	0.000	74.167	TM 29196539.000	2902378.100	188.891	632691.620	386556.210	13169.532
2	19:24:18	0.000	0.000	55.834	TM 28372261.000	2861579.900	140.001	618413.140	378788.150	13710.331
3	19:24:40	0.000	0.000	52.500	TM 28945972.000	2855982.100	137.779	628882.700	384275.860	14244.484
x		0.000	0.000	60.834	TM 28838257.000	2873313.400	155.557	626662.480	383206.740	13708.116
σ		0.000	0.000	11.667	TM 422564.130	25325.888	28.889	7393.629	3992.861	537.480
%RSD		0.000	0.000	19.178	TM 1.465	0.881	18.572	1.180	1.042	3.921

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:23:57	8.889	524.460	11952.296	55312.203	1664879.500	2491.453	1351.212	686.693	315.561
2	19:24:18	2.222	500.014	9273.617	54064.733	1642350.900	2309.182	1291.203	624.466	388.897
3	19:24:40	2.222	528.904	8123.628	54415.706	1643241.200	2480.338	1244.530	600.020	386.675
x		4.444	517.793	9783.180	54597.547	1650157.200	2426.991	1295.648	637.059	363.711
σ		3.849	15.556	1964.540	643.308	12757.632	102.177	53.480	44.688	41.714
%RSD		86.603	3.004	20.081	1.178	0.773	4.210	4.128	7.015	11.469

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:23:57	184.002	5.067	1919043.600	29507.812	960.051	74548.861	6.667	0.000	45171.950
2	19:24:18	182.002	4.000	1852214.700	32692.010	1006.722	79759.469	6.667	6.667	48140.459
3	19:24:40	167.335	5.333	1890464.900	31942.687	846.706	80694.332	6.667	0.000	48629.720
x		177.780	4.800	1887241.100	31380.836	937.826	78334.221	6.667	2.222	47314.043
σ		9.100	0.706	33530.884	1664.793	82.291	3311.375	0.000	3.849	1871.167
%RSD		5.119	14.699	1.777	5.305	8.775	4.227	0.000	173.205	3.955

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:23:57	146.668	73.334	4901.321	124452.740	466.679	126.668	85654.964	4127.604
2	19:24:18	126.668	186.669	4247.659	132566.230	860.041	66.667	94939.838	4007.550
3	19:24:40	126.668	200.002	4567.814	137958.910	766.699	126.668	100330.600	4454.424
x		133.334	153.335	4572.265	131659.300	697.806	106.667	93641.802	4196.526
σ		11.547	69.603	326.854	6798.608	205.531	34.641	7423.428	231.272
%RSD		8.660	45.393	7.149	5.164	29.454	32.476	7.927	5.511

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:28:11	0.000	0.667	43.333	TM 44666833.000	1861257.200	331.117	1023627.000	245328.380	13369.824
2	19:28:34	0.000	0.000	55.834	TM 44272525.000	1803740.400	266.671	1012391.600	242514.370	13356.471
3	19:28:56	6.667	0.000	60.834	TM 44776918.000	1830171.600	288.893	1027116.200	241818.420	14538.282
x		2.222	0.222	53.333	TM 44572092.000	1831723.100	295.560	1021044.900	243220.390	13754.859
σ		3.849	0.385	9.014	TM 265207.580	28789.773	32.736	7694.433	1858.443	678.497
%RSD		173.205	173.205	16.901	TM 0.595	1.572	11.076	0.754	0.764	4.933

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:28:11	8.889	513.348	397.786	34993.889	1526812.000	2122.470	1095.622	1340.099	295.560
2	19:28:34	35.556	548.905	422.232	34681.584	1461882.000	1875.749	1020.057	1322.318	306.672
3	19:28:56	13.333	544.461	368.896	34717.276	1496931.400	2075.793	971.163	1357.879	282.227
x		19.259	535.571	396.305	34797.583	1495208.500	2024.671	1028.947	1340.099	294.820
σ		14.287	19.374	26.699	170.940	32499.297	131.064	62.704	17.780	12.239
%RSD		74.182	3.617	6.737	0.491	2.174	6.473	6.094	1.327	4.152

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:28:11	111.334	9.067	1565532.400	29173.401	760.032	75595.226	6.667	6.667	43631.118
2	19:28:34	105.334	5.867	1522199.300	30865.642	746.697	80965.617	13.333	0.000	48348.224
3	19:28:56	103.334	7.467	1542159.000	33575.220	693.360	83340.265	6.667	6.667	47443.476
x		106.667	7.467	1543296.900	31204.755	733.363	79967.036	8.889	4.444	46474.273
σ		4.163	1.600	21688.978	2220.417	35.279	3967.906	3.849	3.849	2503.456
%RSD		3.903	21.429	1.405	7.116	4.811	4.962	43.301	86.603	5.387

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:28:11	86.667	133.334	6649.097	131524.600	433.344	93.334	87687.538	1593.473
2	19:28:34	73.334	146.668	6635.754	141032.200	713.361	153.335	97190.096	1533.463
3	19:28:56	106.667	120.001	6795.873	144932.830	593.353	133.334	96145.746	1540.130
x		88.889	133.334	6693.575	139163.210	580.019	126.668	93674.460	1555.689
σ		16.778	13.334	88.843	6896.742	140.484	30.551	5211.055	32.892
%RSD		18.875	10.000	1.327	4.956	24.221	24.119	5.563	2.114

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:32:27	0.000	0.000	37.500	TM 26722978.000	2422216.500	982.275	90636.247	346723.780	12915.835
2	19:32:50	0.000	0.667	44.167	TM 25652139.000	2313209.100	913.379	86507.423	326059.870	14231.130
3	19:33:12	0.000	0.667	30.833	TM 25409840.000	2321985.900	888.932	87200.666	324943.150	15192.684
x		0.000	0.444	37.500	TM 25928319.000	2352470.500	928.196	88114.779	332575.600	14113.217
σ		0.000	0.385	6.667	TM 698777.180	60561.037	48.403	2210.995	12265.399	1142.995
%RSD		0.000	86.603	17.778	TM 2.695	2.574	5.215	2.509	3.688	8.099

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:32:27	40.000	784.478	433.344	49367.011	1899276.400	1566.802	906.712	644.467	557.795
2	19:32:50	53.333	768.921	377.786	46954.280	1804043.800	1589.028	946.716	668.914	508.903
3	19:33:12	53.333	715.584	371.119	46623.696	1809512.200	1522.350	844.484	715.584	484.457
x		48.889	756.328	394.083	47648.329	1837610.800	1559.393	899.304	676.322	517.052
σ		7.698	36.133	34.164	1497.572	53473.927	33.951	51.517	36.132	37.342
%RSD		15.746	4.777	8.669	3.143	2.910	2.177	5.729	5.342	7.222

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:32:27	134.001	5.333	1325215.500	28591.557	373.341	74999.209	6.667	6.667	44528.788
2	19:32:50	122.667	4.000	1273826.100	31956.067	326.673	81183.099	20.000	6.667	46786.753
3	19:33:12	134.668	4.267	1284699.800	33521.690	373.341	82030.657	20.000	20.000	48723.554
x		130.445	4.533	1294580.500	31356.438	357.785	79404.321	15.556	11.111	46679.698
σ		6.744	0.706	27082.092	2519.170	26.944	3838.405	7.698	7.698	2099.431
%RSD		5.170	15.563	2.092	8.034	7.531	4.834	49.487	69.282	4.498

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:32:27	113.334	60.000	3554.028	138398.860	386.675	186.669	92791.156	2573.698
2	19:32:50	93.334	120.001	3373.959	143585.030	593.353	126.668	96293.969	2920.469
3	19:33:12	120.001	126.668	3280.592	140355.180	586.686	213.336	96792.555	2787.094
x		108.890	102.223	3402.860	140779.690	522.238	175.557	95292.560	2760.420
σ		13.878	36.718	138.990	2619.018	117.448	44.390	2180.576	174.918
%RSD		12.745	35.919	4.085	1.860	22.489	25.285	2.288	6.337

400-171203-c-14-a @5, 7/8/2019 7:36:45 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:36:45	0.000	0.000	30.833	TM 11602377.000	2113526.000	1088.954	51813.905	478241.360	13490.001
2	19:37:06	0.000	0.000	25.000	TM 11285438.000	2044827.800	964.496	50931.159	452471.190	14224.453
3	19:37:28	0.000	0.667	17.500	TM 11305467.000	2040788.600	975.608	49771.429	450389.310	14451.477
x		0.000	0.222	24.444	TM 11397761.000	2066380.800	1009.686	50838.831	460367.290	14055.311
σ		0.000	0.385	6.684	TM 177485.760	40878.855	68.873	1024.363	15514.362	502.559
%RSD		0.000	173.205	27.344	TM 1.557	1.978	6.821	2.015	3.370	3.576

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:36:45	66.667	768.921	8913.256	107001.580	1461365.800	1666.820	673.358	882.265	822.259
2	19:37:06	53.333	651.134	8548.462	105261.450	1417625.600	1531.240	755.587	895.600	748.920
3	19:37:28	71.111	680.025	8757.550	104265.620	1431184.100	1622.367	726.696	768.921	795.590
x		63.704	700.027	8739.756	105509.550	1436725.200	1606.809	718.547	848.929	788.923
σ		9.252	61.388	183.047	1384.752	22390.381	69.116	41.716	69.608	37.122
%RSD		14.523	8.769	2.094	1.312	1.558	4.301	5.806	8.200	4.705

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:36:45	298.005	6.133	1219538.200	31327.217	593.353	75106.758	13.333	6.667	45017.855
2	19:37:06	271.337	3.467	1156912.900	30972.672	553.350	81048.573	13.333	0.000	48234.288
3	19:37:28	283.338	3.467	1188437.300	32330.721	573.351	81510.453	20.000	0.000	48877.711
x		284.227	4.356	1188296.100	31543.537	573.351	79221.928	15.556	2.222	47376.618
σ		13.356	1.540	31312.877	704.393	20.001	3571.317	3.849	3.849	2067.927
%RSD		4.699	35.348	2.635	2.233	3.488	4.508	24.744	173.205	4.365

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:36:45	200.002	113.334	4247.659	135367.050	273.337	140.001	92568.908	1193.412
2	19:37:06	160.001	173.335	3654.068	146917.650	513.348	146.668	96637.586	1213.414
3	19:37:28	120.001	126.668	4114.264	146091.150	533.349	120.001	99980.108	1220.082
x		160.001	137.779	4005.330	142791.950	440.011	135.557	96395.534	1208.969
σ		40.001	31.506	311.428	6443.417	144.690	13.878	3711.524	13.880
%RSD		25.000	22.867	7.775	4.512	32.883	10.238	3.850	1.148

400-171203-c-14-b du @5, 7/8/2019 7:40:58 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:40:58	0.000	0.000	20.833	TM 11366028.000	2080781.400	935.604	49682.054	458726.620	12395.111
2	19:41:19	0.000	0.000	28.333	TM 11120174.000	2010114.300	875.598	49293.279	455480.460	14685.185
3	19:41:41	0.000	0.667	24.167	TM 11156188.000	2034014.400	902.267	50647.358	463114.230	14317.933
x		0.000	0.222	24.444	TM 11214130.000	2041636.700	904.489	49874.230	459107.100	13799.410
σ		0.000	0.385	3.758	TM 132774.160	35944.907	30.065	697.195	3831.078	1229.943
%RSD		0.000	173.205	15.372	TM 1.184	1.761	3.324	1.398	0.834	8.913

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:40:58	88.889	651.134	662.246	102067.560	1422977.500	1500.124	628.911	624.466	464.456
2	19:41:19	68.889	688.915	604.465	100016.060	1376298.600	1500.124	548.905	595.575	491.124
3	19:41:41	75.556	695.582	653.357	100308.140	1397762.300	1408.998	660.024	582.241	506.681
x		77.778	678.544	640.023	100797.250	1399012.800	1469.749	612.613	600.761	487.420
σ		10.184	23.970	31.113	1109.770	23364.564	52.611	57.324	21.585	21.355
%RSD		13.093	3.533	4.861	1.101	1.670	3.580	9.357	3.593	4.381

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:40:58	272.004	3.200	1173814.400	29133.273	220.003	75478.708	13.333	6.667	44696.274
2	19:41:19	292.671	5.333	1150800.800	31588.118	146.668	81497.000	13.333	0.000	48542.589
3	19:41:41	301.338	3.200	1162156.100	31735.296	126.668	81858.000	20.000	6.667	48375.033
x		288.671	3.911	1162257.100	30818.895	164.446	79611.236	15.556	4.444	47204.632
σ		15.071	1.232	11507.132	1461.645	49.142	3583.423	3.849	3.849	2173.917
%RSD		5.221	31.492	0.990	4.743	29.883	4.501	24.744	86.603	4.605

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:40:58	126.668	120.001	3980.871	129658.070	220.003	120.001	92993.205	1166.742
2	19:41:19	126.668	100.001	4067.576	145251.190	493.347	200.002	100458.670	1026.725
3	19:41:41	133.334	86.667	3880.828	146721.180	440.011	166.668	99764.424	1133.404
x		128.890	102.223	3976.425	140543.480	384.453	162.224	97738.768	1108.957
σ		3.849	16.778	93.453	9455.650	144.894	40.185	4124.411	73.140
%RSD		2.986	16.413	2.350	6.728	37.688	24.772	4.220	6.595

ccv, 7/8/2019 7:45:11 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:45:11	86.667	174.002	60.000	812953.430	451901.660	229215.940	889385.370	58386.896	13042.683
2	19:45:32	66.667	138.001	65.834	788268.440	429950.040	222168.630	844443.410	57579.549	12635.442
3	19:45:54	100.001	144.668	60.834	804865.790	444323.720	227655.230	879559.310	58767.112	14411.414
x		84.445	152.224	62.222	802029.220	442058.470	226346.600	871129.360	58244.519	13363.179
σ		16.778	19.153	3.155	12584.588	11149.747	3701.421	23627.161	606.449	930.354
%RSD		19.868	12.582	5.070	1.569	2.522	1.635	2.712	1.041	6.962

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:45:11	4401.065	147143.480	187464.240	1007256.500	130483.080	360432.930	97958.275	277447.900	63169.825
2	19:45:32	4216.533	141616.740	184327.740	983157.950	127688.260	346961.490	94510.959	267667.810	62004.062
3	19:45:54	4303.240	145005.080	187813.560	987124.060	127302.910	355557.580	96823.999	274024.140	62818.514
x		4306.946	144588.430	186535.180	992512.840	128491.420	354317.330	96431.078	273046.620	62664.134
σ		92.322	2786.828	1919.662	12921.456	1735.560	6820.821	1756.925	4962.782	598.018
%RSD		2.144	1.927	1.029	1.302	1.351	1.925	1.822	1.818	0.954

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:45:11	51281.565	4318.626	273900.500	29353.981	190563.240	77300.588	138337.940	125696.340	49192.737
2	19:45:32	49573.463	4258.064	270047.770	30872.332	191121.440	82461.192	138236.410	120358.160	50734.509
3	19:45:54	50323.568	4286.344	269823.480	33073.386	190481.550	83764.134	136970.810	125594.960	50781.436
x		50392.865	4287.678	271257.250	31099.900	190722.080	81175.305	137848.390	123883.150	50236.227
σ		856.157	30.303	2291.866	1870.116	348.262	3418.258	761.701	3053.154	903.994
%RSD		1.699	0.707	0.845	6.013	0.183	4.211	0.553	2.465	1.799

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:45:11	268088.830	429470.370	132417.420	138500.390	1856718.700	1228712.500	97021.645	2394908.000
2	19:45:32	259004.430	407875.860	131044.400	143801.750	1775874.000	1210296.800	105960.610	2321321.800
3	19:45:54	257331.240	424938.000	130226.100	151098.680	1758314.200	1238777.700	107727.860	2484430.300
x		261474.830	420761.410	131229.310	144466.940	1796969.000	1225929.000	103570.040	2400220.000
σ		5788.666	11386.996	1107.297	6325.432	52484.374	14443.017	5739.504	81683.890
%RSD		2.214	2.706	0.844	4.378	2.921	1.178	5.542	3.403

ccb, 7/8/2019 7:49:26 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:49:26	6.667	0.000	1.667	11500.603	1202.302	444.455	16793.274	244.448	12768.961
2	19:49:49	0.000	0.000	0.833	11084.531	986.720	435.566	17071.570	215.558	13910.635
3	19:50:12	0.000	0.667	3.333	11133.480	975.608	446.678	17581.429	182.224	14277.870
x		2.222	0.222	1.944	11239.538	1054.877	442.233	17148.758	214.077	13652.489
σ		3.849	0.385	1.273	227.410	127.795	5.880	399.707	31.138	786.881
%RSD		173.205	173.205	65.465	2.023	12.115	1.330	2.331	14.545	5.764

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:49:26	13.333	453.345	551.128	1904.644	948.938	564.462	255.559	500.014	208.891
2	19:49:49	11.111	455.567	566.684	1946.875	837.816	560.017	166.668	462.234	186.669
3	19:50:12	4.444	482.235	502.236	1742.389	888.932	535.571	191.113	495.569	162.224
x		9.630	463.716	540.016	1864.636	891.896	553.350	204.447	485.939	185.928
σ		4.626	16.077	33.630	107.954	55.620	15.556	45.921	20.649	23.343
%RSD		48.038	3.467	6.228	5.790	6.236	2.811	22.461	4.249	12.555

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:49:26	84.667	11.200	604.465	29521.188	533.349	78921.089	213.336	193.335	47959.507
2	19:49:49	85.334	9.600	457.789	30685.032	526.682	85578.695	200.002	153.335	49480.961
3	19:50:12	90.000	7.200	493.347	31568.048	520.015	85545.047	220.003	153.335	49782.601
x		86.667	9.333	518.534	30591.423	526.682	83348.277	211.114	166.668	49074.356
σ		2.906	2.013	76.513	1026.636	6.667	3834.094	10.184	23.094	977.197
%RSD		3.353	21.571	14.756	3.356	1.266	4.600	4.824	13.857	1.991

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:49:26	606.687	1153.407	233.336	136036.940	6815.888	2133.584	102332.740	3427.313
2	19:49:49	540.016	1386.772	240.003	146206.320	8624.089	1653.484	106372.040	3013.833
3	19:50:12	540.016	1393.440	260.004	143530.850	8103.610	1666.820	103424.990	3133.873
x		562.240	1311.206	244.448	141924.700	7847.862	1817.962	104043.260	3191.673
σ		38.492	136.699	13.878	5271.512	930.835	273.417	2089.421	212.713
%RSD		6.846	10.425	5.677	3.714	11.861	15.040	2.008	6.665

400-171203-c-14-c ms @5, 7/8/2019 7:53:42 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:53:42	6.667	3.333	72.500	TM 10956127.000	2004987.600	4289.901	113679.690	448496.890	13516.708
2	19:54:04	13.333	6.667	66.667	TM 10673101.000	1971928.600	4223.203	112309.480	436805.530	13683.624
3	19:54:26	0.000	6.667	74.167	TM 10913692.000	1986762.800	4258.775	113762.940	445685.800	14004.111
x		6.667	5.556	71.111	TM 10847640.000	1987893.000	4257.293	113250.700	443662.740	13734.814
σ		6.667	1.925	3.938	TM 152637.290	16558.493	33.374	816.185	6102.585	247.701
%RSD		100.000	34.641	5.538	TM 1.407	0.833	0.784	0.721	1.376	1.803

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:53:42	3373.959	56669.413	29394.111	105508.730	1419818.200	132426.440	36776.460	51677.576	23849.019
2	19:54:04	3236.131	55960.598	27907.213	102714.790	1374416.500	130370.370	35694.382	50580.320	22848.677
3	19:54:26	3458.436	56566.553	29688.398	104436.460	1410441.800	133930.450	36312.378	50832.834	23880.212
x		3356.175	56398.854	28996.574	104219.990	1401558.800	132242.420	36261.073	51030.243	23525.970
σ		112.214	383.010	954.820	1409.495	23968.893	1787.160	542.860	574.648	586.760
%RSD		3.344	0.679	3.293	1.352	1.710	1.351	1.497	1.126	2.494

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:53:42	4332.365	321.872	1341510.600	30430.847	142880.730	75077.630	25067.848	4954.683	46552.220
2	19:54:04	4217.645	326.139	1310428.900	32390.935	145962.440	79526.329	24172.093	4627.844	50010.514
3	19:54:26	4154.282	328.539	1329790.300	32431.078	143551.170	81629.290	24853.928	4207.640	50452.948
x		4234.764	325.517	1327243.300	31750.953	144131.450	78744.416	24697.956	4596.722	49005.227
σ		90.267	3.377	15696.611	1143.422	1620.735	3345.087	467.803	374.493	2135.854
%RSD		2.132	1.037	1.183	3.601	1.124	4.248	1.894	8.147	4.358

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:53:42	194348.790	159317.220	50385.911	132945.030	125784.210	86651.003	86657.733	175552.140
2	19:54:04	191489.060	153010.250	49708.866	139190.810	121925.510	83912.156	95350.772	167998.070
3	19:54:26	192932.430	153478.040	50633.951	145427.300	121918.750	84019.810	99380.251	173758.170
x		192923.430	155268.500	50242.909	139187.720	123209.490	84860.990	93796.252	172436.130
σ		1429.888	3514.080	478.834	6241.135	2229.778	1551.131	6502.154	3946.751
%RSD		0.741	2.263	0.953	4.484	1.810	1.828	6.932	2.289

400-171203-c-14-d msd @5, 7/8/2019 7:57:55 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:57:55	0.000	3.333	80.000	TM 11036756.000	2031020.400	3754.108	113369.180	443472.520	13149.503
2	19:58:18	6.667	8.667	81.667	TM 10703283.000	1973689.800	3776.340	113555.930	440744.540	14518.250
3	19:58:39	6.667	8.000	75.000	TM 10912180.000	1982782.200	3778.563	115000.590	445165.670	13883.927
x		4.444	6.667	78.889	TM 10884073.000	1995830.800	3769.670	113975.230	443127.570	13850.560
σ		3.849	2.906	3.469	TM 168504.210	30812.287	13.523	892.880	2230.658	684.983
%RSD		86.603	43.589	4.398	TM 1.548	1.544	0.359	0.783	0.503	4.946

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:57:55	3542.913	56647.052	61916.804	114503.260	1412968.300	135373.820	37537.338	52846.490	23955.967
2	19:58:18	3500.674	56240.092	52198.316	108553.150	1369813.100	131159.380	36515.411	50969.149	22797.438
3	19:58:39	3407.305	56432.390	48529.185	110854.000	1389339.100	133262.970	36696.136	51858.603	23443.522
x		3483.631	56439.845	54214.768	111303.470	1390706.800	133265.390	36916.295	51891.414	23398.976
σ		69.392	203.582	6917.850	3000.411	21610.066	2107.222	545.377	939.100	580.548
%RSD		1.992	0.361	12.760	2.696	1.554	1.581	1.477	1.810	2.481

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:57:55	4270.336	360.540	1349956.900	30230.179	145461.170	75810.339	25455.589	4447.754	46103.274
2	19:58:18	4179.627	347.207	1327860.800	31574.738	144756.730	82517.253	25268.402	4214.310	49561.398
3	19:58:39	4395.062	331.206	1343550.400	32678.629	147154.770	82562.102	24994.312	4447.754	50982.557
x		4281.675	346.318	1340456.000	31494.515	145790.890	80296.565	25239.434	4369.940	48882.410
σ		108.164	14.687	11368.370	1226.195	1232.553	3885.250	231.999	134.779	2509.506
%RSD		2.526	4.241	0.848	3.893	0.845	4.839	0.919	3.084	5.134

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:57:55	201338.460	155207.030	51968.114	133452.390	121580.940	85735.720	90272.656	174668.700
2	19:58:18	194015.110	152739.090	49521.179	143375.090	124452.740	83690.124	94845.528	174689.090
3	19:58:39	204024.010	155084.970	50949.037	148225.290	120689.170	85177.173	101065.340	175796.800
x		199792.530	154343.690	50812.777	141684.250	122240.950	84867.672	95394.509	175051.530
σ		5180.441	1390.971	1229.145	7530.194	1966.678	1057.336	5417.246	645.505
%RSD		2.593	0.901	2.419	5.315	1.609	1.246	5.679	0.369

400-171203-c-14-a SD@25, 7/8/2019 8:02:09 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:02:09	0.000	0.000	6.667	2228733.600	422908.800	231.114	23599.481	92782.177	13643.564
2	20:02:31	0.000	0.000	2.500	2199846.300	410224.750	200.002	24185.462	92748.502	14211.099
3	20:02:52	0.000	0.667	7.500	2275830.200	425436.050	206.669	24394.910	92389.317	14598.378
x		0.000	0.222	5.556	2234803.400	419523.200	212.595	24059.951	92639.999	14151.014
σ		0.000	0.385	2.679	38353.886	8151.236	16.381	412.300	217.749	480.235
%RSD		0.000	173.205	48.218	1.716	1.943	7.705	1.714	0.235	3.394

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:02:09	4.444	402.231	508.903	20757.003	286309.750	311.116	168.890	171.113	228.892
2	20:02:31	11.111	428.899	457.789	20892.869	282014.110	357.785	171.113	180.002	222.225
3	20:02:52	6.667	475.568	548.905	20917.370	281491.620	364.452	164.446	173.335	246.670
x		7.407	435.566	505.199	20855.748	283271.830	344.451	168.150	174.817	232.596
σ		3.395	37.120	45.671	86.388	2643.854	29.060	3.395	4.626	12.636
%RSD		45.826	8.522	9.040	0.414	0.933	8.437	2.019	2.646	5.433

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:02:09	74.667	4.800	238202.590	29675.021	193.335	79340.270	13.333	0.000	46719.743
2	20:02:31	62.667	3.467	233683.090	32865.969	373.341	86002.668	6.667	6.667	50593.728
3	20:02:52	62.000	2.400	235935.730	32725.463	360.007	87187.204	6.667	0.000	50245.136
x		66.445	3.556	235940.470	31755.484	308.895	84176.714	8.889	2.222	49186.202
σ		7.129	1.202	2259.753	1803.103	100.299	4230.151	3.849	3.849	2143.116
%RSD		10.728	33.819	0.958	5.678	32.470	5.025	43.301	173.205	4.357

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:02:09	173.335	213.336	913.379	139806.820	1120.069	46.667	94764.691	286.671
2	20:02:31	306.672	166.668	820.037	146158.900	1833.518	53.333	100984.450	240.003
3	20:02:52	266.671	300.005	753.365	153410.250	1813.514	40.000	100836.150	293.338
x		248.892	226.670	828.927	146458.660	1589.034	46.667	98861.765	273.337
σ		68.423	67.661	80.377	6806.663	406.259	6.667	3548.944	29.060
%RSD		27.491	29.850	9.697	4.647	25.566	14.286	3.590	10.632

400-171203-c-15-a @5, 7/8/2019 8:06:23 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:06:23	0.000	0.000	0.833	6991.576	537.794	68.889	17592.562	151.112	13169.532
2	20:06:45	0.000	0.667	0.000	5875.231	415.565	55.556	17456.745	88.889	15206.040
3	20:07:08	0.000	0.000	2.500	5817.416	335.562	62.222	17639.319	102.223	14585.024
x		0.000	0.222	1.111	6228.075	429.640	62.222	17562.875	114.075	14320.199
σ		0.000	0.385	1.273	661.844	101.848	6.667	94.838	32.761	1043.763
%RSD		0.000	173.205	114.564	10.627	23.705	10.714	0.540	28.719	7.289

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:06:23	0.000	457.789	293.338	220.003	442.233	33.333	86.667	124.445	573.351
2	20:06:45	0.000	360.007	355.563	222.225	315.561	15.556	95.556	160.001	511.125
3	20:07:08	2.222	426.677	366.674	217.780	246.670	15.556	88.889	108.890	480.013
x		0.741	414.824	338.525	220.003	334.821	21.482	90.371	131.112	521.497
σ		1.283	49.957	39.525	2.222	99.194	10.264	4.626	26.200	47.526
%RSD		173.205	12.043	11.676	1.010	29.626	47.781	5.119	19.983	9.113

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:06:23	14.000	2.933	273.337	29467.682	126.668	83077.880	6.667	0.000	46512.015
2	20:06:45	22.000	1.867	242.225	32364.173	106.667	89868.683	13.333	0.000	48502.376
3	20:07:08	14.000	2.400	102.223	34411.673	60.000	90831.514	0.000	6.667	51364.699
x		16.667	2.400	205.929	32081.176	97.778	87926.026	6.667	2.222	48793.030
σ		4.619	0.533	91.149	2484.115	34.211	4226.127	6.667	3.849	2439.364
%RSD		27.713	22.222	44.262	7.743	34.988	4.806	100.000	173.205	4.999

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:06:23	520.015	80.000	66.667	140524.430	646.690	160.001	103101.350	20.000
2	20:06:45	446.678	126.668	60.000	147513.850	980.053	133.334	105326.640	26.667
3	20:07:08	420.010	233.336	66.667	147649.360	1080.064	93.334	107120.750	13.333
x		462.234	146.668	64.445	145229.210	902.269	128.890	105182.910	20.000
σ		51.786	78.600	3.849	4075.027	226.917	33.555	2013.554	6.667
%RSD		11.203	53.591	5.973	2.806	25.150	26.034	1.914	33.333

ccv, 7/8/2019 8:10:38 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:10:38	133.334	143.334	58.334	808503.890	453113.120	232237.870	894437.960	61713.204	13289.707
2	20:10:59	53.333	168.668	73.334	807173.070	441989.520	224980.990	873899.440	58187.849	13583.474
3	20:11:22	106.667	141.334	78.334	818853.800	447747.960	231713.630	879163.640	58216.923	13369.824
x		97.778	151.112	70.000	811510.250	447616.860	229644.160	882500.350	59372.659	13414.335
σ		40.734	15.237	10.408	6394.417	5562.959	4046.926	10668.076	2027.024	151.857
%RSD		41.660	10.083	14.869	0.788	1.243	1.762	1.209	3.414	1.132

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:10:38	4665.641	148516.650	192744.050	1016161.700	133889.860	360312.750	99083.707	279823.510	63451.778
2	20:10:59	4312.134	143244.160	185461.570	976326.070	126365.530	351767.670	97367.535	271661.470	60988.337
3	20:11:22	4361.046	145607.940	186865.430	993916.690	128235.890	350091.450	94802.864	272790.070	62444.842
x		4446.274	145789.580	188357.020	995468.140	129497.090	354057.290	97084.702	274758.350	62294.986
σ		191.546	2640.933	3863.583	19963.062	3917.510	5481.834	2154.391	4422.708	1238.539
%RSD		4.308	1.811	2.051	2.005	3.025	1.548	2.219	1.610	1.988

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:10:38	50975.853	4394.395	279470.680	29628.202	195853.910	78091.751	139542.810	127386.290	49152.520
2	20:10:59	49617.704	4293.013	267599.160	30270.312	185976.370	82111.380	140287.480	119365.200	49065.385
3	20:11:22	50155.979	4262.332	273966.900	31715.226	190229.700	84497.541	139048.660	121108.020	50902.109
x		50249.845	4316.580	273678.920	30537.913	190686.660	81566.891	139626.320	122619.840	49706.671
σ		683.923	69.114	5940.997	1068.936	4954.603	3237.420	623.615	4218.847	1036.196
%RSD		1.361	1.601	2.171	3.500	2.598	3.969	0.447	3.441	2.085

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:10:38	268102.560	420365.960	131808.670	135847.470	1786466.600	1230445.000	96381.556	2321245.500
2	20:10:59	266715.990	406328.840	125425.980	153627.200	1599942.900	1112184.100	103526.130	2376685.700
3	20:11:22	270752.730	408175.530	126101.900	152759.420	1662165.800	1153909.200	107957.230	2289816.500
x		268523.760	411623.440	127778.850	147411.360	1682858.400	1165512.800	102621.640	2329249.200
σ		2051.064	7627.334	3506.249	10024.019	94967.940	59978.268	5840.602	43984.214
%RSD		0.764	1.853	2.744	6.800	5.643	5.146	5.691	1.888

ccb, 7/8/2019 8:14:55 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:14:55	0.000	0.667	0.833	11402.702	1193.412	475.568	17338.741	233.336	13316.413
2	20:15:18	0.000	0.000	1.667	11376.002	1211.192	420.010	18189.290	228.892	14337.965
3	20:15:39	0.000	0.000	1.667	11249.178	1180.077	391.120	17563.617	246.670	14378.028
x		0.000	0.222	1.389	11342.627	1194.893	428.899	17697.216	236.299	14010.802
σ		0.000	0.385	0.481	82.023	15.610	42.920	440.732	9.252	601.692
%RSD		0.000	173.205	34.641	0.723	1.306	10.007	2.490	3.915	4.294
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
1	20:14:55	22.222	451.122	571.129	2149.143	977.830	608.909	240.003	588.908	195.558
2	20:15:18	11.111	466.679	551.128	1949.098	971.163	586.686	200.002	457.789	160.001
3	20:15:39	13.333	475.568	544.461	1860.190	971.163	631.133	180.002	544.461	193.335
x		15.556	464.456	555.573	1986.144	973.385	608.909	206.669	530.386	182.965
σ		5.879	12.373	13.879	147.996	3.849	22.224	30.551	66.683	19.918
%RSD		37.796	2.664	2.498	7.451	0.395	3.650	14.783	12.573	10.886
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
1	20:14:55	88.000	10.400	708.917	29982.695	553.350	82124.834	186.669	253.337	47255.836
2	20:15:18	96.001	12.533	586.686	31300.459	613.354	87057.077	233.336	140.001	49695.460
3	20:15:39	84.667	8.533	584.463	33080.077	446.678	90366.919	260.004	180.002	50881.996
x		89.556	10.489	626.688	31454.410	537.794	86516.277	226.670	191.113	49277.764
σ		5.825	2.001	71.220	1554.419	84.420	4147.570	37.119	57.479	1848.814
%RSD		6.504	19.082	11.365	4.942	15.697	4.794	16.376	30.076	3.752
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
1	20:14:55	486.680	1213.414	313.339	136652.740	7429.702	2226.939	100660.890	3720.761	
2	20:15:18	686.693	1546.798	266.671	140192.700	9197.984	1673.487	104524.120	3594.044	
3	20:15:39	626.688	1500.124	293.338	147893.280	8177.009	1666.820	107552.470	3647.398	
x		600.020	1420.112	291.116	141579.570	8268.232	1855.749	104245.830	3654.068	
σ		102.639	180.520	23.413	5747.172	887.664	321.478	3454.209	63.622	
%RSD		17.106	12.712	8.043	4.059	10.736	17.323	3.314	1.741	

mb 500-493206/1-a, 7/8/2019 8:24:37 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:24:37	0.000	0.000	0.000	4281.008	224.447	164.446	16563.965	77.778	14164.359
2	20:24:59	0.000	0.000	0.833	3856.373	273.337	146.668	16975.835	77.778	15873.847
3	20:25:21	0.000	0.000	0.000	4045.344	217.780	135.557	16880.101	71.111	15386.343
x		0.000	0.000	0.278	4060.909	238.522	148.890	16806.634	75.556	15141.516
σ		0.000	0.000	0.481	212.745	30.335	14.572	215.540	3.849	880.649
%RSD		0.000	0.000	173.205	5.239	12.718	9.787	1.282	5.094	5.816

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:24:37	2.222	202.224	420.010	1782.397	295.560	28.889	100.001	1449.004	737.808
2	20:24:59	2.222	140.001	424.454	1711.272	304.450	26.667	84.445	1453.450	775.589
3	20:25:21	0.000	188.891	464.456	1826.850	315.561	20.000	84.445	1482.343	720.029
x		1.481	177.039	436.307	1773.506	305.190	25.185	89.630	1461.599	744.475
σ		1.283	32.761	24.479	58.300	10.021	4.626	8.981	18.102	28.374
%RSD		86.603	18.505	5.611	3.287	3.283	18.368	10.020	1.238	3.811

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:24:37	12.000	4.267	228.892	31200.115	100.001	83808.989	0.000	0.000	48522.482
2	20:24:59	16.667	2.933	186.669	33414.630	73.334	90409.562	6.667	0.000	49487.664
3	20:25:21	10.667	4.533	166.668	33367.792	153.335	90045.980	0.000	6.667	50922.221
x		13.111	3.911	194.076	32660.846	108.890	88088.177	2.222	2.222	49644.122
σ		3.151	0.857	31.766	1265.247	40.735	3710.342	3.849	3.849	1207.496
%RSD		24.030	21.917	16.368	3.874	37.409	4.212	173.205	173.205	2.432

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:24:37	140.001	266.671	160.001	137045.250	1366.769	533.349	98315.433	93.334
2	20:24:59	106.667	466.679	113.334	142636.950	2180.261	426.677	102973.240	60.000
3	20:25:21	113.334	453.345	106.667	140172.390	2240.276	420.010	107437.800	33.333
x		120.001	395.565	126.668	139951.530	1929.102	460.012	102908.820	62.222
σ		17.639	111.824	29.060	2802.384	487.918	63.599	4561.522	30.062
%RSD		14.699	28.270	22.942	2.002	25.292	13.826	4.433	48.314

lcs 500-493206/2-a, 7/8/2019 8:28:52 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:28:52	46.667	26.000	290.838	338643.140	196292.100	19812.677	388691.080	31960.527	13790.452
2	20:29:14	26.667	32.000	272.504	326271.710	189111.160	19073.321	375965.650	31472.161	14484.864
3	20:29:36	60.000	35.333	256.670	336162.460	190978.480	18899.625	379262.900	30600.303	14331.287
x		44.445	31.111	273.337	333692.440	192127.250	19261.875	381306.540	31344.330	14202.201
σ		16.777	4.730	17.099	6545.134	3725.751	484.851	6604.277	689.063	364.759
%RSD		37.749	15.203	6.256	1.961	1.939	2.517	1.732	2.198	2.568

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:28:52	18719.253	312516.440	164881.790	48964.845	284792.060	771697.660	213618.440	303654.700	135861.010
2	20:29:14	18006.705	303287.180	161520.020	48636.422	277569.300	752029.720	207658.260	296531.940	135385.100
3	20:29:36	18305.077	303206.780	162508.520	49139.115	275420.970	767093.640	209458.870	298634.670	133450.130
x		18343.678	306336.800	162970.110	48913.460	279260.780	763607.010	210245.190	299607.100	134898.740
σ		357.839	5351.878	1727.766	255.255	4909.191	10287.102	3056.904	3659.597	1276.902
%RSD		1.951	1.747	1.060	0.522	1.758	1.347	1.454	1.221	0.947

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:28:52	22089.471	1875.927	1184508.400	30892.400	810356.200	81458.883	148082.990	25970.376	62796.138
2	20:29:14	21873.617	1836.185	1171258.500	34378.213	797802.010	88246.238	140808.780	25575.927	64810.199
3	20:29:36	21782.064	1820.182	1177146.800	33909.792	797453.320	88237.263	146504.390	26826.189	65219.780
x		21915.051	1844.098	1177637.900	33060.135	801870.510	85980.795	145132.050	26124.164	64275.372
σ		157.836	28.702	6638.599	1891.867	7350.891	3916.093	3826.361	639.161	1297.320
%RSD		0.720	1.556	0.564	5.723	0.917	4.555	2.636	2.447	2.018

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:28:52	1154474.700	881567.190	278707.790	139596.970	722204.230	487496.250	99036.530	956519.440
2	20:29:14	1084282.700	868164.880	270368.200	144174.250	736101.950	503761.360	101604.640	941079.210
3	20:29:36	1118792.700	852099.650	270299.540	149865.180	724726.950	481003.750	106068.520	942827.170
x		1119183.300	867277.240	273125.180	144545.460	727677.710	490753.790	102236.560	946808.610
σ		35097.622	14753.813	4834.808	5144.160	7403.842	11723.301	3558.333	8455.121
%RSD		3.136	1.701	1.770	3.559	1.017	2.389	3.480	0.893

500-166099-e-1-a, 7/8/2019 8:33:08 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:33:08	6.667	0.000	10.833	209561.190	472695.640	82.223	53016.363	138484.590	13496.678
2	20:33:29	6.667	0.000	18.333	208606.260	468034.630	80.000	53624.358	134629.550	14792.024
3	20:33:52	0.000	0.000	15.833	214489.710	477054.720	68.889	53593.063	137315.960	14665.152
x		4.444	0.000	15.000	210885.720	472595.000	77.037	53411.261	136810.030	14317.952
σ		3.849	0.000	3.819	3157.455	4510.885	7.144	342.350	1976.689	714.067
%RSD		86.603	0.000	25.459	1.497	0.954	9.273	0.641	1.445	4.987

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:33:08	2.222	433.344	328.895	817.815	37887.676	3820.803	3485.112	437.788	304.450
2	20:33:29	8.889	408.898	368.896	782.256	36336.920	3569.590	3467.328	413.343	326.673
3	20:33:52	17.778	440.011	373.341	740.030	37637.752	3531.797	3347.283	400.009	311.116
x		9.630	427.417	357.044	780.034	37287.449	3640.730	3433.241	417.047	314.080
σ		7.804	16.381	24.479	38.940	832.613	157.088	74.971	19.160	11.404
%RSD		81.044	3.833	6.856	4.992	2.233	4.315	2.184	4.594	3.631

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:33:08	58.667	7.200	719907.940	31193.425	3607.382	82021.687	40.000	33.333	48207.480
2	20:33:29	69.334	9.600	709070.560	32069.800	3587.374	87822.161	33.333	20.000	49836.227
3	20:33:52	72.667	8.533	701502.570	34926.965	3854.150	88587.309	26.667	6.667	48797.281
x		66.889	8.444	710160.360	32730.063	3682.969	86143.719	33.333	20.000	48946.996
σ		7.313	1.202	9250.957	1952.381	148.584	3590.226	6.667	13.333	824.631
%RSD		10.933	14.240	1.303	5.965	4.034	4.168	20.000	66.667	1.685

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:33:08	780.033	800.035	846.706	132992.390	2433.659	340.006	100229.500	32270.508
2	20:33:29	813.370	626.688	866.708	145535.680	3800.794	293.338	105454.780	28986.137
3	20:33:52	706.694	686.693	786.701	149695.750	2993.826	233.336	106729.530	31300.459
x		766.699	704.472	833.372	142741.270	3076.093	288.894	104137.930	30852.368
σ		54.574	88.031	41.637	8695.238	687.270	53.474	3444.292	1687.413
%RSD		7.118	12.496	4.996	6.092	22.342	18.510	3.307	5.469

500-166099-f-1-a, 7/8/2019 8:37:22 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:37:22	6.667	0.000	25.833	215499.850	486146.790	68.889	54549.840	142623.400	14084.235
2	20:37:44	0.000	0.000	17.500	214275.860	475063.280	60.000	53568.474	137509.970	14658.475
3	20:38:06	6.667	0.000	22.500	215060.740	489368.480	51.111	54373.231	140894.540	14872.155
x		4.444	0.000	21.944	214945.480	483526.180	60.000	54163.848	140342.640	14538.288
σ		3.849	0.000	4.194	620.078	7504.023	8.889	523.116	2601.011	407.478
%RSD		86.603	0.000	19.114	0.288	1.552	14.815	0.966	1.853	2.803

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:37:22	2.222	386.675	435.566	386.675	38927.611	3558.474	3516.235	777.811	404.453
2	20:37:44	0.000	504.458	422.232	426.677	37189.245	3460.659	3734.100	780.033	380.008
3	20:38:06	2.222	442.233	400.009	355.563	38847.269	3640.729	3491.782	711.139	355.563
x		1.481	444.455	419.269	389.638	38321.375	3553.287	3580.706	756.328	380.008
σ		1.283	58.923	17.963	35.650	981.276	90.147	133.405	39.150	24.445
%RSD		86.603	13.257	4.284	9.149	2.561	2.537	3.726	5.176	6.433

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:37:22	72.667	10.667	729036.350	32036.349	2880.456	81759.340	6.667	6.667	46981.084
2	20:37:44	62.667	6.933	703077.530	32799.061	2800.431	86769.907	13.333	6.667	48415.246
3	20:38:06	56.000	8.800	709660.710	33146.986	3067.184	89745.250	13.333	26.667	51746.858
x		63.778	8.800	713924.860	32660.799	2916.024	86091.499	11.111	13.333	49047.729
σ		8.389	1.867	13494.525	568.081	136.887	4035.947	3.849	11.547	2445.031
%RSD		13.153	21.212	1.890	1.739	4.694	4.688	34.641	86.603	4.985

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:37:22	320.006	506.681	933.381	137843.850	1186.744	166.668	92528.500	31561.358
2	20:37:44	506.681	453.345	826.704	145298.600	1546.798	160.001	100923.780	28812.252
3	20:38:06	386.675	406.676	906.712	146856.670	1473.453	160.001	107835.800	29467.682
x		404.454	455.567	888.932	143333.040	1402.332	162.224	100429.360	29947.097
σ		94.599	50.040	55.516	4817.188	190.272	3.849	7665.618	1435.888
%RSD		23.389	10.984	6.245	3.361	13.568	2.373	7.633	4.795

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:41:36	0.000	0.000	12.500	227734.970	250230.420	1902.421	49603.850	72266.094	14177.713
2	20:41:59	20.000	0.667	15.833	221754.260	242801.900	1824.628	48678.871	69061.328	15105.873
3	20:42:20	0.000	0.000	21.667	226443.300	247640.940	3520.682	48728.022	70568.391	15673.500
x		6.667	0.222	16.667	225310.840	246891.090	2415.910	49003.581	70631.938	14985.695
σ		11.547	0.385	4.640	3147.074	3770.604	957.551	520.429	1603.328	755.100
%RSD		173.205	173.205	27.839	1.397	1.527	39.635	1.062	2.270	5.039

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:41:36	24.444	502.236	533.349	3009.387	19906.215	2038.006	1957.989	522.237	628.911
2	20:41:59	13.333	480.013	540.016	2664.835	18875.130	2004.665	1782.397	493.347	575.574
3	20:42:20	20.000	548.905	624.466	2942.698	19532.071	2064.679	1855.745	442.233	577.796
x		19.259	510.385	565.944	2872.307	19437.805	2035.784	1865.377	485.939	594.094
σ		5.592	35.162	50.791	182.744	521.966	30.068	88.191	40.513	30.173
%RSD		29.038	6.889	8.975	6.362	2.685	1.477	4.728	8.337	5.079

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:41:36	78.667	9.867	413404.020	31240.252	2527.018	81831.092	26.667	33.333	47791.961
2	20:41:59	78.667	8.000	398175.250	33883.026	2320.296	86965.092	6.667	6.667	49641.835
3	20:42:20	76.000	7.733	402116.490	33682.282	2386.980	90196.348	0.000	6.667	50023.921
x		77.778	8.533	404565.250	32935.187	2411.431	86330.844	11.111	15.556	49152.572
σ		1.540	1.162	7904.190	1471.284	105.508	4218.540	13.878	15.396	1193.710
%RSD		1.979	13.622	1.954	4.467	4.375	4.886	124.900	98.974	2.429

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:41:36	220.003	393.342	1033.392	129793.310	806.702	420.010	93026.880	17884.241
2	20:41:59	220.003	333.339	1200.079	143842.390	1180.077	353.340	100350.830	17703.888
3	20:42:20	293.338	440.011	1186.744	152698.410	1033.392	373.341	103512.650	18264.997
x		244.448	388.897	1140.072	142111.370	1006.724	382.230	98963.451	17951.042
σ		42.340	53.474	92.628	11550.246	188.110	34.212	5378.795	286.457
%RSD		17.321	13.750	8.125	8.128	18.685	8.951	5.435	1.596

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:45:51	6.667	0.000	20.833	232971.850	251205.660	111.112	46235.052	72198.897	13897.281
2	20:46:14	0.000	0.667	24.167	229067.830	250349.180	108.890	46297.591	71016.303	15132.584
3	20:46:36	0.000	0.667	20.833	232242.430	253617.930	104.445	46482.978	73648.231	14571.669
x		2.222	0.444	21.944	231427.370	251724.260	108.149	46338.540	72287.810	14533.845
σ		3.849	0.385	1.925	2075.711	1694.962	3.395	128.936	1318.215	618.520
%RSD		173.205	86.603	8.770	0.897	0.673	3.139	0.278	1.824	4.256

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:45:51	2.222	444.455	382.230	280.004	21166.835	2035.784	1811.292	1735.721	502.236
2	20:46:14	4.444	522.237	397.786	306.672	21581.141	2026.893	1846.854	1771.284	433.344
3	20:46:36	0.000	417.787	428.899	273.337	21730.385	2051.343	1775.729	1817.960	535.571
x		2.222	461.493	402.972	286.671	21492.787	2038.006	1811.292	1774.988	490.384
σ		2.222	54.269	23.763	17.639	291.979	12.376	35.563	41.244	52.134
%RSD		100.000	11.760	5.897	6.153	1.358	0.607	1.963	2.324	10.631

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:45:51	76.000	12.267	412597.480	30912.468	2487.007	80934.228	0.000	0.000	46887.269
2	20:46:14	76.000	8.533	404236.360	32698.701	2693.732	85800.774	6.667	0.000	48160.566
3	20:46:36	73.334	10.667	407172.000	32979.713	2640.383	85805.260	0.000	6.667	50828.364
x		75.111	10.489	408001.950	32196.961	2607.041	84180.087	2.222	2.222	48625.399
σ		1.540	1.873	4241.897	1121.242	107.320	2810.997	3.849	3.849	2011.246
%RSD		2.050	17.857	1.040	3.482	4.117	3.339	173.205	173.205	4.136

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:45:51	180.002	380.008	913.379	134162.730	620.021	426.677	94178.648	20295.964
2	20:46:14	166.668	313.339	900.045	146721.180	840.039	293.338	100512.600	19988.618
3	20:46:36	173.335	386.675	953.383	151627.370	760.032	286.671	108773.540	20289.282
x		173.335	360.007	922.269	144170.430	740.031	335.562	101154.930	20191.288
σ		6.667	40.553	27.758	9007.397	111.364	78.978	7318.617	175.550
%RSD		3.846	11.265	3.010	6.248	15.049	23.536	7.235	0.869

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:50:08	0.000	0.667	3.333	4129.827	402.231	204.447	17173.984	175.557	14070.881
2	20:50:29	0.000	0.667	1.667	4072.023	295.560	273.337	17363.232	117.779	15493.191
3	20:50:52	0.000	0.000	0.833	3920.845	246.670	213.336	16906.818	135.557	15626.753
x		0.000	0.444	1.944	4040.898	314.821	230.373	17148.012	142.964	15063.608
σ		0.000	0.385	1.273	107.911	79.549	37.473	229.313	29.593	862.317
%RSD		0.000	86.603	65.465	2.670	25.268	16.266	1.337	20.700	5.725

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:50:08	0.000	331.117	517.793	1082.287	277.782	35.556	80.000	742.253	1271.200
2	20:50:29	2.222	324.450	511.125	1020.057	224.447	28.889	71.111	717.806	1217.859
3	20:50:52	0.000	366.674	466.679	1062.284	282.227	40.000	113.334	766.699	1273.423
x		0.741	340.747	498.532	1054.876	261.485	34.815	88.149	742.253	1254.161
σ		1.283	22.699	27.787	31.769	32.153	5.592	22.259	24.446	31.457
%RSD		173.205	6.662	5.574	3.012	12.296	16.064	25.252	3.294	2.508

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:50:08	16.667	4.000	442.233	32223.676	73.334	85298.300	20.000	0.000	47282.642
2	20:50:29	11.333	2.667	282.227	32758.917	73.334	91197.372	0.000	0.000	50633.951
3	20:50:52	11.333	3.200	222.225	34445.132	53.333	91015.564	0.000	0.000	49045.277
x		13.111	3.289	315.562	33142.575	66.667	89170.412	6.667	0.000	48987.290
σ		3.079	0.671	113.729	1159.359	11.547	3354.579	11.547	0.000	1676.407
%RSD		23.485	20.405	36.040	3.498	17.321	3.762	173.205	0.000	3.422

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:50:08	133.334	220.003	73.334	142169.710	333.339	406.676	98126.744	93.334
2	20:50:29	73.334	213.336	73.334	149011.310	733.363	400.009	109387.510	26.667
3	20:50:52	133.334	266.671	100.001	150712.340	606.687	440.011	106142.720	13.333
x		113.334	233.336	82.223	147297.790	557.796	415.565	104552.320	44.445
σ		34.641	29.060	15.396	4521.753	204.444	21.431	5796.396	42.861
%RSD		30.566	12.454	18.725	3.070	36.652	5.157	5.544	96.437

lcs 500-493472/2-a, 7/8/2019 8:54:23 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:54:23	26.667	26.000	264.171	341052.980	194734.700	19240.339	384806.500	31755.365	13830.513
2	20:54:46	26.667	36.000	260.837	329205.810	190061.790	19084.455	371924.410	31012.809	14618.411
3	20:55:07	60.000	31.333	260.837	329940.630	186829.140	18432.000	369855.860	31008.349	15426.411
x		37.778	31.111	261.948	333399.810	190541.880	18918.931	375528.920	31258.841	14625.111
σ		19.245	5.004	1.925	6638.020	3974.582	428.837	8100.913	430.009	797.970
%RSD		50.943	16.083	0.735	1.991	2.086	2.267	2.157	1.376	5.456

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:54:23	18334.024	306611.500	163936.030	48158.332	278980.410	753663.740	208578.980	295260.430	135091.890
2	20:54:46	17835.256	298134.200	156384.730	46362.365	270434.580	737920.910	202478.930	286357.890	130805.440
3	20:55:07	18216.010	302304.120	158428.550	46355.664	267201.040	743379.890	206562.610	291268.020	134749.080
x		18128.430	302349.940	159583.100	46958.787	272205.340	744988.180	205873.510	290962.120	133548.810
σ		260.663	4238.838	3905.799	1038.842	6086.057	7993.694	3107.862	4459.146	2381.997
%RSD		1.438	1.402	2.448	2.212	2.236	1.073	1.510	1.533	1.784

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:54:23	21256.823	1829.784	1163250.400	30945.915	788449.870	81577.719	147419.000	25863.405	61433.542
2	20:54:46	20829.836	1777.774	1130413.800	32237.056	791861.460	87429.515	142250.970	24974.257	65132.490
3	20:55:07	21035.643	1785.242	1131792.800	33361.101	765450.060	86581.456	143930.430	26110.777	63762.832
x		21040.767	1797.600	1141819.000	32181.357	781920.460	85196.230	144533.470	25649.480	63442.955
σ		213.539	28.121	18572.895	1208.556	14365.424	3162.280	2636.261	597.698	1870.106
%RSD		1.015	1.564	1.627	3.755	1.837	3.712	1.824	2.330	2.948

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:54:23	1130947.900	853999.440	263373.980	143259.960	703851.930	482282.220	101045.120	965306.100
2	20:54:46	1053737.900	839636.160	269688.450	146416.320	699292.780	479430.490	108942.210	890593.240
3	20:55:07	1095584.900	846869.860	262605.560	153620.420	686820.330	471027.890	108274.300	931467.500
x		1093423.600	846835.150	265222.660	147765.570	696655.010	477580.200	106087.210	929122.280
σ		38650.346	7181.705	3886.524	5310.376	8816.871	5850.872	4379.329	37411.599
%RSD		3.535	0.848	1.465	3.594	1.266	1.225	4.128	4.027

500-166116-h-1-a, 7/8/2019 8:58:37 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:58:37	6.667	0.000	30.000	1996614.200	706444.090	183910.530	385557.330	168183.680	14097.589
2	20:59:00	0.000	1.333	24.167	1919565.100	686676.730	175278.040	368657.520	159552.400	14451.477
3	20:59:21	0.000	1.333	23.333	1950588.600	704959.690	180503.250	373426.360	165528.950	15706.890
x		2.222	0.889	25.833	1955589.300	699360.170	179897.270	375880.400	164421.680	14751.986
σ		3.849	0.770	3.632	38767.209	11009.227	4348.030	8713.073	4420.894	845.690
%RSD		173.205	86.603	14.061	1.982	1.574	2.417	2.318	2.689	5.733

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:58:37	8793.139	24513.004	20881.733	708960.210	191427.790	14431.446	12875.778	47141.914	26732.580
2	20:59:00	8259.306	24486.266	20133.381	690664.720	187709.220	14195.519	12646.568	46480.745	26701.378
3	20:59:21	8599.621	24969.801	20378.370	698070.670	188419.240	14373.576	12962.568	47546.233	26618.914
x		8550.689	24656.357	20464.495	699231.870	189185.420	14333.514	12828.305	47056.297	26684.291
σ		270.260	271.779	381.537	9202.851	1974.134	122.960	163.262	537.879	58.728
%RSD		3.161	1.102	1.864	1.316	1.043	0.858	1.273	1.143	0.220

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:58:37	1096.733	28.000	268736.430	54207.803	3780.786	77374.546	166.668	80.000	45647.650
2	20:59:00	1009.389	34.400	265151.200	55824.208	3674.076	83878.515	206.669	60.000	49467.555
3	20:59:21	1085.398	29.333	273131.200	57722.675	3880.828	86556.778	180.002	93.334	51632.879
x		1063.840	30.578	269006.280	55918.228	3778.563	82603.280	184.446	77.778	48916.028
σ		47.495	3.377	3996.836	1759.321	103.394	4722.077	20.367	16.778	3030.491
%RSD		4.464	11.043	1.486	3.146	2.736	5.717	11.042	21.571	6.195

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:58:37	2233.608	23450.206	152345.900	142122.310	1853.522	58219.159	95168.881	47416.670
2	20:59:00	2213.603	24071.828	153267.870	156515.850	2460.333	58125.228	106823.960	46940.877
3	20:59:21	2380.312	24138.671	150576.790	156203.880	2473.670	62299.405	102325.990	49098.898
x		2275.841	23886.902	152063.520	151614.020	2262.508	59547.930	101439.610	47818.815
σ		91.026	379.663	1367.583	8221.533	354.255	2383.309	5877.879	1133.823
%RSD		4.000	1.589	0.899	5.423	15.658	4.002	5.794	2.371

ccv, 7/8/2019 9:02:52 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:02:52	93.334	173.335	62.500	806494.400	458796.690	233573.670	906740.690	61842.971	13803.805
2	21:03:13	126.668	170.002	69.167	789732.100	436176.380	221012.060	859189.280	58181.139	14337.965
3	21:03:35	93.334	167.335	69.167	792795.630	443682.400	224846.610	885835.970	58657.519	15085.840
x		104.445	170.224	66.945	796340.710	446218.490	226477.450	883921.980	59560.543	14409.203
σ		19.245	3.006	3.849	8925.771	11521.435	6437.640	23833.415	1990.940	643.979
%RSD		18.426	1.766	5.750	1.121	2.582	2.843	2.696	3.343	4.469

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:02:52	4552.251	149365.950	197518.240	1034324.500	133093.860	367507.900	100739.530	284876.880	64729.628
2	21:03:13	4327.697	147186.390	194618.920	1018552.800	129162.200	360042.350	97493.317	280804.180	62581.331
3	21:03:35	4452.201	146499.880	191198.590	1020778.500	131319.440	360999.190	98856.812	280717.110	63653.179
x		4444.049	147684.070	194445.250	1024551.900	131191.830	362849.810	99029.888	282132.720	63654.713
σ		112.499	1496.451	3163.398	8536.131	1968.933	4062.296	1630.014	2376.911	1074.150
%RSD		2.531	1.013	1.627	0.833	1.501	1.120	1.646	0.842	1.687

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:02:52	51740.823	4404.267	278073.240	30076.337	195710.880	81754.855	142345.770	124520.320	49367.011
2	21:03:13	50911.494	4268.468	269166.660	31782.125	189957.420	85130.068	139759.440	124601.420	50466.356
3	21:03:35	50739.202	4251.394	272437.510	33849.568	188643.820	86588.187	140253.630	128501.830	52625.211
x		51130.506	4308.043	273225.800	31902.677	191437.380	84491.037	140786.280	125874.530	50819.526
σ		535.524	83.768	4505.315	1889.502	3758.793	2479.222	1372.978	2275.671	1657.563
%RSD		1.047	1.944	1.649	5.923	1.963	2.934	0.975	1.808	3.262

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:02:52	276577.520	428743.930	131808.670	139475.120	1750811.800	1171704.200	102595.670	2409365.500
2	21:03:13	264464.980	412281.390	123378.240	152162.880	1662261.100	1124879.700	102555.220	2337518.400
3	21:03:35	275031.670	423171.740	124641.970	152854.330	1724821.400	1200086.900	103701.450	2461682.400
x		272024.720	421399.020	126609.630	148164.110	1712631.400	1165556.900	102950.780	2402855.400
σ		6592.401	8373.211	4546.620	7532.823	45516.492	37978.584	650.411	62337.489
%RSD		2.423	1.987	3.591	5.084	2.658	3.258	0.632	2.594

ccb, 7/8/2019 9:07:05 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:07:05	0.000	0.667	1.667	2615.932	188.891	68.889	16753.200	15.556	13530.061
2	21:07:28	0.000	0.000	1.667	2398.094	106.667	48.889	17418.894	24.444	13363.148
3	21:07:49	0.000	0.000	1.667	2473.670	108.890	26.667	17084.928	13.333	13970.727
x		0.000	0.222	1.667	2495.899	134.816	48.148	17085.674	17.778	13621.312
σ		0.000	0.385	0.000	110.607	46.843	21.121	332.848	5.879	313.900
%RSD		0.000	173.205	0.000	4.432	34.746	43.866	1.948	33.072	2.304

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:07:05	0.000	275.560	344.451	368.896	57.778	93.334	51.111	140.001	57.778
2	21:07:28	0.000	244.448	313.339	206.669	44.445	46.667	48.889	73.334	51.111
3	21:07:49	0.000	315.561	326.673	180.002	48.889	24.444	53.333	91.112	44.445
x		0.000	278.523	328.154	251.856	50.371	54.815	51.111	101.482	51.111
σ		0.000	35.649	15.609	102.233	6.789	35.160	2.222	34.522	6.667
%RSD		0.000	12.799	4.757	40.592	13.478	64.143	4.348	34.018	13.044

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:07:05	24.667	2.667	73.334	29795.414	180.002	83546.590	60.000	46.667	46478.511
2	21:07:28	17.333	2.133	24.444	31675.086	246.670	88100.389	20.000	0.000	46840.361
3	21:07:49	16.000	3.467	28.889	32431.078	220.003	91792.203	20.000	6.667	49628.429
x		19.333	2.756	42.222	31300.526	215.558	87813.061	33.333	17.778	47649.100
σ		4.667	0.671	27.035	1357.167	33.556	4130.309	23.094	25.240	1723.670
%RSD		24.138	24.354	64.029	4.336	15.567	4.704	69.282	141.973	3.617

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:07:05	260.004	480.013	40.000	136862.530	4701.215	393.342	98874.784	573.351
2	21:07:28	193.335	546.683	33.333	146456.970	6408.925	140.001	105576.180	253.337
3	21:07:49	220.003	573.351	0.000	140653.060	5601.725	140.001	102919.300	260.004
x		224.447	533.349	24.444	141324.190	5570.622	224.448	102456.750	362.231
σ		33.556	48.077	21.430	4832.302	854.280	146.266	3374.555	182.866
%RSD		14.950	9.014	87.670	3.419	15.335	65.167	3.294	50.483

ccvl, 7/8/2019 9:11:20 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:11:20	0.000	1.333	12.500	9749.670	3976.425	982.275	35656.456	444.455	13850.543
2	21:11:43	6.667	0.667	14.167	9360.372	4096.478	900.045	35087.582	477.790	14738.604
3	21:12:06	0.000	0.667	20.000	9542.784	3980.871	966.718	35830.471	540.016	15085.840
x		2.222	0.889	15.556	9550.942	4017.925	949.679	35524.836	487.421	14558.329
σ		3.849	0.385	3.938	194.777	68.066	43.683	388.541	48.503	637.075
%RSD		173.205	43.301	25.317	2.039	1.694	4.600	1.094	9.951	4.376

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:11:20	84.445	3385.075	4318.803	4438.861	1493.456	1509.014	951.161	2658.166	5339.345
2	21:11:43	93.334	3251.693	4116.487	4478.881	1333.431	1526.795	904.489	2393.648	5194.817
3	21:12:06	95.556	3367.290	4152.059	4518.901	1531.240	1571.247	931.159	2531.464	5145.900
x		91.112	3334.686	4195.783	4478.881	1452.709	1535.685	928.936	2527.759	5226.688
σ		5.880	72.422	108.013	40.020	105.011	32.055	23.415	132.298	100.583
%RSD		6.453	2.172	2.574	0.894	7.229	2.087	2.521	5.234	1.924

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:11:20	238.003	41.867	4412.182	31942.687	3127.204	84253.065	1406.776	246.670	47738.347
2	21:11:43	228.670	43.200	4578.931	32437.768	3127.204	89089.963	1273.423	260.004	50593.728
3	21:12:06	241.337	50.667	4596.717	32886.041	3300.599	90068.423	1300.093	206.669	50633.951
x		236.003	45.245	4529.276	32422.165	3185.003	87803.817	1326.764	237.781	49655.342
σ		6.566	4.743	101.796	471.871	100.109	3113.715	70.564	27.756	1660.288
%RSD		2.782	10.483	2.248	1.455	3.143	3.546	5.318	11.673	3.344

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:11:20	5388.263	5541.689	1313.428	133405.030	15065.807	2607.040	99063.488	89350.277
2	21:11:43	5414.945	4747.906	1460.117	145589.880	16421.485	2220.271	108442.960	87734.656
3	21:12:06	5641.750	5501.664	1313.428	151796.830	15453.123	2146.920	107916.750	89498.390
x		5481.653	5263.753	1362.325	143597.250	15646.805	2324.744	105141.070	88861.108
σ		139.289	447.184	84.691	9356.415	698.284	247.212	5269.909	978.343
%RSD		2.541	8.496	6.217	6.516	4.463	10.634	5.012	1.101

500-166191-i-1-a, 7/8/2019 9:15:36 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:15:36	6.667	0.000	30.833	T 3951452.600	1856100.600	271.115	76814.270	468474.210	13543.414
2	21:15:58	6.667	0.000	30.833	T 3943362.200	1820678.400	237.781	74004.440	467852.260	13950.696
3	21:16:20	6.667	0.000	26.667	T 3971501.900	1835888.600	284.449	74396.509	467688.600	15199.362
x		6.667	0.000	29.444	T 3955438.900	1837555.900	264.448	75071.739	468005.020	14231.157
σ		0.000	0.000	2.406	T 14487.167	17769.891	24.038	1521.755	414.483	862.864
%RSD		0.000	0.000	8.170	T 0.366	0.967	9.090	2.027	0.089	6.063

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:15:36	8.889	1060.062	706.694	1013258.400	109585.420	2533.686	253.337	1300.093	1915.757
2	21:15:58	6.667	1008.945	655.579	977426.540	104964.710	2467.001	260.004	1308.983	1840.186
3	21:16:20	17.778	1180.077	664.469	1007340.600	108589.130	2604.818	233.336	1260.087	1775.729
x		11.111	1083.028	675.581	999341.860	107713.090	2535.168	248.892	1289.721	1843.891
σ		5.879	87.847	27.309	19208.488	2431.735	68.920	13.878	26.046	70.088
%RSD		52.915	8.111	4.042	1.922	2.258	2.719	5.576	2.019	3.801

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:15:36	2251.612	4.267	573990.470	32370.864	2140.252	78297.958	13.333	0.000	43872.275
2	21:15:58	2338.301	2.933	564042.540	33628.751	2186.930	83699.095	40.000	0.000	46579.023
3	21:16:20	2328.298	2.667	562736.310	33327.645	2260.281	83770.862	0.000	6.667	49025.169
x		2306.070	3.289	566923.110	33109.087	2195.821	81922.638	17.778	2.222	46492.155
σ		47.427	0.857	6155.266	656.807	60.506	3139.270	20.367	3.849	2577.545
%RSD		2.057	26.064	1.086	1.984	2.756	3.832	114.564	173.205	5.544

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:15:36	120.001	200.002	118352.080	136713.650	986.720	640.023	93848.595	1400.108
2	21:15:58	280.004	366.674	112943.930	146578.910	1586.805	660.024	100708.080	1433.446
3	21:16:20	200.002	313.339	116164.130	147771.320	1500.124	553.350	101483.290	1206.747
x		200.002	293.338	115820.050	143687.960	1357.883	617.799	98679.988	1346.767
σ		80.002	85.117	2720.443	6069.286	324.345	56.703	4202.025	122.401
%RSD		40.000	29.017	2.349	4.224	23.886	9.178	4.258	9.089

500-166191-j-1-a, 7/8/2019 9:19:49 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:19:49	6.667	0.667	26.667	T 4024835.700	1856373.200	197.780	77307.311	478047.090	13850.543
2	21:20:10	6.667	0.000	17.500	T 3963215.100	1842994.300	164.446	73108.344	460191.260	15346.275
3	21:20:33	6.667	0.000	31.667	T 3968968.700	1832007.800	177.780	74716.898	465528.520	13516.708
x		6.667	0.222	25.278	T 3985673.200	1843791.800	180.002	75044.185	467922.290	14237.842
σ		0.000	0.385	7.185	T 34037.511	12202.269	16.778	2118.530	9165.438	974.336
%RSD		0.000	173.205	28.423	T 0.854	0.662	9.321	2.823	1.959	6.843

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:19:49	6.667	931.159	651.134	961627.380	109257.060	2353.638	264.448	782.256	1277.868
2	21:20:10	15.556	991.165	580.019	929922.960	105953.860	2527.018	240.003	686.693	1275.645
3	21:20:33	11.111	984.498	604.465	952824.410	107709.880	2493.675	253.337	777.811	1360.102
x		11.111	968.941	611.872	948124.920	107640.270	2458.110	252.596	748.920	1304.538
σ		4.444	32.889	36.132	16366.322	1652.699	91.999	12.239	53.936	48.132
%RSD		40.000	3.394	5.905	1.726	1.535	3.743	4.845	7.202	3.690

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:19:49	1952.876	4.267	574484.720	30477.670	2433.659	78566.930	0.000	6.667	44401.501
2	21:20:10	1948.876	6.133	569349.630	32952.950	2620.378	83575.745	6.667	0.000	46317.693
3	21:20:33	1954.210	8.267	563085.880	32417.697	2507.012	83721.522	20.000	6.667	50419.430
x		1951.987	6.222	568973.410	31949.439	2520.350	81954.732	8.889	4.444	47046.208
σ		2.776	2.001	5708.724	1302.383	94.071	2934.828	10.184	3.849	3074.397
%RSD		0.142	32.167	1.003	4.076	3.732	3.581	114.564	86.603	6.535

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:19:49	80.000	133.334	114881.320	140097.920	693.360	473.346	90993.118	1533.463
2	21:20:10	160.001	246.670	108881.490	150563.240	946.716	486.680	95350.772	1480.121
3	21:20:33	133.334	300.005	114179.220	148062.670	1153.407	446.678	104665.740	1346.766
x		124.445	226.670	112647.340	146241.280	931.161	468.901	97003.210	1453.450
σ		40.735	85.116	3280.165	5465.237	230.417	20.368	6984.486	96.163
%RSD		32.733	37.551	2.912	3.737	24.745	4.344	7.200	6.616

500-166191-i-2-a, 7/8/2019 9:24:03 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:24:03	0.000	0.000	7.500	8850.973	1642.371	231.114	16281.233	495.569	13062.711
2	21:24:26	0.000	0.000	4.167	7683.245	1271.200	242.225	16034.128	393.342	14351.319
3	21:24:48	0.000	0.000	5.833	7554.249	1153.407	168.890	16169.923	364.452	15346.275
x		0.000	0.000	5.833	8029.489	1355.659	214.077	16161.761	417.788	14253.435
σ		0.000	0.000	1.667	714.344	255.189	39.525	123.755	68.892	1144.924
%RSD		0.000	0.000	28.571	8.897	18.824	18.463	0.766	16.490	8.033

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:24:03	4.444	235.559	368.896	1133.404	244.448	204.447	102.223	620.021	1284.535
2	21:24:26	0.000	186.669	351.118	946.716	208.891	204.447	71.111	653.357	1326.764
3	21:24:48	0.000	208.891	397.786	833.372	240.003	186.669	77.778	728.918	1275.645
x		1.481	210.373	372.600	971.164	231.114	198.521	83.704	667.432	1295.648
σ		2.566	24.479	23.554	151.503	19.373	10.264	16.380	55.796	27.311
%RSD		173.205	11.636	6.321	15.600	8.383	5.170	19.569	8.360	2.108

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:24:03	14.000	3.200	700.027	30283.690	153.335	86099.130	6.667	26.667	48013.122
2	21:24:26	18.667	3.733	575.574	33628.751	73.334	90869.671	13.333	13.333	49320.091
3	21:24:48	13.333	3.200	491.124	33836.185	93.334	92663.194	6.667	0.000	51659.697
x		15.333	3.378	588.908	32582.875	106.667	89877.332	8.889	13.333	49664.303
σ		2.906	0.308	105.088	1993.852	41.634	3392.682	3.849	13.333	1847.496
%RSD		18.952	9.116	17.844	6.119	39.031	3.775	43.301	100.000	3.720

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:24:03	140.001	253.337	320.006	142379.630	546.683	660.024	101422.620	80.000
2	21:24:26	106.667	320.006	220.003	154515.390	953.383	673.358	106446.230	60.000
3	21:24:48	126.668	400.009	160.001	147093.800	853.373	560.017	111695.320	66.667
x		124.445	324.450	233.337	147996.270	784.480	631.133	106521.390	68.889
σ		16.778	73.437	80.831	6118.010	211.922	61.948	5136.759	10.184
%RSD		13.482	22.634	34.641	4.134	27.014	9.815	4.822	14.783

500-166191-j-2-a, 7/8/2019 9:28:18 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:28:18	0.000	1.333	3.333	6122.061	444.455	215.558	15896.108	202.224	13596.827
2	21:28:39	0.000	0.000	2.500	5821.864	426.677	295.560	16067.520	140.001	14585.024
3	21:29:00	0.000	0.000	5.833	6182.101	460.012	253.337	16392.544	155.557	15012.385
x		0.000	0.444	3.889	6042.008	443.715	254.818	16118.724	165.927	14398.079
σ		0.000	0.770	1.735	193.000	16.680	40.022	252.148	32.382	726.060
%RSD		0.000	173.205	44.607	3.194	3.759	15.706	1.564	19.516	5.043

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:28:18	4.444	197.780	464.456	531.127	173.335	162.224	140.001	2246.944	1171.187
2	21:28:39	2.222	235.559	446.678	564.462	153.335	151.112	84.445	2146.920	1077.842
3	21:29:00	4.444	217.780	462.234	537.794	180.002	142.223	77.778	2146.920	1115.624
x		3.704	217.040	457.789	544.461	168.890	151.853	100.741	2180.262	1121.551
σ		1.283	18.900	9.687	17.639	13.878	10.021	34.163	57.749	46.954
%RSD		34.641	8.708	2.116	3.240	8.217	6.599	33.912	2.649	4.187

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:28:18	11.333	1.333	177.780	32384.245	113.334	88975.517	20.000	0.000	49179.331
2	21:28:39	16.000	4.267	224.447	34552.204	146.668	91529.575	13.333	0.000	50499.875
3	21:29:00	10.000	1.333	213.336	34732.891	180.002	92272.585	6.667	0.000	49346.902
x		12.444	2.311	205.188	33889.780	146.668	90925.892	13.333	0.000	49675.369
σ		3.151	1.694	24.378	1306.958	33.334	1729.447	6.667	0.000	718.941
%RSD		25.317	73.279	11.881	3.856	22.727	1.902	50.000	0.000	1.447

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:28:18	86.667	313.339	286.671	143375.090	300.005	600.020	105576.180	20.000
2	21:28:39	86.667	406.676	233.336	146355.350	880.043	653.357	104011.630	33.333
3	21:29:00	66.667	440.011	246.670	150095.600	726.696	653.357	108206.840	26.667
x		80.000	386.675	255.559	146608.680	635.581	635.578	105931.550	26.667
σ		11.547	65.662	27.756	3367.409	300.562	30.794	2120.061	6.667
%RSD		14.434	16.981	10.861	2.297	47.289	4.845	2.001	25.000

500-166193-i-1-a, 7/8/2019 9:32:31 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:32:31	6.667	0.000	140.001	2364583.800	1388561.500	348.896	175844.380	396889.710	14197.745
2	21:32:54	13.333	0.000	133.334	T 2367364.400	1343747.700	368.896	171018.050	378260.170	14378.028
3	21:33:16	0.000	0.000	140.001	2354177.100	1362494.900	320.006	177085.910	383520.500	14491.541
x		6.667	0.000	137.779	T 2362041.800	1364934.700	345.933	174649.450	386223.460	14355.771
σ		6.667	0.000	3.849	T 6951.438	22506.296	24.580	3205.562	9604.398	148.157
%RSD		100.000	0.000	2.794	T 0.294	1.649	7.105	1.835	2.487	1.032

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:32:31	11.111	611.132	600.020	1386877.800	127390.800	1946.875	822.259	1197.857	1335.654
2	21:32:54	11.111	540.016	671.136	1355892.800	125389.930	2044.674	884.487	1248.975	1304.538
3	21:33:16	15.556	637.800	700.027	1381195.700	128684.380	2060.233	895.600	1200.079	1408.998
x		12.593	596.316	657.061	1374655.500	127155.040	2017.261	867.449	1215.637	1349.730
σ		2.566	50.548	51.468	16495.425	1659.829	61.450	39.528	28.893	53.634
%RSD		20.377	8.477	7.833	1.200	1.305	3.046	4.557	2.377	3.974

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:32:31	5222.833	7.467	676312.490	31032.877	7282.916	78914.364	6.667	0.000	45131.751
2	21:32:54	5146.123	4.267	665591.890	34023.549	6682.455	84950.623	13.333	0.000	49306.685
3	21:33:16	5209.492	5.600	684709.690	33180.441	7222.868	86926.952	6.667	0.000	47925.997
x		5192.816	5.778	675538.020	32745.623	7062.747	83597.313	8.889	0.000	47454.811
σ		40.984	1.607	9582.402	1542.022	330.708	4174.204	3.849	0.000	2126.977
%RSD		0.789	27.820	1.418	4.709	4.682	4.993	43.301	0.000	4.482

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:32:31	180.002	400.009	84208.208	136185.810	260.004	1173.409	92616.051	7516.439
2	21:32:54	153.335	453.345	82196.590	150237.920	673.358	1246.752	103242.940	7923.452
3	21:33:16	213.336	393.342	83871.786	155247.710	460.012	1326.764	106284.360	7636.539
x		182.224	415.565	83425.528	147223.820	464.458	1248.975	100714.450	7692.143
σ		30.062	32.887	1077.503	9881.935	206.713	76.701	7176.391	209.126
%RSD		16.497	7.914	1.292	6.712	44.506	6.141	7.125	2.719

500-166193-i-1-b du, 7/8/2019 9:36:46 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:36:46	0.000	0.000	160.835	2338523.200	1354125.000	235.559	173635.860	388473.160	14364.673
2	21:37:08	6.667	1.333	133.334	2317052.800	1337406.800	182.224	172671.080	379420.380	15192.684
3	21:37:29	6.667	0.000	136.668	T 2379873.100	1350690.300	224.447	172385.740	377692.850	15413.055
x		4.444	0.444	143.612	T 2345149.700	1347407.400	214.077	172897.560	381862.130	14990.138
σ		3.849	0.770	15.008	T 31930.116	8829.399	28.139	655.112	5790.110	552.761
%RSD		86.603	173.205	10.450	T 1.362	0.655	13.144	0.379	1.516	3.687

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:36:46	20.000	637.800	637.800	1366200.800	126685.490	2062.456	951.161	1617.922	1113.401
2	21:37:08	6.667	633.355	646.690	1332401.000	122925.510	2120.247	875.598	1517.905	1175.632
3	21:37:29	6.667	628.911	708.917	1369432.800	124020.220	2164.702	893.377	1669.042	1088.954
x		11.111	633.355	664.469	1356011.500	124543.740	2115.802	906.712	1601.623	1125.996
σ		7.698	4.445	38.749	20511.125	1933.886	51.268	39.507	76.876	44.690
%RSD		69.282	0.702	5.832	1.513	1.553	2.423	4.357	4.800	3.969

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:36:46	5169.469	6.933	669339.250	31862.406	6635.754	80434.265	20.000	0.000	45996.066
2	21:37:08	5028.057	6.667	651826.150	34170.766	6549.025	85554.020	6.667	6.667	47838.874
3	21:37:29	5102.098	5.600	665207.440	34592.356	6789.201	87514.774	13.333	13.333	48696.744
x		5099.875	6.400	662124.280	33541.843	6657.993	84501.019	13.333	6.667	47510.561
σ		70.733	0.706	9154.592	1469.631	121.623	3655.819	6.667	6.667	1379.948
%RSD		1.387	11.024	1.383	4.381	1.827	4.326	50.000	100.000	2.905

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:36:46	100.001	246.670	82324.405	141614.480	226.669	1066.729	94656.911	7076.086
2	21:37:08	113.334	426.677	84107.280	151640.930	446.678	1173.409	99993.588	7389.669
3	21:37:29	86.667	313.339	82761.682	156712.530	526.682	1126.737	106304.590	7529.784
x		100.001	328.895	83064.456	149989.310	400.010	1122.292	100318.360	7331.846
σ		13.333	91.006	929.201	7683.333	155.355	53.479	5830.628	232.310
%RSD		13.333	27.670	1.119	5.123	38.838	4.765	5.812	3.169

500-166193-i-1-c ms, 7/8/2019 9:40:59 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:40:59	20.000	32.667	390.008	T 2885444.500	1628074.200	19569.930	544505.950	421110.360	13563.444
2	21:41:22	46.667	36.000	414.176	T 2808624.900	1581244.400	19313.828	530276.220	410464.090	14357.996
3	21:41:44	40.000	23.333	406.676	T 2820171.400	1589994.000	18552.244	532008.730	408607.640	14885.510
x		35.556	30.667	403.620	T 2838080.300	1599770.900	19145.334	535596.970	413394.030	14268.983
σ		13.878	6.566	12.370	T 41422.871	24898.784	529.352	7763.883	6746.695	665.513
%RSD		39.031	21.411	3.065	T 1.460	1.556	2.765	1.450	1.632	4.664

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:40:59	18806.098	313815.620	164221.110	1569276.500	403398.110	748887.790	205539.810	295221.420	132780.430
2	21:41:22	18407.506	299325.740	159457.420	1539740.300	399015.350	737288.080	203380.950	290235.790	131479.510
3	21:41:44	18345.158	310054.250	162171.470	1520688.300	392962.280	736053.830	202020.000	289497.230	130341.070
x		18519.587	307731.870	161950.000	1543235.000	398458.580	740743.230	203646.920	291651.480	131533.670
σ		250.076	7518.927	2389.553	24481.901	5240.147	7080.338	1774.916	3113.633	1220.585
%RSD		1.350	2.443	1.475	1.586	1.315	0.956	0.872	1.068	0.928

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:40:59	28171.583	1874.860	1867024.400	31882.476	826992.240	79698.942	145942.120	26672.404	60205.366
2	21:41:22	27265.493	1779.641	1853822.800	32845.897	827917.720	85827.693	142210.340	25723.007	62567.906
3	21:41:44	27850.596	1836.185	1844557.800	34030.241	812436.840	86734.011	142508.290	25936.947	62433.654
x		27762.557	1830.229	1855135.000	32919.538	822448.930	84086.882	143553.580	26110.786	61735.642
σ		459.416	47.888	11290.615	1075.775	8683.067	3826.992	2073.893	498.000	1326.957
%RSD		1.655	2.617	0.609	3.268	1.056	4.551	1.445	1.907	2.149

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:40:59	1158147.400	884249.920	356682.610	142318.680	716462.150	499206.800	97991.969	1030954.200
2	21:41:22	1111268.300	854335.600	342028.630	147195.420	696000.640	488410.060	108375.490	982792.540
3	21:41:44	1123902.500	874241.190	349775.180	154488.270	718385.400	500713.010	103984.660	1007957.000
x		1131106.100	870942.240	349495.470	148000.790	710282.730	496109.960	103450.710	1007234.600
σ		24255.554	15227.571	7330.993	6124.637	12405.979	6710.700	5212.315	24088.937
%RSD		2.144	1.748	2.098	4.138	1.747	1.353	5.038	2.392

500-166193-i-1-d msd, 7/8/2019 9:45:15 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:45:15	46.667	36.000	391.675	T 2769174.400	1576724.200	18961.977	555216.650	438968.280	13643.564
2	21:45:36	26.667	29.333	425.843	T 2686738.800	1511413.300	18806.098	533682.700	429356.280	14918.898
3	21:45:59	33.333	29.333	382.508	T 2680042.600	1528089.000	18529.977	538492.010	429889.500	14945.609
x		35.556	31.556	400.009	T 2711985.300	1538742.200	18766.017	542463.790	432738.020	14502.690
σ		10.184	3.849	22.838	T 49640.309	33933.723	218.772	11303.053	5402.147	744.145
%RSD		28.641	12.198	5.709	T 1.830	2.205	1.166	2.084	1.248	5.131

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:45:15	18634.635	311302.510	161587.880	1364806.100	408686.630	743500.270	204873.920	287323.200	129806.840
2	21:45:36	18494.349	306138.170	160142.640	1336886.900	402750.310	727935.380	202851.540	286841.680	128053.340
3	21:45:59	18501.029	305722.290	161343.600	1348087.500	402813.000	728077.200	199677.990	284161.680	129689.630
x		18543.337	307720.990	161024.710	1349926.800	404749.980	733170.950	202467.820	286108.850	129183.270
σ		79.136	3108.649	773.594	14050.216	3409.384	8945.738	2619.134	1703.403	980.299
%RSD		0.427	1.010	0.480	1.041	0.842	1.220	1.294	0.595	0.759

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:45:15	26402.952	1814.314	1886433.000	33421.321	832692.320	81775.036	147642.580	26318.040	60816.078
2	21:45:36	25884.799	1782.308	1821358.800	34110.541	815638.710	86574.726	138209.340	25669.523	63165.349
3	21:45:59	26004.473	1771.639	1822577.400	35509.215	812298.600	86915.734	145406.980	26050.605	61050.978
x		26097.408	1789.421	1843456.400	34347.026	820209.880	85088.499	143752.970	26012.723	61677.468
σ		271.290	22.209	37223.817	1063.846	10938.354	2874.604	4929.335	325.914	1293.884
%RSD		1.040	1.241	2.019	3.097	1.334	3.378	3.429	1.253	2.098

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:45:15	1138261.800	885210.310	362839.200	143625.670	711803.340	480062.580	101968.680	1028468.100
2	21:45:36	1084095.500	868589.360	355151.030	152617.060	704348.250	482921.520	105899.910	956881.390
3	21:45:59	1122624.800	872791.310	348632.520	157824.850	682513.400	488958.390	107862.780	992426.300
x		1114994.100	875530.330	355540.920	151355.860	699554.990	483980.830	105243.790	992591.940
σ		27877.735	8642.378	7111.363	7183.120	15221.908	4541.527	3001.331	35793.664
%RSD		2.500	0.987	2.000	4.746	2.176	0.938	2.852	3.606

500-166193-i-1-a SD@5, 7/8/2019 9:49:30 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:49:30	0.000	0.000	33.333	477033.660	282912.500	77.778	49921.136	77968.477	13863.897
2	21:49:53	0.000	0.667	37.500	455200.270	267120.960	60.000	48504.610	74990.246	14498.218
3	21:50:16	0.000	0.000	36.667	473603.320	276016.410	93.334	49599.382	76657.398	14898.865
x		0.000	0.222	35.833	468612.420	275349.960	77.037	49341.709	76538.707	14420.327
σ		0.000	0.385	2.205	11741.211	7916.837	16.679	742.585	1492.659	521.862
%RSD		0.000	173.205	6.153	2.506	2.875	21.651	1.505	1.950	3.619

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:49:30	11.111	326.673	455.567	280176.360	26596.627	633.355	291.116	415.565	411.120
2	21:49:53	2.222	342.229	400.009	269628.950	25517.986	657.802	248.892	386.675	386.675
3	21:50:16	4.444	397.786	397.786	278096.150	26001.576	626.688	248.892	373.341	335.562
x		5.926	355.563	417.787	275967.150	26038.730	639.282	262.967	391.860	377.786
σ		4.626	37.385	32.737	5586.720	540.279	16.381	24.378	21.584	38.556
%RSD		78.062	10.514	7.836	2.024	2.075	2.562	9.270	5.508	10.206

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:49:30	1134.071	5.067	134537.090	30103.092	2100.243	82638.345	53.333	0.000	46384.700
2	21:49:53	1082.064	5.867	132622.600	33421.321	2600.372	87326.308	46.667	20.000	51029.486
3	21:50:16	995.388	3.733	134791.930	34297.911	2246.944	89132.600	26.667	13.333	50097.658
x		1070.508	4.889	133983.870	32607.441	2315.853	86365.751	42.222	11.111	49170.615
σ		70.060	1.078	1185.765	2212.674	257.087	3351.990	13.878	10.184	2457.248
%RSD		6.545	22.044	0.885	6.786	11.101	3.881	32.868	91.652	4.997

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:49:30	673.358	520.015	17951.039	145102.170	2386.980	466.679	101496.780	1820.182
2	21:49:53	700.027	566.684	16815.538	143368.320	3747.439	393.342	106088.760	1760.170
3	21:50:16	746.697	460.012	16615.170	158102.960	3207.232	360.007	106129.230	1873.526
x		706.694	515.570	17127.249	148857.820	3113.884	406.676	104571.590	1817.960
σ		37.121	53.475	720.423	8053.326	685.016	54.572	2662.941	56.711
%RSD		5.253	10.372	4.206	5.410	21.999	13.419	2.547	3.119

ccv, 7/8/2019 9:53:46 PM QC Status: PASS (Initial: WARNING)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:53:46	160.001	166.668	75.834	821953.450	459719.370	235242.550	922753.580	61422.356	13777.098
2	21:54:07	173.335	165.335	73.334	799090.340	453369.900	225472.950	896561.530	59740.090	14498.218
3	21:54:29	80.000	170.002	77.500	800667.100	444974.410	224495.880	904857.290	60986.100	14585.024
x		137.779	167.335	75.556	807236.960	452687.900	228403.800	908057.470	60716.182	14286.780
σ		50.480	2.404	2.097	12769.213	7396.100	5942.650	13386.060	873.010	443.526
%RSD		36.638	1.436	2.776	1.582	1.634	2.602	1.474	1.438	3.104

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:53:46	4594.494	153498.380	201486.120	1051218.600	135716.650	371843.420	101561.940	292052.600	65284.687
2	21:54:07	4389.949	149817.740	198496.990	1033775.900	131745.540	367295.110	100427.220	285981.890	64107.465
3	21:54:29	4481.104	150687.490	197409.240	1040311.000	134246.170	372551.540	100016.060	291424.020	64772.152
x		4488.516	151334.540	199130.780	1041768.500	133902.790	370563.360	100668.410	289819.500	64721.435
σ		102.474	1923.742	2111.046	8812.211	2007.702	2852.440	800.668	3338.300	590.248
%RSD		2.283	1.271	1.060	0.846	1.499	0.770	0.795	1.152	0.912

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:53:46	53686.054	4498.980	287437.850	31608.187	206771.730	82438.768	146301.160	129705.400	51927.885
2	21:54:07	52151.158	4312.222	278948.340	34023.549	197209.420	88358.431	144431.620	129083.310	51639.584
3	21:54:29	52387.846	4444.286	279846.420	33381.174	198169.970	88888.001	144824.460	126791.390	54248.042
x		52741.686	4418.496	282077.540	33004.304	200717.040	86561.733	145185.750	128526.700	52605.170
σ		826.364	96.013	4663.837	1251.006	5265.463	3580.397	985.743	1534.674	1430.052
%RSD		1.567	2.173	1.653	3.790	2.623	4.136	0.679	1.194	2.718

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:53:46	275127.850	430748.780	136788.090	140842.630	1787914.100	1265618.400	104153.240	2338605.300
2	21:54:07	269660.990	422822.710	127014.480	150983.450	1743371.000	1204921.400	102191.160	2418758.300
3	21:54:29	274674.450	433194.300	130577.760	150678.460	1784424.400	1236906.800	104820.840	2307207.700
x		273154.430	428921.930	131460.110	147501.510	1771903.200	1235815.500	103721.750	2354857.100
σ		3033.890	5421.760	4946.187	5768.779	24771.078	30363.222	1366.913	57523.688
%RSD		1.111	1.264	3.763	3.911	1.398	2.457	1.318	2.443

ccb, 7/8/2019 9:58:02 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:58:02	0.000	0.667	1.667	2735.967	248.892	93.334	17556.937	31.111	12949.216
2	21:58:23	0.000	0.000	0.000	2629.269	197.780	75.556	17312.024	26.667	13997.434
3	21:58:46	0.000	0.667	0.833	2613.709	193.335	55.556	17559.164	42.222	14264.516
x		0.000	0.444	0.833	2659.648	213.336	74.815	17476.042	33.333	13737.055
σ		0.000	0.385	0.833	66.550	30.873	18.900	142.048	8.012	695.235
%RSD		0.000	86.603	100.000	2.502	14.471	25.262	0.813	24.037	5.061
Run	**Time**	**47Ti**	**51V**	**52Cr**	**54Fe**	**55Mn**	**59Co**	**60Ni**	**63Cu**	**66Zn**
1	21:58:02	4.444	300.005	373.341	428.899	106.667	106.667	57.778	180.002	51.111
2	21:58:23	0.000	268.893	357.785	311.116	71.111	73.334	68.889	106.667	44.445
3	21:58:46	0.000	306.672	317.783	308.894	82.223	77.778	40.000	113.334	53.333
x		1.481	291.857	349.636	349.637	86.667	85.926	55.556	133.334	49.630
σ		2.566	20.165	28.661	68.652	18.190	18.099	14.572	40.552	4.626
%RSD		173.205	6.909	8.197	19.635	20.988	21.064	26.230	30.414	9.321
Run	**Time**	**75As**	**78Se**	**88Sr**	**89Y**	**95Mo**	**103Rh**	**107Ag**	**111Cd**	**115In**
1	21:58:02	29.333	5.067	113.334	31828.955	346.673	84894.547	26.667	46.667	48616.315
2	21:58:23	19.333	3.733	88.889	32176.844	300.005	89962.942	53.333	40.000	47972.911
3	21:58:46	17.333	4.000	53.333	33501.616	293.338	92250.136	26.667	33.333	51941.295
x		22.000	4.267	85.186	32502.472	313.339	89035.875	35.556	40.000	49510.174
σ		6.429	0.706	30.171	882.595	29.060	3764.407	15.396	6.667	2129.849
%RSD		29.223	16.536	35.418	2.715	9.274	4.228	43.301	16.667	4.302
Run	**Time**	**118Sn**	**121Sb**	**137Ba**	**159Tb**	**205Tl**	**208Pb**	**209Bi**	**238U**	
1	21:58:02	226.669	400.009	40.000	135218.190	4901.321	313.339	103485.680	700.027	
2	21:58:23	266.671	480.013	53.333	150380.250	6442.282	253.337	109961.030	493.347	
3	21:58:46	253.337	500.014	13.333	145190.230	5995.310	213.336	111135.180	473.346	
x		248.892	460.012	35.556	143596.220	5779.637	260.004	108193.960	555.573	
σ		20.368	52.918	20.367	7705.686	792.796	50.334	4119.541	125.500	
%RSD		8.183	11.504	57.282	5.366	13.717	19.359	3.808	22.589	

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:02:17	0.000	0.000	111.667	T 2645717.300	1380969.300	280.004	175540.820	384384.760	14317.933
2	22:02:39	6.667	0.000	118.334	T 2565932.600	1337253.100	262.226	172494.440	369390.850	15112.551
3	22:03:02	6.667	0.000	96.667	T 2584332.400	1379070.900	277.782	171806.030	366626.710	14511.573
x		4.444	0.000	108.890	T 2598660.800	1365764.500	273.337	173280.430	373467.440	14647.352
σ		3.849	0.000	11.097	T 41777.694	24709.805	9.687	1987.584	9555.160	414.345
%RSD		86.603	0.000	10.191	T 1.608	1.809	3.544	1.147	2.558	2.829

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:02:17	4.444	600.020	640.023	1669466.600	167104.040	2340.301	788.923	637.800	1088.954
2	22:02:39	8.889	562.240	620.021	1669845.400	163248.260	2358.084	802.258	635.578	957.828
3	22:03:02	4.444	595.575	657.802	1673912.700	167649.500	2100.243	768.921	664.469	1031.170
x		5.926	585.945	639.282	1671074.900	166000.600	2266.209	786.701	645.949	1025.984
σ		2.566	20.649	18.901	2464.890	2399.149	144.006	16.779	16.077	65.717
%RSD		43.301	3.524	2.957	0.148	1.445	6.354	2.133	2.489	6.405

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:02:17	4268.335	4.800	633267.490	32223.676	5174.806	79360.445	20.000	6.667	44863.762
2	22:02:39	4178.293	5.333	627679.200	32912.805	5461.640	85742.449	26.667	6.667	48274.501
3	22:03:02	4197.636	7.733	624982.590	32303.960	5581.713	86516.397	13.333	13.333	50211.618
x		4214.755	5.956	628643.090	32480.147	5406.053	83873.097	20.000	8.889	47783.294
σ		47.399	1.563	4225.722	376.837	209.071	3927.184	6.667	3.849	2707.555
%RSD		1.125	26.236	0.672	1.160	3.867	4.682	33.333	43.301	5.666

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:02:17	200.002	333.339	86758.689	142907.820	1860.190	413.343	96435.457	7863.399
2	22:02:39	146.668	253.337	83898.700	150068.490	2687.064	306.672	105501.990	7816.692
3	22:03:02	220.003	273.337	84961.838	150149.820	2380.312	433.344	105070.370	7416.357
x		188.891	286.671	85206.409	147708.710	2309.189	384.453	102335.940	7698.816
σ		37.909	41.635	1445.596	4157.892	418.000	68.099	5114.521	245.729
%RSD		20.069	14.523	1.697	2.815	18.102	17.713	4.998	3.192

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:06:32	13.333	0.000	98.334	T 2607268.300	1369052.500	266.671	169996.940	369300.630	14004.111
2	22:06:53	6.667	0.000	92.500	2420932.400	1324637.500	248.892	166311.940	356213.640	15045.774
3	22:07:16	0.000	0.000	114.167	T 2513188.000	1328677.100	235.559	166327.780	355107.140	15226.073
x		6.667	0.000	101.667	T 2513796.200	1340789.000	250.374	167545.550	360207.130	14758.653
σ		6.667	0.000	11.211	T 93169.439	24560.120	15.609	2122.981	7894.604	659.641
%RSD		100.000	0.000	11.028	T 3.706	1.832	6.234	1.267	2.192	4.470

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:06:32	8.889	553.350	691.137	1638000.800	164327.450	2280.286	737.808	737.808	1020.057
2	22:06:53	4.444	524.460	675.581	1632427.900	161146.820	2291.400	775.589	717.806	944.494
3	22:07:16	6.667	540.016	606.687	1638367.800	160581.390	2371.420	726.696	662.246	917.824
x		6.667	539.275	657.802	1636265.500	162018.550	2314.369	746.697	705.953	960.792
σ		2.222	14.460	44.945	3328.518	2019.448	49.720	25.630	39.150	53.029
%RSD		33.333	2.681	6.833	0.203	1.246	2.148	3.432	5.546	5.519

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:06:32	4140.943	9.067	627714.870	30685.032	4667.865	80019.518	13.333	0.000	47155.316
2	22:06:53	4028.226	4.533	610245.760	34404.981	4227.650	85502.427	13.333	0.000	50734.509
3	22:07:16	4120.267	3.467	609289.130	34097.158	4180.961	87458.682	6.667	0.000	49869.744
x		4096.478	5.689	615749.920	33062.390	4358.825	84326.876	11.111	0.000	49253.190
σ		60.006	2.973	10372.987	2064.597	268.652	3856.389	3.849	0.000	1867.554
%RSD		1.465	52.268	1.685	6.245	6.163	4.573	34.641	0.000	3.792

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:06:32	153.335	220.003	85762.638	141628.020	840.039	360.007	99845.305	7589.834
2	22:06:53	160.001	253.337	82620.406	156949.900	1540.130	366.674	105994.330	7236.212
3	22:07:16	180.002	233.336	82775.137	149607.650	1320.096	280.004	104800.610	7389.669
x		164.446	235.559	83719.394	149395.190	1233.422	335.562	103546.750	7405.238
σ		13.878	16.778	1771.192	7663.148	358.003	48.230	3260.638	177.324
%RSD		8.439	7.123	2.116	5.129	29.025	14.373	3.149	2.395

500-166193-j-1-c ms, 7/8/2019 10:10:45 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:10:45	53.333	34.667	411.676	T 2880653.100	1532419.700	19193.574	526983.930	398479.250	13803.805
2	22:11:07	46.667	28.667	361.674	T 2763381.600	1493912.200	19180.212	524478.410	390631.650	14812.057
3	22:11:29	66.667	24.667	356.674	T 2819660.900	1497816.600	18322.891	522502.710	385163.370	14872.155
x		55.556	29.333	376.675	T 2821231.800	1508049.500	18898.892	524655.020	391424.760	14496.006
σ		10.184	5.033	30.415	T 58651.531	21195.317	498.876	2245.821	6693.277	600.216
%RSD		18.330	17.159	8.075	T 2.079	1.405	2.640	0.428	1.710	4.141

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:10:45	18605.687	310833.530	160217.270	1592701.100	424807.670	738883.460	202440.310	288531.700	131804.160
2	22:11:07	17944.359	306326.580	158299.670	1554981.800	414398.930	728271.900	197488.720	284113.540	129135.150
3	22:11:29	18423.093	307811.030	159482.290	1560909.400	421229.000	727000.370	203408.220	285663.210	130386.150
x		18324.380	308323.710	159333.080	1569530.700	420145.200	731385.250	201112.410	286102.820	130441.820
σ		341.536	2296.799	967.470	20283.798	5288.330	6524.694	3175.312	2241.643	1335.374
%RSD		1.864	0.745	0.607	1.292	1.259	0.892	1.579	0.784	1.024

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:10:45	26803.455	1836.185	1812263.600	31608.187	825935.690	80506.007	142413.490	26685.776	60319.452
2	22:11:07	25698.939	1796.177	1755289.100	34016.858	805200.210	85928.639	141973.350	25923.576	64044.804
3	22:11:29	25890.147	1801.245	1780515.300	34766.352	809432.420	87402.591	144641.580	26418.330	63427.163
x		26130.847	1811.203	1782689.300	33463.799	813522.770	84612.412	143009.470	26342.561	62597.140
σ		590.289	21.784	28549.404	1650.123	10956.199	3631.812	1430.479	386.708	1996.563
%RSD		2.259	1.203	1.601	4.931	1.347	4.292	1.000	1.468	3.190

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:10:45	1105655.000	891796.390	362714.370	144729.640	725837.160	501726.670	97331.598	993931.520
2	22:11:07	1126834.300	867469.640	348168.570	154732.370	692752.750	473027.820	107208.450	961602.750
3	22:11:29	1126067.400	895817.740	350543.950	161420.500	704542.460	485865.670	102926.040	1011990.400
x		1119518.900	885027.920	353808.960	153627.500	707710.790	486873.390	102488.700	989174.880
σ		12012.590	15338.276	7803.222	8400.107	16768.222	14375.937	4952.927	25528.357
%RSD		1.073	1.733	2.205	5.468	2.369	2.953	4.833	2.581

500-166193-j-1-d msd, 7/8/2019 10:14:59 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:14:59	13.333	35.333	385.842	T 2976834.500	1610649.700	20028.706	553460.960	425133.490	13530.061
2	22:15:22	53.333	32.667	394.175	T 2918375.500	1560042.200	18917.440	533597.930	419295.980	14905.543
3	22:15:44	13.333	34.667	377.508	T 2908105.400	1572395.000	19367.275	538864.230	410684.840	15192.684
x		26.667	34.222	385.842	T 2934438.500	1581028.900	19437.807	541974.380	418371.440	14542.763
σ		23.094	1.388	8.334	T 37073.401	26385.394	558.980	10290.274	7268.560	888.699
%RSD		86.603	4.055	2.160	T 1.263	1.669	2.876	1.899	1.737	6.111

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:14:59	19313.828	321743.420	167316.790	1542645.500	429451.740	753887.900	207596.880	297659.000	134228.130
2	22:15:22	18492.122	311695.640	161284.790	1523535.600	420579.970	738943.620	202606.160	293085.040	131632.810
3	22:15:44	19037.691	309520.980	160280.600	1501873.600	418823.840	729550.820	204414.870	290836.760	130039.010
x		18947.880	314320.010	162960.730	1522684.900	422951.850	740794.110	204872.640	293860.270	131966.650
σ		418.150	6520.165	3805.730	20399.274	5697.147	12273.614	2526.655	3476.558	2114.418
%RSD		2.207	2.074	2.335	1.340	1.347	1.657	1.233	1.183	1.602

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:14:59	27509.560	1863.924	1882567.800	31815.575	858099.910	82035.141	145996.320	26010.490	62963.959
2	22:15:22	27074.925	1844.187	1859380.600	34458.516	829098.390	86944.900	141621.250	26271.238	64837.057
3	22:15:44	26684.439	1795.911	1871835.200	34431.748	817793.310	87418.297	145644.070	26338.098	61728.866
x		27089.641	1834.674	1871261.200	33568.613	834997.210	85466.113	144420.540	26206.609	63176.627
σ		412.757	34.991	11604.257	1518.234	20790.685	2980.721	2430.648	173.102	1564.971
%RSD		1.524	1.907	0.620	4.523	2.490	3.488	1.683	0.661	2.477

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:14:59	1147615.500	905694.860	380478.830	145386.660	743206.540	501402.850	101591.150	969033.070
2	22:15:22	1117673.400	877793.600	359531.610	152413.690	721901.550	498714.170	104456.690	995481.480
3	22:15:44	1126819.300	881405.960	349692.070	155281.620	708341.310	491566.900	106918.390	993516.260
x		1130702.700	888298.140	363234.170	151027.320	724483.130	497227.970	104322.080	986010.270
σ		15344.165	15173.882	15723.798	5091.076	17575.393	5083.605	2666.169	14735.484
%RSD		1.357	1.708	4.329	3.371	2.426	1.022	2.556	1.494

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:19:13	0.000	0.000	25.833	497503.820	278497.030	80.000	49275.405	74867.015	14010.788
2	22:19:35	0.000	0.000	24.167	491712.230	270185.100	91.112	48462.162	70908.802	14792.024
3	22:19:57	6.667	0.000	25.833	493355.550	268827.960	73.334	48962.611	73451.090	14892.188
x		2.222	0.000	25.278	494190.530	272503.370	81.482	48900.059	73075.636	14565.000
σ		3.849	0.000	0.962	2984.712	5234.835	8.981	410.214	2005.639	482.567
%RSD		173.205	0.000	3.807	0.604	1.921	11.022	0.839	2.745	3.313

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:19:13	6.667	364.452	422.232	332940.410	33626.520	766.699	282.227	291.116	386.675
2	22:19:35	4.444	377.786	395.564	324284.700	33432.473	617.799	184.446	255.559	317.783
3	22:19:57	2.222	288.893	346.673	325433.570	33370.022	544.461	224.447	240.003	342.229
x		4.444	343.710	388.156	327552.900	33476.339	642.986	230.373	262.226	348.896
σ		2.222	47.939	38.320	4700.955	133.757	113.240	49.159	26.200	34.926
%RSD		50.000	13.947	9.872	1.435	0.400	17.612	21.339	9.992	10.011

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:19:13	852.707	4.000	127751.360	31454.322	1793.510	82985.935	60.000	13.333	48555.994
2	22:19:35	805.369	1.867	122225.050	33066.695	2246.944	88335.992	40.000	0.000	51270.839
3	22:19:57	838.705	2.400	122558.380	34699.430	1886.863	88787.021	33.333	0.000	49206.142
x		832.260	2.756	124178.260	33073.482	1975.772	86702.983	44.445	4.444	49677.658
σ		24.318	1.110	3098.880	1622.565	239.435	3226.948	13.878	7.698	1417.512
%RSD		2.922	40.290	2.496	4.906	12.119	3.722	31.225	173.205	2.853

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:19:13	673.358	606.687	17349.874	138960.660	2860.450	246.670	98328.911	2086.906
2	22:19:35	693.360	440.011	16621.849	147717.110	3987.541	246.670	102723.780	1873.526
3	22:19:57	606.687	466.679	16281.233	147920.380	3607.382	166.668	102535.000	1613.477
x		657.802	504.459	16750.985	144866.050	3485.124	220.003	101195.890	1857.970
σ		45.382	89.531	545.899	5115.226	573.405	46.189	2484.674	237.098
%RSD		6.899	17.748	3.259	3.531	16.453	20.995	2.455	12.761

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:23:28	0.000	0.000	235.836	T 3563957.900	573035.160	3778.563	353961.510	190595.010	13563.444
2	22:23:49	6.667	0.000	190.835	T 3435729.000	568583.860	3851.927	353143.960	187611.680	15506.547
3	22:24:10	0.000	0.000	220.836	T 3497860.100	T 555299.760	3927.515	357077.670	188348.920	15366.309
x		2.222	0.000	215.836	T 3499182.300	T 565639.600	3852.668	354727.710	188851.870	14812.100
σ		3.849	0.000	22.913	T 64124.667	T 9227.005	74.479	2075.772	1553.955	1083.639
%RSD		173.205	0.000	10.616	T 1.833	T 1.631	1.933	0.585	0.823	7.316

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:23:28	160.001	1368.992	1348.989	20621.139	34045.855	1195.634	1086.732	4747.906	20558.776
2	22:23:49	177.780	1482.343	1460.117	19734.730	33171.520	1020.057	1008.945	4463.318	19866.127
3	22:24:10	131.112	1549.021	1433.446	20295.964	34197.534	1028.947	917.824	4598.941	20371.689
x		156.298	1466.785	1414.184	20217.278	33804.969	1081.546	1004.500	4603.388	20265.531
σ		23.553	91.017	58.014	448.412	553.801	98.903	84.541	142.346	358.319
%RSD		15.069	6.205	4.102	2.218	1.638	9.145	8.416	3.092	1.768

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:23:28	188.002	10.933	2595558.900	32203.605	20249.193	81945.449	53.333	20.000	47001.188
2	22:23:49	164.001	11.733	2540356.500	34512.052	20128.927	89013.666	20.000	40.000	50895.404
3	22:24:10	173.335	10.400	2610198.100	35716.692	20716.912	90443.227	13.333	20.000	51378.108
x		175.113	11.022	2582037.800	34144.116	20365.011	87134.114	28.889	26.667	49758.234
σ		12.099	0.671	36831.727	1785.211	310.632	4550.011	21.430	11.547	2399.839
%RSD		6.909	6.089	1.426	5.228	1.525	5.222	74.182	43.301	4.823

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:23:28	1613.477	1646.816	34471.900	143822.070	1473.453	7296.260	98868.045	19039.918
2	22:23:49	1633.480	1713.495	36078.115	153240.760	2006.888	7062.743	106439.490	17804.084
3	22:24:10	1653.484	1566.802	36580.115	158292.890	1786.842	6662.441	108773.540	18872.903
x		1633.480	1642.371	35710.043	151785.240	1755.728	7007.148	104693.690	18572.302
σ		20.004	73.448	1101.249	7344.389	268.075	320.546	5178.374	670.516
%RSD		1.225	4.472	3.084	4.839	15.269	4.575	4.946	3.610

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:27:41	13.333	0.667	205.836	T 3658961.100	566731.150	266.671	370443.520	184851.550	13543.414
2	22:28:03	20.000	0.000	214.169	T 3559186.100	555306.330	306.672	359566.270	178207.510	14818.735
3	22:28:25	0.000	0.667	234.170	T 3527806.400	T 543526.480	251.115	360097.810	180675.510	15192.684
x		11.111	0.444	218.058	T 3581984.500	T 555187.990	274.819	363369.200	181244.860	14518.278
σ		10.184	0.385	14.562	T 68485.184	T 11602.788	28.661	6132.304	3358.413	864.713
%RSD		91.652	86.603	6.678	T 1.912	T 2.090	10.429	1.688	1.853	5.956

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:27:41	8.889	1044.504	1077.842	595.575	11547.329	264.448	913.379	3107.198	9220.229
2	22:28:03	8.889	1004.500	1324.541	640.023	11536.204	242.225	846.706	2916.023	9031.150
3	22:28:25	8.889	1148.962	1140.072	564.462	11691.958	253.337	822.259	3109.421	9293.637
x		8.889	1065.989	1180.818	600.020	11591.830	253.337	860.782	3044.214	9181.672
σ		0.000	74.589	128.298	37.976	86.891	11.111	47.162	111.022	135.424
%RSD		0.000	6.997	10.865	6.329	0.750	4.386	5.479	3.647	1.475

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:27:41	113.334	8.800	2546864.900	31815.575	19340.551	81600.141	33.333	20.000	47175.420
2	22:28:03	130.668	8.800	2463094.800	32424.387	19888.398	88499.796	13.333	0.000	48596.208
3	22:28:25	130.668	9.333	2478577.900	34659.277	19307.147	88394.333	33.333	13.333	50198.211
x		124.890	8.978	2496179.200	32966.413	19512.032	86164.757	26.667	11.111	48656.613
σ		10.008	0.308	44572.538	1497.332	326.370	3953.425	11.547	10.184	1512.300
%RSD		8.013	3.430	1.786	4.542	1.673	4.588	43.301	91.652	3.108

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:27:41	426.677	1340.099	34706.122	146524.720	893.377	640.023	99434.169	18806.098
2	22:28:03	586.686	1300.093	32237.056	156556.540	1400.108	460.012	107140.990	18879.584
3	22:28:25	466.679	1606.809	33019.858	157818.070	1366.769	533.349	108004.450	18492.122
x		493.347	1415.667	33321.012	153633.110	1220.085	544.461	104859.870	18725.935
σ		83.271	166.738	1261.781	6188.280	283.428	90.518	4718.587	205.794
%RSD		16.879	11.778	3.787	4.028	23.230	16.625	4.500	1.099

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:31:55	6.667	0.667	540.849	TM 7393897.400	173687.960	495.569	229546.350	76935.286	13717.007
2	22:32:18	0.000	0.000	560.017	TM 7196605.600	167310.000	368.896	225336.290	75631.078	14758.637
3	22:32:39	6.667	0.000	526.682	TM 7140129.900	167393.740	371.119	224650.750	75350.989	14658.475
x		4.444	0.222	542.516	TM 7243544.300	169463.900	411.861	226511.130	75972.451	14378.040
σ		3.849	0.385	16.730	TM 133236.330	3658.380	72.501	2650.830	845.519	574.657
%RSD		86.603	173.205	3.084	TM 1.839	2.159	17.603	1.170	1.113	3.997

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:31:55	100.001	3318.383	646.690	12506.374	118813.600	2391.426	3960.863	1457.895	1511.237
2	22:32:18	44.445	3098.306	611.132	12426.265	117210.770	2295.845	3809.687	1491.233	1491.233
3	22:32:39	46.667	3413.974	564.462	12524.177	117041.950	2440.328	3818.580	1520.127	1457.895
x		63.704	3276.888	607.428	12485.605	117688.770	2375.866	3863.043	1489.752	1486.788
σ		31.453	161.874	41.239	52.156	977.778	73.487	84.831	31.143	26.947
%RSD		49.374	4.940	6.789	0.418	0.831	3.093	2.196	2.090	1.812

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:31:55	1217.415	8.800	295281.090	31889.166	270642.860	81364.712	13.333	93.334	47771.856
2	22:32:18	1122.736	6.400	289469.710	34404.981	266009.060	86565.752	6.667	66.667	47202.225
3	22:32:39	1134.738	5.867	290543.150	34866.735	259169.020	87191.691	40.000	53.333	48824.091
x		1158.296	7.022	291764.650	33720.294	265273.650	85040.719	20.000	71.111	47932.724
σ		51.549	1.563	3092.259	1602.522	5772.165	3198.862	17.638	20.367	822.813
%RSD		4.450	22.251	1.060	4.752	2.176	3.762	88.192	28.641	1.717

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:31:55	253.337	373.341	9585.050	138771.140	533.349	3934.184	97695.470	7476.406
2	22:32:18	253.337	306.672	8977.764	152847.550	1060.062	3774.117	104220.670	7583.161
3	22:32:39	240.003	340.006	8797.588	149390.800	966.718	3680.745	102993.470	7776.658
x		248.892	340.006	9120.134	147003.160	853.376	3796.349	101636.540	7612.075
σ		7.698	33.335	412.585	7335.665	281.054	128.174	3467.781	152.200
%RSD		3.093	9.804	4.524	4.990	32.934	3.376	3.412	1.999

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:36:09	6.667	0.000	577.518	TM 7533574.600	149788.370	184.446	240720.970	72718.570	14010.788
2	22:36:31	6.667	0.000	546.683	TM 7315330.200	146924.420	197.780	235696.300	69524.841	14551.637
3	22:36:53	6.667	0.000	550.850	TM 7442164.900	146583.430	197.780	234736.380	71070.054	14918.898
x		6.667	0.000	558.350	TM 7430356.600	147765.410	193.335	237051.220	71104.488	14493.774
σ		0.000	0.000	16.730	TM 109600.320	1760.215	7.698	3214.139	1597.143	456.812
%RSD		0.000	0.000	2.996	TM 1.475	1.191	3.982	1.356	2.246	3.152

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:36:09	31.111	3198.340	620.021	7309.604	111947.270	2149.143	3674.076	1804.624	1420.111
2	22:36:31	40.000	2856.004	642.245	6900.396	110156.710	2215.826	3809.687	1789.065	1408.998
3	22:36:53	24.444	2958.259	660.024	6840.350	109587.670	2255.835	3785.232	1917.980	1391.218
x		31.852	3004.201	640.763	7016.783	110563.890	2206.935	3756.332	1837.223	1406.776
σ		7.804	175.731	20.043	255.361	1231.370	53.899	72.278	70.369	14.574
%RSD		24.502	5.850	3.128	3.639	1.114	2.442	1.924	3.830	1.036

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:36:09	1078.064	6.133	272822.120	31059.635	287646.520	80562.055	13.333	46.667	47021.291
2	22:36:31	1115.402	5.867	266267.580	34304.602	281361.000	86893.299	26.667	133.334	49789.305
3	22:36:53	1132.737	5.867	270819.110	34599.048	285589.850	88127.315	0.000	80.000	52055.278
x		1108.734	5.956	269969.600	33321.095	284865.790	85194.223	13.333	86.667	49621.958
σ		27.940	0.154	3358.834	1964.008	3204.704	4058.748	13.333	43.717	2521.162
%RSD		2.520	2.585	1.244	5.894	1.125	4.764	100.000	50.442	5.081

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:36:09	180.002	233.336	9685.156	142731.750	540.016	2487.007	101705.760	7369.653
2	22:36:31	213.336	273.337	8630.762	144702.540	800.035	2440.328	102164.190	7316.276
3	22:36:53	166.668	353.340	8717.511	146301.160	713.361	2513.681	103162.030	7122.789
x		186.669	286.671	9011.143	144578.480	684.471	2480.338	102343.990	7269.573
σ		24.038	61.103	585.322	1787.934	132.395	37.129	744.599	129.890
%RSD		12.877	21.315	6.496	1.237	19.343	1.497	0.728	1.787

500-166207-i-3-a, 7/8/2019 10:40:25 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:40:25	20.000	0.667	1170.909	TM 13695905.000	971607.310	486.680	500102.990	M 1209783.600	12348.381
2	22:40:47	13.333	0.000	1185.911	TM 13247359.000	952634.900	444.455	493843.210	M 1221519.700	13930.665
3	22:41:09	26.667	0.000	1164.241	TM 13373625.000	957536.380	457.789	490048.110	M 1200107.100	13950.696
x		20.000	0.222	1173.687	TM 13438963.000	960592.860	462.975	494664.770	M 1210470.100	13409.914
σ		6.667	0.385	11.099	TM 231301.050	9848.586	21.585	5077.536	M 10722.799	919.369
%RSD		33.333	173.205	0.946	TM 1.721	1.025	4.662	1.026	M 0.886	6.856

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:40:25	53.333	382.230	420.010	1215584.100	769300.010	13772.647	7102.774	673.358	2140.252
2	22:40:47	40.000	311.116	446.678	1215515.800	779906.920	14115.394	7071.638	708.917	2038.006
3	22:41:09	40.000	384.453	415.565	1209905.000	771931.910	13830.513	7425.253	655.579	2126.915
x		44.445	359.266	427.417	1213668.300	773712.940	13906.185	7199.888	679.285	2101.725
σ		7.698	41.714	16.827	3259.318	5523.198	183.477	195.792	27.158	55.583
%RSD		17.321	11.611	3.937	0.269	0.714	1.319	2.719	3.998	2.645

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:40:25	1943.541	5.600	994514.890	30437.536	5114.772	73287.556	13.333	6.667	43229.205
2	22:40:47	1872.860	5.600	974192.100	31628.257	4994.705	80095.740	0.000	20.000	47838.874
3	22:41:09	1949.542	7.733	976693.700	33588.603	5054.738	80705.542	13.333	20.000	46250.687
x		1921.981	6.311	981800.230	31884.799	5054.738	78029.613	8.889	15.556	45772.922
σ		42.646	1.232	11082.032	1591.121	60.033	4118.045	7.698	7.698	2341.678
%RSD		2.219	19.516	1.129	4.990	1.188	5.278	86.603	49.487	5.116

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:40:25	160.001	293.338	11193.554	139272.040	340.006	1673.487	94252.744	8483.957
2	22:40:47	173.335	306.672	11193.554	149912.620	660.024	1320.096	102440.610	8597.397
3	22:41:09	120.001	300.005	11380.452	148882.560	693.360	1406.776	99285.895	8830.954
x		151.112	300.005	11255.853	146022.410	564.463	1466.786	98659.749	8637.436
σ		27.756	6.667	107.906	5868.631	195.099	184.180	4129.688	176.930
%RSD		18.368	2.222	0.959	4.019	34.564	12.557	4.186	2.048

ccv, 7/8/2019 10:44:40 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:44:40	146.668	141.334	75.834	799073.390	451063.770	227978.740	898949.890	60261.291	13957.373
2	22:45:02	93.334	138.001	60.000	790833.010	442280.970	224814.730	864145.420	59789.301	14291.224
3	22:45:23	113.334	162.668	83.334	796404.890	445417.570	223343.570	877261.260	58268.362	14765.314
x		117.779	147.335	73.056	795437.100	446254.100	225379.010	880118.860	59439.651	14337.971
σ		26.943	13.383	11.912	4204.571	4450.759	2368.548	17577.323	1041.457	405.994
%RSD		22.876	9.084	16.306	0.529	0.997	1.051	1.997	1.752	2.832

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:44:40	4407.735	152045.380	198410.690	1039074.200	131858.270	367750.770	101175.450	290593.610	64989.249
2	22:45:02	4256.552	145160.870	189367.530	998047.990	127893.330	357655.280	98052.618	279470.680	63142.972
3	22:45:23	4418.851	148245.610	192421.780	1015237.600	129029.220	357472.750	97089.025	280174.070	64391.686
x		4361.046	148483.960	193400.000	1017453.200	129593.610	360959.600	98772.363	283412.790	64174.636
σ		90.665	3448.435	4600.259	20602.644	2041.831	5882.032	2136.173	6228.715	942.081
%RSD		2.079	2.322	2.379	2.025	1.576	1.630	2.163	2.198	1.468

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:44:40	52641.975	4390.126	281849.110	31066.324	193014.140	82860.352	147046.370	131930.410	49098.898
2	22:45:02	51046.917	4208.707	269825.770	33146.986	188521.320	86386.279	143842.390	126128.940	53148.241
3	22:45:23	51484.038	4331.965	278684.880	33314.263	192244.760	86796.829	141248.860	126689.990	53490.238
x		51724.310	4310.266	276786.590	32509.191	191260.070	85347.820	144045.870	128249.780	51912.459
σ		824.227	92.636	6232.401	1252.356	2402.822	2163.968	2904.107	3199.840	2442.608
%RSD		1.594	2.149	2.252	3.852	1.256	2.535	2.016	2.495	4.705

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:44:40	279553.160	434312.470	128102.920	147764.540	1780911.700	1211191.700	100856.370	2520720.400
2	22:45:02	274475.230	421287.160	130408.690	153308.550	1706529.600	1178845.000	108240.570	2356709.100
3	22:45:23	264622.800	418998.270	129962.370	154610.320	1764137.300	1194073.600	108267.550	2330108.400
x		272883.730	424865.970	129491.330	151894.470	1750526.200	1194703.400	105788.160	2402512.600
σ		7591.346	8260.570	1222.929	3635.366	39014.367	16182.577	4271.077	103231.350
%RSD		2.782	1.944	0.944	2.393	2.229	1.355	4.037	4.297

ccb, 7/8/2019 10:48:55 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:48:55	0.000	0.000	2.500	3856.373	351.118	204.447	16550.608	68.889	13029.330
2	22:49:17	0.000	0.000	4.167	3307.268	260.004	153.335	16628.527	37.778	13850.543
3	22:49:39	0.000	0.000	3.333	3360.621	282.227	173.335	16922.402	44.445	13670.270
x		0.000	0.000	3.333	3508.088	297.783	177.039	16700.512	50.371	13516.715
σ		0.000	0.000	0.833	302.802	47.507	25.757	196.072	16.380	431.604
%RSD		0.000	0.000	25.000	8.632	15.954	14.549	1.174	32.520	3.193

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:48:55	8.889	286.671	302.227	506.681	135.557	113.334	113.334	137.779	60.000
2	22:49:17	4.444	286.671	277.782	444.455	77.778	88.889	82.223	126.668	57.778
3	22:49:39	2.222	260.004	317.783	431.121	93.334	88.889	88.889	135.557	75.556
x		5.185	277.782	299.264	460.752	102.223	97.038	94.815	133.334	64.445
σ		3.395	15.396	20.165	40.330	29.897	14.113	16.380	5.880	9.687
%RSD		65.465	5.543	6.738	8.753	29.247	14.544	17.276	4.410	15.031

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:48:55	26.000	3.467	197.780	29761.971	206.669	83741.707	66.667	60.000	46907.372
2	22:49:17	16.000	3.733	122.223	32350.793	313.339	87786.261	60.000	26.667	50908.813
3	22:49:39	26.000	4.267	140.001	32150.083	333.339	89826.042	20.000	26.667	49869.744
x		22.667	3.822	153.335	31420.949	284.449	87118.003	48.889	37.778	49228.643
σ		5.774	0.407	39.504	1440.217	68.098	3096.726	25.240	19.245	2076.328
%RSD		25.471	10.657	25.763	4.584	23.940	3.555	51.627	50.943	4.218

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:48:55	273.337	380.008	66.667	139732.360	4941.343	373.341	100721.560	900.045
2	22:49:17	340.006	553.350	33.333	145095.400	7162.821	260.004	107977.470	546.683
3	22:49:39	320.006	540.016	73.334	149045.190	5875.231	333.339	107572.710	660.024
x		311.116	491.125	57.778	144624.320	5993.132	322.228	105423.910	702.251
σ		34.212	96.461	21.430	4674.256	1115.422	57.480	4077.383	180.426
%RSD		10.996	19.641	37.091	3.232	18.612	17.838	3.868	25.692

500-166207-j-3-a, 7/8/2019 10:53:09 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:53:09	6.667	0.000	1201.746	TM 13450483.000	970288.050	162.224	495266.480	M 1202998.900	12335.029
2	22:53:32	13.333	0.000	1210.914	TM 12812304.000	942396.910	188.891	486943.320	M 1177628.000	13216.267
3	22:53:53	0.000	0.000	1156.740	TM 13164020.000	942844.380	128.890	493238.330	M 1191565.300	13763.745
x		6.667	0.000	1189.800	TM 13142269.000	951843.110	160.001	491816.040	M 1190730.800	13105.014
σ		6.667	0.000	28.995	TM 319645.150	15975.351	30.062	4340.036	M 12706.026	720.826
%RSD		100.000	0.000	2.437	TM 2.432	1.678	18.789	0.882	M 1.067	5.500

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:53:09	6.667	244.448	368.896	960543.500	769188.950	13783.775	6993.800	528.904	1882.417
2	22:53:32	4.444	284.449	442.233	944681.180	763478.620	13507.806	7167.269	553.350	1864.636
3	22:53:53	0.000	306.672	344.451	967235.960	764545.120	13543.414	7044.951	491.124	1875.749
x		3.704	278.523	385.193	957486.880	765737.570	13611.665	7068.673	524.460	1874.267
σ		3.395	31.533	50.887	11583.899	3036.183	150.111	89.134	31.350	8.983
%RSD		91.652	11.321	13.211	1.210	0.397	1.103	1.261	5.978	0.479

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:53:09	762.699	6.933	965441.650	28952.698	4174.292	73818.492	53.333	13.333	44562.285
2	22:53:32	765.366	5.067	948306.640	30517.804	4140.943	80154.028	6.667	6.667	45701.252
3	22:53:53	787.367	6.400	944725.450	30939.225	4007.550	81001.490	13.333	6.667	47852.277
x		771.811	6.133	952824.580	30136.576	4107.595	78324.670	24.445	8.889	46038.605
σ		13.538	0.961	11072.445	1046.697	88.231	3925.401	25.240	3.849	1670.739
%RSD		1.754	15.676	1.162	3.473	2.148	5.012	103.253	43.301	3.629

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:53:09	120.001	260.004	9878.698	140537.970	1386.772	1166.742	93734.089	7596.506
2	22:53:32	93.334	240.003	9645.114	149424.680	2033.561	1026.725	104793.870	7409.685
3	22:53:53	93.334	320.006	9912.067	151566.370	1913.535	1086.732	103283.400	8323.809
x		102.223	273.338	9811.960	147176.340	1777.956	1093.399	100603.780	7776.667
σ		15.396	41.635	145.453	5847.878	344.049	70.246	5997.076	482.959
%RSD		15.061	15.232	1.482	3.973	19.351	6.425	5.961	6.210

500-166207-i-4-a, 7/8/2019 10:57:24 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:57:24	0.000	0.000	345.840	T 2771629.000	1189801.900	491.124	266173.780	344480.890	13429.913
2	22:57:46	33.333	0.000	363.341	T 2707907.300	1150677.700	508.903	255841.170	330553.410	14351.319
3	22:58:08	0.000	0.000	346.673	T 2669261.900	1142242.200	513.348	262356.290	333491.170	14878.833
x		11.111	0.000	351.951	T 2716266.100	1160907.300	504.458	261457.080	336175.160	14220.021
σ		19.245	0.000	9.872	T 51692.917	25376.451	11.760	5224.668	7341.423	733.329
%RSD		173.205	0.000	2.805	T 1.903	2.186	2.331	1.998	2.184	5.157

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:57:24	71.111	328.895	560.017	95537.158	75808.099	5499.441	2698.178	2707.070	2340.301
2	22:57:46	37.778	333.339	553.350	94892.683	76193.523	5683.999	2647.052	2682.618	2213.603
3	22:58:08	62.222	388.897	575.574	94742.237	75283.768	5650.645	2469.224	2811.546	2024.670
x		57.037	350.377	562.980	95057.359	75761.797	5611.361	2604.818	2733.745	2192.858
σ		17.261	33.433	11.404	422.272	456.641	98.350	120.178	68.478	158.835
%RSD		30.263	9.542	2.026	0.444	0.603	1.753	4.614	2.505	7.243

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:57:24	1260.754	6.400	T 5110516.100	31159.977	8116.955	78457.099	13.333	6.667	45627.550
2	22:57:46	1247.419	2.667	T 4953933.600	33039.931	7676.573	85811.990	6.667	0.000	51170.274
3	22:58:08	1229.417	4.267	T 4949165.300	33555.146	7423.029	85307.273	0.000	0.000	49025.169
x		1245.863	4.444	T 5004538.300	32585.018	7738.853	83192.120	6.667	2.222	48607.664
σ		15.727	1.873	T 91810.387	1260.721	351.130	4108.407	6.667	3.849	2794.849
%RSD		1.262	42.143	T 1.835	3.869	4.537	4.938	100.000	173.205	5.750

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:57:24	366.674	473.346	37711.390	145122.490	800.035	3033.840	98787.173	11053.382
2	22:57:46	400.009	573.351	38293.817	155735.960	1360.102	2900.463	106662.070	10372.581
3	22:58:08	360.007	520.015	36312.378	154373.000	1280.090	3020.502	104207.180	10906.538
x		375.563	522.237	37439.195	151743.820	1146.742	2984.935	103218.810	10777.501
σ		21.431	50.040	1018.377	5774.590	302.911	73.458	4029.414	358.275
%RSD		5.706	9.582	2.720	3.805	26.415	2.461	3.904	3.324

500-166207-j-4-a, 7/8/2019 11:01:38 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:01:38	13.333	0.000	393.342	T 2760180.700	1181831.300	184.446	269596.910	342773.700	12875.778
2	23:01:59	40.000	0.667	375.841	2627372.600	1173466.800	213.336	265508.060	335927.340	13656.917
3	23:02:22	20.000	0.000	361.674	T 2757411.900	1176917.600	164.446	263817.680	335648.420	14344.642
x		24.444	0.222	376.952	T 2714988.400	1177405.200	187.409	266307.550	338116.480	13625.779
σ		13.878	0.385	15.863	T 75890.166	4203.499	24.579	2971.404	4035.674	734.927
%RSD		56.773	173.205	4.208	T 2.795	0.357	13.115	1.116	1.194	5.394

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:01:38	8.889	308.894	580.019	77912.445	77665.904	5606.173	2958.259	1086.732	3820.803
2	23:01:59	11.111	391.120	597.797	74788.595	75312.897	5457.193	2982.712	1175.632	3634.060
3	23:02:22	8.889	351.118	553.350	75895.490	76686.531	5463.864	2958.259	1124.514	3578.482
x		9.630	350.377	577.055	76198.843	76555.111	5509.076	2966.410	1128.959	3677.781
σ		1.283	41.118	22.371	1583.864	1181.996	84.154	14.118	44.616	126.939
%RSD		13.323	11.735	3.877	2.079	1.544	1.528	0.476	3.952	3.452

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:01:38	1164.741	5.333	TM 5210780.400	30263.623	7796.675	77643.492	13.333	20.000	46411.503
2	23:01:59	1024.058	2.667	T 5062162.400	31026.187	8217.045	84347.266	33.333	0.000	49856.337
3	23:02:22	1153.407	2.400	T 5031103.700	33314.263	7576.489	85311.759	40.000	0.000	49796.008
x		1114.069	3.467	TM 5101348.800	31534.691	7863.403	82434.172	28.889	6.667	48687.949
σ		78.157	1.622	TM 96034.449	1587.619	325.450	4176.784	13.878	11.547	1971.691
%RSD		7.015	46.790	TM 1.883	5.035	4.139	5.067	48.038	173.205	4.050

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:01:38	206.669	426.677	38414.324	143415.720	593.353	2640.383	102305.770	12261.597
2	23:01:59	240.003	400.009	39023.577	155023.940	1120.069	2493.675	114543.760	10939.912
3	23:02:22	286.671	386.675	37972.473	155824.120	986.720	2553.692	111850.540	11533.979
x		244.448	404.453	38470.124	151421.260	900.047	2562.584	109566.690	11578.496
σ		40.186	20.368	527.769	6944.532	273.846	73.757	6430.716	661.966
%RSD		16.439	5.036	1.372	4.586	30.426	2.878	5.869	5.717

500-166215-d-1-a, 7/8/2019 11:05:52 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:05:52	0.000	0.000	109.167	T 3195157.500	462044.000	864.486	578141.520	M 516509.940	12241.570
2	23:06:13	6.667	0.000	111.667	3038481.400	458359.910	762.254	572219.450	511617.950	13490.001
3	23:06:35	33.333	0.000	110.001	T 3136325.300	458682.240	873.375	576984.720	513722.930	13556.767
x		13.333	0.000	110.278	T 3123321.400	459695.380	833.372	575781.890	M 513950.280	13096.113
σ		17.638	0.000	1.273	T 79143.371	2040.338	61.750	3138.922	M 2453.906	740.809
%RSD		132.288	0.000	1.154	T 2.534	0.444	7.410	0.545	M 0.477	5.657

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:05:52	37.778	2980.488	2484.784	228361.510	235849.080	880.043	1624.590	58033.534	117913.100
2	23:06:13	22.222	3031.617	2411.431	222635.400	232411.100	806.702	1635.703	56863.955	116416.210
3	23:06:35	17.778	3024.948	2484.784	222309.800	233368.500	833.372	1593.473	57619.803	115590.220
x		25.926	3012.351	2460.333	224435.570	233876.230	840.039	1617.922	57505.764	116639.840
σ		10.502	27.794	42.350	3403.855	1774.332	37.122	21.890	593.070	1177.477
%RSD		40.507	0.923	1.721	1.517	0.759	4.419	1.353	1.031	1.009

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:05:52	217682.030	11.200	484373.570	29434.240	10586.160	77343.170	6.667	100.001	45795.055
2	23:06:13	214479.240	8.267	484570.320	31701.846	10285.816	82441.010	13.333	153.335	48555.994
3	23:06:35	213693.050	9.600	478222.640	31842.336	10886.514	83932.341	0.000	166.668	48971.547
x		215284.780	9.689	482388.840	30992.807	10586.163	81238.841	6.667	140.001	47774.199
σ		2112.974	1.469	3609.382	1351.585	300.349	3455.171	6.667	35.277	1726.536
%RSD		0.981	15.158	0.748	4.361	2.837	4.253	100.000	25.198	3.614

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:05:52	413.343	1600.141	34277.835	145230.870	620.021	39244.525	100499.120	6295.512
2	23:06:13	480.013	1860.190	34726.199	153328.890	973.385	37557.421	110932.730	5735.142
3	23:06:35	433.344	1613.477	34478.592	155105.310	993.388	39090.530	106432.740	6515.668
x		442.233	1691.269	34494.209	151221.690	862.265	38630.825	105954.860	6182.107
σ		34.212	146.442	224.589	5263.685	210.027	932.779	5233.196	402.431
%RSD		7.736	8.659	0.651	3.481	24.358	2.415	4.939	6.510

500-166215-d-2-a, 7/8/2019 11:10:05 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:10:05	6.667	0.000	118.334	T 4218278.600	815653.270	302.227	1092687.600	497839.230	12415.138
2	23:10:27	13.333	0.667	107.501	T 4122745.200	800441.830	224.447	1066772.500	490793.410	12949.216
3	23:10:49	13.333	0.000	94.167	T 4156304.600	804378.710	215.558	1095127.800	500766.970	14010.788
x		11.111	0.222	106.667	T 4165776.200	806824.600	247.411	1084862.600	496466.540	13125.048
σ		3.849	0.385	12.105	T 48465.896	7895.174	47.680	15713.943	5126.519	812.227
%RSD		34.641	173.205	11.348	T 1.163	0.979	19.272	1.448	1.033	6.188

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:10:05	4.444	1600.141	1413.443	20799.322	301686.320	637.800	902.267	2346.970	6380.016
2	23:10:27	4.444	1515.682	1431.224	20295.964	294994.220	637.800	902.267	2204.712	6335.540
3	23:10:49	0.000	1640.148	1473.453	20440.732	302738.220	773.366	891.155	2280.286	6411.149
x		2.963	1585.324	1439.373	20512.006	299806.250	682.989	898.563	2277.322	6375.568
σ		2.566	63.542	30.824	259.138	4200.402	78.269	6.416	71.175	38.000
%RSD		86.603	4.008	2.141	1.263	1.401	11.460	0.714	3.125	0.596

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:10:05	619013.560	5.600	518928.690	29768.660	14398.059	75221.030	46.667	160.001	43436.858
2	23:10:27	610002.670	6.133	513161.400	30604.763	14852.122	82111.380	13.333	100.001	48790.578
3	23:10:49	616955.840	8.267	509922.100	31527.909	14845.445	83618.357	13.333	113.334	51411.630
x		615324.020	6.667	514004.060	30633.777	14698.542	80316.922	24.444	124.445	47879.689
σ		4721.878	1.411	4562.041	879.983	260.247	4477.034	19.245	31.506	4064.670
%RSD		0.767	21.166	0.888	2.873	1.771	5.574	78.730	25.317	8.489

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:10:05	160.001	2180.261	24118.618	137356.560	560.017	7536.456	95498.982	10886.514
2	23:10:27	193.335	2113.579	23944.826	150265.030	973.385	7796.675	107565.960	11166.854
3	23:10:49	193.335	2480.338	25021.052	150576.790	733.363	7943.469	108564.390	11153.505
x		182.224	2258.060	24361.499	146066.130	755.589	7758.867	103876.450	11068.958
σ		19.245	195.365	577.762	7544.317	207.578	206.124	7272.253	158.141
%RSD		10.561	8.652	2.372	5.165	27.472	2.657	7.001	1.429

500-166215-d-3-a, 7/8/2019 11:14:20 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:14:20	6.667	0.667	118.334	T 4197817.000	800751.880	237.781	1094970.400	501874.500	12622.090
2	23:14:42	6.667	0.000	110.001	T 4061576.300	771540.700	220.003	1060834.200	490467.630	13149.503
3	23:15:04	40.000	0.667	112.501	T 4092190.200	783230.820	215.558	1074229.900	498162.930	13222.943
x		17.778	0.444	113.612	T 4117194.500	785174.460	224.447	1076678.200	496835.020	12998.179
σ		19.245	0.385	4.276	T 71479.339	14702.264	11.759	17199.320	5818.221	327.766
%RSD		108.253	86.603	3.764	T 1.736	1.872	5.239	1.597	1.171	2.522

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:14:20	6.667	1524.572	1195.634	18251.637	294900.130	633.355	1015.612	8181.458	16063.068
2	23:14:42	4.444	1453.450	1311.206	17775.138	288621.140	631.133	906.712	8085.817	15637.883
3	23:15:04	6.667	1546.798	1253.420	18118.037	290336.710	664.469	977.830	8297.118	15615.622
x		5.926	1508.273	1253.420	18048.271	291285.990	642.986	966.718	8188.131	15772.191
σ		1.283	48.762	57.786	245.791	3245.347	18.638	55.294	105.809	252.152
%RSD		21.651	3.233	4.610	1.362	1.114	2.899	5.720	1.292	1.599

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:14:20	588414.450	6.133	513379.900	28725.311	14438.123	75106.758	13.333	106.667	45265.748
2	23:14:42	579341.290	5.867	502435.360	31414.183	14324.610	81492.516	0.000	106.667	48750.363
3	23:15:04	576602.460	8.800	505467.830	31608.187	15186.007	81813.154	20.000	73.334	49051.979
x		581452.730	6.933	507094.360	30582.561	14649.580	79470.809	11.111	95.556	47689.363
σ		6182.587	1.622	5650.662	1611.347	468.013	3782.778	10.184	19.245	2104.324
%RSD		1.063	23.395	1.114	5.269	3.195	4.760	91.652	20.140	4.413

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:14:20	153.335	2240.276	23196.223	140815.550	426.677	10285.816	99494.827	11720.884
2	23:14:42	166.668	2386.980	23537.097	151403.690	580.019	10679.603	109677.640	11667.482
3	23:15:04	133.334	2246.944	23891.353	154311.980	713.361	10432.649	111121.680	11487.253
x		151.112	2291.400	23541.557	148843.740	573.352	10466.023	106764.720	11625.207
σ		16.778	82.842	347.587	7103.059	143.459	199.003	6337.174	122.419
%RSD		11.103	3.615	1.476	4.772	25.021	1.901	5.936	1.053

500-166215-d-4-a, 7/8/2019 11:18:35 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:18:35	40.000	0.000	130.001	T 4170070.100	624583.160	471.123	869082.180	M 575875.360	12201.516
2	23:18:58	6.667	0.000	128.334	T 4103285.000	618817.060	500.014	875513.070	562452.890	14084.235
3	23:19:19	13.333	0.000	147.501	T 4117266.500	618657.870	522.237	857824.540	M 567470.770	13336.442
x		20.000	0.000	135.279	T 4130207.200	620686.030	497.791	867473.260	M 568599.670	13207.398
σ		17.638	0.000	10.618	T 35222.968	3375.951	25.629	8953.346	M 6782.076	947.970
%RSD		88.192	0.000	7.849	T 0.853	0.544	5.149	1.032	M 1.193	7.178

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:18:35	4.444	1424.556	1162.297	8966.642	242459.610	477.790	786.701	6597.949	9206.882
2	23:18:58	0.000	1397.885	1062.284	8673.024	241076.890	400.009	744.475	6662.441	9020.028
3	23:19:19	4.444	1495.679	1126.737	8575.154	238364.530	475.568	808.925	6758.067	9202.433
x		2.963	1439.373	1117.106	8738.273	240633.680	451.122	780.034	6672.819	9143.114
σ		2.566	50.552	50.697	203.737	2083.203	44.280	32.738	80.562	106.619
%RSD		86.603	3.512	4.538	2.332	0.866	9.815	4.197	1.207	1.166

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:18:35	339694.170	5.867	517577.030	28558.119	13656.917	74622.797	6.667	33.333	43952.661
2	23:18:58	334455.880	5.067	519229.600	31293.769	13443.266	81196.552	13.333	20.000	47872.383
3	23:19:19	338645.440	5.333	522363.960	30705.100	13810.482	82981.449	13.333	20.000	46337.795
x		337598.500	5.422	519723.530	30185.663	13636.888	79600.266	11.111	24.444	46054.280
σ		2771.641	0.407	2431.387	1439.898	184.426	4402.030	3.849	7.698	1975.181
%RSD		0.821	7.512	0.468	4.770	1.352	5.530	34.641	31.492	4.289

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:18:35	193.335	3207.232	8050.229	139996.370	833.372	2760.419	96974.479	10045.547
2	23:18:58	153.335	3080.522	7709.935	149831.290	1040.060	2627.046	101085.570	9791.937
3	23:19:19	193.335	3040.508	7903.434	156970.250	1046.727	2867.119	105306.410	10058.895
x		180.002	3109.421	7887.866	148932.640	973.386	2751.528	101122.150	9965.460
σ		23.094	87.038	170.681	8522.546	121.302	120.283	4166.085	150.423
%RSD		12.830	2.799	2.164	5.722	12.462	4.371	4.120	1.509

500-166139-b-1-a, 7/8/2019 11:22:48 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:22:48	6.667	0.000	23.333	2419095.000	351636.050	511.125	88742.142	104195.940	13343.118
2	23:23:09	6.667	0.000	22.500	2384300.000	347279.980	415.565	87420.540	101236.120	14745.282
3	23:23:32	6.667	0.000	31.667	T 2521180.200	357770.810	444.455	90557.692	103831.810	14371.350
x		6.667	0.000	25.833	T 2441525.000	352228.940	457.049	88906.791	103087.960	14153.250
σ		0.000	0.000	5.069	T 71143.348	5270.488	49.009	1575.044	1614.043	726.080
%RSD		0.000	0.000	19.622	T 2.914	1.496	10.723	1.772	1.566	5.130

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:22:48	11.111	602.242	577.796	21249.250	422548.160	946.716	753.365	2286.954	10862.041
2	23:23:09	4.444	680.025	575.574	20803.777	409186.150	953.383	700.027	2258.058	10828.668
3	23:23:32	15.556	695.582	568.907	21489.814	415452.070	971.163	626.688	2326.964	11026.683
x		10.370	659.283	574.092	21180.947	415728.790	957.087	693.360	2290.659	10905.797
σ		5.592	50.008	4.626	348.082	6685.302	12.637	63.601	34.602	106.012
%RSD		53.927	7.585	0.806	1.643	1.608	1.320	9.173	1.511	0.972

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:22:48	566.684	5.067	285741.160	30203.424	1466.785	80006.067	26.667	0.000	47014.590
2	23:23:09	534.016	4.800	277324.210	32531.436	1566.802	85733.476	26.667	13.333	49755.789
3	23:23:32	548.683	6.400	283127.940	33541.764	1593.473	87824.405	26.667	0.000	50928.925
x		549.794	5.422	282064.440	32092.208	1542.353	84521.316	26.667	4.444	49233.101
σ		16.363	0.857	4308.080	1711.964	66.789	4047.666	0.000	7.698	2008.832
%RSD		2.976	15.809	1.527	5.335	4.330	4.789	0.000	173.205	4.080

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:22:48	106.667	486.680	25589.297	140097.920	213.336	3080.522	100007.070	3654.068
2	23:23:09	100.001	466.679	25789.863	149899.060	406.676	2933.807	102420.380	3760.778
3	23:23:32	146.668	506.681	25816.605	159364.700	406.676	2580.366	111634.580	3687.414
x		117.779	486.680	25731.922	149787.230	342.229	2864.898	104687.340	3700.753
σ		25.240	20.001	124.238	9633.879	111.625	257.100	6136.291	54.591
%RSD		21.430	4.110	0.483	6.432	32.617	8.974	5.862	1.475

ccv, 7/8/2019 11:27:04 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:27:04	133.334	150.668	76.667	769563.160	433355.030	219746.370	863313.930	57261.998	12301.651
2	23:27:25	60.000	172.668	63.334	749718.950	419349.480	214623.930	839915.870	56870.664	13777.098
3	23:27:48	93.334	154.668	70.000	761821.190	419537.880	211623.700	843465.220	57447.607	13937.342
x		95.556	159.335	70.000	760367.770	424080.790	215331.340	848898.340	57193.423	13338.697
σ		36.718	11.719	6.667	10001.627	8032.274	4107.281	12609.776	294.521	901.675
%RSD		38.425	7.355	9.524	1.315	1.894	1.907	1.485	0.515	6.760

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:27:04	4363.269	142905.560	188212.810	978371.660	126284.410	350627.070	95195.827	275684.330	62807.326
2	23:27:25	4223.203	137690.440	181704.610	959678.950	124017.970	344520.110	94798.373	269432.130	60802.655
3	23:27:48	4347.706	141914.660	185250.660	976168.160	125450.760	350380.040	93381.601	270878.620	61749.002
x		4311.393	140836.890	185056.030	971406.260	125251.050	348509.070	94458.600	271998.360	61786.328
σ		76.770	2769.578	3258.461	10215.731	1146.342	3456.750	953.645	3273.055	1002.857
%RSD		1.781	1.967	1.761	1.052	0.915	0.992	1.010	1.203	1.623

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:27:04	50020.569	4265.801	273124.330	29353.981	193872.110	79956.747	142379.630	126872.510	48971.547
2	23:27:25	48698.755	4042.499	264599.930	30564.628	185180.360	84208.208	138642.530	122303.870	51854.133
3	23:27:48	49538.607	4181.228	266009.060	31380.735	185554.550	85329.704	139542.810	121553.910	52397.234
x		49419.310	4163.176	267911.110	30433.115	188202.340	83164.886	140188.320	123576.770	51074.305
σ		668.934	112.740	4569.430	1019.757	4913.726	2834.353	1950.382	2878.727	1841.176
%RSD		1.354	2.708	1.706	3.351	2.611	3.408	1.391	2.330	3.605

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:27:04	276460.720	424351.530	131112.030	145427.300	1791887.800	1236306.000	102521.510	2508376.400
2	23:27:25	263991.510	416633.210	127940.660	151749.380	1727307.100	1197140.300	107802.070	2439996.500
3	23:27:48	273197.600	418279.620	132004.820	159378.270	1795130.600	1209811.500	109144.610	2515388.800
x		271216.610	419754.790	130352.500	152184.990	1771441.800	1214419.300	106489.400	2487920.600
σ		6466.338	4065.123	2135.885	6985.678	38256.183	19985.284	3501.243	41651.326
%RSD		2.384	0.968	1.639	4.590	2.160	1.646	3.288	1.674

ccb, 7/8/2019 11:31:19 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:31:19	0.000	0.000	0.833	3356.175	375.563	184.446	16719.806	86.667	13376.501
2	23:31:42	0.000	0.667	0.000	3367.290	342.229	133.334	17441.159	60.000	14264.516
3	23:32:03	0.000	0.000	1.667	3229.462	335.562	171.113	17750.646	73.334	14391.382
x		0.000	0.222	0.833	3317.643	351.118	162.964	17303.870	73.334	14010.800
σ		0.000	0.385	0.833	76.568	21.431	26.512	528.956	13.333	552.969
%RSD		0.000	173.205	100.000	2.308	6.104	16.269	3.057	18.182	3.947

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:31:19	2.222	311.116	337.784	462.234	140.001	115.556	62.222	146.668	82.223
2	23:31:42	2.222	366.674	297.783	411.120	106.667	115.556	80.000	148.890	77.778
3	23:32:03	2.222	315.561	322.228	464.456	111.112	120.001	84.445	177.780	73.334
x		2.222	331.117	319.265	445.937	119.260	117.038	75.556	157.779	77.778
σ		0.000	30.873	20.165	30.172	18.099	2.566	11.759	17.356	4.444
%RSD		0.000	9.324	6.316	6.766	15.176	2.192	15.563	11.000	5.714

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:31:19	33.333	5.067	164.446	29935.874	180.002	83598.172	53.333	80.000	47014.590
2	23:31:42	32.000	2.667	188.891	31989.518	180.002	89330.080	26.667	46.667	49051.979
3	23:32:03	32.667	4.533	206.669	33401.248	193.335	92110.958	46.667	26.667	51036.190
x		32.667	4.089	186.669	31775.547	184.446	88346.403	42.222	51.111	49034.253
σ		0.667	1.260	21.199	1742.567	7.698	4340.806	13.878	26.943	2010.859
%RSD		2.041	30.821	11.357	5.484	4.174	4.913	32.868	52.715	4.101

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:31:19	260.004	493.347	33.333	135380.580	1973.548	420.010	104618.530	680.025
2	23:31:42	206.669	593.353	40.000	149905.840	2893.794	460.012	105933.630	626.688
3	23:32:03	273.337	513.348	66.667	150658.120	2613.709	413.343	108854.500	693.360
x		246.670	533.349	46.667	145314.850	2493.684	431.121	106468.890	666.691
σ		35.278	52.918	17.638	8611.544	471.718	25.241	2168.116	35.279
%RSD		14.302	9.922	37.797	5.926	18.917	5.855	2.036	5.292

ccvl, 7/8/2019 11:35:35 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:35:35	0.000	0.667	11.667	10250.220	3951.970	975.608	34636.970	546.683	13156.179
2	23:35:57	0.000	1.333	15.000	10110.063	3847.481	1000.055	35551.602	457.789	14090.912
3	23:36:19	6.667	1.333	14.167	10261.344	3903.060	984.498	35582.835	553.350	14865.477
x		2.222	1.111	13.611	10207.209	3900.837	986.720	35257.136	519.274	14037.523
σ		3.849	0.385	1.735	84.314	52.280	12.374	537.306	53.352	855.899
%RSD		173.205	34.641	12.745	0.826	1.340	1.254	1.524	10.274	6.097

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:35:35	91.112	3285.038	4007.550	4452.201	1489.011	1491.233	864.486	2402.540	5110.325
2	23:35:57	66.667	3247.247	4220.980	4456.648	1415.666	1515.682	977.830	2424.768	4932.449
3	23:36:19	82.223	3311.714	4198.747	4561.144	1386.772	1604.586	882.265	2426.991	5121.442
x		80.000	3281.333	4142.426	4489.998	1430.483	1537.167	908.194	2418.099	5054.739
σ		12.373	32.393	117.334	61.655	52.705	59.652	60.959	13.521	106.052
%RSD		15.466	0.987	2.832	1.373	3.684	3.881	6.712	0.559	2.098

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:35:35	240.003	44.267	4512.231	30551.250	3120.536	84773.425	1533.463	306.672	47704.839
2	23:35:57	229.336	39.733	4407.735	32698.701	2873.788	90245.724	1480.121	266.671	50935.629
3	23:36:19	224.669	53.333	4576.707	33133.604	3120.536	89727.296	1426.779	213.336	51820.609
x		231.336	45.778	4498.891	32127.852	3038.286	88248.815	1480.121	262.226	50153.692
σ		7.860	6.925	85.272	1382.585	142.460	3020.918	53.342	46.826	2166.440
%RSD		3.398	15.127	1.895	4.303	4.689	3.423	3.604	17.857	4.320

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:35:35	5201.488	5348.239	1260.087	140097.920	14464.832	2493.675	97425.934	87936.593
2	23:35:57	5588.384	5481.652	1140.072	152237.440	14157.682	2707.070	104679.230	89659.970
3	23:36:19	5128.113	4968.024	1413.443	150420.910	14585.024	2346.970	110473.860	86893.299
x		5305.995	5265.972	1271.201	147585.420	14402.513	2515.905	104193.010	88163.287
σ		247.293	266.514	137.024	6547.670	220.381	181.076	6537.537	1397.197
%RSD		4.661	5.061	10.779	4.437	1.530	7.197	6.274	1.585

Analyte ICPS

STD0, 7/8/2019 5:29:37 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:29:37	-2.257	-0.226	-1.056	1813.880	89.530	4.691	1072.742	31.894	93.873%
2	17:29:59	-2.257	-0.226	1.266	-772.513	-18.039	-11.699	-1411.052	-23.700	107.683%
3	17:30:22	4.515	0.451	-0.210	-1041.367	-71.490	7.008	338.309	-8.193	98.444%
x		-0.000	-0.000	-0.000	0.000	-0.000	0.000	0.000	-0.000	100.000%
σ		3.910	0.391	1.175	1576.607	82.012	10.197	1275.989	28.688	7.035%
%RSD		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.035

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:29:37	-0.486	-2.195	8.349	22.947	49.257	8.451	0.838	-4.708	0.551
2	17:29:59	3.338	-16.163	-33.242	-25.789	-19.366	-9.031	-4.323	-5.598	-1.946
3	17:30:22	-2.853	18.358	24.894	2.843	-29.891	0.580	3.484	10.305	1.395
x		0.000	0.000	0.000	0.000	-0.000	-0.000	-0.000	0.000	0.000
σ		3.124	17.365	29.954	24.492	42.981	8.755	3.970	8.936	1.737
%RSD		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:29:37	0.559	0.109	42.264	93.478%	-9.725	94.895%	-2.178	4.575	97.211%
2	17:29:59	-1.069	0.232	-11.338	102.840%	-7.787	101.247%	-2.178	-2.284	100.759%
3	17:30:22	0.509	-0.341	-30.926	103.682%	17.512	103.858%	4.356	-2.291	102.030%
x		0.000	-0.000	-0.000	100.000%	0.000	100.000%	0.000	0.000	100.000%
σ		0.926	0.302	37.890	5.664%	15.197	4.610%	3.772	3.962	2.498%
%RSD		0.000	0.000	0.000	5.664	0.000	4.610	0.000	0.000	2.498

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:29:37	9.000	-17.583	9.905	93.889%	-330.056	2.554	97.301%	4.191
2	17:29:59	22.584	9.945	-11.397	102.668%	169.250	-0.927	100.965%	1.456
3	17:30:22	-31.584	7.638	1.493	103.442%	160.806	-1.627	101.735%	-5.647
x		0.000	0.000	-0.000	100.000%	0.000	0.000	100.000%	0.000
σ		28.183	15.271	10.729	5.306%	285.868	2.239	2.369%	5.078
%RSD		0.000	0.000	0.000	5.306	0.000	0.000	2.369	0.000

STD1, 7/8/2019 5:33:51 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:33:51	-2.257	7.041	1.421	32523.343	19599.142	9995.048	37063.277	2489.842	100.920%
2	17:34:14	-2.257	4.170	2.084	29842.754	18344.362	9026.150	34356.670	2260.204	106.159%
3	17:34:36	-2.257	6.735	6.854	30046.957	18419.363	9019.823	34236.155	2380.563	105.349%
x		-2.257	5.982	3.453	30804.352	18787.623	9347.007	35218.701	2376.870	104.143%
σ		0.000	1.577	2.964	1492.188	703.796	561.229	1598.586	114.864	2.820%
%RSD		0.000	26.354	85.837	4.844	3.746	6.004	4.539	4.833	2.708

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:33:51	188.719	6218.395	8209.632	43304.619	5696.273	15391.819	4383.208	13495.638	3041.651
2	17:34:14	122.746	5569.038	7916.761	40307.177	5046.358	14728.037	4074.925	12242.083	2822.434
3	17:34:36	146.915	6168.467	7937.799	40646.797	5347.613	14930.082	4161.413	12044.536	2774.585
x		152.794	5985.300	8021.397	41419.531	5363.414	15016.646	4206.515	12594.085	2879.557
σ		33.377	361.357	163.355	1641.342	325.245	340.252	159.014	786.990	142.402
%RSD		21.845	6.037	2.036	3.963	6.064	2.266	3.780	6.249	4.945

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:33:51	2317.432	199.077	11922.813	95.161%	8245.709	93.566%	3243.591	5738.614	93.471%
2	17:34:14	2142.692	177.317	10751.928	101.872%	7364.495	99.413%	2793.694	5136.441	100.402%
3	17:34:36	2094.408	171.050	10842.737	104.271%	7347.268	100.392%	2656.064	5110.835	102.339%
x		2184.844	182.481	11172.493	100.435%	7652.490	97.790%	2897.783	5328.630	98.737%
σ		117.335	14.710	651.381	4.722%	513.814	3.691%	307.283	355.287	4.662%
%RSD		5.370	8.061	5.830	4.702	6.714	3.775	10.604	6.668	4.722

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:33:51	11816.867	19108.306	5548.028	97.521%	72550.820	94997.521	94.302%	95034.558
2	17:34:14	10660.041	16978.760	5180.912	101.461%	67773.661	88225.449	97.926%	87274.586
3	17:34:36	10608.348	16288.596	5170.850	106.164%	67322.746	88751.019	100.432%	87105.312
x		11028.419	17458.554	5299.930	101.715%	69215.742	90657.996	97.553%	89804.819
σ		683.305	1469.810	214.918	4.327%	2897.048	3767.315	3.082%	4529.878
%RSD		6.196	8.419	4.055	4.254	4.186	4.156	3.159	5.044

STD2, 7/8/2019 5:38:05 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:38:05	40.224	76.949	26.380	351660.330	203077.500	100018.870	390368.100	25664.326	94.159%
2	17:38:27	10.252	63.572	18.490	301044.470	173692.240	85743.941	328852.680	21261.258	106.587%
3	17:38:48	55.321	64.390	23.735	313996.500	178706.360	88387.003	339638.220	22362.276	104.206%
x		35.266	68.304	22.868	322233.770	185158.700	91383.272	352953.000	23095.953	101.651%
σ		22.940	7.498	4.016	26294.120	15719.346	7594.515	32848.125	2291.389	6.596%
%RSD		65.049	10.978	17.561	8.160	8.490	8.311	9.307	9.921	6.489

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:38:05	1951.489	65730.173	85624.698	449132.720	57515.644	161462.240	43550.272	126884.110	29182.291
2	17:38:27	1642.281	55571.098	73353.370	381805.040	49565.530	139596.290	37550.350	117473.400	26714.585
3	17:38:48	1786.520	56950.443	75013.040	392493.310	48933.943	139225.780	38837.666	116962.030	26389.482
x		1793.430	59417.238	77997.036	407810.350	52005.039	146761.440	39979.429	120439.840	27428.786
σ		154.720	5510.491	6657.668	36183.053	4782.761	12732.618	3158.716	5586.749	1527.255
%RSD		8.627	9.274	8.536	8.873	9.197	8.676	7.901	4.639	5.568

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:38:05	23005.010	1959.504	120863.330	94.782%	85129.140	92.367%	29539.309	52022.523	96.626%
2	17:38:27	20818.776	1778.379	108501.890	98.737%	77766.532	98.513%	27714.219	48892.228	101.855%
3	17:38:48	20983.379	1745.679	102724.350	105.008%	72331.679	99.303%	28662.292	49066.595	98.952%
x		21602.388	1827.854	110696.530	99.509%	78409.117	96.728%	28638.607	49993.782	99.144%
σ		1217.491	115.179	9266.494	5.156%	6422.884	3.797%	912.775	1759.103	2.620%
%RSD		5.636	6.301	8.371	5.182	8.192	3.925	3.187	3.519	2.642

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:38:05	115576.680	176809.760	54564.430	99.793%	737724.780	950865.370	94.118%	919720.450
2	17:38:27	106218.220	163750.460	49193.964	104.143%	676339.510	869398.460	98.011%	907000.730
3	17:38:48	105684.690	164943.000	48087.033	105.857%	682557.900	869266.310	100.077%	889525.720
x		109159.860	168501.070	50615.142	103.264%	698874.060	896510.050	97.402%	905415.640
σ		5563.526	7220.196	3464.676	3.126%	33789.064	47073.138	3.026%	15159.644
%RSD		5.097	4.285	6.845	3.027	4.835	5.251	3.106	1.674

STD3, 7/8/2019 5:42:17 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:42:17	204.710	328.854	155.031	1661176.500	947417.740	473662.630	1838029.300	120388.560	96.635%
2	17:42:40	M 237.138	327.615	134.435	1580587.300	894953.070	454212.940	1747231.200	114208.860	100.254%
3	17:43:01	M 243.905	335.755	127.846	1599204.100	892238.590	449855.870	1702236.300	111538.280	100.206%
x		M 228.584	330.741	139.104	1613656.000	911536.470	459243.810	1762498.900	115378.570	99.032%
σ		M 20.951	4.386	14.181	42193.572	31103.720	12675.672	69171.949	4539.607	2.076%
%RSD		M 9.166	1.326	10.195	2.615	3.412	2.760	3.925	3.935	2.096

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:42:17	9483.210	315701.530	409299.990	2171876.700	271732.620	756842.010	204787.140	635463.170	143736.210
2	17:42:40	8914.472	292964.270	382765.530	2002951.700	252713.350	711365.570	194394.960	579567.370	131356.020
3	17:43:01	8583.521	294592.150	382577.610	2043139.100	254942.920	715780.860	195302.950	566519.340	128970.750
x		8993.735	301085.980	391547.710	2072655.800	259796.290	727996.140	198161.680	593849.960	134687.660
σ		455.052	12683.577	15374.210	88245.899	10397.096	25078.608	5755.745	36623.863	7926.511
%RSD		5.060	4.213	3.927	4.258	4.002	3.445	2.905	6.167	5.885

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:42:17	118164.040	9783.534	585092.300	95.182%	414488.780	89.436%	287460.080	270994.420	93.189%
2	17:42:40	105945.810	8852.413	517496.900	104.397%	364465.760	96.357%	276957.440	250248.780	97.409%
3	17:43:01	103215.520	8467.154	515194.400	107.239%	360933.830	100.183%	294543.690	268388.950	93.650%
x		109108.460	9034.367	539261.200	102.273%	379962.790	95.325%	286320.400	263210.710	94.749%
σ		7960.298	676.790	39707.590	6.303%	29952.489	5.447%	8848.343	11300.707	2.315%
%RSD		7.296	7.491	7.363	6.163	7.883	5.714	3.090	4.293	2.443

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:42:17	595912.760	927383.680	265063.040	98.854%	T 3974423.400	4841396.700	92.725%	T 5282588.000
2	17:42:40	556337.610	861514.190	245064.230	106.212%	T 3432190.600	4281082.000	101.978%	T 4768196.900
3	17:43:01	532622.920	911589.160	232435.240	109.602%	T 3680132.500	4468980.800	98.735%	T 4958006.100
x		561624.430	900162.350	247520.840	104.890%	T 3695582.200	4530486.500	97.812%	T 5002930.400
σ		31974.425	34389.335	16452.035	5.495%	T 271446.350	285176.010	4.695%	T 260121.480
%RSD		5.693	3.820	6.647	5.239	T 7.345	6.295	4.800	T 5.199

S1, 7/8/2019 5:46:30 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:46:30	164.053	324.083	129.740	1669595.700	932663.880	481484.140	1849747.000	122474.260	96.206%
2	17:46:51	181.495	289.186	115.429	1543275.100	869671.630	441071.000	1688410.700	112509.390	101.587%
3	17:47:13	136.462	287.304	136.875	1498645.000	831465.670	416963.560	1620163.800	107248.220	105.730%
x		160.670	90.653%	92.171%	1570505.200	877933.720	446506.230	1719440.500	114077.290	101.174%
σ		22.706	n/a	n/a	88668.736	51102.508	32601.878	117895.080	7733.162	4.775%
%RSD		14.132	6.900	8.576	5.646	5.821	7.302	6.857	6.779	4.720

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:46:30	9659.572	311281.130	402275.930	2141175.700	267457.640	756434.920	204783.710	619515.970	140000.470
2	17:46:51	8771.158	288703.280	375087.610	1974273.100	248004.560	686744.270	188583.240	561502.210	128733.710
3	17:47:13	8442.079	277153.020	365639.470	1937477.900	244133.830	679099.040	183544.830	571278.580	128164.730
x		99.615%	97.158%	97.320%	2017642.200	97.456%	97.143%	97.009%	98.303%	98.156%
σ		n/a	n/a	n/a	108553.520	n/a	n/a	n/a	n/a	n/a
%RSD		7.031	5.937	4.992	5.380	4.937	6.024	5.771	5.317	5.046

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:46:30	115140.330	9650.438	583852.830	94.109%	412376.950	90.647%	302536.600	277516.410	89.861%
2	17:46:51	105180.500	8775.103	531756.390	101.978%	376121.440	96.388%	273088.800	249130.490	97.791%
3	17:47:13	105551.700	8747.297	507708.100	107.702%	360569.950	97.329%	265103.220	243794.880	102.392%
x		99.595%	100.212%	100.239%	101.263%	100.682%	94.788%	97.877%	97.758%	96.681%
σ		n/a	n/a	n/a	6.824%	n/a	3.617%	n/a	n/a	6.339%
%RSD		5.198	5.670	7.193	6.739	6.941	3.815	7.035	7.058	6.556

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:46:30	594723.440	962969.270	256499.090	101.569%	T 4116194.800	4922359.400	90.884%	T 5544416.000
2	17:46:51	548569.150	848163.340	237882.280	108.623%	T 3377778.600	4282063.400	103.084%	T 4681267.500
3	17:47:13	555757.360	827232.890	234738.820	109.827%	T 3555293.100	4393155.200	102.458%	T 4778655.100
x		100.951%	97.942%	98.102%	106.673%	T 99.873%	100.086%	98.809%	T 5001446.200
σ		n/a	n/a	n/a	4.461%	T n/a	n/a	6.870%	T 472740.160
%RSD		4.385	8.310	4.839	4.182	T 10.465	7.549	6.953	T 9.452

ICV, 7/8/2019 5:50:43 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:50:43	127.605	121.435	56.186	661980.740	382912.670	190227.440	729507.600	47167.832	97.540%
2	17:51:06	90.138	120.549	64.116	619423.510	353898.410	176700.690	690376.390	44245.444	101.016%
3	17:51:27	87.391	143.853	43.768	614868.220	346446.770	173611.980	666634.600	43539.385	104.111%
x		101.712	97.097%	98.958%	97.936%	98.972%	98.104%	98.649%	97.467%	100.889%
σ		22.467	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.288%
%RSD		22.089	10.268	18.753	4.111	5.336	4.905	4.565	4.276	3.259

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:50:43	3734.273	122856.380	161821.540	851618.690	109265.600	302552.070	83881.188	254855.300	56974.952
2	17:51:06	3464.826	115363.920	151733.110	802240.580	101200.070	283307.050	77340.440	230866.320	51896.455
3	17:51:27	3410.842	111281.970	148879.850	772275.190	101119.940	274883.700	76788.191	229379.780	50879.286
x		98.326%	96.783%	98.434%	97.606%	99.941%	98.497%	100.055%	100.292%	98.768%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		4.899	5.039	4.411	4.954	4.506	4.943	4.973	5.999	6.132

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:50:43	46400.963	3978.903	233151.870	95.876%	159291.840	90.808%	122165.070	109740.340	93.356%
2	17:51:06	41510.699	3562.882	210992.280	102.945%	148421.230	96.848%	110985.880	100013.530	101.458%
3	17:51:27	40649.197	3422.379	219012.290	100.315%	155126.070	99.318%	110424.050	98901.445	100.404%
x		98.228%	101.088%	102.374%	99.712%	101.386%	95.658%	99.997%	97.910%	98.406%
σ		n/a	n/a	n/a	3.573%	n/a	4.378%	n/a	n/a	4.405%
%RSD		7.239	7.919	5.076	3.583	3.555	4.577	5.783	5.796	4.476

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:50:43	244161.020	360954.240	99983.652	103.666%	1365668.100	1831821.200	97.406%	1984797.700
2	17:51:06	221646.260	330542.360	92576.732	110.241%	1379800.400	1766386.600	101.195%	1872459.900
3	17:51:27	213087.860	329519.480	98345.417	107.045%	1384392.000	1748207.400	100.373%	1879941.900
x		100.844%	94.756%	97.853%	106.984%	93.324%	98.381%	99.658%	1912399.800
σ		n/a	n/a	n/a	3.288%	n/a	n/a	1.993%	62809.903
%RSD		7.093	5.248	4.012	3.073	0.709	2.468	2.000	3.284

ICB, 7/8/2019 5:54:57 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:54:57	-2.257	0.444	-0.219	3122.071	674.400	350.087	-53.318	103.315	99.587%
2	17:55:20	-2.257	-0.226	-1.056	2880.632	537.673	269.892	-1180.556	82.753	100.254%
3	17:55:42	-2.257	-0.226	-1.056	2806.055	564.184	233.352	-1068.791	97.001	102.254%
x		-2.257	-0.003	-0.777	2936.253	592.085	284.444	-767.555	94.356	100.698%
σ		0.000	0.386	0.483	165.187	72.508	59.713	621.066	10.533	1.388%
%RSD		0.000	14920.262	62.168	5.626	12.246	20.993	80.915	11.163	1.378

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:54:57	6.073	194.469	221.821	1526.410	706.972	437.771	112.334	469.672	156.783
2	17:55:20	3.797	185.252	140.660	1264.714	675.167	394.858	124.625	324.448	116.009
3	17:55:42	-0.680	232.215	186.062	1300.771	646.928	397.704	95.337	356.803	123.710
x		3.063	203.979	182.848	1363.965	676.356	410.111	110.765	383.641	132.168
σ		3.435	24.884	40.676	141.832	30.040	23.996	14.707	76.241	21.663
%RSD		112.143	12.199	22.246	10.399	4.441	5.851	13.277	19.873	16.391

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:54:57	63.289	7.548	418.161	95.329%	443.885	96.352%	213.564	213.333	95.794%
2	17:55:20	65.143	7.309	326.849	103.135%	373.453	101.617%	111.453	131.289	99.738%
3	17:55:42	49.639	7.770	355.575	101.851%	385.457	102.270%	165.199	177.860	103.560%
x		59.357	7.542	366.862	100.105%	400.932	100.080%	163.405	174.161	99.698%
σ		8.467	0.231	46.690	4.186%	37.680	3.245%	51.079	41.147	3.883%
%RSD		14.264	3.059	12.727	4.181	9.398	3.242	31.259	23.626	3.895

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:54:57	443.428	590.242	187.976	96.972%	7545.200	3024.862	100.063%	2574.198
2	17:55:20	422.383	747.143	183.935	102.391%	9011.781	2422.109	104.426%	2265.717
3	17:55:42	451.714	719.543	223.726	107.746%	8019.386	2337.622	105.861%	2341.127
x		439.175	685.643	198.546	102.370%	8192.122	2594.864	103.450%	2393.681
σ		15.121	83.764	21.900	5.387%	748.394	374.778	3.020%	160.815
%RSD		3.443	12.217	11.030	5.263	9.136	14.443	2.919	6.718

ICVL, 7/8/2019 5:59:13 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	17:59:13	12.218	0.498	9.800	7345.659	4101.162	1035.808	20951.393	519.121	92.112%
2	17:59:36	-2.257	-0.226	16.695	6031.353	3734.013	870.289	17395.230	440.185	98.587%
3	17:59:57	3.986	-0.226	18.455	5028.044	3435.013	896.004	14987.301	426.390	106.778%
x		4.649	2.343%	108.446%	95.056%	102.970%	101.712%	100.863%	100.079%	99.159%
σ		7.260	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7.350%
%RSD		156.173	2692.533	30.528	18.945	8.882	9.536	16.877	10.832	7.412

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	17:59:13	100.887	3353.072	4423.384	4939.104	1735.495	1765.389	896.702	2590.259	5651.773
2	17:59:36	78.294	3023.287	3951.971	4406.483	1624.092	1508.656	857.758	2458.072	5259.232
3	17:59:57	105.369	2934.909	3589.193	3966.505	1462.776	1512.492	774.370	2422.251	5207.829
x		105.480%	103.138%	101.872%	107.112%	123.742%	109.548%	106.307%	104.774%	99.657%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		15.300	7.101	10.488	10.976	8.530	9.222	7.414	3.554	4.520

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	17:59:13	221.193	44.936	4712.121	94.277%	3724.267	93.469%	1472.377	323.575	95.856%
2	17:59:36	213.713	41.218	4276.961	97.748%	3255.577	101.484%	1346.989	269.302	100.316%
3	17:59:57	222.234	41.237	3861.060	107.807%	2711.196	102.055%	1391.975	237.943	102.340%
x		100.419%	93.962%	99.186%	99.944%	106.142%	99.003%	98.056%	105.419%	99.504%
σ		n/a	n/a	n/a	7.027%	n/a	4.801%	n/a	n/a	3.318%
%RSD		2.122	5.043	9.935	7.031	15.695	4.849	4.525	15.644	3.334

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	17:59:13	5789.612	5445.912	1393.178	96.359%	15426.894	4998.039	95.072%	92147.868
2	17:59:36	5410.711	5122.814	1285.682	104.859%	15862.980	4728.212	100.392%	89600.555
3	17:59:57	5242.705	4939.821	1328.908	105.954%	15936.729	4804.529	98.965%	93214.231
x		97.699%	95.952%	107.848%	102.391%	106.719%	106.955%	98.143%	91654.218
σ		n/a	n/a	n/a	5.252%	n/a	n/a	2.754%	1856.726
%RSD		5.111	4.957	4.049	5.130	1.750	2.872	2.806	2.026

CRI, 7/8/2019 6:03:26 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:03:26	4.738	1.173	33.921	11071.113	7867.149	1955.889	37824.226	906.319	95.302%
2	18:03:47	10.954	2.417	20.413	9375.999	7212.043	1835.810	34345.460	909.383	100.920%
3	18:04:09	4.054	1.036	30.499	8842.949	6964.653	1733.039	32132.150	816.065	105.635%
x		6.582	116.425%	102.333%	75.636%	100.701%	100.269%	98.626%	95.037%	100.619%
σ		3.802	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.173%
%RSD		57.763	49.308	24.834	11.917	6.347	6.057	8.253	6.043	5.141

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:03:26	188.355	6281.302	8376.192	8928.738	3052.169	3179.849	1900.831	5091.876	11114.583
2	18:03:47	171.103	5823.973	7821.729	8116.801	2949.570	2907.248	1786.201	5042.280	10440.407
3	18:04:09	171.755	5656.548	7780.710	7644.179	2790.398	2799.968	1618.458	4636.027	10297.358
x		98.458%	98.371%	102.082%	99.330%	112.803%	101.697%	111.516%	103.575%	98.466%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		5.522	5.462	4.161	7.894	4.501	6.611	8.030	5.080	4.111

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:03:26	477.337	97.000	9423.459	95.750%	6731.311	96.027%	2972.798	524.823	97.047%
2	18:03:47	368.049	82.308	9318.763	96.844%	6117.282	100.103%	2976.443	484.858	102.302%
3	18:04:09	380.819	71.452	8627.426	100.715%	6734.348	103.275%	2764.749	394.780	103.621%
x		93.690%	92.479%	105.629%	97.769%	107.242%	99.802%	101.448%	89.103%	100.990%
σ		n/a	n/a	n/a	2.609%	n/a	3.633%	n/a	n/a	3.478%
%RSD		14.619	15.340	4.741	2.668	5.444	3.640	4.172	14.228	3.444

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:03:26	10920.842	10169.025	2595.904	99.734%	30064.420	9481.598	92.133%	196491.810
2	18:03:47	10485.878	9285.416	2618.866	103.681%	25364.152	8089.148	106.914%	160943.530
3	18:04:09	9831.496	9693.091	2434.641	104.674%	27943.497	8647.248	103.064%	166115.670
x		92.803%	90.168%	102.922%	102.696%	94.199%	96.489%	100.704%	174517.000
σ		n/a	n/a	n/a	2.613%	n/a	n/a	7.668%	19205.646
%RSD		5.266	4.552	3.937	2.544	8.470	8.019	7.615	11.005

ICSA, 7/8/2019 6:07:40 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:07:40	-2.257	-0.226	-1.056	T 3554203.400	1913116.600	945631.810	T 3876730.800	241993.930	99.397%
2	18:08:03	-2.257	-0.226	1.408	T 3426133.000	1842115.700	893840.290	T 3708584.100	231881.300	101.444%
3	18:08:26	-2.257	-0.226	1.255	T 3279613.600	1744638.100	869222.770	T 3570220.200	219017.730	108.159%
x		-2.257	-0.226	0.536	T 105.978%	100.499%	98.321%	T 105.485%	100.085%	103.000%
σ		0.000	0.000	1.381	T n/a	n/a	n/a	T n/a	n/a	4.584%
%RSD		0.000	0.000	257.659	T 4.018	4.614	4.320	T 4.128	4.986	4.450

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:07:40	39098.210	-57.434	1014.375	T 4480620.700	-498.904	568.318	67.910	223.800	140.860
2	18:08:03	36241.256	-68.904	1040.104	T 4214696.000	-599.845	552.158	102.984	144.348	118.855
3	18:08:26	33628.118	-21.045	941.533	T 4023084.200	-529.372	521.044	65.380	127.190	114.311
x		100.984%	-49.127	998.671	T 102.335%	-542.707	547.173	78.758	165.113	124.675
σ		n/a	24.987	51.127	T n/a	51.775	24.028	21.019	51.544	14.200
%RSD		7.532	50.863	5.120	T 5.420	9.540	4.391	26.688	31.217	11.389

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:07:40	15.123	1.464	2071.572	95.834%	1680353.100	88.831%	164.257	-67.600	88.123%
2	18:08:03	2.803	1.260	1781.133	107.891%	1494371.700	94.166%	140.300	-81.770	98.262%
3	18:08:26	6.420	0.887	1901.796	107.028%	1513938.800	96.953%	191.062	-49.283	100.049%
x		8.115	1.203	1918.167	103.584%	102.706%	93.317%	165.206	-66.218	95.478%
σ		6.333	0.292	145.910	6.726%	n/a	4.127%	25.394	16.287	6.432%
%RSD		78.035	24.305	7.607	6.493	6.539	4.423	15.371	24.597	6.736

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:07:40	45.734	13.813	265.600	98.679%	72.583	2925.964	86.338%	168.196
2	18:08:03	16.841	68.932	330.740	107.172%	877.361	2327.571	100.517%	147.693
3	18:08:26	20.665	37.913	282.243	111.249%	755.851	2483.033	102.991%	155.382
x		27.747	40.220	292.861	105.700%	568.599	2578.856	96.615%	157.090
σ		15.695	27.632	33.843	6.413%	433.837	310.491	8.986%	10.358
%RSD		56.565	68.702	11.556	6.067	76.299	12.040	9.301	6.593

ICSAB, 7/8/2019 6:11:56 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:11:56	11.346	9.297	10.847	T 3578073.600	1927717.400	958012.070	T 3929179.400	245244.790	98.016%
2	18:12:17	10.152	11.563	19.885	T 3226743.500	1729043.600	859192.310	T 3523382.500	222230.560	107.444%
3	18:12:39	3.750	12.991	12.461	T 3114437.000	1666989.600	827304.060	T 3402735.300	213730.580	110.969%
x		8.416	85.187%	104.207%	T 102.459%	97.281%	95.991%	T 102.646%	98.397%	105.476%
σ		4.085	n/a	n/a	T n/a	n/a	n/a	T n/a	n/a	6.697%
%RSD		48.532	16.512	33.479	T 7.315	7.675	7.731	T 7.622	7.180	6.349

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:11:56	38280.759	12697.395	17003.535	T 4527701.600	10756.425	29605.496	8330.376	24612.603	5901.217
2	18:12:17	34225.501	11290.874	15131.418	T 4016553.500	9184.790	27392.078	7448.913	23261.929	5577.935
3	18:12:39	33240.998	10984.360	14995.938	T 3881241.300	9041.275	26244.411	7094.843	22652.622	5510.505
x		97.999%	96.845%	100.323%	T 99.978%	92.961%	95.256%	96.158%	98.913%	105.041%
σ		n/a	n/a	n/a	T n/a	n/a	n/a	n/a	n/a	n/a
%RSD		7.578	7.836	7.142	T 8.232	9.849	6.157	8.345	4.267	3.688

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:11:56	4777.239	416.207	25024.284	98.569%	1667194.900	90.517%	60118.149	10868.505	94.929%
2	18:12:17	4477.439	378.628	22380.871	109.491%	1481535.500	96.439%	57153.492	9848.958	100.546%
3	18:12:39	4452.934	350.703	22585.201	106.986%	1497571.700	98.252%	56421.625	9652.571	102.718%
x		104.735%	105.617%	108.047%	105.015%	101.778%	95.069%	101.106%	96.338%	99.398%
σ		n/a	n/a	n/a	5.721%	n/a	4.045%	n/a	n/a	4.019%
%RSD		3.952	8.608	6.304	5.448	6.642	4.255	3.381	6.448	4.044

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:11:56	23255.629	16968.517	10608.767	101.062%	73458.995	192049.130	94.072%	202492.840
2	18:12:17	23166.400	16462.553	9778.084	112.229%	68875.728	175697.440	99.978%	179490.460
3	18:12:39	22138.760	15831.123	10018.674	111.201%	66232.931	172143.520	104.571%	175772.200
x		22853.596	91.436%	102.276%	108.164%	94.261%	99.347%	99.540%	185918.500
σ		620.672	n/a	n/a	6.172%	n/a	n/a	5.263%	14473.698
%RSD		2.716	3.470	4.217	5.706	5.259	5.899	5.287	7.785

CCV, 7/8/2019 6:16:09 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:16:09	123.283	163.675	81.766	879324.030	489662.480	246710.860	935525.550	61805.435	95.587%
2	18:16:32	108.476	125.489	58.381	782774.950	435446.360	220511.560	846392.840	54607.277	102.349%
3	18:16:53	105.517	145.587	71.850	786716.700	434843.960	215500.420	841791.770	54762.070	105.159%
x		112.425	87.525%	102.292%	101.178%	99.401%	99.127%	99.237%	98.902%	101.032%
σ		9.519	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.920%
%RSD		8.467	13.181	16.609	6.694	6.944	7.365	6.042	7.206	4.869

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:16:09	4817.697	159813.680	210400.260	1099226.000	141386.150	393500.260	107732.170	319510.500	72036.569
2	18:16:32	4282.001	142758.550	187073.250	989392.130	128407.410	353170.940	97744.915	289105.830	65906.295
3	18:16:53	4323.973	141254.380	185809.430	970364.540	125586.730	348932.320	95025.496	286246.300	64269.194
x		99.521%	98.323%	99.327%	98.453%	101.454%	100.299%	101.060%	100.402%	100.017%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		6.658	6.968	7.122	6.822	6.394	6.736	6.680	6.180	6.075

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:16:09	58520.079	4882.614	298697.290	94.551%	212825.200	91.966%	154226.380	137034.410	94.175%
2	18:16:32	53351.318	4414.288	270420.220	101.241%	192592.870	97.175%	144918.440	129164.290	97.088%
3	18:16:53	52116.108	4437.135	258324.590	107.659%	180904.970	99.722%	150256.650	129876.140	97.524%
x		100.237%	101.301%	102.188%	101.150%	102.748%	96.288%	104.638%	100.513%	96.262%
σ		n/a	n/a	n/a	6.555%	n/a	3.954%	n/a	n/a	1.821%
%RSD		6.215	5.768	7.512	6.480	8.263	4.106	3.118	3.297	1.892

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:16:09	297482.360	455281.570	130166.760	104.085%	1886233.200	2451051.200	94.072%	2568590.300
2	18:16:32	274308.680	429629.780	119783.650	107.347%	1631035.300	2148159.700	104.163%	2280370.500
3	18:16:53	278891.580	438294.100	114768.320	112.214%	1683253.900	2180154.300	104.676%	2355671.500
x		101.089%	98.241%	98.145%	107.882%	94.014%	99.800%	100.970%	2401544.100
σ		n/a	n/a	n/a	4.091%	n/a	n/a	5.980%	149485.400
%RSD		4.328	2.958	6.460	3.792	7.777	7.364	5.922	6.225

CCB, 7/8/2019 6:20:25 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:20:25	-2.257	-0.226	0.649	3710.811	854.572	364.174	866.076	149.583	97.778%
2	18:20:47	-2.257	-0.226	-1.056	2868.226	676.493	295.528	-17.569	127.014	103.825%
3	18:21:10	-2.257	0.447	0.626	3281.768	759.414	298.160	177.093	131.321	99.111%
x		-2.257	-0.002	0.073	3286.935	763.493	319.287	341.867	135.973	100.238%
σ		0.000	0.388	0.978	421.317	89.109	38.895	464.295	11.982	3.177%
%RSD		0.000	25577.686	1345.127	12.818	11.671	12.182	135.812	8.812	3.170

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:20:25	6.238	306.164	290.868	1923.997	708.029	532.523	151.506	397.722	100.576
2	18:20:47	1.428	215.099	227.695	1504.383	669.731	492.056	114.701	475.837	171.268
3	18:21:10	1.632	274.803	307.370	1552.314	733.260	448.917	126.516	400.226	115.801
x		3.099	265.355	275.311	1660.232	703.673	491.165	130.908	424.595	129.215
σ		2.720	46.262	42.054	229.681	31.988	41.810	18.791	44.395	37.206
%RSD		87.774	17.434	15.275	13.834	4.546	8.512	14.355	10.456	28.794

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:20:25	80.008	12.441	416.240	97.159%	640.260	96.940%	291.416	179.279	95.371%
2	18:20:47	44.866	7.912	318.141	100.126%	652.817	98.167%	150.691	178.187	95.943%
3	18:21:10	48.899	4.241	371.182	98.590%	778.880	100.321%	178.693	178.360	95.833%
x		57.924	8.198	368.521	98.625%	690.653	98.476%	206.934	178.609	95.716%
σ		19.231	4.107	49.104	1.484%	76.665	1.711%	74.492	0.587	0.304%
%RSD		33.200	50.103	13.325	1.504	11.100	1.738	35.998	0.329	0.317

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:20:25	447.074	992.123	212.855	104.051%	5325.694	3283.162	99.517%	3118.103
2	18:20:47	481.116	1478.582	163.455	106.758%	7538.669	2920.385	101.320%	2765.171
3	18:21:10	495.455	1285.664	159.171	105.531%	6207.607	2734.106	104.222%	2762.976
x		474.548	1252.123	178.494	105.446%	6357.323	2979.218	101.686%	2882.083
σ		24.850	244.958	29.835	1.356%	1114.058	279.216	2.374%	204.402
%RSD		5.237	19.563	16.715	1.286	17.524	9.372	2.334	7.092

mb 500-493579/1-a, 7/8/2019 6:24:40 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:24:40	-2.257	-0.226	-1.056	-3101.083	3.540	65.962	177.795	-21.934	98.206%
2	18:25:02	-2.257	-0.226	-1.056	-2982.115	-24.886	28.077	690.120	-34.160	94.254%
3	18:25:23	-2.257	-0.226	-0.226	-3170.648	-30.163	21.506	-597.761	-22.793	100.444%
x		-2.257	-0.226	-0.779	-3084.615	-17.170	38.515	90.051	-26.295	97.635%
σ		0.000	0.000	0.479	95.339	18.128	23.996	648.408	6.824	3.134%
%RSD		0.000	0.000	61.450	3.091	105.580	62.303	720.045	25.952	3.210

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:24:40	-0.590	118.433	100.396	351.866	28.889	23.246	5.851	114.138	244.726
2	18:25:02	-0.495	110.212	54.194	221.346	36.739	8.355	5.391	73.370	177.299
3	18:25:23	-2.853	122.588	84.481	232.504	21.667	0.265	-4.007	122.997	173.000
x		-1.313	117.078	79.690	268.572	29.098	10.622	2.412	103.502	198.342
σ		1.335	6.298	23.471	72.350	7.538	11.657	5.563	26.468	40.227
%RSD		101.681	5.380	29.452	26.939	25.905	109.743	230.678	25.572	20.282

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:24:40	1.433	1.553	5.709	95.034%	199.911	93.903%	5.044	-2.344	92.311%
2	18:25:02	-6.859	0.808	-0.869	98.863%	176.371	99.538%	18.618	11.527	96.172%
3	18:25:23	-0.967	0.249	-11.869	98.211%	191.515	100.507%	-2.178	-2.340	97.809%
x		-2.131	0.870	-2.343	97.370%	189.266	97.983%	7.161	2.281	95.431%
σ		4.267	0.654	8.881	2.049%	11.930	3.566%	10.559	8.007	2.823%
%RSD		200.203	75.167	379.039	2.104	6.303	3.640	147.438	351.039	2.958

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:24:40	52.636	135.232	42.325	99.277%	536.663	298.845	93.487%	42.921
2	18:25:02	84.784	164.359	33.329	104.338%	997.266	81.571	102.893%	-12.864
3	18:25:23	89.738	117.775	38.909	106.018%	853.563	70.277	105.920%	-33.413
x		75.720	139.122	38.188	103.211%	795.831	150.231	100.767%	-1.118
σ		20.144	23.534	4.541	3.509%	235.666	128.827	6.484%	39.499
%RSD		26.603	16.916	11.891	3.400	29.613	85.753	6.434	3531.858

lcs 500-493579/2-a, 7/8/2019 6:28:56 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:28:56	25.392	33.645	304.825	352898.130	199862.370	20546.643	383422.310	21934.617	96.444%
2	18:29:17	16.258	27.548	248.139	301389.280	174132.230	17400.820	324295.700	18618.412	108.016%
3	18:29:40	41.702	32.430	250.929	309095.510	177481.750	17416.532	333309.470	19093.292	106.159%
x		27.784	94.242%	96.973%	99.511%	100.771%	100.481%	98.438%	86.156%	103.540%
σ		12.889	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.214%
%RSD		46.391	10.341	11.924	8.652	7.610	9.817	9.180	9.020	6.002

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:28:56	19122.534	323677.170	170503.770	45188.262	286431.620	791207.870	219051.400	327671.360	147001.060
2	18:29:17	16890.198	280509.830	147247.320	38193.429	249912.750	681295.420	187928.810	292800.070	134018.020
3	18:29:40	17280.139	285903.360	149794.940	40697.860	251778.660	709056.440	196036.600	292641.600	131824.200
x		98.776%	98.593%	99.522%	99.837%	101.116%	99.857%	101.399%	102.450%	102.099%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		6.712	7.928	8.185	8.569	7.829	7.860	8.032	6.630	5.961

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:28:56	23429.945	1938.705	1210020.200	97.811%	829551.180	92.945%	155235.500	28079.305	96.482%
2	18:29:17	21417.938	1756.238	1090682.900	103.009%	751893.720	99.328%	147762.170	25221.986	98.785%
3	18:29:40	21177.965	1775.255	1120944.400	102.251%	772934.800	101.147%	146795.560	26361.237	101.702%
x		100.896%	100.869%	105.643%	101.024%	103.146%	97.807%	104.729%	101.081%	98.990%
σ		n/a	n/a	n/a	2.808%	n/a	4.308%	n/a	n/a	2.616%
%RSD		5.619	5.501	5.439	2.779	5.118	4.404	3.081	5.417	2.642

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:28:56	1220729.300	879893.630	264988.180	101.067%	712028.130	960940.510	97.827%	977824.410
2	18:29:17	1127243.400	866649.680	239314.180	108.506%	681478.850	922684.770	99.320%	963532.400
3	18:29:40	1106278.000	853073.850	245098.260	110.148%	682809.120	905547.270	103.360%	931245.240
x		102.620%	96.504%	100.831%	106.574%	93.838%	102.649%	100.169%	957534.020
σ		n/a	n/a	n/a	4.839%	n/a	n/a	2.863%	23861.902
%RSD		5.292	1.548	5.391	4.541	2.495	3.050	2.858	2.492

400-171203-c-1-a @5, 7/8/2019 6:33:11 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:33:11	4.773	0.477	42.884	TM 11823463.000	2581611.900	69.834	61185.349	375733.880	94.825%
2	18:33:34	-2.257	0.425	23.348	TM 10483974.000	2326954.300	72.314	53883.623	334754.250	102.444%
3	18:33:55	-2.257	-0.226	39.506	TM 10305091.000	2243671.300	48.545	51478.863	320154.370	104.778%
x		0.086	0.226	35.246	TM 10870843.000	2384079.200	63.564	55515.945	343547.500	100.682%
σ		4.059	0.392	10.442	TM 829827.820	176063.640	13.066	5054.931	28814.255	5.205%
%RSD		4711.835	173.669	29.626	TM 7.634	7.385	20.556	9.105	8.387	5.169

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:33:11	18.239	274.788	63.681	300454.770	678718.500	324.590	227.756	222.119	370.881
2	18:33:34	-2.853	142.486	39.785	267869.370	596835.430	299.318	134.133	178.765	392.467
3	18:33:55	3.510	192.313	89.129	263398.340	590996.670	252.015	126.026	164.426	341.027
x		6.299	203.196	64.199	277240.820	622183.530	291.974	162.638	188.437	368.125
σ		10.819	66.819	24.676	20227.775	49047.680	36.840	56.539	30.038	25.830
%RSD		171.764	32.884	38.437	7.296	7.883	12.618	34.764	15.941	7.017

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:33:11	59.392	1.266	1373494.500	92.973%	1553.859	86.151%	42.302	19.504	89.929%
2	18:33:34	62.813	2.754	1200100.200	103.451%	1783.617	92.653%	12.045	4.273	93.743%
3	18:33:55	38.625	-0.448	1207803.400	103.808%	1603.834	94.667%	11.486	-2.765	97.580%
x		53.610	1.191	1260466.000	100.077%	1647.103	91.157%	21.944	7.004	93.750%
σ		13.090	1.603	97961.264	6.155%	120.836	4.451%	17.632	11.383	3.826%
%RSD		24.417	134.606	7.772	6.150	7.336	4.883	80.350	162.518	4.081

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:33:11	460.081	276.904	36913.289	97.725%	2005.599	370.286	86.272%	577.953
2	18:33:34	637.395	201.606	33676.480	104.791%	2804.363	281.671	92.435%	332.717
3	18:33:55	558.549	166.291	33704.483	103.394%	2608.607	265.847	89.084%	332.945
x		552.008	214.934	34764.751	101.970%	2472.856	305.935	89.264%	414.538
σ		88.838	56.498	1860.742	3.742%	416.326	56.289	3.086%	141.521
%RSD		16.094	26.286	5.352	3.669	16.836	18.399	3.457	34.139

400-171203-c-2-a @5, 7/8/2019 6:37:27 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:37:27	-2.257	-0.226	57.758	TM 17421410.000	1424647.400	21.926	132328.370	122546.200	96.349%
2	18:37:48	-2.257	-0.226	38.424	TM 15371003.000	1267801.700	16.302	117932.000	107061.690	105.540%
3	18:38:10	-2.257	0.382	38.452	TM 15117957.000	1234224.600	-4.159	113657.530	105017.110	109.683%
x		-2.257	-0.023	44.878	TM 15970123.000	1308891.200	11.356	121305.960	111541.670	103.857%
σ		0.000	0.351	11.155	TM 1263203.600	101643.830	13.728	9782.015	9584.878	6.824%
%RSD		0.000	1517.197	24.855	TM 7.910	7.766	120.882	8.064	8.593	6.571

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:37:27	-2.853	622.626	20.773	5695.904	108712.530	683.651	299.646	1853.403	284.453
2	18:37:48	3.464	534.879	-2.234	4681.212	93999.417	570.150	274.332	1774.787	345.696
3	18:38:10	-0.827	588.487	6.176	4670.539	90960.905	483.200	246.272	1645.542	363.027
x		-0.072	581.997	8.239	5015.885	97890.949	579.001	273.417	1757.911	331.059
σ		3.225	44.232	11.641	588.938	9494.105	100.518	26.699	104.953	41.281
%RSD		4489.953	7.600	141.301	11.741	9.699	17.361	9.765	5.970	12.469

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:37:27	34.036	348.073	1184769.800	96.402%	24619.419	88.557%	5.038	4.952	92.391%
2	18:37:48	39.237	336.525	1077309.700	102.251%	20900.428	92.365%	11.602	19.089	96.759%
3	18:38:10	32.961	352.704	1104907.700	100.357%	22321.427	96.119%	-2.178	11.800	97.455%
x		35.411	345.767	1122329.100	99.670%	22613.758	92.347%	4.821	11.947	95.535%
σ		3.356	8.332	55808.138	2.985%	1876.651	3.781%	6.893	7.070	2.745%
%RSD		9.479	2.410	4.973	2.994	8.299	4.094	142.982	59.174	2.873

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:37:27	166.603	19.510	14328.974	93.092%	75.382	177.631	86.101%	10758.850
2	18:37:48	91.091	17.605	12994.607	100.693%	780.132	63.604	93.435%	9280.324
3	18:38:10	84.042	118.841	12091.016	103.632%	734.436	135.536	93.198%	9826.773
x		113.912	51.985	13138.199	99.139%	529.983	125.590	90.911%	9955.316
σ		45.767	57.907	1125.868	5.439%	394.358	57.660	4.167%	747.598
%RSD		40.178	111.391	8.569	5.486	74.410	45.911	4.584	7.510

400-171203-c-3-a @5, 7/8/2019 6:41:39 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:41:39	102.090	-0.226	143.354	TM 71416305.000	1072137.100	61.693	TM 8888321.100	279853.380	89.445%
2	18:42:01	78.113	-0.226	122.849	TM 63220616.000	949318.140	39.949	T 8040439.800	252404.080	99.539%
3	18:42:23	105.058	-0.226	143.987	TM 64213153.000	962878.430	49.011	T 8007844.200	251027.930	99.397%
x		95.087	-0.226	136.730	TM 66283358.000	994777.900	50.218	TM 8312201.700	261095.130	96.127%
σ		14.774	0.000	12.025	TM 4472878.400	67337.272	10.922	TM 499200.190	16259.689	5.787%
%RSD		15.538	0.000	8.795	TM 6.748	6.769	21.750	TM 6.006	6.227	6.020

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:41:39	7.085	2405.002	69.126	1570.654	454772.680	2544.082	1727.191	4333.440	634.777
2	18:42:01	1.612	2199.748	47.934	1221.717	406640.640	2275.615	1675.319	3854.286	548.490
3	18:42:23	-0.617	2274.746	41.750	1519.036	408643.310	2486.883	1592.811	3718.013	583.996
x		2.693	2293.165	52.937	1437.136	423352.210	2435.527	1665.107	3968.579	589.088
σ		3.963	103.860	14.357	188.335	27229.342	141.410	67.770	323.241	43.368
%RSD		147.146	4.529	27.121	13.105	6.432	5.806	4.070	8.145	7.362

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:41:39	62.937	3313.232	2648178.600	90.491%	216285.120	83.084%	13.288	26.942	86.213%
2	18:42:01	69.528	3078.839	2369990.800	100.904%	191319.010	89.232%	12.160	32.784	92.992%
3	18:42:23	70.891	3013.310	2369377.400	99.579%	193264.890	90.923%	19.339	90.357	92.952%
x		67.785	3135.127	2462515.600	96.991%	200289.670	87.747%	14.929	50.028	90.719%
σ		4.254	157.685	160789.150	5.668%	13886.586	4.125%	3.860	35.048	3.902%
%RSD		6.275	5.030	6.529	5.844	6.933	4.701	25.859	70.058	4.301

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:41:39	79.150	126.265	6891.608	90.716%	-144.130	406.189	81.406%	31486.180
2	18:42:01	112.369	197.481	6066.466	97.983%	337.603	329.766	89.807%	27402.818
3	18:42:23	79.287	154.608	6243.616	98.834%	264.865	401.909	87.494%	30665.926
x		90.269	159.451	6400.563	95.845%	152.779	379.288	86.235%	29851.641
σ		19.139	35.854	434.384	4.462%	259.690	42.941	4.339%	2160.036
%RSD		21.203	22.486	6.787	4.655	169.977	11.321	5.032	7.236

400-171203-c-4-a @5, 7/8/2019 6:45:53 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:45:53	27.165	0.510	93.646	TM 33748284.000	272661.240	23.545	T 6940339.400	142078.390	90.636%
2	18:46:16	4.284	-0.226	85.613	TM 28842900.000	230831.320	-7.768	T 5806074.700	120005.110	101.920%
3	18:46:37	32.339	-0.226	79.381	TM 30129066.000	245012.570	17.313	T 6249545.800	125466.240	96.349%
x		21.262	0.019	86.213	TM 30906750.000	249501.710	11.030	T 6331986.700	129183.250	96.302%
σ		14.930	0.425	7.151	TM 2543480.300	21273.220	16.575	T 571608.690	11496.500	5.643%
%RSD		70.217	2183.604	8.295	TM 8.230	8.526	150.275	T 9.027	8.899	5.859

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:45:53	6.955	387.069	43121.175	112907.870	249956.210	462.895	1321.448	1186.511	523.570
2	18:46:16	-0.672	288.113	35881.393	96388.219	212548.180	381.611	915.640	1035.418	443.766
3	18:46:37	-2.853	274.332	37657.181	101529.120	227655.350	388.412	1030.837	995.634	458.763
x		1.143	316.505	38886.583	103608.400	230053.250	410.973	1089.308	1072.521	475.366
σ		5.150	61.498	3773.219	8453.835	18818.942	45.094	209.127	100.702	42.414
%RSD		450.484	19.430	9.703	8.159	8.180	10.973	19.198	9.389	8.922

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:45:53	97.934	5.543	1039436.100	91.122%	79240.074	83.311%	5.248	4.898	89.770%
2	18:46:16	70.864	4.663	973871.600	94.761%	72720.605	90.175%	-2.178	-8.814	91.327%
3	18:46:37	76.203	4.566	978706.910	96.170%	72617.873	91.475%	11.738	-8.779	95.816%
x		81.667	4.924	997338.200	94.018%	74859.517	88.320%	4.936	-4.232	92.304%
σ		14.338	0.538	36537.918	2.605%	3794.021	4.386%	6.963	7.907	3.139%
%RSD		17.557	10.934	3.664	2.771	5.068	4.966	141.067	186.843	3.401

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:45:53	230.734	-26.788	7311.778	92.344%	-324.278	229.094	88.900%	213.792
2	18:46:16	154.619	36.380	5971.120	102.333%	-48.008	96.595	91.246%	74.950
3	18:46:37	143.862	5.587	6061.946	104.757%	-64.662	121.927	95.992%	67.724
x		176.405	5.059	6448.281	99.811%	-145.649	149.205	92.046%	118.822
σ		47.357	31.587	749.188	6.579%	154.921	70.335	3.613%	82.326
%RSD		26.845	624.320	11.618	6.592	106.366	47.140	3.925	69.285

400-171203-c-5-a @5, 7/8/2019 6:50:06 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:50:06	13.201	-0.226	83.963	TM 32258947.000	262619.580	42.365	T 6620514.400	137744.180	86.256%
2	18:50:28	11.300	-0.226	74.356	TM 27518220.000	222400.060	7.056	T 5723128.400	116672.720	98.349%
3	18:50:49	53.538	-0.226	99.202	TM 28698346.000	233307.140	3.842	T 5924383.500	120589.990	95.587%
x		26.013	-0.226	85.840	TM 29491838.000	239442.260	17.754	T 6089342.100	125002.300	93.397%
σ		23.857	0.000	12.529	TM 2467963.500	20799.813	21.374	T 470886.290	11207.274	6.337%
%RSD		91.711	0.000	14.596	TM 8.368	8.687	120.388	T 7.733	8.966	6.785

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:50:06	-0.276	269.595	122.013	92506.211	243140.220	283.636	591.813	191.968	452.452
2	18:50:28	-0.593	240.002	-6.411	78726.532	203757.360	188.138	572.947	124.714	408.501
3	18:50:49	4.122	224.572	42.056	81278.596	216120.070	235.861	539.490	136.066	422.056
x		1.084	244.723	52.553	84170.447	221005.880	235.878	568.083	150.916	427.670
σ		2.635	22.879	64.852	7330.893	20140.899	47.749	26.499	36.002	22.507
%RSD		243.125	9.349	123.404	8.710	9.113	20.243	4.665	23.856	5.263

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:50:06	59.661	4.596	952235.920	94.193%	68518.003	83.158%	21.031	7.687	86.173%
2	18:50:28	67.359	6.313	919721.900	94.992%	65827.781	88.343%	5.009	-13.974	92.762%
3	18:50:49	57.630	7.038	928227.470	94.067%	67303.925	90.083%	-2.178	-6.993	93.349%
x		61.550	5.982	933395.100	94.417%	67216.570	87.195%	7.954	-4.427	90.762%
σ		5.132	1.254	16861.749	0.502%	1347.237	3.602%	11.882	11.057	3.984%
%RSD		8.339	20.970	1.806	0.532	2.004	4.131	149.379	249.778	4.390

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:50:06	38.915	-36.062	6209.718	95.727%	-617.461	190.988	89.090%	85.968
2	18:50:28	23.841	-45.953	5634.776	103.939%	-191.522	90.131	94.460%	84.093
3	18:50:49	21.655	-32.483	5617.828	104.844%	-228.006	44.841	96.472%	101.586
x		28.137	-38.166	5820.774	101.503%	-345.663	108.653	93.341%	90.549
σ		9.398	6.977	336.942	5.023%	236.090	74.814	3.816%	9.604
%RSD		33.401	18.282	5.789	4.949	68.301	68.856	4.088	10.607

400-171203-c-6-a @5, 7/8/2019 6:54:18 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:54:18	35.553	-0.226	87.798	TM 56140045.000	549853.880	45.570	T 6293748.200	223714.570	88.160%
2	18:54:39	48.171	-0.226	71.886	TM 52252550.000	508545.730	43.795	T 5737936.600	207963.540	92.540%
3	18:55:01	45.517	-0.226	75.724	TM 49523358.000	488267.720	36.969	T 5497554.900	202715.900	97.682%
x		43.080	-0.226	78.469	TM 52638651.000	515555.780	42.112	T 5843079.900	211464.670	92.794%
σ		6.653	0.000	8.304	TM 3325198.000	31385.811	4.541	T 408377.610	10928.380	4.766%
%RSD		15.443	0.000	10.582	TM 6.317	6.088	10.783	T 6.989	5.168	5.136

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:54:18	2.189	5035.104	22761.384	8228.865	614473.850	5899.975	2471.492	4450.441	344.822
2	18:54:39	-0.451	4619.530	16750.919	6073.926	570109.620	5571.937	2287.791	3741.883	310.292
3	18:55:01	6.247	4682.635	14191.288	5087.213	551391.870	5166.274	2167.555	3874.891	339.352
x		2.661	4779.089	17901.197	6463.335	578658.450	5546.062	2308.946	4022.405	331.489
σ		3.374	223.949	4399.317	1606.618	32398.242	367.534	153.069	376.609	18.560
%RSD		126.781	4.686	24.576	24.857	5.599	6.627	6.629	9.363	5.599

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:54:18	97.081	1873.062	2280946.800	90.533%	185521.120	82.160%	-2.178	50.309	88.041%
2	18:54:39	76.485	1677.614	2027329.700	98.863%	162578.270	89.005%	18.987	70.024	94.494%
3	18:55:01	80.752	1633.264	2026471.400	99.873%	165479.770	89.217%	-2.178	5.268	93.415%
x		84.773	1727.980	2111582.600	96.423%	171193.050	86.794%	4.877	41.867	91.983%
σ		10.871	127.586	146674.290	5.126%	12492.988	4.014%	12.220	33.193	3.457%
%RSD		12.823	7.384	6.946	5.316	7.298	4.625	250.555	79.282	3.758

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:54:18	89.160	210.874	5186.811	91.081%	-308.042	245.200	86.640%	4954.661
2	18:54:39	60.451	269.164	4648.913	99.160%	14.000	169.928	93.684%	4605.225
3	18:55:01	112.403	238.615	4348.988	101.851%	-170.347	188.939	94.460%	4651.552
x		87.338	239.551	4728.237	97.364%	-154.796	201.356	91.595%	4737.146
σ		26.024	29.156	424.507	5.605%	161.583	39.142	4.309%	189.793
%RSD		29.797	12.171	8.978	5.757	104.384	19.439	4.704	4.006

400-171203-c-7-a @5, 7/8/2019 6:58:32 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	18:58:32	-2.257	-0.226	21.798	TM 16473002.000	1486688.800	15.852	58661.478	339622.890	91.159%
2	18:58:55	-2.257	0.450	24.302	TM 15036605.000	1337979.700	0.173	50756.848	303512.480	98.587%
3	18:59:17	-2.257	-0.226	25.964	TM 14682707.000	1294027.200	18.482	47095.887	292661.640	101.777%
x		-2.257	-0.000	24.021	TM 15397438.000	1372898.600	11.502	52171.404	311932.340	97.175%
σ		0.000	0.390	2.097	TM 948124.200	100965.930	9.899	5911.129	24586.788	5.448%
%RSD		0.000	119363.020	8.730	TM 6.158	7.354	86.060	11.330	7.882	5.607

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	18:58:32	-0.415	252.100	273.978	91324.689	1222439.500	969.672	621.243	147.190	404.678
2	18:58:55	-0.599	247.977	267.851	82996.558	1098092.500	821.076	594.010	124.930	357.568
3	18:59:17	1.514	325.906	146.924	79487.666	1056119.000	816.697	532.667	105.427	374.481
x		0.167	275.328	229.585	84602.971	1125550.300	869.148	582.640	125.849	378.909
σ		1.170	43.851	71.652	6079.819	86493.239	87.083	45.369	20.897	23.865
%RSD		701.768	15.927	31.209	7.186	7.685	10.019	7.787	16.605	6.298

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	18:58:32	484.142	2.248	779077.920	91.753%	594.304	85.099%	-2.178	-2.460	87.892%
2	18:58:55	424.553	6.092	715725.810	98.674%	656.543	90.721%	-2.178	4.702	92.790%
3	18:59:17	393.850	3.568	683570.180	103.324%	469.447	93.458%	-2.178	11.399	96.433%
x		434.182	3.969	726124.640	97.917%	573.431	89.760%	-2.178	4.547	92.372%
σ		45.910	1.953	48595.617	5.823%	95.278	4.262%	0.000	6.931	4.286%
%RSD		10.574	49.197	6.692	5.947	16.615	4.748	0.000	152.432	4.640

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	18:58:32	20.322	-38.785	3451.017	97.638%	-664.897	84.623	89.892%	1590.213
2	18:58:55	6.176	-81.916	3213.993	105.433%	-334.050	140.679	96.847%	1305.666
3	18:59:17	3.378	-85.444	2796.357	107.815%	-347.135	90.029	94.513%	1240.906
x		9.959	-68.715	3153.789	103.629%	-448.694	105.110	93.751%	1378.928
σ		9.083	25.980	331.456	5.323%	187.351	30.921	3.540%	185.821
%RSD		91.207	37.808	10.510	5.137	41.755	29.418	3.776	13.476

400-171203-c-8-a @5, 7/8/2019 7:02:48 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:02:48	-2.257	-0.226	-0.201	14156.104	420.033	0.654	436.064	114.033	97.492%
2	19:03:09	-2.257	-0.226	-0.216	10751.668	263.395	13.346	115.123	51.497	99.206%
3	19:03:31	-2.257	-0.226	0.530	8206.629	200.397	18.657	-692.554	17.828	105.111%
x		-2.257	-0.226	0.037	11038.134	294.608	10.886	-47.122	61.120	100.603%
σ		0.000	0.000	0.426	2985.065	113.096	9.250	581.539	48.819	3.997%
%RSD		0.000	0.000	1139.214	27.043	38.389	84.972	1234.106	79.874	3.973

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:02:48	-2.853	207.325	-10.528	57.827	1010.226	0.734	70.006	76.632	133.974
2	19:03:09	-2.853	216.113	51.397	59.111	814.063	7.178	12.115	95.719	190.730
3	19:03:31	-0.739	265.095	-11.526	38.095	750.046	-6.765	28.248	54.068	170.038
x		-2.148	229.511	9.781	51.678	858.112	0.382	36.790	75.473	164.914
σ		1.221	31.129	36.044	11.780	135.568	6.978	29.876	20.850	28.723
%RSD		56.825	13.563	368.499	22.795	15.798	1824.488	81.207	27.626	17.417

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:02:48	-4.218	0.709	391.160	95.624%	37.958	93.645%	-2.178	-2.296	96.024%
2	19:03:09	-1.499	1.345	247.562	102.230%	77.300	99.523%	4.317	4.188	102.643%
3	19:03:31	-6.304	0.241	196.245	101.872%	110.502	100.868%	4.243	-2.316	103.831%
x		-4.007	0.765	278.322	99.909%	75.253	98.012%	2.127	-0.142	100.833%
σ		2.410	0.554	101.033	3.715%	36.315	3.841%	3.729	3.749	4.206%
%RSD		60.133	72.448	36.301	3.719	48.257	3.919	175.281	2647.545	4.172

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:02:48	-11.045	-92.004	37.707	95.037%	-575.320	39.772	95.137%	-64.170
2	19:03:09	37.920	-45.415	20.492	104.528%	-312.648	58.540	100.938%	-57.968
3	19:03:31	3.176	-79.006	7.616	105.190%	-492.522	72.954	104.216%	-51.986
x		10.017	-72.142	21.938	101.585%	-460.163	57.089	100.097%	-58.041
σ		25.189	24.041	15.097	5.681%	134.292	16.638	4.597%	6.092
%RSD		251.462	33.325	68.817	5.592	29.184	29.145	4.593	10.496

ccv, 7/8/2019 7:07:01 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:07:01	84.819	163.769	81.485	867614.160	481709.390	245428.700	922133.130	62338.292	91.873%
2	19:07:22	163.398	144.722	66.241	801795.600	448173.880	225648.960	856622.140	57098.518	96.587%
3	19:07:44	129.536	162.782	76.112	819355.720	452167.120	232390.160	879331.590	59463.843	96.111%
x		125.917	94.878%	108.005%	102.829%	101.017%	102.139%	100.537%	103.366%	94.857%
σ		39.414	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.595%
%RSD		31.301	6.826	10.363	4.108	3.976	4.288	3.754	4.400	2.736

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:07:01	4620.526	154774.650	202093.370	1067209.200	141440.630	377721.620	103985.010	318550.730	71862.054
2	19:07:22	4482.361	145664.920	189104.530	990298.900	127981.180	345407.330	95470.264	285101.320	64377.376
3	19:07:44	4418.992	148162.850	192928.330	1010852.500	129215.120	354237.840	96922.129	278002.960	64132.133
x		100.249%	99.381%	99.470%	98.755%	102.290%	98.629%	99.673%	98.920%	99.106%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		2.286	3.148	3.428	3.893	5.599	4.651	4.611	7.368	6.578

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:07:01	58852.964	5008.703	296646.160	91.963%	207312.570	85.967%	149853.290	135046.840	91.989%
2	19:07:22	51964.395	4421.372	274160.980	98.106%	184736.930	93.660%	138219.470	122323.600	99.394%
3	19:07:44	51247.129	4372.530	262516.210	101.157%	183238.280	95.005%	137906.160	124189.500	96.327%
x		99.062%	101.807%	102.915%	97.075%	100.814%	91.544%	99.184%	96.829%	95.903%
σ		n/a	n/a	n/a	4.683%	n/a	4.876%	n/a	n/a	3.720%
%RSD		7.774	7.695	6.246	4.824	7.033	5.327	4.795	5.402	3.879

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:07:01	306754.680	452702.860	127997.430	99.535%	1914962.100	2475557.700	91.410%	2649634.700
2	19:07:22	281316.780	406297.860	119183.900	105.755%	1637179.300	2162282.100	101.623%	2254837.500
3	19:07:44	274352.060	436507.240	117266.420	109.305%	1658233.800	2138950.200	103.347%	2259161.800
x		102.484%	96.184%	98.072%	104.865%	94.192%	99.762%	98.793%	2387878.000
σ		n/a	n/a	n/a	4.946%	n/a	n/a	6.452%	226698.280
%RSD		5.933	5.454	4.711	4.716	8.905	8.321	6.531	9.494

ccb, 7/8/2019 7:11:14 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:11:14	-2.257	-0.226	-1.056	7594.906	748.181	396.607	1020.973	125.782	91.064%
2	19:11:35	4.469	-0.226	-0.215	5869.908	766.141	345.247	-191.327	144.209	99.111%
3	19:11:58	-2.257	-0.226	-0.231	5202.242	749.781	324.733	-676.410	167.344	101.016%
x		-0.015	-0.226	-0.501	6222.352	754.701	355.529	51.079	145.778	97.064%
σ		3.884	0.000	0.481	1234.655	9.940	37.023	874.270	20.826	5.282%
%RSD		25577.686	0.000	96.034	19.842	1.317	10.414	1711.606	14.286	5.442

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:11:14	2.028	306.253	262.393	1820.068	862.927	589.987	189.984	505.606	168.135
2	19:11:35	8.358	268.076	213.193	1628.957	713.030	563.273	137.727	455.279	128.924
3	19:11:58	10.347	241.809	225.216	1588.236	717.509	499.565	140.987	416.664	113.107
x		6.911	272.046	233.601	1679.087	764.489	550.942	156.233	459.183	136.722
σ		4.344	32.405	25.649	123.779	85.279	46.455	29.275	44.599	28.331
%RSD		62.860	11.911	10.980	7.372	11.155	8.432	18.738	9.713	20.721

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:11:14	78.430	7.990	509.599	93.646%	509.889	92.150%	285.501	264.202	95.015%
2	19:11:35	62.513	6.155	445.461	96.360%	625.310	96.457%	200.623	121.846	101.907%
3	19:11:58	61.062	7.272	359.410	97.075%	517.243	99.178%	158.401	131.389	99.640%
x		67.335	7.139	438.157	95.694%	550.814	95.928%	214.842	172.479	98.854%
σ		9.636	0.924	75.360	1.809%	64.620	3.544%	64.732	79.578	3.513%
%RSD		14.310	12.950	17.199	1.890	11.732	3.694	30.130	46.138	3.553

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:11:14	540.074	1171.936	199.872	97.823%	5943.520	3635.474	98.340%	3495.373
2	19:11:35	511.969	1257.474	223.202	99.462%	7559.317	2893.130	100.682%	3094.465
3	19:11:58	535.808	1356.990	222.875	105.292%	6340.753	3287.567	101.952%	2813.009
x		529.284	1262.133	215.316	100.859%	6614.530	3272.057	100.324%	3134.282
σ		15.146	92.615	13.376	3.926%	841.971	371.415	1.832%	342.920
%RSD		2.862	7.338	6.212	3.892	12.729	11.351	1.826	10.941

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:15:28	4.581	-0.226	49.376	TM 14651013.000	2445102.500	531.770	153564.210	307964.750	97.492%
2	19:15:50	-2.257	-0.226	31.973	TM 13614226.000	2250214.600	653.401	139446.740	271664.870	103.444%
3	19:16:11	-2.257	-0.226	48.719	TM 14412455.000	2368515.200	650.287	148147.350	287750.300	98.778%
x		0.022	-0.226	43.356	TM 14225898.000	2354610.800	611.819	147052.770	289126.640	99.905%
σ		3.948	0.000	9.863	TM 542986.400	98185.143	69.342	7122.099	18189.038	3.132%
%RSD		17904.604	0.000	22.750	TM 3.817	4.170	11.334	4.843	6.291	3.135

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:15:28	15.382	524.179	208.304	13195.110	1323004.800	2227.969	635.319	764.079	648.865
2	19:15:50	22.926	418.542	152.356	11586.941	1182437.300	2128.976	562.121	623.140	579.940
3	19:16:11	26.394	469.865	237.477	12121.553	1263982.600	2066.008	577.040	612.196	638.591
x		21.567	470.862	199.379	12301.201	1256474.900	2140.984	591.493	666.471	622.465
σ		5.630	52.826	43.257	818.998	70583.847	81.646	38.680	84.707	37.185
%RSD		26.104	11.219	21.696	6.658	5.618	3.813	6.539	12.710	5.974

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:15:28	53.654	2.847	1533385.300	91.143%	269.511	85.582%	5.240	12.474	89.868%
2	19:15:50	63.887	1.909	1368388.400	101.451%	321.495	92.237%	11.418	4.418	98.069%
3	19:16:11	73.363	0.968	1356405.600	100.883%	343.467	94.420%	4.690	11.349	97.073%
x		63.635	1.908	1419393.100	97.826%	311.491	90.746%	7.116	9.414	95.003%
σ		9.857	0.939	98901.784	5.795%	37.979	4.604%	3.736	4.363	4.475%
%RSD		15.489	49.236	6.968	5.923	12.193	5.073	52.498	46.342	4.710

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:15:28	97.603	54.651	7973.522	94.969%	509.285	428.270	85.628%	10335.472
2	19:15:50	91.341	157.788	8004.842	100.591%	1019.796	248.919	91.541%	9116.523
3	19:16:11	87.164	154.339	7069.339	105.117%	1057.855	295.023	96.124%	9768.498
x		92.036	122.260	7682.567	100.225%	862.312	324.071	91.098%	9740.164
σ		5.254	58.576	531.302	5.084%	306.322	93.137	5.262%	609.968
%RSD		5.709	47.911	6.916	5.073	35.523	28.740	5.776	6.262

400-171203-c-10-a @5, 7/8/2019 7:19:41 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:19:41	-2.257	-0.226	53.871	TM 18252076.000	1813874.500	425.126	231682.680	209764.140	94.064%
2	19:20:03	-2.257	-0.226	36.156	TM 15903622.000	1570767.000	352.168	202462.180	185667.020	105.254%
3	19:20:25	-2.257	0.408	41.698	TM 16038473.000	1609740.200	362.725	206131.210	187114.280	105.254%
x		-2.257	-0.015	43.908	TM 16731390.000	1664793.900	380.006	213425.360	194181.810	101.524%
σ		0.000	0.366	9.062	TM 1318677.000	130569.930	39.430	15917.376	13514.080	6.461%
%RSD		0.000	2503.991	20.639	TM 7.881	7.843	10.376	7.458	6.959	6.364

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:19:41	13.685	382.519	132.908	13116.270	923883.800	2338.081	832.384	522.336	552.822
2	19:20:03	3.481	342.598	106.299	12083.940	804203.580	2214.598	653.129	460.697	329.323
3	19:20:25	7.704	327.818	99.965	11800.806	821499.180	2294.848	642.571	382.309	392.194
x		8.290	350.978	113.057	12333.672	849862.190	2282.509	709.361	455.114	424.779
σ		5.127	28.297	17.480	692.377	64685.271	62.660	106.672	70.180	115.257
%RSD		61.846	8.062	15.462	5.614	7.611	2.745	15.038	15.420	27.133

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:19:41	139.729	3.888	1080801.800	95.013%	613.965	84.075%	5.463	12.807	87.249%
2	19:20:03	122.243	4.180	993252.520	99.915%	587.589	92.850%	4.841	4.559	94.986%
3	19:20:25	136.584	1.559	988708.040	100.189%	459.386	93.742%	-2.178	-2.416	99.160%
x		132.852	3.209	1020920.800	98.373%	553.647	90.222%	2.708	4.983	93.798%
σ		9.321	1.436	51908.244	2.912%	82.690	5.343%	4.243	7.621	6.043%
%RSD		7.016	44.749	5.084	2.961	14.936	5.921	156.665	152.922	6.443

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:19:41	100.953	-60.702	5974.048	93.923%	-338.629	194.236	81.130%	11628.056
2	19:20:03	32.706	21.205	5701.406	101.208%	365.283	103.419	91.469%	9765.781
3	19:20:25	123.999	46.550	5160.319	104.961%	165.952	298.901	93.474%	10161.650
x		85.886	2.351	5611.924	100.031%	64.202	198.852	88.691%	10518.496
σ		47.475	56.057	414.179	5.612%	362.819	97.823	6.624%	981.081
%RSD		55.276	2384.580	7.380	5.610	565.118	49.194	7.469	9.327

400-171203-c-11-a @5, 7/8/2019 7:23:57 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:23:57	-2.257	-0.226	77.912	TM 31080508.000	3090021.100	158.463	656025.430	393120.680	93.921%
2	19:24:18	-2.257	-0.226	56.046	TM 29011307.000	2926402.400	100.529	614850.800	370282.070	97.778%
3	19:24:40	-2.257	-0.226	50.624	TM 28487942.000	2811146.800	92.972	601439.860	361457.460	101.587%
x		-2.257	-0.226	61.527	TM 29526586.000	2942523.500	117.322	624105.360	374953.400	97.762%
σ		0.000	0.000	14.446	TM 1370942.500	140134.370	35.829	28445.233	16340.313	3.833%
%RSD		0.000	0.000	23.479	TM 4.643	4.762	30.540	4.558	4.358	3.921

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:23:57	6.611	366.829	12409.958	58388.167	1772504.400	2637.494	1399.266	754.237	332.104
2	19:24:18	-0.580	319.801	9168.425	54880.119	1679544.800	2346.446	1281.145	632.997	388.509
3	19:24:40	-0.665	329.064	7680.747	53193.812	1617436.100	2426.368	1185.682	598.461	381.137
x		1.789	338.565	9753.043	55487.366	1689828.400	2470.103	1288.698	661.899	367.250
σ		4.177	24.912	2418.200	2649.886	78043.961	150.372	106.992	81.811	30.660
%RSD		233.509	7.358	24.794	4.776	4.618	6.088	8.302	12.360	8.349

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:23:57	201.643	3.824	2067783.600	92.805%	974.838	84.974%	5.070	-2.561	91.983%
2	19:24:18	185.297	2.261	1801380.500	102.819%	919.471	90.913%	4.623	4.244	98.029%
3	19:24:40	167.031	3.660	1881713.300	100.463%	783.160	91.979%	4.554	-2.509	99.025%
x		184.657	3.248	1916959.100	98.695%	892.490	89.289%	4.749	-0.275	96.346%
σ		17.315	0.859	136654.150	5.236%	98.646	3.774%	0.280	3.914	3.811%
%RSD		9.377	26.439	7.129	5.305	11.053	4.227	5.894	1421.165	3.955

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:23:57	83.249	-95.592	5468.387	89.444%	-388.354	177.832	83.579%	4867.373
2	19:24:18	49.973	15.105	4446.926	95.275%	-18.343	151.309	92.639%	4254.803
3	19:24:40	48.359	26.654	4595.552	99.151%	-163.570	172.212	97.899%	4478.831
x		60.527	-17.944	4836.955	94.623%	-190.089	167.118	91.373%	4533.669
σ		19.694	67.492	551.863	4.886%	186.425	13.976	7.244%	309.945
%RSD		32.538	376.119	11.409	5.164	98.073	8.363	7.927	6.837

400-171203-c-12-a @5, 7/8/2019 7:28:11 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:28:11	-2.257	0.473	44.391	TM 46839682.000	1951823.900	304.614	1055937.300	242450.790	95.349%
2	19:28:34	-2.257	-0.226	57.559	TM 46472560.000	1893392.900	237.303	1045215.400	240148.450	95.254%
3	19:28:56	4.173	-0.226	57.617	TM 43180830.000	1764954.500	235.979	973019.770	219776.970	103.682%
x		-0.114	0.007	53.189	TM 45497691.000	1870057.100	259.299	1024724.100	234125.400	98.095%
σ		3.712	0.404	7.619	TM 2014839.000	95595.306	39.249	45097.073	12479.320	4.839%
%RSD		3255.227	5509.200	14.325	TM 4.428	5.112	15.137	4.401	5.330	4.933

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:28:11	6.470	346.810	101.218	36541.188	1601160.700	2210.774	1109.657	1501.357	303.752
2	19:28:34	34.474	384.677	127.298	36249.283	1534596.600	1953.986	1031.476	1378.933	293.040
3	19:28:56	10.007	333.547	39.824	33326.437	1443646.400	1986.849	897.267	1375.542	257.838
x		16.984	355.011	89.447	35372.303	1526467.900	2050.536	1012.800	1418.611	284.877
σ		15.250	26.534	44.910	1777.773	79071.154	139.740	107.420	71.681	24.021
%RSD		89.794	7.474	50.208	5.026	5.180	6.815	10.606	5.053	8.432

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:28:11	114.312	8.384	1706200.700	91.753%	768.699	86.167%	5.326	4.995	88.847%
2	19:28:34	99.240	4.218	1568015.100	97.075%	709.548	92.288%	11.365	-2.482	98.453%
3	19:28:56	93.882	5.721	1460371.500	105.597%	596.962	94.995%	4.723	4.430	96.610%
x		102.478	6.108	1578195.800	98.142%	691.736	91.150%	7.138	2.315	94.637%
σ		10.593	2.109	123230.410	6.983%	87.243	4.523%	3.673	4.163	5.098%
%RSD		10.336	34.536	7.808	7.116	12.612	4.962	51.463	179.871	5.387

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:28:11	11.226	-25.246	7022.735	94.526%	-440.257	187.129	85.563%	1791.171
2	19:28:34	-9.893	-26.345	6535.369	101.359%	-194.506	187.824	94.835%	1545.805
3	19:28:56	22.933	-51.106	6512.893	104.163%	-314.255	148.241	93.816%	1570.476
x		8.089	-34.232	6690.332	100.016%	-316.339	174.398	91.404%	1635.818
σ		16.636	14.623	288.089	4.957%	122.888	22.655	5.085%	135.104
%RSD		205.677	42.718	4.306	4.956	38.847	12.991	5.563	8.259

400-171203-c-13-a @5, 7/8/2019 7:32:27 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:32:27	-2.257	-0.226	39.656	TM 29005718.000	2629437.800	1023.744	80780.150	363402.250	92.112%
2	19:32:50	-2.257	0.431	42.462	TM 25269262.000	2278989.900	857.300	67617.664	309904.590	101.492%
3	19:33:12	-2.257	0.390	27.401	TM 23445958.000	2142837.900	777.778	62862.855	289165.340	108.349%
x		-2.257	0.198	36.506	TM 25906980.000	2350421.800	886.274	70420.223	320824.060	100.651%
σ		0.000	0.368	8.009	TM 2834209.700	251041.380	125.516	9281.601	38304.123	8.151%
%RSD		0.000	185.473	21.938	TM 10.940	10.681	14.162	13.180	11.939	8.099

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:32:27	40.573	660.084	154.484	53433.762	2061797.100	1685.762	944.958	699.991	613.231
2	19:32:50	49.697	566.042	56.262	46105.808	1777397.500	1550.450	893.395	668.985	510.694
3	19:33:12	46.371	468.864	26.550	42873.447	1669945.800	1389.817	740.003	711.430	478.867
x		45.547	564.997	79.098	47471.006	1836380.100	1542.010	859.452	693.468	534.264
σ		4.617	95.614	66.955	5410.904	202474.880	148.152	106.610	21.961	70.214
%RSD		10.138	16.923	84.648	11.398	11.026	9.608	12.404	3.167	13.142

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:32:27	141.853	4.100	1473675.600	89.923%	355.531	85.487%	5.174	4.968	90.675%
2	19:32:50	117.666	2.184	1267382.500	100.505%	265.385	92.536%	18.814	4.632	95.273%
3	19:33:12	129.130	2.425	1218501.200	105.429%	294.470	93.502%	17.980	17.783	99.217%
x		129.550	2.903	1319853.100	98.619%	305.129	90.508%	13.990	9.128	95.055%
σ		12.099	1.044	135437.690	7.923%	46.009	4.375%	7.646	7.498	4.275%
%RSD		9.339	35.956	10.262	8.034	15.078	4.834	54.652	82.143	4.498

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:32:27	43.219	-109.146	3561.686	99.467%	-519.656	296.874	90.543%	2771.352
2	19:32:50	11.507	-49.363	3258.134	103.194%	-315.229	197.535	93.960%	3037.013
3	19:33:12	38.986	-47.649	3240.813	100.873%	-325.541	344.271	94.447%	2879.785
x		31.237	-68.719	3353.544	101.178%	-386.808	279.560	92.983%	2896.050
σ		17.217	35.021	180.464	1.882%	115.165	74.884	2.128%	133.575
%RSD		55.118	50.963	5.381	1.860	29.773	26.786	2.288	4.612

400-171203-c-14-a @5, 7/8/2019 7:36:45 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:36:45	-2.257	-0.226	30.993	TM 12054067.000	2196650.400	1089.241	36238.861	485624.460	96.206%
2	19:37:06	-2.257	-0.226	23.588	TM 11118951.000	2015499.200	908.111	32587.878	435699.050	101.444%
3	19:37:28	-2.257	0.421	15.924	TM 10963622.000	1979914.300	903.957	30673.909	426558.140	103.063%
x		-2.257	-0.010	23.502	TM 11378880.000	2064021.300	967.103	33166.883	449293.880	100.238%
σ		0.000	0.373	7.535	TM 589864.580	116230.060	105.795	2827.297	31793.429	3.584%
%RSD		0.000	3691.512	32.062	TM 5.184	5.631	10.939	8.524	7.076	3.576

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:36:45	66.443	607.665	8948.761	110813.680	1518821.000	1717.325	660.506	976.681	921.215
2	19:37:06	49.721	450.287	8110.794	103379.100	1397278.100	1494.220	705.425	915.562	771.414
3	19:37:28	66.145	468.236	8181.288	100780.840	1388482.200	1558.926	665.692	773.722	817.053
x		60.770	508.730	8413.614	104991.210	1434860.400	1590.157	677.207	888.655	836.560
σ		9.569	86.149	464.789	5207.072	72844.856	114.785	24.574	104.120	76.782
%RSD		15.747	16.934	5.524	4.960	5.077	7.218	3.629	11.717	9.178

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:36:45	333.200	5.026	1237724.800	98.527%	542.577	85.610%	12.367	4.822	91.668%
2	19:37:06	278.814	1.614	1187604.400	97.412%	508.405	92.383%	11.397	-2.427	98.219%
3	19:37:28	290.066	1.593	1168719.700	101.683%	504.214	92.909%	17.916	-2.431	99.530%
x		300.694	2.744	1198016.300	99.207%	518.399	90.300%	13.894	-0.012	96.473%
σ		28.708	1.976	35661.348	2.215%	21.043	4.071%	3.517	4.186	4.212%
%RSD		9.547	72.008	2.977	2.233	4.059	4.508	25.317	35478.352	4.366

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:36:45	144.266	-51.682	4354.681	97.288%	-644.107	201.861	90.326%	1250.055
2	19:37:06	83.840	1.161	3449.251	105.589%	-402.319	210.641	94.296%	1215.641
3	19:37:28	39.805	-48.052	3907.132	104.995%	-400.017	138.975	97.557%	1179.455
x		89.303	-32.858	3903.688	102.624%	-482.148	183.825	94.060%	1215.050
σ		52.444	29.517	452.725	4.631%	140.266	39.089	3.622%	35.304
%RSD		58.726	89.832	11.597	4.512	29.092	21.264	3.850	2.906

400-171203-c-14-b du @5, 7/8/2019 7:40:58 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:40:58	-2.257	-0.226	22.512	TM 12851977.000	2353662.900	1015.746	38584.535	506916.250	88.398%
2	19:41:19	-2.257	-0.226	25.998	TM 10612123.000	1919112.500	793.399	29448.809	424953.260	104.730%
3	19:41:41	-2.257	0.427	22.611	TM 10919741.000	1991749.000	840.961	31982.155	443230.800	102.111%
x		-2.257	-0.008	23.707	TM 11461280.000	2088174.800	883.369	33338.499	458366.770	98.413%
σ		0.000	0.377	1.985	TM 1214160.300	232770.190	117.083	4716.474	43026.803	8.772%
%RSD		0.000	4650.381	8.371	TM 10.594	11.147	13.254	14.147	9.387	8.913

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:40:58	97.703	545.018	433.194	115294.920	1609567.700	1681.791	672.049	671.953	500.595
2	19:41:19	62.925	466.224	261.194	95334.946	1313979.400	1417.151	484.710	587.252	489.436
3	19:41:41	71.141	489.626	323.879	98068.762	1368705.100	1364.650	606.975	570.133	503.778
x		77.256	500.289	339.422	102899.540	1430750.700	1487.864	587.911	609.779	497.936
σ		18.178	40.465	87.047	10821.390	157258.860	169.985	95.113	54.520	7.531
%RSD		23.529	8.088	25.646	10.516	10.991	11.425	16.178	8.941	1.512

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:40:58	301.263	1.581	1281035.600	91.627%	180.460	86.034%	12.472	4.988	91.015%
2	19:41:19	300.164	3.603	1158312.500	99.347%	87.984	92.894%	11.311	-2.311	98.848%
3	19:41:41	308.064	1.291	1164317.300	99.810%	67.261	93.305%	18.125	4.463	98.506%
x		303.164	2.158	1201221.800	96.928%	111.902	90.744%	13.969	2.380	96.123%
σ		4.279	1.259	69185.978	4.597%	60.271	4.085%	3.646	4.071	4.427%
%RSD		1.411	58.353	5.760	4.743	53.861	4.501	26.099	171.048	4.605

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:40:58	57.875	-43.470	4260.624	93.185%	-704.266	207.861	90.740%	1214.635
2	19:41:19	47.003	-74.151	3885.068	104.391%	-443.430	233.084	98.024%	976.242
3	19:41:41	53.547	-87.336	3668.930	105.448%	-494.717	221.658	97.347%	1093.118
x		52.808	-68.319	3938.208	101.008%	-547.471	220.868	95.370%	1094.665
σ		5.474	22.507	299.405	6.796%	138.188	12.630	4.024%	119.204
%RSD		10.365	32.944	7.603	6.728	25.241	5.718	4.220	10.890

ccv, 7/8/2019 7:45:11 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:45:11	90.917	186.840	63.449	868165.610	485613.080	246383.260	938543.890	60053.785	93.016%
2	19:45:32	71.725	152.918	72.002	868940.690	476911.050	246504.960	919487.550	61134.014	90.112%
3	19:45:54	95.041	140.533	58.133	777288.760	432097.860	221460.300	838171.410	54749.452	102.778%
x		85.894	96.693%	93.407%	103.888%	101.935%	103.719%	101.979%	101.653%	95.302%
σ		12.443	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.635%
%RSD		14.486	14.975	10.843	6.287	6.177	6.058	5.931	5.827	6.962

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:45:11	4728.653	157999.710	201223.440	1077092.200	139490.790	387479.700	105273.760	314832.770	71654.689
2	19:45:32	4676.369	156965.030	204238.400	1085166.300	140905.360	385019.000	104842.420	284721.310	65927.653
3	19:45:54	4184.095	140894.810	182422.020	955182.950	123151.430	345933.580	94167.971	286949.060	65754.572
x		100.748%	100.989%	100.110%	100.335%	103.550%	102.388%	102.332%	99.464%	100.573%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		6.633	6.312	6.033	7.008	7.335	6.252	6.203	5.678	4.954

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:45:11	58186.593	4899.241	296635.270	92.321%	206354.500	88.110%	148449.500	134826.340	93.187%
2	19:45:32	52726.943	4528.070	278075.960	97.096%	196777.620	93.993%	143153.630	124583.640	96.564%
3	19:45:54	52692.181	4487.222	259351.010	104.019%	183062.820	95.478%	141638.840	129819.870	96.703%
x		100.004%	102.632%	103.006%	97.812%	102.725%	92.527%	100.875%	98.776%	95.485%
σ		n/a	n/a	n/a	5.882%	n/a	3.896%	n/a	n/a	1.991%
%RSD		5.798	4.894	6.705	6.013	5.991	4.211	2.476	3.948	2.085

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:45:11	304175.330	460693.180	133018.400	99.540%	1960296.800	2444198.700	94.670%	2529659.300
2	19:45:32	275468.760	422215.540	126785.640	103.350%	1716652.200	2182943.000	103.393%	2245076.600
3	19:45:54	269430.040	439251.530	119908.760	108.594%	1671770.300	2211351.500	105.117%	2363413.500
x		100.898%	98.163%	102.180%	103.828%	96.693%	100.670%	101.060%	2379383.100
σ		n/a	n/a	n/a	4.546%	n/a	n/a	5.600%	142961.850
%RSD		6.559	4.375	5.181	4.378	8.708	6.288	5.542	6.008

ccb, 7/8/2019 7:49:26 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:49:26	5.064	-0.226	0.774	6803.222	1102.062	445.415	822.943	195.739	91.064%
2	19:49:49	-2.257	-0.226	-0.216	5347.322	776.398	396.397	-410.038	146.408	99.206%
3	19:50:12	-2.257	0.429	2.218	5108.011	739.902	396.017	-351.922	107.875	101.825%
x		0.183	-0.007	0.925	5752.852	872.787	412.610	20.328	150.007	97.365%
σ		4.227	0.378	1.224	917.483	199.395	28.410	695.692	44.042	5.612%
%RSD		2310.386	5043.382	132.272	15.948	22.846	6.886	3422.359	29.360	5.764

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:49:26	11.789	306.253	289.238	1926.711	940.956	604.630	241.231	501.948	192.952
2	19:49:49	8.347	267.635	255.248	1798.575	743.503	549.277	128.597	419.977	152.106
3	19:50:12	1.512	282.014	177.263	1549.462	772.141	510.750	148.282	454.351	127.111
x		7.216	285.301	240.583	1758.249	818.867	554.886	172.703	458.759	157.390
σ		5.231	19.518	57.410	191.830	106.698	47.190	60.158	41.163	33.237
%RSD		72.491	6.841	23.863	10.910	13.030	8.505	34.833	8.973	21.118

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:49:26	79.223	10.312	602.962	92.847%	514.793	89.958%	216.296	195.570	97.648%
2	19:49:49	72.584	7.703	426.286	96.507%	486.097	97.546%	196.339	149.781	100.748%
3	19:50:12	77.404	5.245	448.831	99.284%	464.116	97.508%	214.868	148.861	101.362%
x		76.404	7.753	492.693	96.213%	488.335	95.004%	209.168	164.737	99.919%
σ		3.431	2.534	96.159	3.229%	25.412	4.370%	11.133	26.706	1.991%
%RSD		4.490	32.677	19.517	3.356	5.204	4.600	5.322	16.211	1.993

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:49:26	585.060	1005.872	227.263	97.769%	5879.210	3739.266	99.853%	3361.186
2	19:49:49	464.246	1201.160	217.008	105.078%	7362.107	2957.743	103.794%	2832.483
3	19:50:12	464.464	1199.397	240.654	103.155%	7083.123	3110.751	100.919%	3034.169
x		504.590	1135.476	228.308	102.001%	6774.813	3269.253	101.522%	3075.946
σ		69.689	112.244	11.858	3.789%	788.059	414.170	2.039%	266.816
%RSD		13.811	9.885	5.194	3.714	11.632	12.669	2.008	8.674

400-171203-c-14-c ms @5, 7/8/2019 7:53:42 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:53:42	4.659	3.232	74.154	TM 11359833.000	2079714.400	4407.600	100310.730	452669.750	96.397%
2	19:54:04	11.406	6.606	67.259	TM 10931168.000	2020466.400	4284.968	97468.117	435453.390	97.587%
3	19:54:26	-2.257	6.449	73.205	TM 10921770.000	1989075.600	4221.547	96289.651	434203.510	99.873%
x		4.602	5.429	71.540	TM 11070924.000	2029752.100	4304.705	98022.832	440775.550	97.952%
σ		6.832	1.904	3.737	TM 250247.160	46027.320	94.584	2067.135	10319.620	1.767%
%RSD		148.441	35.074	5.224	TM 2.260	2.268	2.197	2.109	2.341	1.803

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:53:42	3497.223	58596.096	30176.869	108450.880	1472720.600	137361.220	38111.731	60333.636	27829.369
2	19:54:04	3313.292	57152.649	28281.250	104305.810	1408232.400	133578.560	36537.522	55745.094	25166.847
3	19:54:26	3459.989	56447.040	29410.249	103589.290	1412072.500	134085.850	36319.234	54578.973	25626.126
x		3423.501	57398.595	29289.456	105448.660	1431008.500	135008.540	36989.496	56885.901	26207.447
σ		97.243	1095.435	953.565	2624.570	36174.751	2053.201	977.994	3042.223	1423.274
%RSD		2.840	1.908	3.256	2.489	2.528	1.521	2.644	5.348	5.431

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:53:42	5047.663	373.983	1401627.300	95.708%	149229.070	85.577%	27934.121	5474.782	89.732%
2	19:54:04	4637.907	357.650	1286296.500	101.872%	143220.160	90.647%	24956.330	4733.938	96.849%
3	19:54:26	4449.941	350.961	1303686.300	101.999%	140678.780	93.044%	25433.605	4262.741	97.712%
x		4711.837	360.865	1330536.700	99.860%	144376.000	89.756%	26108.019	4823.820	94.765%
σ		305.642	11.843	62177.177	3.596%	4390.765	3.813%	1599.355	610.999	4.380%
%RSD		6.487	3.282	4.673	3.601	3.041	4.248	6.126	12.666	4.621

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:53:42	227015.760	177372.170	52722.735	95.547%	147808.720	192490.050	84.558%	207541.010
2	19:54:04	211156.720	157812.970	49679.644	100.036%	130099.470	170982.250	93.040%	180494.050
3	19:54:26	207265.800	156895.800	48433.793	104.518%	124779.090	163956.730	96.972%	179112.800
x		215146.090	164026.980	50278.724	100.034%	134229.090	175809.680	91.523%	189049.290
σ		10461.909	11566.369	2206.338	4.485%	12057.414	14866.595	6.345%	16029.188
%RSD		4.863	7.052	4.388	4.484	8.983	8.456	6.932	8.479

400-171203-c-14-d msd @5, 7/8/2019 7:57:55 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	19:57:55	-2.257	3.329	84.252	TM 11763202.000	2165557.200	3960.534	103272.830	459873.790	93.778%
2	19:58:18	4.181	8.145	77.819	TM 10331571.000	1906002.100	3604.594	92055.867	414069.000	103.539%
3	19:58:39	4.476	7.854	74.690	TM 11014836.000	2002275.600	3773.473	98525.630	437312.330	99.016%
x		2.133	6.442	78.920	TM 11036536.000	2024611.600	3779.533	97951.441	437085.040	98.778%
σ		3.805	2.700	4.875	TM 716062.080	131211.210	178.047	5630.481	22903.241	4.885%
%RSD		178.377	41.916	6.178	TM 6.488	6.481	4.711	5.748	5.240	4.946

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	19:57:55	3775.126	60213.918	65708.916	120103.790	1506539.800	144340.440	39988.477	61102.714	27683.783
2	19:58:18	3378.153	54125.980	50097.976	103282.850	1322820.900	126660.550	35227.747	54136.002	24198.748
3	19:58:39	3438.326	56801.826	48695.659	110435.830	1402980.400	134572.560	37021.540	55051.709	24872.119
x		3530.535	57047.241	54834.184	111274.150	1410780.400	135191.180	37412.588	56763.475	25584.883
σ		213.949	3051.380	9443.859	8441.748	92107.488	8856.165	2404.335	3785.680	1848.619
%RSD		6.060	5.349	17.223	7.586	6.529	6.551	6.427	6.669	7.225

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	19:57:55	4926.950	415.097	1419815.200	95.077%	152934.110	86.412%	28717.145	4969.793	88.636%
2	19:58:18	4428.841	367.008	1337102.000	99.305%	145709.750	94.057%	26355.123	4351.371	95.869%
3	19:58:39	4655.351	349.805	1307198.400	102.777%	143118.870	94.108%	25372.287	4471.304	98.502%
x		4670.381	377.303	1354705.200	99.053%	147254.250	91.525%	26814.852	4597.489	94.335%
σ		249.394	33.842	58335.573	3.856%	5086.632	4.429%	1719.166	327.954	5.109%
%RSD		5.340	8.969	4.306	3.893	3.454	4.839	6.411	7.133	5.415

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	19:57:55	232909.570	174931.240	54171.899	95.912%	137080.050	183564.950	88.085%	198224.350
2	19:58:18	206185.560	159145.800	48047.310	103.043%	133528.310	171211.610	92.547%	188685.780
3	19:58:39	216709.090	157268.430	47815.091	106.529%	121436.000	166230.540	98.616%	178192.460
x		218601.410	163781.820	50011.433	101.828%	130681.450	173669.030	93.083%	188367.530
σ		13462.126	9701.201	3604.939	5.412%	8201.372	8924.668	5.286%	10019.736
%RSD		6.158	5.923	7.208	5.315	6.276	5.139	5.679	5.319

400-171203-c-14-a SD@25, 7/8/2019 8:02:09 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:02:09	-2.257	-0.226	5.796	2284719.000	434419.470	194.870	6635.765	93085.381	97.301%
2	20:02:31	-2.257	-0.226	1.411	2164740.900	404546.530	154.686	6245.339	89372.162	101.349%
3	20:02:52	-2.257	0.415	6.148	2180141.700	408419.220	155.855	5813.441	86634.967	104.111%
x		-2.257	-0.012	4.451	2209867.200	415795.070	168.470	6231.515	89697.504	100.920%
σ		0.000	0.370	2.639	65279.365	16245.017	22.870	411.336	3237.491	3.425%
%RSD		0.000	3009.024	59.289	2.954	3.907	13.575	6.601	3.609	3.394

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:02:09	1.715	221.809	207.046	21170.145	294136.800	304.523	134.169	135.325	213.841
2	20:02:31	8.110	231.613	135.725	20454.257	278147.610	337.801	129.430	129.735	187.433
3	20:02:52	3.551	265.212	211.260	19928.786	270264.120	334.839	118.547	120.532	208.951
x		4.459	239.545	184.677	20517.729	280849.510	325.721	127.382	128.531	203.409
σ		3.293	22.763	42.446	623.108	12163.526	18.418	8.010	7.470	14.049
%RSD		73.857	9.503	22.984	3.037	4.331	5.654	6.288	5.812	6.907

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:02:09	67.668	3.169	255176.690	93.331%	147.504	90.435%	11.837	-2.326	95.135%
2	20:02:31	49.030	1.398	226024.670	103.366%	301.535	98.029%	4.293	4.101	103.020%
3	20:02:52	47.491	0.276	229183.930	102.924%	290.131	99.380%	4.338	-2.368	102.311%
x		54.730	1.614	236795.100	99.874%	246.390	95.948%	6.823	-0.198	100.155%
σ		11.231	1.458	15997.103	5.671%	85.827	4.822%	4.343	3.723	4.362%
%RSD		20.521	90.342	6.756	5.678	34.834	5.025	63.649	1882.002	4.356

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:02:09	102.313	48.929	897.632	100.479%	264.581	36.406	92.468%	238.844
2	20:02:31	223.482	-13.535	769.265	105.044%	914.015	28.413	98.537%	172.389
3	20:02:52	178.981	117.911	671.894	110.255%	896.421	-18.837	98.393%	226.953
x		168.258	51.102	779.597	105.259%	691.673	15.327	96.466%	212.729
σ		61.292	65.750	113.223	4.892%	369.977	29.856	3.463%	35.438
%RSD		36.427	128.664	14.523	4.647	53.490	194.793	3.590	16.659

400-171203-c-15-a @5, 7/8/2019 8:06:23 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:06:23	-2.257	-0.226	-0.169	1618.207	354.385	30.694	1113.050	91.552	93.921%
2	20:06:45	-2.257	0.389	-1.056	-408.182	164.986	8.576	-1520.824	13.235	108.445%
3	20:07:08	-2.257	-0.226	1.347	-233.083	104.388	17.166	-659.887	30.670	104.016%
x		-2.257	-0.021	0.041	325.647	207.920	18.812	-355.887	45.152	102.127%
σ		0.000	0.355	1.215	1122.808	130.411	11.151	1342.995	41.118	7.444%
%RSD		0.000	1705.056	2973.647	344.793	62.722	59.275	377.366	91.065	7.289

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:06:23	-2.853	295.843	-3.646	77.612	370.941	20.269	52.872	77.531	566.209
2	20:06:45	-2.853	140.396	11.904	47.854	191.091	-0.877	48.710	102.312	459.712
3	20:07:08	-0.716	218.627	36.547	51.616	137.247	-0.267	46.052	51.288	424.371
x		-2.141	218.289	14.935	59.028	233.093	6.375	49.211	77.044	483.431
σ		1.233	77.724	20.267	16.204	122.378	12.037	3.437	25.515	73.834
%RSD		57.622	35.606	135.705	27.452	52.502	188.808	6.984	33.118	15.273

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:06:23	-0.112	0.959	246.858	92.678%	77.027	94.696%	4.862	-2.307	94.703%
2	20:06:45	6.581	-0.316	189.898	101.788%	45.146	102.436%	11.323	-2.299	98.758%
3	20:07:08	-1.374	0.179	46.379	108.228%	-4.209	103.534%	-2.178	4.089	104.587%
x		1.698	0.274	161.045	100.898%	39.321	100.222%	4.669	-0.172	99.349%
σ		4.275	0.643	103.307	7.813%	40.930	4.817%	6.753	3.690	4.969%
%RSD		251.757	234.603	64.148	7.743	104.091	4.806	144.630	2140.624	5.001

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:06:23	459.789	-90.842	54.613	100.994%	-303.906	204.835	100.603%	-51.297
2	20:06:45	346.700	-47.056	45.197	106.018%	6.877	211.508	102.774%	-45.230
3	20:07:08	316.320	47.785	51.428	106.115%	86.588	78.840	104.525%	-58.421
x		374.270	-30.037	50.413	104.376%	-70.147	165.061	102.634%	-51.649
σ		75.603	70.863	4.789	2.929%	206.327	74.745	1.965%	6.602
%RSD		20.200	235.917	9.500	2.806	294.136	45.283	1.914	12.783

ccv, 7/8/2019 8:10:38 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:10:38	138.424	151.006	60.492	847225.480	477860.840	244991.220	926102.100	62392.977	94.778%
2	20:10:59	52.798	173.887	74.645	827402.930	456038.840	232200.780	884490.950	57513.311	96.873%
3	20:11:22	109.613	148.002	81.098	852968.400	469369.150	242973.070	904427.610	58403.826	95.349%
x		100.278	95.205%	104.337%	104.433%	102.567%	104.563%	102.691%	103.024%	95.667%
σ		43.569	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.083%
%RSD		43.449	8.981	14.624	1.592	2.352	2.865	2.300	4.372	1.132

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:10:38	4919.859	156508.140	203048.030	1066308.800	140484.710	380150.290	104503.680	314311.460	71245.101
2	20:10:59	4448.478	147676.550	191132.350	1002333.700	129703.280	363107.600	100471.180	290201.510	65123.439
3	20:11:22	4570.908	152518.550	195664.030	1036760.800	133727.340	367152.330	99387.574	283176.670	64795.533
x		103.343%	101.175%	100.444%	99.947%	103.644%	101.654%	102.358%	99.597%	99.498%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		5.264	2.905	3.059	3.093	4.047	2.406	2.657	5.519	5.418

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:10:38	57253.492	4934.707	299867.010	93.183%	210121.770	89.012%	149874.760	136758.960	93.105%
2	20:10:59	52998.903	4584.711	281035.330	95.203%	195288.010	93.594%	150903.590	128341.600	92.964%
3	20:11:22	52060.701	4423.326	274613.340	99.747%	190652.280	96.314%	143942.510	125314.930	96.599%
x		99.214%	102.840%	105.655%	96.044%	104.455%	92.973%	103.548%	99.077%	94.222%
σ		n/a	n/a	n/a	3.362%	n/a	3.690%	n/a	n/a	2.059%
%RSD		5.115	5.625	4.603	3.500	5.119	3.969	2.535	4.557	2.185

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:10:38	301108.190	451321.670	134992.780	97.633%	1898622.000	2449677.500	94.046%	2468133.500
2	20:10:59	284882.080	436908.340	113587.520	110.411%	1582883.100	2143143.700	101.017%	2352678.900
3	20:11:22	281025.880	422372.430	114848.500	109.788%	1576943.100	2116150.700	105.341%	2173645.800
x		103.030%	97.305%	97.798%	105.944%	91.446%	98.764%	100.135%	2331486.100
σ		n/a	n/a	n/a	7.204%	n/a	n/a	5.699%	148383.320
%RSD		3.688	3.313	9.915	6.800	10.914	8.284	5.691	6.364

ccb, 7/8/2019 8:14:55 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:14:55	-2.257	0.476	-0.179	6180.937	1038.423	458.111	639.175	172.259	94.968%
2	20:15:18	-2.257	-0.226	0.574	5299.361	966.278	368.099	170.174	151.961	102.254%
3	20:15:39	-2.257	-0.226	0.569	5144.678	932.633	338.779	-489.570	168.709	102.539%
x		-2.257	0.008	0.322	5541.659	979.111	388.330	106.593	164.310	99.920%
σ		0.000	0.405	0.433	559.008	54.050	62.185	567.052	10.840	4.291%
%RSD		0.000	4905.466	134.695	10.087	5.520	16.013	531.980	6.598	4.294

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:14:55	20.547	283.447	285.418	2098.286	928.429	625.949	213.314	575.228	169.650
2	20:15:18	8.013	264.816	223.010	1743.162	848.776	558.533	156.189	407.451	121.982
3	20:15:39	10.150	272.213	215.006	1651.369	846.188	600.281	136.139	474.698	148.438
x		12.904	273.492	241.144	1830.939	874.464	594.921	168.547	485.792	146.690
σ		6.705	9.381	38.550	236.034	46.753	34.026	40.044	84.437	23.882
%RSD		51.962	3.430	15.986	12.891	5.346	5.719	23.759	17.381	16.280

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:14:55	79.112	8.971	703.709	94.298%	527.161	93.609%	191.828	260.864	96.218%
2	20:15:18	81.848	10.492	547.894	98.443%	563.410	99.231%	228.435	135.928	101.181%
3	20:15:39	67.302	6.146	513.697	104.040%	369.686	103.004%	248.794	171.359	103.599%
x		76.087	8.536	588.433	98.927%	486.752	98.615%	223.019	189.384	100.333%
σ		7.731	2.205	101.285	4.889%	102.990	4.728%	28.867	64.389	3.763%
%RSD		10.160	25.835	17.213	4.942	21.159	4.794	12.944	33.999	3.750

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:14:55	430.551	1085.791	307.647	98.212%	6617.508	3972.635	98.222%	3716.955
2	20:15:18	602.658	1353.428	253.273	100.756%	8071.693	3057.446	101.991%	3452.701
3	20:15:39	519.057	1272.697	264.581	106.290%	6844.906	3210.146	104.946%	3404.319
x		517.422	1237.305	275.167	101.753%	7178.036	3413.409	101.720%	3524.658
σ		86.065	137.284	28.691	4.130%	782.238	490.285	3.370%	168.281
%RSD		16.633	11.095	10.427	4.059	10.898	14.364	3.314	4.774

mb 500-493206/1-a, 7/8/2019 8:24:37 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:24:37	-2.257	-0.226	-1.056	-1587.944	3.972	120.139	-1220.787	8.235	101.016%
2	20:24:59	-2.257	-0.226	-0.320	-2419.435	23.230	86.903	-2622.841	0.498	113.207%
3	20:25:21	-2.257	-0.226	-1.056	-2139.290	-19.750	80.882	-2234.969	-3.283	109.730%
x		-2.257	-0.226	-0.811	-2048.890	2.484	95.975	-2026.199	1.817	107.984%
σ		0.000	0.000	0.425	423.052	21.529	21.142	723.966	5.871	6.280%
%RSD		0.000	0.000	52.425	20.648	866.688	22.029	35.730	323.205	5.816

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:24:37	-0.653	8.614	99.816	1604.949	191.695	13.377	59.590	1462.938	733.081
2	20:24:59	-0.890	-67.909	58.965	1353.246	168.199	8.334	35.188	1356.512	713.356
3	20:25:21	-2.853	-19.437	107.299	1505.116	186.749	3.005	37.551	1390.357	662.263
x		-1.465	-26.244	88.693	1487.770	182.214	8.239	44.110	1403.269	702.900
σ		1.208	38.713	26.016	126.745	12.387	5.187	13.458	54.375	36.549
%RSD		82.417	147.512	29.333	8.519	6.798	62.956	30.511	3.875	5.200

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:24:37	-2.335	2.328	185.188	98.127%	42.262	95.529%	-2.178	-2.298	98.807%
2	20:24:59	1.277	0.708	129.552	105.092%	10.133	103.053%	4.438	-2.290	100.773%
3	20:25:21	-4.504	2.278	110.743	104.945%	86.462	102.638%	-2.178	4.119	103.694%
x		-1.854	1.771	141.827	102.721%	46.286	100.407%	0.027	-0.156	101.091%
σ		2.920	0.921	38.711	3.979%	38.324	4.229%	3.819	3.702	2.459%
%RSD		157.507	52.013	27.294	3.874	82.798	4.212	14058.431	2369.730	2.433

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:24:37	57.199	94.575	151.051	98.494%	477.993	921.251	95.933%	26.114
2	20:24:59	14.153	287.782	99.159	102.513%	1223.172	822.273	100.478%	-11.462
3	20:25:21	21.066	261.878	94.485	100.741%	1190.250	714.270	104.834%	-39.381
x		30.806	214.745	114.898	100.583%	963.805	819.264	100.415%	-8.243
σ		23.117	104.873	31.396	2.014%	421.047	103.523	4.451%	32.866
%RSD		75.040	48.836	27.325	2.002	43.686	12.636	4.433	398.704

lcs 500-493206/2-a, 7/8/2019 8:28:52 PM QC Status: PASS (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:28:52	45.193	26.211	294.664	338502.030	199369.040	20102.619	377597.820	21590.791	98.349%
2	20:29:14	23.557	30.752	262.739	310018.710	182849.270	18421.116	346332.210	20195.198	103.301%
3	20:29:36	56.448	34.345	250.074	323080.610	186638.070	18449.030	353458.440	19507.439	102.206%
x		41.733	91.911%	97.405%	100.360%	103.947%	103.401%	101.876%	88.536%	101.285%
σ		16.716	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.601%
%RSD		40.055	13.393	8.537	4.402	4.564	5.070	4.563	5.196	2.568

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:28:52	19030.640	317571.080	167333.690	44944.742	289444.240	784636.940	217165.050	326983.330	146283.540
2	20:29:14	17428.388	293403.060	156042.150	42556.172	268571.550	727980.910	200982.450	294748.430	134556.160
3	20:29:36	17907.117	296470.610	158684.860	43478.557	269348.430	750521.010	204898.380	296869.100	132645.980
x		100.765%	100.515%	102.612%	105.389%	106.151%	103.591%	104.767%	103.066%	102.258%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		4.538	4.350	3.675	2.759	4.291	3.781	4.065	5.888	5.358

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:28:52	23775.544	2018.241	1219092.700	97.159%	833989.550	92.850%	151435.710	26324.437	97.785%
2	20:29:14	21731.135	1823.337	1083222.200	108.122%	737809.210	100.587%	135762.090	24442.012	103.716%
3	20:29:36	21642.319	1807.611	1103707.400	106.649%	747674.990	100.576%	141342.880	25663.778	103.650%
x		102.612%	104.170%	105.160%	103.977%	101.617%	98.004%	99.781%	96.979%	101.717%
σ		n/a	n/a	n/a	5.950%	n/a	4.464%	n/a	n/a	3.406%
%RSD		5.392	6.231	6.452	5.723	6.844	4.555	5.561	3.749	3.348

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:28:52	1243284.000	901364.200	277785.840	100.328%	746394.010	958701.410	96.637%	989740.160
2	20:29:14	1077868.900	836887.350	260917.830	103.617%	741522.540	937070.510	99.142%	949148.410
3	20:29:36	1112290.800	821916.570	250945.640	107.708%	699285.240	889093.680	103.498%	910889.440
x		102.001%	95.039%	106.247%	103.884%	98.850%	102.491%	99.759%	949926.010
σ		n/a	n/a	n/a	3.697%	n/a	n/a	3.472%	39431.110
%RSD		7.626	4.947	5.154	3.559	3.553	3.838	3.480	4.151

500-166099-e-1-a, 7/8/2019 8:33:08 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:33:08	4.669	-0.226	10.199	211891.140	490874.150	42.769	37461.475	137076.190	96.254%
2	20:33:29	4.062	-0.226	16.323	191920.320	443450.550	33.181	33214.456	121504.620	105.492%
3	20:33:52	-2.257	-0.226	14.083	199256.470	455913.320	23.214	33624.301	125190.060	104.587%
x		2.158	-0.226	13.535	201022.640	463412.670	33.055	34766.744	127923.620	102.111%
σ		3.836	0.000	3.099	10101.878	24585.155	9.778	2342.686	8137.736	5.092%
%RSD		177.752	0.000	22.893	5.025	5.305	29.582	6.738	6.361	4.987

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:33:08	-0.544	258.631	25.724	692.190	39261.908	3954.282	3581.343	414.379	286.385
2	20:33:29	5.573	196.033	33.720	583.855	34344.981	3368.535	3247.414	359.031	287.076
3	20:33:52	14.145	229.135	40.995	549.692	35886.776	3361.674	3161.069	342.260	268.852
x		6.392	227.933	33.480	608.579	36497.888	3561.497	3329.942	371.890	280.771
σ		7.379	31.316	7.639	74.397	2514.784	340.179	221.959	37.740	10.328
%RSD		115.446	13.739	22.816	12.225	6.890	9.552	6.666	10.148	3.678

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:33:08	47.855	5.563	733757.930	98.106%	3617.376	93.492%	38.577	30.664	98.148%
2	20:33:29	54.366	7.451	702960.400	100.862%	3497.057	100.103%	30.674	16.452	101.464%
3	20:33:52	57.069	6.312	638562.000	109.848%	3448.963	100.975%	24.663	3.355	99.351%
x		53.096	6.442	691760.110	102.939%	3521.132	98.190%	31.305	16.824	99.655%
σ		4.736	0.951	48576.239	6.140%	86.750	4.092%	6.978	13.658	1.679%
%RSD		8.920	14.764	7.022	5.965	2.464	4.168	22.292	81.186	1.684

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:33:08	744.980	639.811	874.454	95.581%	1541.668	533.766	97.801%	32925.050
2	20:33:29	723.175	442.327	817.228	104.596%	2746.984	405.507	102.899%	28098.257
3	20:33:52	610.512	515.859	719.834	107.586%	1928.003	431.555	104.143%	29984.060
x		692.889	532.666	803.839	102.588%	2072.218	456.943	101.614%	30335.789
σ		72.169	99.809	78.175	6.249%	615.463	67.794	3.361%	2432.544
%RSD		10.416	18.738	9.725	6.092	29.701	14.836	3.307	8.019

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:37:22	4.380	-0.226	24.663	208720.960	483778.750	25.930	36690.392	135393.670	100.444%
2	20:37:44	-2.257	-0.226	15.684	199145.340	454216.140	14.741	33624.122	125419.150	104.539%
3	20:38:06	4.028	-0.226	20.158	196940.360	461174.330	5.535	33646.634	126751.410	106.063%
x		2.050	-0.226	20.168	201602.220	466389.740	15.402	34653.716	129188.080	103.682%
σ		3.735	0.000	4.490	6262.813	15455.982	10.214	1763.849	5415.325	2.906%
%RSD		182.155	0.000	22.260	3.107	3.314	66.313	5.090	4.192	2.803

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:37:22	-0.640	193.388	117.669	224.937	38655.456	3527.516	3461.281	780.742	394.738
2	20:37:44	-2.853	290.976	87.926	248.954	35474.331	3295.163	3532.547	734.793	344.960
3	20:38:06	-0.758	225.374	61.170	176.790	36526.490	3417.376	3252.760	641.297	308.325
x		-1.417	236.579	88.922	216.894	36885.426	3413.352	3415.529	718.944	349.341
σ		1.245	49.750	28.262	36.748	1620.653	116.229	145.396	71.061	43.373
%RSD		87.858	21.029	31.784	16.943	4.394	3.405	4.257	9.884	12.416

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:37:22	63.079	9.307	723510.210	100.757%	2799.165	93.193%	4.791	3.857	95.663%
2	20:37:44	48.465	4.872	681519.880	103.156%	2655.109	98.904%	11.348	3.698	98.579%
3	20:38:06	39.847	6.464	680680.640	104.250%	2882.491	102.295%	10.476	22.224	105.366%
x		50.464	6.881	695236.910	102.721%	2778.921	98.131%	8.872	9.926	99.869%
σ		11.744	2.247	24488.995	1.787%	115.035	4.600%	3.561	10.651	4.979%
%RSD		23.272	32.656	3.522	1.739	4.140	4.688	40.136	107.297	4.985

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:37:22	254.026	354.335	930.767	99.068%	367.704	238.910	90.286%	34885.827
2	20:37:44	422.941	284.564	780.272	104.426%	623.983	204.500	98.478%	29186.358
3	20:38:06	288.644	210.647	847.677	105.545%	453.599	223.422	105.223%	27933.918
x		321.870	283.182	852.905	103.013%	481.762	222.277	97.996%	30668.701
σ		89.225	71.854	75.384	3.462%	130.440	17.234	7.480%	3705.438
%RSD		27.721	25.374	8.838	3.361	27.076	7.753	7.633	12.082

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:41:36	-2.257	-0.226	11.307	219407.080	247263.080	1838.867	31440.666	67725.672	101.111%
2	20:41:59	16.308	0.393	13.641	200016.380	225161.440	1651.047	27567.702	60712.677	107.730%
3	20:42:20	-2.257	-0.226	18.328	196756.610	221328.310	3107.046	25975.235	59828.037	111.778%
x		3.931	-0.019	14.425	205393.360	231250.950	2198.987	28327.868	62755.462	106.873%
σ		10.718	0.357	3.576	12245.198	13998.737	791.990	2810.894	4326.995	5.385%
%RSD		272.667	1836.225	24.787	5.962	6.053	36.016	9.923	6.895	5.039

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:41:36	21.323	305.141	211.518	2813.669	19585.851	2000.394	1897.072	506.008	634.999
2	20:41:59	9.524	253.992	185.296	2311.699	17419.400	1845.599	1615.096	443.810	541.387
3	20:42:20	15.040	299.489	242.694	2469.092	17372.492	1831.898	1620.796	376.263	522.748
x		15.296	286.207	213.169	2531.487	18125.914	1892.630	1710.988	442.027	566.378
σ		5.904	28.042	28.734	256.736	1264.560	93.577	161.179	64.891	60.154
%RSD		38.598	9.798	13.480	10.142	6.977	4.944	9.420	14.680	10.621

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:41:36	69.443	8.439	420705.220	98.253%	2512.294	93.274%	25.224	31.256	97.317%
2	20:41:59	64.464	5.932	373597.140	106.565%	2117.704	99.126%	4.417	3.683	101.084%
3	20:42:20	59.027	5.383	379544.530	105.934%	2193.630	102.810%	-2.178	3.620	101.860%
x		64.311	6.585	391282.300	103.584%	2274.543	98.403%	9.154	12.853	100.087%
σ		5.210	1.629	25653.931	4.627%	209.369	4.808%	14.302	15.938	2.430%
%RSD		8.101	24.744	6.556	4.467	9.205	4.886	156.232	124.000	2.428

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:41:36	146.511	228.870	1096.419	93.282%	-58.013	765.937	90.773%	19631.085
2	20:41:59	132.587	154.448	1149.458	103.379%	258.435	675.986	97.919%	18008.961
3	20:42:20	195.967	256.659	1069.981	109.744%	76.397	560.079	101.004%	18012.228
x		158.355	213.326	1105.286	102.135%	92.273	667.334	96.565%	18550.758
σ		33.309	52.849	40.474	8.301%	158.820	103.201	5.248%	935.592
%RSD		21.034	24.774	3.662	8.128	172.119	15.465	5.435	5.043

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:45:51	4.469	-0.226	19.964	229235.910	253240.980	69.455	29031.603	69033.175	99.111%
2	20:46:14	-2.257	0.392	21.337	206429.850	231756.980	58.244	25281.433	62366.339	107.921%
3	20:46:36	-2.257	0.416	18.991	217655.160	243831.970	57.851	27111.186	67276.824	103.920%
x		-0.015	0.194	20.098	217773.640	242943.310	61.850	27141.408	66225.446	103.651%
σ		3.884	0.364	1.178	11403.490	10769.536	6.589	1875.267	3455.535	4.411%
%RSD		25577.686	187.463	5.864	5.236	4.433	10.653	6.909	5.218	4.256

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:45:51	-0.611	256.865	69.688	123.832	21256.775	2038.825	1788.135	1827.611	505.158
2	20:46:14	1.265	292.331	52.620	125.958	19897.280	1862.910	1671.902	1757.257	403.836
3	20:46:36	-2.853	210.449	96.748	103.584	20810.672	1958.734	1669.334	1804.886	508.336
x		-0.733	253.215	73.019	117.791	20654.909	1953.490	1709.791	1796.585	472.443
σ		2.062	41.063	22.251	12.350	693.003	88.074	67.861	35.904	59.437
%RSD		281.430	16.217	30.473	10.484	3.355	4.509	3.969	1.998	12.581

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:45:51	67.487	11.158	424337.150	97.222%	2498.412	92.252%	-2.178	-2.999	95.476%
2	20:46:14	62.814	6.587	393024.040	102.840%	2559.689	97.799%	4.620	-3.038	98.069%
3	20:46:36	60.084	8.768	392505.010	103.724%	2485.937	97.804%	-2.178	3.458	103.501%
x		63.462	8.838	403288.730	101.262%	2514.679	95.952%	0.088	-0.860	99.015%
σ		3.744	2.287	18230.310	3.526%	39.476	3.204%	3.925	3.739	4.096%
%RSD		5.899	25.873	4.520	3.482	1.570	3.339	4461.427	434.881	4.136

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:45:51	105.764	222.699	935.873	96.422%	-272.025	748.173	91.896%	22014.528
2	20:46:14	81.064	144.192	842.147	105.448%	-90.210	518.404	98.077%	20309.392
3	20:46:36	87.871	198.277	863.475	108.974%	-230.639	528.473	106.138%	19044.843
x		91.567	188.389	880.499	103.615%	-197.624	598.350	98.704%	20456.254
σ		12.758	40.177	49.127	6.474%	95.298	129.848	7.141%	1490.280
%RSD		13.933	21.326	5.579	6.248	48.222	21.701	7.235	7.285

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:50:08	-2.257	0.439	2.266	-1710.445	182.614	161.082	-503.954	104.259	100.349%
2	20:50:29	-2.257	0.378	0.452	-2140.569	49.275	204.727	-1903.806	37.573	110.492%
3	20:50:52	-2.257	-0.226	-0.308	-2307.720	3.119	148.773	-2447.659	53.119	111.445%
x		-2.257	0.197	0.803	-2052.911	78.336	171.527	-1618.473	64.984	107.429%
σ		0.000	0.367	1.322	308.135	93.209	29.403	1002.775	34.890	6.150%
%RSD		0.000	186.564	164.629	15.010	118.986	17.142	61.958	53.690	5.725

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:50:08	-2.853	138.388	200.021	916.190	176.363	20.210	40.317	709.541	1268.203
2	20:50:29	-0.842	102.063	146.618	762.354	102.779	10.924	24.953	636.642	1132.317
3	20:50:52	-2.853	137.441	102.782	793.581	152.869	20.671	62.290	685.150	1188.216
x		-2.182	125.964	149.807	824.042	144.004	17.268	42.520	677.111	1196.245
σ		1.161	20.704	48.698	81.316	37.584	5.499	18.765	37.109	68.298
%RSD		53.207	16.437	32.507	9.868	26.100	31.845	44.133	5.480	5.709

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:50:08	2.246	1.975	388.286	101.346%	12.712	97.227%	18.594	-2.291	96.282%
2	20:50:29	-3.994	0.427	225.855	103.030%	11.530	103.951%	-2.178	-2.289	103.108%
3	20:50:52	-3.972	0.946	157.059	108.333%	-10.416	103.743%	-2.178	-2.284	99.871%
x		-1.907	1.116	257.067	104.236%	4.608	101.640%	4.746	-2.288	99.754%
σ		3.596	0.788	118.731	3.646%	13.025	3.824%	11.993	0.003	3.415%
%RSD		188.614	70.632	46.187	3.498	282.646	3.762	252.690	0.146	3.423

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:50:08	47.783	53.181	60.374	102.177%	-598.581	714.313	95.749%	26.301
2	20:50:29	-18.808	31.588	57.079	107.094%	-259.644	737.350	106.737%	-46.193
3	20:50:52	39.168	91.697	80.926	108.316%	-360.949	794.931	103.571%	-58.303
x		22.714	58.822	66.126	105.862%	-406.391	748.865	102.019%	-26.065
σ		36.217	30.449	12.922	3.250%	173.978	41.524	5.656%	45.753
%RSD		159.444	51.764	19.542	3.070	42.810	5.545	5.544	175.531

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:54:23	24.778	26.134	266.771	339947.870	197211.960	19464.006	372514.710	21514.029	98.635%
2	20:54:46	23.321	34.305	249.138	309947.690	182088.700	18263.120	339130.980	19922.089	104.254%
3	20:55:07	52.280	28.255	236.034	294076.110	169601.540	16711.251	318565.050	18859.786	110.016%
x		33.460	89.281%	90.706%	97.506%	100.301%	98.801%	97.415%	87.095%	104.302%
σ		16.315	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.691%
%RSD		48.760	14.342	6.154	7.404	7.557	7.605	7.929	6.647	5.456

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:54:23	18584.948	310663.990	165889.230	44023.300	282713.970	764080.600	211426.690	317479.440	145243.260
2	20:54:46	17104.691	285778.190	149687.970	40122.698	259274.800	707797.140	194178.010	287293.140	131218.010
3	20:55:07	16554.726	274590.030	143688.850	37955.309	242750.240	675685.520	187717.230	295083.040	136499.690
x		96.833%	96.482%	97.760%	98.246%	100.682%	98.301%	99.768%	100.962%	102.128%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		6.030	6.360	7.502	7.555	7.677	6.251	6.197	5.225	5.146

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:54:23	22845.429	1965.675	1195142.700	97.328%	810039.390	92.986%	154164.510	26814.089	95.623%
2	20:54:46	20886.890	1781.776	1114886.600	101.388%	780958.600	99.656%	135258.370	23533.891	105.168%
3	20:55:07	21300.162	1806.817	1078635.200	104.924%	729471.500	98.689%	142097.720	25564.827	101.288%
x		99.378%	102.419%	104.624%	101.213%	101.660%	97.110%	100.475%	96.323%	100.693%
σ		n/a	n/a	n/a	3.801%	n/a	3.604%	n/a	n/a	4.800%
%RSD		4.762	5.387	5.278	3.755	5.275	3.712	6.655	6.543	4.767

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:54:23	1216171.300	892913.540	255789.960	102.960%	712924.710	930683.260	98.596%	978976.290
2	20:54:46	1057288.300	798199.900	256276.240	105.229%	656888.190	851157.810	106.302%	837722.860
3	20:55:07	1110048.200	835923.920	237842.230	110.406%	649140.760	857806.770	105.650%	881579.140
x		100.518%	93.809%	100.899%	106.199%	91.246%	97.146%	103.516%	899426.100
σ		n/a	n/a	n/a	3.817%	n/a	n/a	4.273%	72298.122
%RSD		7.175	5.661	4.203	3.594	5.172	5.014	4.128	8.038

500-166116-h-1-a, 7/8/2019 8:58:37 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	20:58:37	4.374	-0.226	28.783	1980076.000	702435.640	182881.150	365870.510	164808.960	100.539%
2	20:59:00	-2.257	1.068	22.392	1856686.100	666049.190	170025.790	340082.100	152428.040	103.063%
3	20:59:21	-2.257	0.965	19.774	1735515.600	629117.740	161097.320	315749.260	145510.820	112.016%
x		-0.047	0.602	23.650	1857425.900	665867.520	171334.760	340567.290	154249.280	105.206%
σ		3.828	0.719	4.634	122281.860	36659.286	10950.747	25064.143	9777.128	6.031%
%RSD		8138.265	119.371	19.595	6.583	5.505	6.391	7.360	6.339	5.733

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	20:58:37	8743.109	24189.909	20453.726	704427.040	189850.030	14338.796	12767.292	53398.208	30271.610
2	20:59:00	8010.971	23566.910	19219.008	669442.000	181601.840	13758.380	12231.283	48561.974	27888.659
3	20:59:21	7674.254	22099.617	17876.333	622528.690	167708.500	12816.446	11532.619	48137.638	26940.923
x		8142.778	23285.479	19183.022	665465.910	179720.120	13637.874	12177.064	50032.607	28367.064
σ		546.482	1073.188	1289.073	41093.695	11190.063	768.296	619.120	2922.408	1716.107
%RSD		6.711	4.609	6.720	6.175	6.226	5.634	5.084	5.841	6.050

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	20:58:37	1228.640	29.609	157579.460	170.488%	2157.975	88.195%	177.232	82.708	92.898%
2	20:59:00	1040.860	33.842	150973.290	175.572%	2032.985	95.608%	203.101	56.306	100.677%
3	20:59:21	1085.233	27.593	150401.940	181.543%	2078.045	98.661%	169.118	85.517	105.082%
x		1118.244	30.348	152984.900	175.868%	2089.668	94.155%	183.151	74.843	99.552%
σ		98.146	3.189	3989.253	5.533%	63.301	5.382%	17.748	16.115	6.170%
%RSD		8.777	10.509	2.608	3.146	3.029	5.717	9.690	21.532	6.197

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	20:58:37	2443.232	25067.717	149138.620	102.143%	1049.263	118203.500	92.863%	50989.919
2	20:59:00	2225.931	23734.633	136242.090	112.487%	1413.645	106233.150	104.235%	44962.414
3	20:59:21	2323.262	22795.931	134117.090	112.263%	1530.757	113767.910	99.846%	49103.307
x		2330.808	23866.093	139832.600	108.964%	1331.222	112734.850	98.981%	48351.880
σ		108.847	1141.584	8128.988	5.909%	251.107	6051.673	5.735%	3083.211
%RSD		4.670	4.783	5.813	5.423	18.863	5.368	5.794	6.377

ccv, 7/8/2019 9:02:52 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:02:52	92.551	175.849	62.432	813413.830	465829.010	237222.270	903452.050	60211.367	98.444%
2	21:03:13	121.618	166.029	66.586	766500.290	426344.720	216098.250	822634.320	54462.983	102.254%
3	21:03:35	84.494	155.308	63.233	731059.960	412174.680	208947.260	805746.580	52175.114	107.587%
x		99.555	100.095%	92.764%	95.483%	95.337%	96.157%	95.762%	96.403%	102.762%
σ		19.528	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.593%
%RSD		19.615	6.199	3.439	5.363	6.395	6.660	6.188	7.445	4.469

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:02:52	4621.339	151534.860	200323.720	1044904.500	134428.580	373300.550	102292.150	305648.810	69422.404
2	21:03:13	4229.460	143750.790	190013.500	990626.530	125581.560	352091.700	95305.135	289331.240	64454.462
3	21:03:35	4135.369	135976.790	177398.860	943666.940	121354.680	335525.480	91845.800	284369.860	64454.408
x		96.277%	95.539%	96.679%	95.885%	97.858%	97.123%	97.341%	98.662%	98.097%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		5.954	5.411	6.067	5.102	5.248	5.354	5.516	3.798	4.339

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:02:52	55508.420	4724.100	293920.980	94.593%	206838.880	93.188%	152531.620	133371.550	93.321%
2	21:03:13	52452.376	4396.768	269232.910	99.958%	189978.460	97.035%	145770.050	129904.340	95.875%
3	21:03:35	51394.275	4305.391	255858.310	106.460%	177137.540	98.697%	140257.010	128451.830	99.996%
x		97.406%	99.031%	101.147%	100.337%	100.580%	96.306%	102.113%	99.410%	96.397%
σ		n/a	n/a	n/a	5.943%	n/a	2.826%	n/a	n/a	3.368%
%RSD		4.022	4.919	7.073	5.923	7.786	2.934	4.206	1.936	3.494

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:02:52	296707.260	459254.830	131481.420	100.240%	1747951.200	2256462.600	100.109%	2406660.500
2	21:03:13	272457.270	429843.430	112808.240	109.359%	1660152.300	2164796.900	100.070%	2335812.900
3	21:03:35	278573.890	423013.190	113448.240	109.856%	1703617.400	2236032.000	101.188%	2432699.900
x		100.739%	97.417%	96.267%	106.485%	92.409%	98.003%	100.456%	2391724.400
σ		n/a	n/a	n/a	5.414%	n/a	n/a	0.635%	50140.641
%RSD		4.463	4.403	8.890	5.084	2.576	2.169	0.632	2.096

ccb, 7/8/2019 9:07:05 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:07:05	-2.257	0.465	0.671	-3114.876	-22.461	28.740	-255.949	-51.285	96.492%
2	21:07:28	-2.257	-0.226	0.693	-3309.591	-106.293	8.645	659.428	-41.303	95.302%
3	21:07:49	-2.257	-0.226	0.617	-3343.171	-108.930	-15.890	-470.647	-53.601	99.635%
x		-2.257	0.005	0.660	-3255.880	-79.228	7.165	-22.390	-48.730	97.143%
σ		0.000	0.399	0.039	123.261	49.179	22.351	600.150	6.535	2.239%
%RSD		0.000	8734.020	5.937	3.786	62.073	311.949	2680.488	13.410	2.304

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:07:05	-2.853	94.000	41.002	224.427	-40.132	81.505	13.564	93.129	21.413
2	21:07:28	-2.853	64.922	12.815	59.766	-53.269	33.746	11.894	19.142	11.638
3	21:07:49	-2.853	125.141	11.899	23.596	-50.814	9.312	14.124	33.196	3.220
x		-2.853	94.688	21.906	102.596	-48.072	41.521	13.194	48.489	12.090
σ		0.000	30.115	16.545	107.047	6.985	36.719	1.160	39.293	9.105
%RSD		0.000	31.805	75.527	104.338	14.530	88.435	8.792	81.035	75.310

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:07:05	11.006	0.662	30.184	93.709%	132.438	95.230%	61.220	46.987	94.641%
2	21:07:28	2.364	-0.014	-23.535	99.621%	187.961	100.420%	18.791	-2.342	95.380%
3	21:07:49	0.396	1.175	-19.750	101.999%	156.044	104.629%	17.613	4.267	101.057%
x		4.589	0.607	-4.367	98.443%	158.814	100.093%	32.541	16.304	97.026%
σ		5.644	0.596	29.982	4.268%	27.865	4.708%	24.843	26.777	3.510%
%RSD		122.994	98.180	686.566	4.336	17.546	4.704	76.344	164.235	3.618

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:07:05	183.673	331.876	29.269	98.363%	3926.080	742.753	96.479%	523.101
2	21:07:28	103.171	397.848	20.271	105.258%	5274.467	159.016	103.018%	174.739
3	21:07:49	120.915	392.040	-11.397	101.087%	4631.286	99.147	100.425%	187.726
x		135.920	373.921	12.714	101.569%	4610.611	333.639	99.974%	295.188
σ		42.296	36.528	21.360	3.473%	674.431	355.566	3.293%	197.485
%RSD		31.119	9.769	168.002	3.419	14.628	106.572	3.294	66.901

ccvl, 7/8/2019 9:11:20 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:11:20	-2.257	1.124	11.599	4044.417	3807.417	951.778	18479.507	343.033	98.778%
2	21:11:43	4.085	0.409	12.422	3079.321	3679.072	813.627	15763.258	348.630	105.111%
3	21:12:06	-2.257	0.394	17.534	3043.894	3481.913	855.889	15685.405	396.758	107.587%
x		-0.143	96.964%	100.252%	52.512%	100.212%	95.149%	94.422%	78.609%	103.825%
σ		3.662	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.543%
%RSD		2557.650	65.001	23.213	16.750	4.485	8.102	9.561	8.141	4.376

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:11:20	82.637	3235.390	4056.280	4223.486	1409.369	1512.467	923.527	2714.026	5520.525
2	21:11:43	85.943	2902.004	3600.355	4003.556	1166.165	1437.334	821.104	2303.265	5076.347
3	21:12:06	85.964	2938.244	3543.275	3944.273	1320.863	1445.217	826.086	2411.898	4973.126
x		94.358%	100.528%	95.361%	97.933%	99.981%	100.587%	108.068%	104.193%	96.264%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		2.257	6.046	7.531	3.626	9.478	2.818	6.739	8.595	5.604

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:11:20	232.933	41.457	4343.796	100.463%	3053.159	96.035%	1447.016	250.937	97.073%
2	21:11:43	210.286	40.403	4440.213	102.020%	3005.650	101.548%	1235.514	249.588	102.887%
3	21:12:06	220.179	47.214	4396.229	103.429%	3131.512	102.664%	1260.503	197.555	102.963%
x		101.375%	95.203%	101.734%	101.971%	100.658%	100.082%	91.809%	88.577%	100.974%
σ		n/a	n/a	n/a	1.484%	n/a	3.549%	n/a	n/a	3.379%
%RSD		5.134	8.521	1.099	1.455	2.075	3.546	8.793	13.081	3.346

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:11:20	5521.366	5533.470	1358.503	95.878%	14639.213	4865.971	96.663%	92363.798
2	21:11:43	5243.023	4439.368	1384.044	104.635%	14572.329	4317.255	105.815%	82842.058
3	21:12:06	5406.015	5168.029	1192.525	109.096%	13728.392	3977.843	105.302%	84921.283
x		96.079%	93.677%	105.892%	103.203%	97.033%	96.873%	102.593%	86709.046
σ		n/a	n/a	n/a	6.724%	n/a	n/a	5.142%	5006.292
%RSD		2.595	11.037	7.928	6.516	3.547	10.215	5.012	5.774

500-166191-i-1-a, 7/8/2019 9:15:36 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:15:36	4.645	-0.226	30.867	T 4085245.900	1921465.200	238.041	61910.177	479611.940	96.587%
2	21:15:58	4.443	-0.226	29.935	T 3957677.900	1829759.600	196.341	56764.214	465072.890	99.492%
3	21:16:20	3.893	-0.226	23.545	T 3658025.800	1693454.300	219.760	51015.206	426720.350	108.397%
x		4.327	-0.226	28.116	T 3900316.500	1814893.000	218.047	56563.199	457135.060	101.492%
σ		0.389	0.000	3.986	T 219310.260	114730.120	20.902	5450.267	27324.658	6.154%
%RSD		8.996	0.000	14.176	T 5.623	6.322	9.586	9.636	5.977	6.063

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:15:36	6.350	905.940	415.693	1048892.100	112686.320	2607.989	222.883	1402.847	2107.314
2	21:15:58	3.848	822.521	342.957	982252.620	104772.330	2464.380	221.927	1318.162	1889.583
3	21:16:20	13.548	897.085	297.025	929142.530	99482.819	2387.815	175.856	1265.779	1820.426
x		7.915	875.182	351.891	986762.430	105647.160	2486.728	206.888	1328.929	1939.108
σ		5.036	45.820	59.837	60002.046	6645.080	111.775	26.879	69.165	149.719
%RSD		63.621	5.236	17.004	6.081	6.290	4.495	12.992	5.205	7.721

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:15:36	2507.996	2.642	563742.420	101.809%	2042.571	89.247%	12.747	-2.940	89.337%
2	21:15:58	2436.058	0.936	533248.110	105.765%	2008.071	95.404%	39.996	-2.915	94.845%
3	21:16:20	2423.483	0.654	536820.110	104.818%	2096.732	95.485%	-2.178	3.775	99.829%
x		2455.846	1.411	544603.550	104.131%	2049.125	93.379%	16.855	-0.693	94.670%
σ		45.599	1.076	16670.698	2.066%	44.692	3.578%	21.385	3.870	5.248%
%RSD		1.857	76.247	3.061	1.984	2.181	3.832	126.877	558.122	5.543

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:15:36	45.104	48.556	120441.940	98.256%	130.787	1180.675	91.574%	1457.753
2	21:15:58	204.139	211.285	107201.300	105.346%	668.059	1073.544	98.268%	1387.540
3	21:16:20	120.103	138.560	109368.300	106.203%	568.189	990.568	99.024%	1147.464
x		123.116	132.800	112337.180	103.268%	455.678	1081.596	96.289%	1330.919
σ		79.560	81.518	7102.066	4.362%	285.761	95.309	4.100%	162.710
%RSD		64.623	61.384	6.322	4.224	62.711	8.812	4.258	12.225

500-166191-j-1-a, 7/8/2019 9:19:49 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:19:49	4.492	0.449	25.941	T 4068819.600	1879128.800	157.574	60645.818	478662.150	98.778%
2	21:20:10	3.834	-0.226	14.934	T 3615379.300	1683732.900	107.601	49181.162	415729.890	109.445%
3	21:20:33	4.659	-0.226	31.794	T 4111499.900	1900268.700	141.771	59891.541	477605.710	96.397%
x		4.328	-0.001	24.223	T 3931899.600	1821043.500	135.648	56572.840	457332.580	101.540%
σ		0.436	0.390	8.561	T 274944.030	119383.260	25.543	6412.481	36032.860	6.949%
%RSD		10.072	51155.504	35.341	T 6.993	6.556	18.830	11.335	7.879	6.843

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:19:49	3.896	751.105	343.221	973361.780	109886.370	2367.544	228.316	819.619	1387.668
2	21:20:10	11.360	714.054	213.994	849511.550	96166.909	2293.725	179.887	666.953	1299.817
3	21:20:33	8.674	829.720	311.088	988274.830	111003.630	2571.665	223.401	761.181	1385.987
x		7.977	764.960	289.434	937049.390	105685.640	2410.978	210.535	749.251	1357.824
σ		3.780	59.065	67.280	76175.816	8262.365	143.971	26.655	77.029	50.243
%RSD		47.393	7.721	23.245	8.129	7.818	5.971	12.661	10.281	3.700

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:19:49	2165.777	2.626	599279.240	95.855%	2479.251	89.554%	-2.178	4.350	90.416%
2	21:20:10	2030.886	4.300	549305.680	103.640%	2468.701	95.263%	4.890	-3.047	94.316%
3	21:20:33	2032.914	6.524	552232.580	101.956%	2399.257	95.429%	17.302	3.540	102.670%
x		2076.526	4.483	566939.170	100.484%	2449.070	93.415%	6.671	1.615	95.801%
σ		77.300	1.956	28045.532	4.096%	43.460	3.345%	9.861	4.057	6.260%
%RSD		3.723	43.621	4.947	4.076	1.775	3.581	147.814	251.305	6.535

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:19:49	-0.023	-27.850	114085.160	100.688%	-165.805	890.266	88.788%	1655.928
2	21:20:10	78.603	86.218	100609.900	108.209%	70.815	838.147	93.040%	1519.664
3	21:20:33	50.366	116.887	107287.760	106.412%	182.638	735.660	102.129%	1247.510
x		42.982	58.419	107327.600	105.103%	29.216	821.358	94.652%	1474.367
σ		39.829	76.268	6737.717	3.928%	177.907	78.658	6.815%	207.943
%RSD		92.665	130.554	6.278	3.737	608.938	9.577	7.200	14.104

500-166191-i-2-a, 7/8/2019 9:24:03 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:24:03	-2.257	-0.226	6.995	3675.020	1544.757	205.432	-141.399	458.476	93.159%
2	21:24:26	-2.257	-0.226	3.015	1681.002	1023.807	194.012	-1952.080	312.531	102.349%
3	21:24:48	-2.257	-0.226	4.274	1076.435	835.653	111.662	-2843.697	262.240	109.445%
x		-2.257	-0.226	4.761	2144.152	1134.739	170.369	-1645.725	344.416	101.651%
σ		0.000	0.000	2.034	1359.795	367.337	51.161	1376.951	101.929	8.165%
%RSD		0.000	0.000	42.723	63.419	32.372	30.030	83.668	29.595	8.033

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:24:03	1.918	61.279	80.015	1057.661	161.855	204.238	70.324	577.891	1269.630
2	21:24:26	-2.853	-9.193	27.088	767.497	103.739	184.533	30.074	576.908	1241.685
3	21:24:48	-2.853	-0.713	47.488	603.392	119.039	155.338	31.661	636.239	1168.494
x		-1.262	17.125	51.530	809.517	128.211	181.370	44.020	597.013	1226.603
σ		2.754	38.473	26.694	230.031	30.124	24.603	22.794	33.974	52.228
%RSD		218.174	224.668	51.802	28.416	23.496	13.565	51.782	5.691	4.258

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:24:03	-0.631	1.122	686.904	95.245%	101.342	98.139%	4.641	24.962	97.769%
2	21:24:26	3.126	1.466	496.126	105.765%	9.689	103.577%	11.098	10.986	100.432%
3	21:24:48	-2.273	0.891	413.434	106.418%	28.058	105.621%	4.159	-2.294	105.195%
x		0.074	1.160	532.154	102.476%	46.363	102.446%	6.633	11.218	101.132%
σ		2.767	0.289	140.250	6.271%	48.491	3.867%	3.875	13.630	3.762%
%RSD		3735.122	24.938	26.355	6.119	104.591	3.775	58.415	121.496	3.720

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:24:03	53.301	83.800	301.329	102.328%	-394.319	1179.845	98.965%	9.660
2	21:24:26	13.629	143.313	186.715	111.050%	-28.829	1049.152	103.867%	-13.411
3	21:24:48	30.571	204.936	139.954	105.716%	-163.727	1087.213	108.989%	-10.008
x		32.500	144.016	209.333	106.364%	-195.625	1105.403	103.940%	-4.586
σ		19.906	60.571	83.031	4.397%	184.821	67.219	5.012%	12.454
%RSD		61.249	42.058	39.665	4.134	94.477	6.081	4.822	271.560

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:28:18	-2.257	1.149	2.382	487.565	240.133	179.644	-1225.096	140.175	96.968%
2	21:28:39	-2.257	-0.226	1.347	-228.807	191.986	241.496	-2171.005	65.932	104.016%
3	21:29:00	-2.257	-0.226	4.392	-51.670	211.444	193.969	-2307.164	76.779	107.063%
x		-2.257	0.233	2.707	69.029	214.521	205.036	-1901.088	94.295	102.682%
σ		0.000	0.794	1.548	373.127	24.221	32.377	589.372	40.102	5.178%
%RSD		0.000	341.293	57.197	540.536	11.291	15.791	31.002	42.528	5.043

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:28:18	1.731	12.386	163.007	386.436	78.641	152.074	104.973	2161.644	1115.553
2	21:28:39	-0.716	34.887	113.462	382.760	47.303	130.057	41.780	2003.948	993.857
3	21:29:00	1.298	11.835	115.767	342.339	68.040	117.619	33.242	1987.378	1021.461
x		0.771	19.703	130.745	370.512	64.661	133.250	59.998	2050.990	1043.624
σ		1.306	13.153	27.963	24.468	15.940	17.448	39.183	96.187	63.803
%RSD		169.408	66.756	21.387	6.604	24.651	13.094	65.307	4.690	6.114

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:28:18	-3.721	-0.824	126.476	101.851%	51.626	101.418%	17.793	-2.301	100.146%
2	21:28:39	0.440	1.951	158.468	108.670%	75.319	104.329%	10.788	-2.309	102.835%
3	21:29:00	-5.388	-0.871	147.222	109.238%	105.132	105.176%	4.456	-2.319	100.487%
x		-2.890	0.085	144.055	106.586%	77.359	103.641%	11.012	-2.310	101.156%
σ		3.002	1.616	16.230	4.110%	26.811	1.971%	6.671	0.009	1.464%
%RSD		103.865	1892.388	11.266	3.856	34.658	1.902	60.579	0.401	1.447

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:28:18	-3.900	137.566	266.808	103.043%	-655.504	974.435	103.018%	-51.763
2	21:28:39	-6.284	220.149	210.437	105.185%	-79.607	1148.153	101.491%	-38.333
3	21:29:00	-25.969	262.560	217.270	107.873%	-258.462	1049.505	105.585%	-45.921
x		-12.051	206.758	231.505	105.367%	-331.191	1057.364	103.364%	-45.339
σ		12.112	63.564	30.764	2.420%	294.756	87.125	2.069%	6.734
%RSD		100.509	30.743	13.289	2.297	88.999	8.240	2.001	14.852

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:32:31	4.327	-0.226	137.212	2329480.300	1371150.500	301.922	156048.900	385897.370	101.254%
2	21:32:54	10.746	-0.226	128.976	T 2302910.100	1310251.200	317.107	149164.520	362983.770	102.539%
3	21:33:16	-2.257	-0.226	134.408	2272065.700	1318125.900	266.982	153729.340	365063.350	103.349%
x		4.272	-0.226	133.532	T 2301485.400	1333175.900	295.337	152980.920	371314.830	102.381%
σ		6.502	0.000	4.187	T 28733.818	33121.840	25.703	3502.679	12671.583	1.057%
%RSD		152.203	0.000	3.136	T 1.248	2.484	8.703	2.290	3.413	1.032

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:32:31	8.121	411.987	276.619	1369541.400	124837.110	1907.548	772.673	1277.809	1445.628
2	21:32:54	7.983	335.065	338.544	1322147.600	121338.580	1978.816	823.178	1235.976	1307.984
3	21:33:16	12.199	425.555	361.372	1336272.100	123559.370	1978.251	827.173	1157.302	1382.780
x		9.434	390.869	325.512	1342653.700	123245.020	1954.872	807.675	1223.696	1378.797
σ		2.395	48.802	43.853	24332.848	1770.321	40.985	30.378	61.185	68.909
%RSD		25.388	12.485	13.472	1.812	1.436	2.097	3.761	5.000	4.998

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:32:31	5791.487	6.162	692887.290	97.601%	7402.273	89.950%	5.076	-4.488	91.901%
2	21:32:54	5299.687	2.268	621959.630	107.007%	6185.228	96.830%	11.102	-4.133	100.403%
3	21:33:16	5242.813	3.513	656084.610	104.355%	6861.767	99.083%	4.653	-4.342	97.590%
x		5444.662	3.981	656977.170	102.988%	6816.423	95.288%	6.944	-4.321	96.631%
σ		301.702	1.989	35472.255	4.850%	609.788	4.758%	3.607	0.179	4.332%
%RSD		5.541	49.961	5.399	4.709	8.946	4.993	51.948	4.133	4.483

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:32:31	110.759	259.945	86024.040	97.876%	-659.016	2547.706	90.372%	8246.077
2	21:32:54	68.999	276.207	76113.907	107.975%	-278.315	2315.571	100.741%	7793.992
3	21:33:16	125.956	227.739	75158.766	111.576%	-503.159	2394.504	103.709%	7292.272
x		101.904	254.630	79098.904	105.809%	-480.163	2419.260	98.274%	7777.447
σ		29.492	24.668	6016.328	7.102%	191.389	118.031	7.002%	477.117
%RSD		28.941	9.688	7.606	6.712	39.859	4.879	7.125	6.135

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:36:46	-2.257	-0.226	155.941	2276903.400	1321599.200	187.284	151874.940	373257.680	102.444%
2	21:37:08	3.896	1.005	122.004	2132677.200	1234129.400	125.528	141747.010	344701.550	108.349%
3	21:37:29	3.808	-0.226	123.277	T 2159252.200	1228565.800	161.536	139208.880	338091.000	109.921%
x		1.815	0.184	133.741	T 2189610.900	1261431.500	158.116	144276.940	352016.750	106.905%
σ		3.527	0.710	19.237	T 76756.347	52181.024	31.020	6701.319	18689.780	3.942%
%RSD		194.309	385.164	14.384	T 3.505	4.137	19.618	4.645	5.309	3.687

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:36:46	16.670	431.006	306.612	1333439.900	122709.680	1998.027	889.062	1710.820	1175.154
2	21:37:08	3.300	392.972	280.885	1229563.000	112566.210	1941.642	768.720	1502.653	1166.295
3	21:37:29	3.212	380.571	328.962	1245669.000	111929.710	1954.106	773.340	1619.291	1052.392
x		7.727	401.516	305.486	1269557.300	115735.200	1964.591	810.374	1610.921	1131.280
σ		7.745	26.281	24.058	55906.992	6048.457	29.619	68.185	104.336	68.463
%RSD		100.222	6.545	7.875	4.404	5.226	1.508	8.414	6.477	6.052

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:36:46	5623.564	5.424	667888.280	100.210%	6562.199	91.682%	19.175	-4.253	93.663%
2	21:37:08	5141.133	4.698	606470.930	107.470%	6034.167	97.518%	4.666	2.692	97.415%
3	21:37:29	5099.838	3.475	611378.500	108.796%	6180.658	99.753%	11.268	9.260	99.163%
x		5288.178	4.532	628579.240	105.492%	6259.008	96.318%	11.703	2.566	96.747%
σ		291.185	0.985	34130.951	4.622%	272.595	4.167%	7.265	6.757	2.810%
%RSD		5.506	21.727	5.430	4.381	4.355	4.326	62.075	263.314	2.905

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:36:46	19.718	88.043	80875.047	101.778%	-701.309	2238.114	92.363%	7589.988
2	21:37:08	26.864	262.681	77162.772	108.984%	-488.920	2113.689	97.570%	7502.501
3	21:37:29	-2.473	140.667	73470.508	112.629%	-438.970	1982.659	103.728%	7187.952
x		14.703	163.797	77169.442	107.797%	-543.066	2111.488	97.887%	7426.814
σ		15.298	89.587	3702.274	5.522%	139.299	127.741	5.689%	211.435
%RSD		104.047	54.694	4.798	5.123	25.651	6.050	5.812	2.847

500-166193-i-1-c ms, 7/8/2019 9:40:59 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:40:59	18.419	33.545	402.136	T 2977160.100	1682892.600	20188.832	545294.590	417907.900	96.730%
2	21:41:22	43.317	34.932	403.426	T 2737064.100	1544017.700	18819.140	500247.070	384496.680	102.397%
3	21:41:44	35.422	21.754	382.027	T 2650738.000	1497534.900	17433.313	483526.920	369198.290	106.159%
x		32.386	30.077	395.863	T 2788320.800	1574815.100	18813.762	509689.530	390534.290	101.762%
σ		12.724	7.241	12.000	T 169139.840	96440.266	1377.767	31948.107	24909.757	4.746%
%RSD		39.288	24.076	3.031	T 6.066	6.124	7.323	6.268	6.378	4.664

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:40:59	19438.980	324232.490	169456.580	1617423.900	415899.840	774188.500	212448.620	324921.840	146123.640
2	21:41:22	17973.832	292128.550	155409.400	1499195.000	388617.180	720016.890	198581.490	296619.880	134356.710
3	21:41:44	17278.042	291875.400	152447.390	1428042.800	369151.410	693337.680	190260.740	292772.770	131800.820
x		18230.285	302745.480	159104.460	1514887.200	391222.810	729181.020	200430.280	304771.500	137427.060
σ		1103.059	18608.729	9086.705	95660.766	23482.886	41197.085	11208.882	17556.405	7639.113
%RSD		6.051	6.147	5.711	6.315	6.002	5.650	5.592	5.761	5.559

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:40:59	30995.999	2061.682	1861890.300	100.273%	824679.760	90.844%	157921.430	28609.304	92.413%
2	21:41:22	27855.397	1816.978	1794497.400	103.303%	801384.780	97.830%	144452.880	25891.287	98.446%
3	21:41:44	28156.001	1855.164	1723385.700	107.028%	759028.030	98.863%	145647.220	26273.874	97.843%
x		29002.466	1911.275	1793257.800	103.535%	795030.850	95.846%	149340.510	26924.822	96.234%
σ		1732.981	131.648	69260.612	3.383%	33283.883	4.362%	7455.246	1471.293	3.323%
%RSD		5.975	6.888	3.862	3.268	4.186	4.551	4.992	5.464	3.453

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:40:59	1274783.600	956669.300	348706.970	102.284%	748355.140	978525.420	95.617%	1078137.700
2	21:41:22	1135829.000	867645.540	323301.460	105.789%	657214.950	864778.100	105.749%	929290.590
3	21:41:44	1136738.800	893335.570	315015.970	111.030%	707067.980	924943.560	101.465%	993334.860
x		1182450.400	905883.470	329008.130	106.368%	704212.690	922749.030	100.944%	1000254.400
σ		79964.141	45819.153	17555.498	4.402%	45637.135	56905.403	5.086%	74664.433
%RSD		6.763	5.058	5.336	4.138	6.481	6.167	5.038	7.465

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:45:15	45.704	36.773	401.482	T 2840148.400	1620234.600	19445.212	552996.720	433627.080	97.301%
2	21:45:36	22.806	27.344	399.185	T 2519382.200	1420326.700	17632.794	483978.690	388069.330	106.397%
3	21:45:59	29.016	27.295	357.813	T 2508586.900	1433433.000	17342.148	487594.340	387865.640	106.587%
x		32.509	30.471	386.160	T 2622705.800	1491331.400	18140.051	508189.920	403187.350	103.428%
σ		11.842	5.458	24.576	T 188388.130	111825.610	1139.606	38845.918	26361.778	5.307%
%RSD		36.426	17.912	6.364	T 7.183	7.498	6.282	7.644	6.538	5.131

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:45:15	19148.592	319744.550	165753.360	1397859.600	419026.590	764105.170	210516.460	308197.880	139222.680
2	21:45:36	17379.589	287541.110	150198.660	1252149.000	377635.130	684155.610	190616.410	290620.490	129725.100
3	21:45:59	17354.790	286636.710	151056.400	1260387.800	377012.160	683065.930	187298.250	286774.900	130867.620
x		17960.990	297974.130	155669.470	1303465.500	391224.630	710442.240	196143.700	295197.760	133271.800
σ		1028.568	18859.160	8743.427	81851.457	24079.219	46476.654	12557.253	11421.453	5185.182
%RSD		5.727	6.329	5.617	6.280	6.155	6.542	6.402	3.869	3.891

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:45:15	28311.242	1944.330	1794624.100	105.113%	792128.420	93.211%	156772.390	27696.018	94.175%
2	21:45:36	26215.768	1803.984	1697704.000	107.281%	760225.630	98.681%	137696.330	25344.843	100.371%
3	21:45:59	26233.651	1786.129	1631922.300	111.680%	727287.920	99.070%	152959.550	27162.557	95.061%
x		26920.220	1844.814	1708083.400	108.024%	759880.660	96.987%	149142.760	26734.473	96.536%
σ		1204.693	86.644	81846.014	3.346%	32421.623	3.277%	10094.548	1232.659	3.351%
%RSD		4.475	4.697	4.792	3.097	4.267	3.378	6.768	4.611	3.471

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:45:15	1221083.200	939786.990	351498.010	103.223%	714450.530	929221.500	99.498%	1033589.700
2	21:45:36	1098491.600	865203.700	323779.620	109.685%	680678.880	883544.900	103.334%	925940.720
3	21:45:59	1133072.200	917962.620	307348.570	113.428%	647528.820	876426.220	105.249%	942861.490
x		1150882.300	907651.100	327542.070	108.779%	680886.080	896397.540	102.693%	967463.980
σ		63206.650	38345.957	22313.905	5.162%	33461.334	28648.354	2.929%	57888.161
%RSD		5.492	4.225	6.813	4.746	4.914	3.196	2.852	5.983

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:49:30	-2.257	-0.226	32.657	476646.170	285919.630	36.011	32872.043	77565.998	98.873%
2	21:49:53	-2.257	0.419	35.212	434421.040	258127.820	15.375	29293.015	71305.703	103.397%
3	21:50:16	-2.257	-0.226	33.453	439902.200	259552.490	45.186	29061.856	70937.072	106.254%
x		-2.257	-0.011	33.774	450323.140	267866.650	32.191	30408.971	73269.591	102.841%
σ		0.000	0.372	1.307	22960.562	15650.559	15.268	2136.211	3725.360	3.722%
%RSD		0.000	3443.036	3.871	5.099	5.843	47.431	7.025	5.084	3.619

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:49:30	8.385	138.819	144.790	283209.720	26618.721	625.354	255.029	387.292	397.200
2	21:49:53	-0.704	139.409	70.897	260612.920	24413.062	620.971	201.311	334.584	349.210
3	21:50:16	1.330	182.796	58.403	261569.680	24203.911	574.581	194.838	313.588	291.028
x		3.004	153.675	91.363	268464.110	25078.565	606.969	217.059	345.155	345.813
σ		4.770	25.222	46.688	12779.035	1337.908	28.134	33.042	37.972	53.167
%RSD		158.791	16.412	51.102	4.760	5.335	4.635	15.223	11.002	15.375

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:49:30	1189.070	3.240	142053.300	94.677%	2158.680	94.195%	54.296	-2.892	94.439%
2	21:49:53	1072.189	3.755	126123.430	105.113%	2414.236	99.538%	42.738	16.280	103.897%
3	21:50:16	964.845	1.536	124909.790	107.870%	2023.366	101.597%	23.966	10.186	101.998%
x		1075.368	2.844	131028.840	102.553%	2198.760	98.443%	40.333	7.858	100.112%
σ		112.146	1.162	9566.728	6.959%	198.494	3.821%	15.307	9.796	5.003%
%RSD		10.429	40.843	7.301	6.786	9.028	3.881	37.951	124.658	4.998

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:49:30	625.504	375.317	17202.155	104.284%	1463.466	700.961	99.037%	1766.701
2	21:49:53	613.920	370.111	16308.310	103.038%	2673.368	653.696	103.518%	1629.177
3	21:50:16	645.605	275.682	14611.034	113.628%	2150.338	627.659	103.557%	1737.991
x		628.343	340.370	16040.500	106.984%	2095.724	660.772	102.037%	1711.290
σ		16.032	56.082	1316.157	5.788%	606.798	37.159	2.598%	72.546
%RSD		2.551	16.477	8.205	5.410	28.954	5.624	2.547	4.239

ccv, 7/8/2019 9:53:46 PM QC Status: PASS (Initial: WARNING)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:53:46	160.588	169.405	76.125	830735.740	467671.530	239380.750	921535.030	59814.348	98.254%
2	21:54:07	165.384	159.678	69.869	767014.330	438258.490	218023.520	849491.290	55282.843	103.397%
3	21:54:29	74.655	163.213	73.452	763930.520	427577.450	215786.310	852306.020	56143.556	104.016%
x		133.542	99.110%	105.886%	97.578%	97.468%	97.743%	99.223%	98.940%	101.889%
σ		51.054	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.163%
%RSD		38.231	3.000	4.292	4.790	4.671	5.804	4.667	4.216	3.104

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:53:46	4673.297	156034.860	204751.070	1064011.700	137347.850	378436.790	103327.550	310749.120	69436.845
2	21:54:07	4242.886	144704.650	191660.400	994293.160	126681.490	355214.260	97088.781	283898.910	63613.353
3	21:54:29	4305.253	144678.450	189472.060	994686.680	128326.980	358153.540	96115.416	287578.530	63890.167
x		98.022%	98.675%	99.770%	98.260%	100.678%	99.951%	99.725%	98.985%	97.409%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		5.278	4.411	4.231	3.944	4.391	3.474	3.959	4.950	5.004

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:53:46	57117.917	4785.685	289094.290	99.410%	207938.240	93.967%	148416.150	131521.410	98.574%
2	21:54:07	51766.240	4279.488	260634.210	107.007%	184236.130	100.715%	147183.410	131486.080	98.129%
3	21:54:29	51691.352	4384.325	266506.110	104.987%	188697.580	101.318%	140182.120	122673.030	103.310%
x		98.152%	99.202%	100.804%	103.801%	101.793%	98.667%	101.467%	97.875%	100.004%
σ		n/a	n/a	n/a	3.935%	n/a	4.081%	n/a	n/a	2.872%
%RSD		5.813	5.960	5.523	3.790	6.505	4.136	3.057	3.966	2.871

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:53:46	292702.290	436806.970	135123.950	101.223%	1758304.700	2305792.900	101.629%	2301043.200
2	21:54:07	267658.340	430709.620	117040.560	108.511%	1747412.000	2252826.700	99.715%	2425607.100
3	21:54:29	271011.410	419139.460	120567.930	108.292%	1743688.100	2238803.300	102.281%	2255689.900
x		98.794%	95.527%	100.302%	106.009%	94.898%	100.066%	101.208%	2327446.700
σ		n/a	n/a	n/a	4.146%	n/a	n/a	1.334%	87981.987
%RSD		4.906	2.092	7.715	3.911	0.434	1.559	1.318	3.780

ccb, 7/8/2019 9:58:02 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	21:58:02	-2.257	0.496	0.749	-2863.292	51.292	58.412	1393.166	-34.138	92.350%
2	21:58:23	-2.257	-0.226	-1.056	-3192.037	-20.092	33.034	-275.872	-40.810	99.825%
3	21:58:46	-2.257	0.430	-0.237	-3256.648	-28.171	11.957	-357.644	-25.689	101.730%
x		-2.257	0.233	-0.181	-3103.992	1.010	34.468	253.217	-33.546	97.968%
σ		0.000	0.399	0.904	210.941	43.733	23.261	988.071	7.578	4.958%
%RSD		0.000	170.978	498.112	6.796	4331.501	67.485	390.208	22.589	5.061

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	21:58:02	1.960	133.280	88.298	305.225	15.442	100.282	23.159	132.132	13.560
2	21:58:23	-2.853	77.786	42.440	153.740	-28.729	58.240	29.605	50.137	4.083
3	21:58:46	-2.853	109.880	-3.592	147.009	-19.136	61.234	-0.085	53.898	11.462
x		-1.249	106.982	42.382	201.991	-10.808	73.252	17.559	78.722	9.702
σ		2.779	27.860	45.945	89.466	23.233	23.456	15.617	46.293	4.978
%RSD		222.543	26.042	108.406	44.292	214.966	32.022	88.938	58.805	51.306

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	21:58:02	15.417	3.097	65.143	100.105%	286.663	96.766%	24.759	44.773	98.995%
2	21:58:23	3.958	1.502	39.764	101.199%	236.803	102.543%	52.420	38.593	97.684%
3	21:58:46	1.588	1.665	2.545	105.365%	218.753	105.151%	23.035	29.169	105.766%
x		6.988	2.088	35.817	102.223%	247.406	101.487%	33.405	37.512	100.815%
σ		7.396	0.878	31.485	2.776%	35.175	4.291%	16.490	7.858	4.337%
%RSD		105.842	42.028	87.905	2.715	14.217	4.228	49.365	20.948	4.302

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	21:58:02	144.889	228.751	29.763	97.181%	3907.136	547.044	100.978%	622.071
2	21:58:23	170.701	316.076	37.950	108.078%	5057.477	378.849	107.296%	388.621
3	21:58:46	151.573	297.440	1.381	104.348%	4581.866	330.825	108.442%	365.320
x		155.721	280.756	23.031	103.202%	4515.493	418.906	105.572%	458.671
σ		13.397	45.991	19.192	5.538%	578.036	113.539	4.020%	141.988
%RSD		8.603	16.381	83.328	5.366	12.801	27.104	3.808	30.956

500-166193-j-1-a, 7/8/2019 10:02:17 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:02:17	-2.257	-0.226	108.303	T 2585199.100	1352203.700	231.562	154293.810	370790.440	102.111%
2	22:02:39	3.928	-0.226	108.738	T 2374935.900	1240531.900	200.648	142428.140	337425.560	107.778%
3	22:03:02	4.184	-0.226	92.350	T 2491311.100	1332322.800	225.756	148391.070	348754.930	103.492%
x		1.952	-0.226	103.130	T 2483815.300	1308352.800	219.322	148371.010	352323.640	104.460%
σ		3.647	0.000	9.339	T 105331.780	59569.880	16.430	5932.860	16966.309	2.955%
%RSD		186.879	0.000	9.055	T 4.241	4.553	7.491	3.999	4.816	2.829

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:02:17	1.500	396.039	310.821	1634789.900	162503.530	2276.701	733.209	651.191	1164.560
2	22:02:39	5.395	330.088	259.306	1549176.800	150376.090	2172.691	704.957	596.437	940.789
3	22:03:02	1.442	383.903	319.636	1617269.100	160858.090	2014.159	703.573	619.916	1006.393
x		2.779	370.010	296.588	1600412.000	157912.570	2154.517	713.913	622.515	1037.247
σ		2.266	35.102	32.586	45227.442	6578.429	132.211	16.725	27.470	115.032
%RSD		81.535	9.487	10.987	2.826	4.166	6.136	2.343	4.413	11.090

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:02:17	4703.670	3.168	624807.250	101.346%	5046.417	90.458%	19.715	3.442	91.354%
2	22:02:39	4260.326	3.318	606325.410	103.514%	5216.605	97.733%	24.949	2.957	98.301%
3	22:03:02	4241.695	5.703	615099.780	101.599%	5434.231	98.615%	10.863	9.243	102.244%
x		4401.897	4.063	615410.810	102.153%	5232.418	95.602%	18.509	5.214	97.300%
σ		261.509	1.422	9244.844	1.185%	194.390	4.476%	7.120	3.498	5.514%
%RSD		5.941	35.008	1.502	1.160	3.715	4.682	38.470	67.079	5.666

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:02:17	131.744	189.569	84460.413	102.707%	1030.134	678.885	94.099%	8285.385
2	22:02:39	60.715	82.397	77778.021	107.854%	1663.465	457.092	102.945%	7521.876
3	22:03:02	133.738	92.021	78721.077	107.912%	1374.987	725.965	102.524%	7162.589
x		108.732	121.329	80319.837	106.158%	1356.195	620.647	99.856%	7656.616
σ		41.596	59.293	3616.713	2.988%	317.083	143.586	4.991%	573.397
%RSD		38.255	48.870	4.503	2.815	23.380	23.135	4.998	7.489

500-166193-j-1-b du, 7/8/2019 10:06:32 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:06:32	11.093	-0.226	97.403	T 2604764.000	1370578.500	224.356	152595.290	364047.750	99.873%
2	22:06:53	3.956	-0.226	85.150	2250369.000	1234281.500	189.302	137376.670	326789.120	107.302%
3	22:07:16	-2.257	-0.226	104.083	T 2308612.000	1223383.300	174.276	135555.880	321907.590	108.587%
x		4.264	-0.226	95.545	T 2387915.000	1276081.100	195.978	141842.620	337581.490	105.254%
σ		6.680	0.000	9.602	T 190041.230	82018.347	25.699	9356.488	23050.047	4.704%
%RSD		156.680	0.000	10.050	T 7.958	6.427	13.113	6.596	6.828	4.470

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:06:32	6.047	362.478	376.047	1639920.300	163387.380	2267.969	699.342	755.030	1079.108
2	22:06:53	1.289	297.194	313.638	1521180.400	149107.820	2120.255	683.407	682.635	929.858
3	22:07:16	3.287	305.733	242.737	1508637.500	146816.760	2168.660	629.821	610.427	881.428
x		3.541	321.802	310.807	1556579.400	153103.990	2185.628	670.857	682.697	963.465
σ		2.389	35.484	66.700	72447.283	8979.050	75.305	36.420	72.301	103.036
%RSD		67.472	11.027	21.460	4.654	5.865	3.445	5.429	10.591	10.694

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:06:32	4525.136	7.802	650385.850	96.507%	4777.163	91.210%	11.708	-3.630	96.022%
2	22:06:53	4118.347	2.513	563915.180	108.207%	3847.367	97.459%	10.728	-3.415	103.311%
3	22:07:16	4118.224	1.339	568114.480	107.239%	3839.102	99.689%	4.387	-3.422	101.549%
x		4253.902	3.885	594138.500	103.984%	4154.544	96.119%	8.941	-3.489	100.294%
σ		234.895	3.443	48756.863	6.493%	539.220	4.396%	3.974	0.122	3.803%
%RSD		5.522	88.631	8.206	6.245	12.979	4.573	44.449	3.507	3.792

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:06:32	78.758	53.800	84245.167	101.787%	-84.485	748.311	97.426%	7719.203
2	22:06:53	74.818	69.902	73234.126	112.799%	542.397	602.793	103.426%	6925.353
3	22:07:16	91.208	54.460	76972.679	107.522%	344.189	486.853	102.261%	7155.110
x		81.595	59.387	78150.657	107.370%	267.367	612.653	101.037%	7266.555
σ		8.556	9.112	5599.240	5.507%	320.424	131.008	3.182%	408.491
%RSD		10.486	15.343	7.165	5.129	119.844	21.384	3.149	5.622

500-166193-j-1-c ms, 7/8/2019 10:10:45 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:10:45	51.919	34.989	417.126	T 2920351.200	1556418.900	19454.243	517693.840	388141.720	98.444%
2	22:11:07	41.920	26.912	341.325	T 2610151.300	1414005.700	18114.447	478883.460	354772.930	105.635%
3	22:11:29	60.598	23.031	335.228	T 2652642.200	1411972.000	17232.764	475014.360	347969.300	106.063%
x		51.479	28.311	364.560	T 2727714.900	1460798.900	18267.151	490530.550	363627.980	103.381%
σ		9.347	6.100	45.626	T 168175.280	82815.608	1118.584	23603.505	21500.345	4.281%
%RSD		18.157	21.548	12.515	T 6.165	5.669	6.123	4.812	5.913	4.141

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:10:45	18896.867	315554.180	162433.280	1613166.300	430388.770	750545.100	205600.140	314373.860	143594.470
2	22:11:07	16984.318	289794.930	149539.680	1467692.100	391254.870	689409.200	186914.870	290020.660	131805.280
3	22:11:29	17367.040	290022.690	150049.130	1467318.100	396109.480	685424.410	191740.490	286684.360	130837.570
x		17749.408	298457.260	154007.360	1516058.800	405917.710	708459.570	194751.830	297026.290	135412.440
σ		1011.986	14806.797	7301.501	84097.733	21331.119	36501.555	9699.794	15115.764	7102.346
%RSD		5.702	4.961	4.741	5.547	5.255	5.152	4.981	5.089	5.245

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:10:45	29194.200	1998.847	1822962.200	99.410%	830773.850	91.764%	151479.480	28136.734	94.014%
2	22:11:07	26223.234	1831.725	1640624.100	106.986%	752562.580	97.945%	140498.910	25429.361	101.048%
3	22:11:29	25972.683	1805.885	1628325.100	109.343%	740208.110	99.625%	144914.600	26239.252	99.810%
x		27130.039	1878.819	1697303.800	105.247%	774514.850	96.445%	145630.990	26601.783	98.291%
σ		1792.000	104.747	108997.000	5.190%	49111.760	4.140%	5525.227	1389.618	3.755%
%RSD		6.605	5.575	6.422	4.931	6.341	4.292	3.794	5.224	3.821

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:10:45	1204799.500	948406.140	348696.750	104.017%	763310.210	988637.830	94.973%	1046470.800
2	22:11:07	1150387.100	858298.680	313074.270	111.206%	661274.820	873472.700	104.610%	919151.520
3	22:11:29	1130215.800	897346.800	302149.730	116.012%	700566.620	920820.900	100.432%	1007568.200
x		1161800.800	901350.540	321306.920	110.411%	708383.880	927643.810	100.005%	991063.510
σ		38579.611	45186.955	24341.088	6.037%	51464.914	57884.935	4.833%	65244.564
%RSD		3.321	5.013	7.576	5.468	7.265	6.240	4.833	6.583

500-166193-j-1-d msd, 7/8/2019 10:14:59 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:14:59	11.561	36.392	398.813	T 3079232.700	1668987.300	20714.204	555964.060	422963.600	96.492%
2	22:15:22	47.915	30.505	369.753	T 2739550.200	1467345.700	17753.373	484348.380	378631.250	106.301%
3	22:15:44	10.049	31.770	347.361	T 2678184.000	1451009.700	17832.199	479721.710	363422.840	108.349%
x		23.175	32.889	371.976	T 2832322.300	1529114.200	18766.592	506678.050	388339.230	103.714%
σ		21.439	3.099	25.798	T 216020.880	121408.730	1687.142	42745.579	30934.757	6.338%
%RSD		92.510	9.424	6.935	T 7.627	7.940	8.990	8.436	7.966	6.111

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:14:59	20013.138	333248.970	173083.690	1593726.000	443944.800	781280.600	215104.750	318274.020	143509.430
2	22:15:22	17393.068	293026.950	151407.960	1428825.300	394633.950	695124.310	190556.400	295682.770	132784.470
3	22:15:44	17567.814	285478.040	147613.570	1381850.900	385565.460	673317.180	188623.470	291824.940	130465.670
x		18324.673	303917.990	157368.410	1468134.000	408048.070	716574.030	198094.870	301927.240	135586.520
σ		1464.861	25680.272	13741.433	111272.850	31416.408	57088.463	14762.656	14287.530	6958.700
%RSD		7.994	8.450	8.732	7.579	7.699	7.967	7.452	4.732	5.132

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:14:59	29404.878	1991.213	1881339.100	100.063%	857502.160	93.507%	148511.170	26212.242	98.305%
2	22:15:22	27304.982	1858.733	1715642.900	108.375%	764967.510	99.103%	137627.840	25302.976	102.900%
3	22:15:44	26765.152	1800.207	1728477.800	108.291%	755122.700	99.643%	151187.330	27100.959	96.332%
x		27825.004	1883.384	1775153.300	105.576%	792530.790	97.418%	145775.450	26205.392	99.179%
σ		1394.580	97.860	92183.305	4.775%	56481.758	3.398%	7181.789	899.011	3.370%
%RSD		5.012	5.196	5.193	4.523	7.127	3.488	4.927	3.431	3.398

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:14:59	1227214.500	921134.090	364122.190	104.489%	748788.070	951567.730	99.129%	977473.790
2	22:15:22	1127696.000	852879.880	328210.760	109.539%	707318.250	907675.180	101.925%	976605.850
3	22:15:44	1130767.300	914790.420	313332.000	111.600%	678013.280	888461.150	104.327%	952235.000
x		1161892.600	896268.130	335221.650	108.543%	711373.200	915901.350	101.794%	968771.550
σ		56591.307	37708.959	26110.826	3.659%	35561.211	32347.526	2.602%	14327.645
%RSD		4.871	4.207	7.789	3.371	4.999	3.532	2.556	1.479

500-166193-j-1-a SD@5, 7/8/2019 10:19:13 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:19:13	-2.257	-0.226	24.798	492074.320	278500.720	37.410	31696.448	73709.269	99.920%
2	22:19:35	-2.257	-0.226	21.853	460287.800	255901.050	43.714	28321.004	66107.813	105.492%
3	22:19:57	4.020	-0.226	23.268	458700.060	252900.590	26.394	28483.226	68053.632	106.206%
x		-0.165	-0.226	23.306	470354.060	262434.120	35.840	29500.226	69290.238	103.873%
σ		3.624	0.000	1.473	18827.042	13994.728	8.766	1903.713	3948.725	3.442%
%RSD		2196.736	0.000	6.321	4.003	5.333	24.459	6.453	5.699	3.313

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:19:13	3.819	173.165	106.597	333045.980	33340.298	752.088	243.046	253.878	369.528
2	22:19:35	1.360	166.541	59.000	307244.070	31395.477	570.415	135.439	199.926	276.350
3	22:19:57	-0.760	80.434	10.444	306259.600	31124.149	497.423	171.926	183.265	298.901
x		1.473	140.047	58.680	315516.550	31953.308	606.642	183.470	212.356	314.926
σ		2.292	51.732	48.077	15188.911	1208.806	131.141	54.725	36.911	48.612
%RSD		155.589	36.939	81.931	4.814	3.783	21.617	29.828	17.382	15.436

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:19:13	886.573	2.090	129089.480	98.927%	1753.324	94.591%	58.514	10.710	98.861%
2	22:19:35	784.962	-0.285	117478.690	103.998%	2100.925	100.689%	36.140	-2.872	104.389%
3	22:19:57	813.838	0.233	112254.060	109.133%	1669.314	101.203%	31.093	-2.797	100.187%
x		828.458	0.679	119607.410	104.019%	1841.187	98.828%	41.916	1.680	101.145%
σ		52.359	1.249	8617.217	5.103%	228.828	3.678%	14.594	7.820	2.886%
%RSD		6.320	183.808	7.205	4.906	12.428	3.722	34.817	465.345	2.853

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:19:13	622.510	438.360	17360.980	99.870%	2034.590	497.247	95.946%	2103.905
2	22:19:35	599.260	246.194	15645.414	106.164%	3031.494	319.002	100.234%	1797.967
3	22:19:57	510.120	290.493	15303.500	106.310%	2658.851	239.799	100.050%	1541.489
x		577.297	325.016	16103.298	104.115%	2574.978	352.016	98.744%	1814.454
σ		59.327	100.627	1102.519	3.676%	503.717	131.861	2.424%	281.570
%RSD		10.277	30.961	6.847	3.531	19.562	37.459	2.455	15.518

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:23:28	-2.257	-0.226	242.753	T 3678610.500	592188.230	3863.642	348308.860	172821.580	96.730%
2	22:23:49	3.771	-0.226	171.509	T 3100966.800	513929.500	3440.490	301715.780	148908.750	110.588%
3	22:24:10	-2.257	-0.226	200.460	T 3186015.800	T 506499.870	3541.253	308219.690	150367.500	109.588%
x		-0.248	-0.226	204.907	T 3321864.400	T 537539.200	3615.128	319414.780	157365.950	105.635%
σ		3.481	0.000	35.830	T 311864.030	T 47473.018	221.038	25233.435	13404.831	7.728%
%RSD		1404.141	0.000	17.486	T 9.388	T 8.832	6.114	7.900	8.518	7.316

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:23:28	162.557	1223.693	1078.620	21131.296	35083.374	1220.831	1084.063	5029.265	21971.146
2	22:23:49	157.906	1148.846	1004.355	17660.475	29884.514	907.175	872.943	4345.143	19540.717
3	22:24:10	116.789	1221.924	992.067	18335.814	31094.082	923.706	798.121	4407.168	19721.636
x		145.751	1198.154	1025.014	19042.528	32020.657	1017.237	918.376	4593.859	20411.166
σ		25.190	42.711	46.829	1840.172	2720.467	176.511	148.286	378.346	1354.007
%RSD		17.283	3.565	4.569	9.663	8.496	17.352	16.147	8.236	6.634

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:23:28	186.380	9.567	2562628.200	101.283%	19933.013	93.405%	53.569	12.710	95.670%
2	22:23:49	146.743	9.426	2340358.100	108.543%	18484.940	101.461%	17.127	30.901	103.600%
3	22:24:10	153.242	7.950	2323595.900	112.332%	18382.910	103.091%	10.571	11.308	104.582%
x		162.122	8.981	2408860.800	107.386%	18933.621	99.319%	27.089	18.306	101.284%
σ		21.258	0.896	133430.010	5.615%	867.001	5.186%	23.166	10.930	4.887%
%RSD		13.113	9.974	5.539	5.228	4.579	5.222	85.516	59.706	4.825

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:23:28	1638.047	1546.030	33338.500	103.364%	580.614	14063.442	96.472%	19665.006
2	22:23:49	1520.597	1478.639	32747.129	110.134%	985.579	13165.484	103.860%	17071.194
3	22:24:10	1514.553	1322.836	32142.859	113.764%	736.794	12177.079	106.138%	17710.368
x		1557.732	1449.168	32742.829	109.087%	767.663	13135.335	102.157%	18148.856
σ		69.620	114.478	597.832	5.278%	204.239	943.543	5.053%	1351.358
%RSD		4.469	7.900	1.826	4.839	26.605	7.183	4.946	7.446

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:27:41	11.547	0.464	212.053	T 3782419.600	586537.600	233.439	365914.420	167584.610	96.587%
2	22:28:03	16.667	-0.226	201.598	T 3361987.800	525230.080	247.528	322614.680	147582.900	105.682%
3	22:28:25	-2.257	0.390	215.069	T 3250131.400	T 501424.690	189.110	314730.840	146097.890	108.349%
x		8.652	0.209	209.573	T 3464846.300	T 537730.790	223.359	334419.980	153755.140	103.540%
σ		9.789	0.379	7.070	T 280655.630	T 43911.878	30.486	27558.367	11999.672	6.167%
%RSD		113.134	180.830	3.373	T 8.100	T 8.166	13.649	8.241	7.804	5.956

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:27:41	6.350	889.833	799.955	437.487	11855.191	258.571	906.247	3286.785	9873.771
2	22:28:03	5.558	758.912	937.351	422.631	10815.781	213.980	761.775	2836.824	8913.490
3	22:28:25	5.351	868.846	736.248	343.617	10690.902	218.593	719.492	3032.220	9184.690
x		5.753	839.197	824.518	401.245	11120.625	230.381	795.838	3051.943	9323.984
σ		0.527	70.316	102.777	50.457	639.210	24.521	97.927	225.628	495.062
%RSD		9.165	8.379	12.465	12.575	5.748	10.644	12.305	7.393	5.310

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:27:41	106.954	7.323	2545219.700	100.063%	19268.775	93.011%	32.524	12.914	96.056%
2	22:28:03	114.637	6.585	2415283.200	101.978%	19443.081	100.876%	11.297	-7.897	98.945%
3	22:28:25	114.791	7.125	2273742.300	109.006%	17652.285	100.756%	30.434	5.487	102.210%
x		112.127	7.011	2411415.100	103.682%	18788.047	98.214%	24.752	3.501	99.070%
σ		4.481	0.382	135780.020	4.709%	987.452	4.506%	11.699	10.547	3.079%
%RSD		3.997	5.446	5.631	4.542	5.256	4.588	47.264	301.238	3.108

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:27:41	369.382	1219.806	32945.780	105.307%	-25.946	964.810	97.025%	19311.649
2	22:28:03	492.238	1138.638	28639.549	112.517%	392.524	824.917	104.545%	17987.702
3	22:28:25	373.824	1396.742	29100.686	113.423%	350.183	994.708	105.387%	17475.672
x		411.815	1251.729	30228.672	110.415%	238.920	928.145	102.319%	18258.341
σ		69.684	131.980	2364.354	4.447%	230.356	90.639	4.604%	947.437
%RSD		16.921	10.544	7.822	4.028	96.415	9.766	4.500	5.189

500-166207-i-2-a, 7/8/2019 10:31:55 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:31:55	4.558	0.456	551.817	TM 7552446.300	177331.020	463.932	217031.200	75862.314	97.825%
2	22:32:18	-2.257	-0.226	531.008	TM 6831557.500	158740.420	307.829	196470.300	69314.007	105.254%
3	22:32:39	4.120	-0.226	502.755	TM 6824254.300	159906.700	312.349	197277.400	69510.919	104.539%
x		2.140	0.001	528.527	TM 7069419.400	165326.050	361.370	203592.970	71562.413	102.540%
σ		3.815	0.393	24.625	TM 418329.520	10412.954	88.850	11644.848	3725.125	4.098%
%RSD		178.247	27545.473	4.659	TM 5.917	6.298	24.587	5.720	5.205	3.997

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:31:55	99.371	3200.577	345.095	12618.010	121347.020	2429.368	4009.512	1518.090	1590.232
2	22:32:18	39.373	2752.075	264.656	11641.858	111252.820	2166.026	3580.119	1457.431	1472.057
3	22:32:39	41.788	3074.150	223.980	11817.328	111852.140	2319.138	3613.358	1475.654	1427.662
x		60.177	3008.934	277.910	12025.732	114817.330	2304.844	3734.330	1483.725	1496.650
σ		33.964	231.254	61.636	520.377	5662.813	132.252	238.894	31.125	84.029
%RSD		56.440	7.686	22.178	4.327	4.932	5.738	6.397	2.098	5.614

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:31:55	1297.781	7.350	294366.850	100.294%	269789.330	92.743%	11.529	15.776	97.275%
2	22:32:18	1122.959	4.348	267467.560	108.207%	245774.640	98.671%	4.758	-10.401	96.115%
3	22:32:39	1126.867	3.764	264903.630	109.659%	236281.400	99.385%	38.056	-21.616	99.418%
x		1182.536	5.154	275579.350	106.053%	250615.120	96.933%	18.114	-5.413	97.603%
σ		99.825	1.924	16320.883	5.040%	17270.435	3.646%	17.599	19.188	1.676%
%RSD		8.442	37.331	5.922	4.752	6.891	3.762	97.154	354.463	1.717

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:31:55	183.806	208.482	9599.193	99.734%	-387.232	7887.386	95.328%	7771.648
2	22:32:18	167.394	143.750	8161.283	109.851%	95.672	7236.869	101.695%	7385.588
3	22:32:39	152.134	166.679	8182.577	107.367%	15.211	7211.403	100.498%	7666.977
x		167.778	172.971	8647.685	105.651%	-92.116	7445.219	99.174%	7608.071
σ		15.839	32.821	824.100	5.272%	258.725	383.139	3.384%	199.657
%RSD		9.441	18.975	9.530	4.990	280.867	5.146	3.412	2.624

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:36:09	4.415	-0.226	576.922	TM 7533751.500	149689.510	141.939	223294.560	70252.435	99.920%
2	22:36:31	4.167	-0.226	525.728	TM 7043223.700	141358.100	147.927	209498.650	64618.212	103.778%
3	22:36:53	4.009	-0.226	516.676	TM 6988905.100	137552.400	143.235	203005.470	64439.663	106.397%
x		4.197	-0.226	539.775	TM 7188626.800	142866.670	144.367	211932.890	66436.770	103.365%
σ		0.205	0.000	32.487	TM 300118.190	6207.589	3.150	10361.274	3305.669	3.258%
%RSD		4.878	0.000	6.019	TM 4.175	4.345	2.182	4.889	4.976	3.152

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:36:09	28.283	3009.311	304.544	7150.168	111932.030	2135.634	3637.598	1911.338	1507.232
2	22:36:31	35.691	2560.467	302.896	6484.005	106042.950	2119.947	3631.608	1752.438	1383.331
3	22:36:53	20.122	2588.827	304.371	6263.843	102895.230	2104.990	3518.253	1855.481	1345.710
x		28.032	2719.535	303.937	6632.672	106956.740	2120.190	3595.820	1839.752	1412.091
σ		7.788	251.354	0.906	461.486	4587.179	15.323	67.241	80.609	84.514
%RSD		27.781	9.243	0.298	6.958	4.289	0.723	1.870	4.382	5.985

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:36:09	1159.108	4.541	279238.850	97.685%	294402.950	91.828%	11.747	-37.648	95.749%
2	22:36:31	1111.265	3.785	246745.160	107.891%	260723.110	99.045%	24.125	51.539	101.384%
3	22:36:53	1112.754	3.702	248827.630	108.817%	262389.980	100.451%	-2.178	-2.236	106.000%
x		1127.709	4.009	258270.550	104.798%	272505.350	97.108%	11.231	3.885	101.044%
σ		27.202	0.462	18188.909	6.177%	18982.186	4.626%	13.159	44.907	5.134%
%RSD		2.412	11.530	7.043	5.894	6.966	4.764	117.162	1155.870	5.081

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:36:09	106.666	68.380	9430.100	102.581%	-402.575	4763.987	99.241%	7354.833
2	22:36:31	126.039	94.288	8287.641	103.997%	-144.185	4494.719	99.688%	7267.967
3	22:36:53	76.565	158.023	8279.462	105.146%	-238.051	4602.692	100.662%	7004.765
x		103.090	106.897	8665.734	103.908%	-261.604	4620.466	99.864%	7209.188
σ		24.930	46.132	661.972	1.285%	130.795	135.511	0.727%	182.286
%RSD		24.183	43.156	7.639	1.237	49.998	2.933	0.728	2.529

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User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:40:25	20.453	0.531	1328.546	TM 15546280.000	1103070.700	509.985	550263.540	M 1363514.700	88.065%
2	22:40:47	11.163	-0.226	1192.626	TM 13328343.000	958659.240	404.714	479461.120	M 1220632.300	99.349%
3	22:41:09	24.546	-0.226	1169.132	TM 13436107.000	962208.990	417.474	474932.920	M 1197335.000	99.492%
x		18.721	0.027	1230.101	TM 14103577.000	1007979.600	444.057	501552.530	M 1260494.000	95.635%
σ		6.857	0.437	86.061	TM 1250579.100	82370.371	57.450	42245.689	M 89975.786	6.557%
%RSD		36.629	1642.744	6.996	TM 8.867	8.172	12.938	8.423	M 7.138	6.856

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:40:25	57.709	242.456	160.962	1380170.500	872579.770	15624.027	8026.005	752.183	2522.807
2	22:40:47	37.409	121.578	133.634	1223320.600	784134.820	14192.670	7078.573	722.615	2193.037
3	22:41:09	37.352	194.839	101.716	1215925.300	774996.660	13885.933	7423.774	658.767	2272.819
x		44.157	186.291	132.104	1273138.800	810570.410	14567.543	7509.451	711.188	2329.554
σ		11.737	60.891	29.653	92765.939	53895.701	927.707	479.491	47.745	172.050
%RSD		26.580	32.686	22.446	7.286	6.649	6.368	6.385	6.713	7.386

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:40:25	2311.690	4.565	1038840.900	95.729%	5283.340	83.536%	12.969	3.677	88.027%
2	22:40:47	2036.509	3.995	979299.160	99.474%	4961.488	91.296%	-2.178	16.826	97.414%
3	22:41:09	2104.367	6.268	924509.160	105.639%	4725.266	91.992%	11.979	17.464	94.181%
x		2150.855	4.943	980883.090	100.280%	4990.031	88.941%	7.590	12.656	93.207%
σ		143.360	1.182	57182.346	5.004%	280.130	4.694%	8.474	7.782	4.768%
%RSD		6.665	23.924	5.830	4.990	5.614	5.278	111.644	61.491	5.116

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:40:25	102.181	157.920	11171.616	100.094%	-577.023	3371.815	91.969%	9153.656
2	22:40:47	100.505	139.497	10377.863	107.742%	-286.420	2654.600	99.958%	8529.821
3	22:41:09	41.093	143.224	10624.411	107.001%	-231.030	2735.040	96.880%	9044.189
x		81.259	146.881	10724.630	104.946%	-364.824	2920.485	96.269%	8909.222
σ		34.795	9.740	406.256	4.218%	185.844	392.927	4.030%	333.098
%RSD		42.820	6.631	3.788	4.019	50.941	13.454	4.186	3.739

ccv, 7/8/2019 10:44:40 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:44:40	145.089	141.763	75.128	796944.710	452932.580	228990.920	885491.020	57925.013	99.539%
2	22:45:02	89.318	135.175	57.814	770106.400	433729.390	220536.160	830245.160	56213.366	101.920%
3	22:45:23	105.371	154.253	78.082	750483.850	422774.730	212056.650	815477.180	52886.219	105.301%
x		113.259	86.808%	101.823%	95.754%	95.709%	96.058%	95.739%	96.504%	102.254%
σ		28.710	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.895%
%RSD		25.349	6.742	15.566	3.019	3.497	3.839	4.374	4.602	2.832

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:44:40	4425.276	152557.300	199012.740	1038152.800	131704.080	369437.090	101604.170	307623.030	68770.551
2	22:45:02	4173.498	142234.210	185483.540	973892.720	124760.440	350901.200	96165.726	283768.800	64086.995
3	22:45:23	4193.531	140590.590	182418.300	958860.820	121819.680	339460.510	92161.657	283137.280	65045.838
x		94.840%	96.452%	96.539%	95.618%	97.068%	97.021%	97.505%	98.121%	97.885%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		3.282	4.470	4.673	4.253	4.025	4.282	4.904	4.788	3.751

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:44:40	55721.773	4646.073	288417.610	97.706%	197485.610	94.448%	158628.570	142263.380	92.697%
2	22:45:02	51826.939	4272.108	258777.230	104.250%	180775.890	98.467%	142309.460	124732.210	101.076%
3	22:45:23	52023.555	4376.476	265932.890	104.776%	183421.590	98.935%	138437.910	124115.700	102.029%
x		97.538%	98.060%	100.420%	102.244%	98.430%	97.283%	102.304%	99.253%	98.601%
σ		n/a	n/a	n/a	3.939%	n/a	2.467%	n/a	n/a	5.135%
%RSD		4.125	4.354	5.706	3.852	4.797	2.535	7.317	7.904	5.207

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:44:40	295898.060	468352.480	120615.350	106.198%	1808697.000	2332058.300	98.412%	2561316.800
2	22:45:02	278660.090	416628.590	118345.880	110.182%	1614816.800	2124609.500	105.618%	2231290.400
3	22:45:23	267383.080	410491.050	116947.680	111.118%	1668944.200	2131582.100	105.644%	2205554.600
x		100.050%	96.182%	95.774%	109.166%	92.061%	96.986%	103.225%	2332720.600
σ		n/a	n/a	n/a	2.613%	n/a	n/a	4.168%	198387.860
%RSD		5.117	7.360	1.560	2.393	5.894	5.365	4.037	8.505

ccb, 7/8/2019 10:48:55 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:48:55	-2.257	-0.226	1.634	-1675.745	159.649	177.368	193.274	5.500	92.921%
2	22:49:17	-2.257	-0.226	3.162	-2477.714	45.003	112.578	-783.904	-29.590	98.778%
3	22:49:39	-2.257	-0.226	2.363	-2378.835	71.268	135.140	-260.471	-22.426	97.492%
x		-2.257	-0.226	2.387	-2177.431	91.973	141.696	-283.700	-15.506	96.397%
σ		0.000	0.000	0.764	437.277	60.062	32.889	489.003	18.541	3.078%
%RSD		0.000	0.000	32.019	20.082	65.304	23.211	172.366	119.573	3.193

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:48:55	6.713	116.933	9.281	388.289	45.769	106.747	82.563	90.458	23.600
2	22:49:17	1.647	98.642	-34.751	294.196	-21.314	74.768	43.835	72.704	18.483
3	22:49:39	-0.573	75.115	9.987	285.200	-4.314	75.954	51.771	78.511	34.535
x		2.596	96.897	-5.161	322.561	6.713	85.823	59.390	80.558	25.539
σ		3.735	20.964	25.628	57.099	34.875	18.130	20.457	9.053	8.200
%RSD		143.895	21.635	496.576	17.702	519.486	21.125	34.446	11.237	32.107

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:48:55	12.342	1.493	163.222	93.604%	161.143	95.452%	67.620	60.488	95.514%
2	22:49:17	1.094	1.592	72.053	101.746%	248.314	100.062%	55.703	23.371	103.661%
3	22:49:39	10.497	2.029	90.385	101.115%	270.017	102.387%	17.518	23.900	101.545%
x		7.978	1.705	108.553	98.822%	226.491	99.301%	46.947	35.920	100.240%
σ		6.033	0.285	48.223	4.530%	57.624	3.530%	26.174	21.279	4.227%
%RSD		75.619	16.707	44.424	4.584	25.442	3.555	55.752	59.240	4.217

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:48:55	197.006	222.538	54.988	100.425%	4081.063	693.505	98.281%	844.612
2	22:49:17	250.439	358.491	20.568	104.279%	5851.652	469.782	105.361%	447.691
3	22:49:39	223.189	356.481	57.063	107.118%	4650.558	471.902	104.966%	557.622
x		223.545	312.504	44.206	103.941%	4861.091	545.063	102.869%	616.642
σ		26.719	77.919	20.497	3.359%	903.875	128.559	3.979%	204.937
%RSD		11.952	24.934	46.368	3.232	18.594	23.586	3.868	33.234

500-166207-j-3-a, 7/8/2019 10:53:09 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:53:09	5.321	-0.226	1365.039	TM 15284128.000	1102765.200	141.755	545380.270	M 1357575.500	87.969%
2	22:53:32	11.889	-0.226	1283.677	TM 13587538.000	999628.780	157.752	499009.980	M 1240296.400	94.254%
3	22:53:53	-2.257	-0.226	1177.385	TM 13405151.000	960313.900	88.654	484873.250	M 1205190.300	98.159%
x		4.984	-0.226	1275.367	TM 14092272.000	1020902.600	129.387	509754.500	M 1267687.400	93.461%
σ		7.079	0.000	94.103	TM 1036198.100	73569.859	36.171	31652.146	M 79799.830	5.141%
%RSD		142.031	0.000	7.378	TM 7.353	7.206	27.956	6.209	M 6.295	5.500

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:53:09	4.726	86.301	103.375	1091746.600	873583.660	15653.605	7910.858	574.705	2197.949
2	22:53:32	1.863	110.212	153.221	1002109.500	809280.340	14316.042	7564.792	551.777	2001.653
3	22:53:53	-2.853	120.848	34.942	985223.570	778157.560	13782.267	7137.709	478.045	1992.337
x		1.245	105.787	97.179	1026359.900	820340.520	14583.971	7537.786	534.842	2063.980
σ		3.827	17.693	59.383	57252.496	48664.986	964.010	387.282	50.506	116.114
%RSD		307.329	16.726	61.106	5.578	5.932	6.610	5.138	9.443	5.626

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:53:09	891.553	6.101	1060192.300	91.059%	4524.526	84.141%	56.596	11.136	90.743%
2	22:53:32	822.824	3.407	987965.390	95.981%	4254.682	91.363%	4.986	3.648	93.063%
3	22:53:53	837.890	4.793	970827.410	97.307%	4058.831	92.329%	11.505	3.421	97.443%
x		850.756	4.767	1006328.400	94.782%	4279.347	89.278%	24.362	6.069	93.749%
σ		36.126	1.347	47428.067	3.292%	233.825	4.474%	28.105	4.390	3.403%
%RSD		4.246	28.264	4.713	3.473	5.464	5.012	115.363	72.345	3.629

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:53:09	53.263	111.212	9769.098	101.004%	569.498	2282.943	91.463%	8234.410
2	22:53:32	12.802	82.577	8969.916	107.391%	1042.007	1979.983	102.254%	7175.150
3	22:53:53	11.734	153.086	9088.075	108.930%	951.995	1990.463	100.780%	8188.169
x		25.933	115.625	9275.696	105.775%	854.500	2084.463	98.166%	7865.910
σ		23.675	35.461	431.363	4.203%	250.889	171.969	5.852%	598.662
%RSD		91.291	30.669	4.650	3.973	29.361	8.250	5.961	7.611

500-166207-i-4-a, 7/8/2019 10:57:24 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	22:57:24	-2.257	-0.226	360.030	T 2887986.700	1242034.500	470.121	260289.470	311577.880	95.778%
2	22:57:46	30.311	-0.226	353.946	T 2639934.200	1124051.100	454.570	232351.320	279338.240	102.349%
3	22:58:08	-2.257	-0.226	325.652	T 2509711.700	1076241.600	441.130	229628.820	272241.240	106.111%
x		8.599	-0.226	346.543	T 2679210.900	1147442.400	455.273	240756.540	287719.120	101.413%
σ		18.803	0.000	18.346	T 192171.730	85335.715	14.508	16970.697	20964.785	5.230%
%RSD		218.675	0.000	5.294	T 7.173	7.437	3.187	7.049	7.287	5.157

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	22:57:24	71.393	151.816	268.734	99584.527	78986.396	5726.654	2777.718	2973.188	2577.689
2	22:57:46	34.058	134.112	224.679	92551.846	74285.761	5538.328	2546.896	2688.740	2223.860
3	22:58:08	55.786	174.923	226.455	89122.904	70791.228	5309.999	2287.615	2837.559	2042.948
x		53.746	153.617	239.956	93753.092	74687.795	5524.994	2537.410	2833.162	2281.499
σ		18.751	20.465	24.938	5333.257	4112.349	208.648	245.189	142.275	271.991
%RSD		34.888	13.322	10.393	5.689	5.506	3.776	9.663	5.022	11.922

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	22:57:24	1394.892	5.018	T 5214719.800	98.001%	8222.889	89.429%	12.174	2.460	92.905%
2	22:57:46	1260.426	0.588	T 4767317.000	103.913%	7327.820	97.812%	4.220	-4.332	104.192%
3	22:58:08	1249.457	2.249	T 4689599.200	105.534%	6974.142	97.237%	-2.178	-4.351	99.824%
x		1301.592	2.618	T 4890545.300	102.483%	7508.284	94.826%	4.739	-2.074	98.974%
σ		80.986	2.238	T 283419.920	3.965%	643.636	4.683%	7.190	3.927	5.691%
%RSD		6.222	85.477	T 5.795	3.869	8.572	4.938	151.726	189.310	5.750

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	22:57:24	320.664	334.175	36145.622	104.299%	-116.750	5786.058	96.393%	11395.793
2	22:57:46	319.602	374.968	34201.871	111.927%	360.098	5236.640	104.077%	9895.051
3	22:58:08	280.883	345.612	32718.010	110.947%	312.196	5421.235	101.682%	10654.960
x		307.049	351.585	34355.168	109.058%	185.181	5481.311	100.717%	10648.601
σ		22.667	21.042	1718.940	4.150%	262.575	279.592	3.932%	750.391
%RSD		7.382	5.985	5.003	3.805	141.793	5.101	3.904	7.047

500-166207-j-4-a, 7/8/2019 11:01:38 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:01:38	12.263	-0.226	427.300	T 3000060.100	1286817.100	158.211	275977.620	322148.250	91.826%
2	23:01:59	38.812	0.459	384.831	2691773.600	1204614.200	176.384	254986.600	298062.380	97.397%
3	23:02:22	17.293	-0.226	352.482	T 2689556.700	1150224.000	118.093	240264.760	283769.790	102.301%
x		22.789	0.002	388.204	T 2793796.800	1213885.100	150.896	257076.320	301326.810	97.175%
σ		14.102	0.395	37.523	T 178632.690	68766.864	29.826	17947.904	19396.362	5.241%
%RSD		61.881	16276.924	9.666	T 6.394	5.665	19.766	6.982	6.437	5.394

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:01:38	6.827	144.814	315.679	84682.469	84425.490	6090.000	3182.192	1174.043	4277.971
2	23:01:59	8.555	209.996	297.805	76622.545	77177.027	5587.836	3023.031	1168.916	3740.609
3	23:02:22	5.836	151.642	224.931	74025.154	74814.189	5325.730	2852.306	1102.525	3640.722
x		7.073	168.817	279.472	78443.389	78805.569	5667.855	3019.176	1148.495	3886.434
σ		1.376	35.825	48.072	5557.085	5008.332	388.368	164.976	39.894	342.739
%RSD		19.456	21.221	17.201	7.084	6.355	6.852	5.464	3.474	8.819

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:01:38	1301.177	3.888	TM 5474511.700	95.182%	8131.710	88.501%	11.930	16.583	94.506%
2	23:01:59	1050.249	0.635	T 5187653.900	97.580%	8361.177	96.142%	30.656	-4.536	101.520%
3	23:02:22	1171.225	0.329	T 4801711.500	104.776%	7171.466	97.242%	37.271	-4.361	101.396%
x		1174.217	1.617	TM 5154625.700	99.179%	7888.117	93.962%	26.619	2.562	99.141%
σ		125.490	1.972	TM 337613.940	4.993%	631.155	4.761%	13.144	12.143	4.014%
%RSD		10.687	121.928	TM 6.550	5.035	8.001	5.067	49.377	473.942	4.049

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:01:38	144.166	276.164	37257.902	103.072%	-352.337	5183.029	99.827%	12211.724
2	23:01:59	160.278	218.702	35014.003	111.415%	55.417	4428.371	111.768%	9716.878
3	23:02:22	205.447	206.034	33895.576	111.990%	-42.634	4402.855	109.140%	10496.879
x		169.964	233.633	35389.160	108.826%	-113.185	4671.418	106.912%	10808.494
σ		31.768	37.373	1712.270	4.991%	212.835	443.251	6.275%	1276.280
%RSD		18.691	15.997	4.838	4.586	188.043	9.489	5.869	11.808

500-166215-d-1-a, 7/8/2019 11:05:52 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:05:52	-2.257	-0.226	123.988	T 3654027.000	529024.270	947.560	644606.710	M 586569.720	87.303%
2	23:06:13	4.672	-0.226	115.015	3152471.800	476216.180	749.658	577165.530	527192.740	96.206%
3	23:06:35	32.220	-0.226	112.719	T 3238118.800	474203.170	860.690	579165.060	526832.330	96.682%
x		11.545	-0.226	117.241	T 3348205.900	493147.870	852.636	600312.440	M 546864.930	93.397%
σ		18.237	0.000	5.955	T 268288.600	31086.169	99.197	38372.993	M 34385.828	5.283%
%RSD		157.967	0.000	5.079	T 8.013	6.304	11.634	6.392	M 6.288	5.657

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:05:52	40.419	3222.386	2530.193	261346.240	269883.230	992.812	1821.461	65774.419	133711.330
2	23:06:13	20.246	2959.585	2190.550	231196.510	241327.930	823.291	1660.798	60459.212	123847.750
3	23:06:35	15.535	2937.168	2254.075	229718.260	241129.380	846.746	1608.746	60174.061	120783.110
x		25.400	3039.713	2324.939	240753.670	250780.180	887.617	1697.002	62135.897	126114.070
σ		13.219	158.596	180.571	17848.997	16544.022	91.854	110.882	3154.276	6755.502
%RSD		52.042	5.217	7.767	7.414	6.597	10.348	6.534	5.076	5.357

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:05:52	246905.090	10.566	523184.730	92.573%	11375.795	88.159%	4.972	101.796	93.245%
2	23:06:13	228228.160	6.659	485955.670	99.705%	10256.595	93.970%	11.308	149.911	98.866%
3	23:06:35	223350.900	7.896	477473.030	100.147%	10810.897	95.670%	-2.178	161.821	99.713%
x		232828.050	8.373	495537.810	97.475%	10814.429	92.599%	4.701	137.843	97.275%
σ		12432.582	1.997	24315.694	4.251%	559.608	3.938%	6.747	31.780	3.515%
%RSD		5.340	23.848	4.907	4.361	5.175	4.253	143.539	23.055	3.614

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:05:52	379.506	1540.737	32829.065	104.377%	-314.457	76707.666	98.064%	6348.643
2	23:06:13	421.462	1706.211	31501.480	110.197%	-47.473	68567.434	108.244%	5227.147
3	23:06:35	363.604	1442.798	30918.442	111.474%	9.807	72888.778	103.854%	6202.724
x		388.191	1563.249	31749.662	108.682%	-117.374	72721.293	103.387%	5926.172
σ		29.891	133.142	979.192	3.783%	173.065	4072.700	5.106%	609.754
%RSD		7.700	8.517	3.084	3.481	147.447	5.600	4.939	10.289

500-166215-d-2-a, 7/8/2019 11:10:05 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:10:05	5.272	-0.226	132.593	T 4758398.200	920999.960	298.689	1216489.100	556929.920	88.541%
2	23:10:27	12.181	0.496	115.350	T 4458454.900	866533.650	200.387	1137527.600	526383.840	92.350%
3	23:10:49	11.087	-0.226	93.186	T 4153790.500	804801.430	173.076	1078382.200	496506.310	99.920%
x		9.513	0.015	113.710	T 4456881.200	864111.680	224.050	1144133.000	526606.690	93.604%
σ		3.713	0.417	19.755	T 302306.930	58137.118	66.065	69289.987	30212.419	5.793%
%RSD		39.033	2797.705	17.373	T 6.783	6.728	29.487	6.056	5.737	6.188

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:10:05	2.167	1615.660	1280.405	23298.664	340616.920	705.125	979.637	2683.424	7401.857
2	23:10:27	1.960	1449.666	1233.818	21786.038	319318.260	675.415	937.607	2301.729	6729.919
3	23:10:49	-2.853	1449.877	1158.656	20267.844	302866.600	758.761	852.460	2338.568	6687.252
x		0.425	1505.068	1224.293	21784.182	320933.930	713.100	923.234	2441.240	6939.676
σ		2.840	95.775	61.431	1515.411	18926.951	42.241	64.795	210.545	400.829
%RSD		668.816	6.364	5.018	6.956	5.897	5.924	7.018	8.624	5.776

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:10:05	721950.710	4.393	554214.750	93.625%	15318.784	85.740%	50.583	174.068	88.450%
2	23:10:27	651739.550	4.415	533080.950	96.255%	15370.385	93.594%	11.242	94.199	99.351%
3	23:10:49	647288.770	6.535	514203.960	99.158%	14911.855	95.312%	10.558	102.018	104.689%
x		673659.680	5.114	533833.220	96.346%	15200.341	91.549%	24.128	123.428	97.496%
σ		41880.425	1.230	20016.002	2.768%	251.165	5.103%	22.913	44.029	8.277%
%RSD		6.217	24.060	3.749	2.873	1.652	5.574	94.966	35.672	8.489

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:10:05	97.257	2289.654	24420.535	98.718%	-345.745	15242.889	93.185%	11611.548
2	23:10:27	117.213	1952.066	22160.792	107.995%	-19.327	13967.340	104.959%	10568.048
3	23:10:49	113.491	2193.937	23109.375	108.219%	-254.435	13964.017	105.934%	10457.601
x		109.320	2145.219	23230.234	104.977%	-206.502	14391.415	101.359%	10879.066
σ		10.611	173.987	1134.709	5.422%	168.405	737.400	7.096%	636.747
%RSD		9.707	8.110	4.885	5.165	81.551	5.124	7.001	5.853

500-166215-d-3-a, 7/8/2019 11:14:20 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:14:20	5.149	0.515	130.402	T 4657553.200	889341.660	221.498	1198790.700	552335.710	90.017%
2	23:14:42	4.852	-0.226	116.243	T 4325229.600	822513.000	191.945	1113600.600	518120.730	93.778%
3	23:15:04	40.160	0.481	118.243	T 4333638.900	830340.090	185.929	1121523.100	523374.090	94.302%
x		16.720	0.257	121.629	T 4438807.200	847398.250	199.791	1144638.100	531276.840	92.699%
σ		20.300	0.418	7.663	T 189486.220	36534.270	19.038	47064.517	18425.696	2.338%
%RSD		121.411	162.865	6.300	T 4.269	4.311	9.529	4.112	3.468	2.522

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:14:20	4.553	1502.079	1012.266	20090.772	327493.530	688.376	1088.844	9502.801	18723.863
2	23:14:42	1.887	1358.306	1082.231	18767.456	307658.820	657.786	927.466	8650.975	16795.847
3	23:15:04	4.217	1448.688	1013.188	19027.734	307768.550	689.398	997.512	8843.446	16705.997
x		3.552	1436.358	1035.895	19295.321	314306.960	678.520	1004.607	8999.074	17408.569
σ		1.452	72.675	40.131	701.066	11420.028	17.964	80.923	446.729	1139.964
%RSD		40.883	5.060	3.874	3.633	3.633	2.647	8.055	4.964	6.548

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:14:20	687306.610	5.026	568204.580	90.344%	15921.698	85.610%	12.287	109.068	92.174%
2	23:14:42	623680.270	4.177	508488.010	98.800%	14438.897	92.889%	-2.178	101.142	99.270%
3	23:15:04	618298.950	7.298	508417.190	99.410%	15216.412	93.254%	17.845	66.892	99.885%
x		643095.280	5.500	528369.930	96.185%	15192.336	90.584%	9.318	92.367	97.110%
σ		38382.560	1.614	34497.841	5.068%	741.694	4.312%	10.336	22.416	4.285%
%RSD		5.968	29.337	6.529	5.269	4.882	4.760	110.929	24.268	4.413

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:14:20	89.754	2255.162	22908.964	101.204%	-507.227	19952.742	97.084%	12001.787
2	23:14:42	90.073	2229.218	21619.336	108.813%	-404.747	18341.103	107.020%	10830.997
3	23:15:04	53.625	2074.215	21531.093	110.903%	-288.813	18347.488	108.429%	10523.102
x		77.817	2186.198	22019.798	106.973%	-400.263	18880.445	104.177%	11118.629
σ		20.952	97.844	771.304	5.105%	109.276	928.642	6.184%	780.177
%RSD		26.925	4.476	3.503	4.772	27.301	4.919	5.936	7.017

500-166215-d-4-a, 7/8/2019 11:18:35 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:18:35	43.711	-0.226	148.341	T 4786408.400	717551.210	498.760	981128.880	M 656374.640	87.017%
2	23:18:58	4.380	-0.226	126.711	T 4079313.700	615862.330	455.149	854023.180	555246.500	100.444%
3	23:19:19	11.761	-0.226	154.027	T 4323073.400	650239.460	506.427	884299.620	M 591629.850	95.111%
x		19.951	-0.226	143.026	T 4396265.200	661217.670	486.778	906483.890	M 601083.670	94.191%
σ		20.905	0.000	14.413	T 359184.470	51725.695	27.659	66393.304	M 51222.613	6.761%
%RSD		104.785	0.000	10.077	T 8.170	7.823	5.682	7.324	M 8.522	7.178

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:18:35	2.255	1445.519	1019.737	10119.157	278527.640	533.854	864.669	7703.102	10784.963
2	23:18:58	-2.853	1200.126	741.616	8457.172	239905.530	383.018	701.778	7144.770	9706.730
3	23:19:19	1.820	1380.981	868.681	8834.872	250511.260	484.791	811.099	7091.030	9689.944
x		0.407	1342.209	876.678	9137.067	256314.810	467.221	792.515	7312.968	10060.546
σ		2.832	127.208	139.233	871.229	19954.393	76.937	83.021	338.933	627.420
%RSD		695.104	9.478	15.882	9.535	7.785	16.467	10.476	4.635	6.236

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:18:35	399352.110	4.759	576204.330	89.818%	15145.493	85.058%	5.271	30.702	89.499%
2	23:18:58	361359.070	3.336	527508.370	98.422%	13599.206	92.551%	11.500	14.386	97.482%
3	23:19:19	358015.450	3.500	540868.190	96.570%	14241.328	94.586%	11.953	14.829	94.356%
x		372908.880	3.865	548193.630	94.937%	14328.676	90.732%	9.574	19.972	93.779%
σ		22961.456	0.778	25160.894	4.529%	776.835	5.018%	3.734	9.295	4.023%
%RSD		6.157	20.141	4.590	4.770	5.422	5.530	38.999	46.540	4.290

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:18:35	137.943	3408.212	7989.640	100.615%	-66.006	5367.426	94.624%	10545.050
2	23:18:58	76.321	2984.764	7148.437	107.683%	107.722	5158.835	98.636%	9856.177
3	23:19:19	115.048	3047.052	6994.331	112.814%	71.947	4935.380	102.754%	9718.075
x		109.770	3146.676	7377.470	107.037%	37.888	5153.880	98.672%	10039.767
σ		31.148	228.628	535.725	6.125%	91.736	216.065	4.065%	443.002
%RSD		28.376	7.266	7.262	5.722	242.123	4.192	4.120	4.412

500-166139-b-1-a, 7/8/2019 11:22:48 PM

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:22:48	4.748	-0.226	23.464	2536341.000	369307.390	494.475	75638.697	106727.710	95.159%
2	23:23:09	4.082	-0.226	20.340	2261512.300	330025.940	352.525	65513.907	93829.776	105.159%
3	23:23:32	4.247	-0.226	29.841	T 2454059.000	348854.420	390.996	70737.821	98754.517	102.492%
x		4.359	-0.226	24.548	T 2417304.100	349395.910	412.665	70630.141	99770.667	100.936%
σ		0.347	0.000	4.842	T 141052.830	19646.323	73.414	5063.254	6508.731	5.178%
%RSD		7.959	0.000	19.725	T 5.835	5.623	17.790	7.169	6.524	5.130

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:22:48	8.824	441.304	291.220	22165.423	443931.330	979.659	752.287	2453.900	11871.629
2	23:23:09	1.374	455.089	231.368	19620.036	389001.100	891.393	626.282	2256.798	11041.773
3	23:23:32	12.325	487.094	239.104	20803.923	405238.360	932.330	572.047	2270.618	10975.761
x		7.507	461.162	253.898	20863.127	412723.590	934.461	650.205	2327.105	11296.388
σ		5.593	23.491	32.553	1273.726	28219.748	44.171	92.471	110.024	499.266
%RSD		74.499	5.094	12.821	6.105	6.837	4.727	14.222	4.728	4.420

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:22:48	606.507	3.417	300756.190	94.992%	1484.460	91.194%	25.676	-2.698	95.737%
2	23:23:09	531.565	2.773	271003.480	102.314%	1471.715	97.723%	24.142	10.458	101.319%
3	23:23:32	533.207	4.255	268340.610	105.492%	1450.871	100.106%	23.536	-2.699	103.707%
x		557.093	3.482	280033.430	100.933%	1469.016	96.341%	24.451	1.687	100.254%
σ		42.802	0.743	17995.759	5.384%	16.956	4.614%	1.103	7.596	4.090%
%RSD		7.683	21.334	6.426	5.335	1.154	4.789	4.513	450.361	4.080

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:22:48	27.612	333.035	25403.098	100.688%	-728.102	5529.862	97.584%	3673.375
2	23:23:09	12.976	285.286	23927.543	107.732%	-539.794	5570.800	99.938%	3691.919
3	23:23:32	57.158	313.253	22529.012	114.535%	-573.381	4999.182	108.929%	3313.968
x		32.582	310.525	23953.218	107.651%	-613.759	5366.615	102.150%	3559.754
σ		22.506	23.991	1437.215	6.924%	100.438	318.863	5.988%	213.059
%RSD		69.075	7.726	6.000	6.432	16.364	5.942	5.862	5.985

ccv, 7/8/2019 11:27:04 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:27:04	149.723	171.512	86.332	871355.370	493738.530	250433.740	966424.230	62401.102	87.731%
2	23:27:25	58.809	175.511	63.403	757217.450	426584.160	218395.690	837225.080	55390.955	98.254%
3	23:27:48	91.643	155.381	69.369	760620.100	421866.570	212865.760	830967.460	55321.020	99.397%
x		100.058	101.145%	105.721%	98.715%	98.103%	98.978%	99.650%	100.022%	95.127%
σ		46.037	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.430%
%RSD		46.010	6.364	16.288	8.154	8.986	8.926	8.707	7.049	6.760

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:27:04	4970.590	162698.340	214217.100	1109035.400	143134.770	399644.630	108468.900	302437.210	68875.273
2	23:27:25	4295.407	139945.980	184617.990	971408.840	125500.520	350627.880	96443.775	280651.390	63307.404
3	23:27:48	4371.247	142584.610	186059.300	976727.830	125487.370	352491.880	93909.091	278449.260	63447.816
x		101.104%	98.634%	99.601%	98.395%	101.132%	100.954%	100.495%	96.663%	96.761%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		8.137	8.385	8.560	7.651	7.753	7.557	7.809	4.617	4.869

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:27:04	54869.530	4678.456	295794.540	92.321%	209938.600	91.138%	153890.900	137071.050	92.519%
2	23:27:25	50721.433	4209.500	275208.670	96.128%	192578.890	95.984%	140447.090	123842.900	98.714%
3	23:27:48	50918.094	4296.780	269477.930	98.695%	187948.140	97.262%	140129.760	122012.650	99.580%
x		95.666%	97.249%	103.799%	95.715%	103.474%	94.795%	101.161%	97.176%	96.937%
σ		n/a	n/a	n/a	3.207%	n/a	3.231%	n/a	n/a	3.851%
%RSD		4.486	5.675	4.940	3.351	5.890	3.408	5.424	6.437	3.973

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:27:04	303253.620	458491.170	125433.040	104.518%	1790277.100	2329305.400	100.037%	2507375.800
2	23:27:25	274947.660	421887.320	117298.990	109.062%	1641141.500	2155798.400	105.190%	2319545.100
3	23:27:48	280798.040	419870.200	115231.840	114.545%	1684627.100	2173579.100	106.500%	2361803.600
x		102.077%	96.536%	96.327%	109.375%	92.487%	98.023%	103.909%	2396241.500
σ		n/a	n/a	n/a	5.021%	n/a	n/a	3.416%	98537.150
%RSD		5.219	5.016	4.520	4.590	4.497	4.301	3.288	4.112

ccb, 7/8/2019 11:31:19 PM QC Status: PASS (Initial: PASS)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:31:19	-2.257	-0.226	-0.183	-2307.792	175.467	150.692	-91.639	22.576	95.397%
2	23:31:42	-2.257	0.430	-1.056	-2515.881	118.190	88.413	-473.642	-9.413	101.730%
3	23:32:03	-2.257	-0.226	0.568	-2679.350	108.729	124.066	-323.236	2.917	102.635%
x		-2.257	-0.007	-0.224	-2501.008	134.129	121.057	-296.172	5.360	99.920%
σ		0.000	0.378	0.813	186.225	36.111	31.249	192.434	16.134	3.944%
%RSD		0.000	5189.571	363.517	7.446	26.923	25.813	64.974	301.015	3.947

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:31:19	-0.523	134.551	38.112	326.738	46.681	105.911	25.820	100.035	47.029
2	23:31:42	-0.668	168.861	-23.252	248.048	4.828	98.370	39.235	92.341	37.127
3	23:32:03	-0.688	115.883	-2.015	295.857	8.203	101.699	42.872	115.442	30.588
x		-0.626	139.765	4.282	290.214	19.904	101.993	35.975	102.606	38.248
σ		0.090	26.871	31.163	39.648	23.251	3.779	8.981	11.763	8.278
%RSD		14.336	19.226	727.833	13.661	116.813	3.705	24.965	11.465	21.642

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:31:19	20.085	3.179	126.589	94.151%	131.537	95.289%	53.533	81.244	95.733%
2	23:31:42	16.531	0.480	139.673	100.610%	119.263	101.822%	24.520	44.402	99.883%
3	23:32:03	16.217	2.179	148.662	105.050%	124.394	104.992%	42.728	23.339	103.922%
x		17.611	1.946	138.308	99.937%	125.065	100.701%	40.260	49.662	99.846%
σ		2.148	1.364	11.099	5.481%	6.164	4.948%	14.663	29.309	4.095%
%RSD		12.198	70.099	8.025	5.484	4.929	4.913	36.421	59.017	4.101

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:31:19	183.504	340.020	22.862	97.297%	986.552	631.542	102.083%	594.971
2	23:31:42	113.616	418.730	25.731	107.737%	1852.826	667.691	103.367%	535.101
3	23:32:03	170.987	318.657	50.173	108.277%	1514.015	710.035	106.217%	581.602
x		156.036	359.136	32.922	104.437%	1451.131	669.756	103.889%	570.558
σ		37.266	52.704	15.009	6.189%	436.548	39.287	2.116%	31.426
%RSD		23.883	14.675	45.589	5.926	30.083	5.866	2.036	5.508

ccvl, 7/8/2019 11:35:35 PM QC Status: FAIL (Initial: FAIL)

User Pre-dilution: 1.00

Run	Time	7Li	9Be	11B	23Na	24Mg	27Al	39K	44Ca	45Sc
1	23:35:35	-2.257	0.485	11.378	5098.848	3993.820	997.156	19298.116	472.654	93.826%
2	23:35:57	-2.257	1.101	13.871	4234.674	3610.433	952.507	17759.396	349.351	100.492%
3	23:36:19	4.031	1.032	12.307	3853.164	3463.366	885.979	15945.506	416.376	106.016%
x		-0.161	131.757%	90.606%	68.105%	101.119%	102.929%	100.237%	89.439%	100.111%
σ		3.631	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6.104%
%RSD		2252.004	38.691	10.061	14.520	7.423	5.919	9.499	14.954	6.097

Run	Time	47Ti	51V	52Cr	54Fe	55Mn	59Co	60Ni	63Cu	66Zn
1	23:35:35	94.255	3309.640	3955.305	4477.707	1484.266	1574.146	881.970	2432.489	5249.386
2	23:35:57	63.488	3039.777	3884.351	4169.342	1306.203	1493.043	933.640	2303.330	4755.774
3	23:36:19	74.704	2932.217	3644.523	4043.547	1205.627	1498.314	792.797	2319.123	4968.268
x		86.166%	102.810%	97.781%	102.111%	102.540%	104.489%	109.652%	98.944%	92.576%
σ		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%RSD		20.095	6.285	4.254	5.281	10.593	2.982	8.195	2.996	4.961

Run	Time	75As	78Se	88Sr	89Y	95Mo	103Rh	107Ag	111Cd	115In
1	23:35:35	233.482	43.673	4647.945	96.086%	3187.990	96.628%	1578.555	312.955	97.010%
2	23:35:57	208.051	36.488	4237.929	102.840%	2734.771	102.866%	1426.805	254.411	103.579%
3	23:36:19	204.776	50.009	4343.821	104.208%	2934.876	102.275%	1351.595	199.322	105.393%
x		98.764%	96.012%	102.116%	101.045%	97.014%	100.590%	101.447%	97.282%	101.994%
σ		n/a	n/a	n/a	4.348%	n/a	3.443%	n/a	n/a	4.411%
%RSD		7.294	15.591	4.827	4.303	7.693	3.423	7.960	22.236	4.324

Run	Time	118Sn	121Sb	137Ba	159Tb	205Tl	208Pb	209Bi	238U
1	23:35:35	5293.634	5337.787	1240.082	100.688%	14269.012	4970.353	95.065%	92430.391
2	23:35:57	5343.339	5116.945	1030.597	109.412%	12913.997	4593.406	102.142%	87708.126
3	23:36:19	4924.694	4538.501	1296.053	108.107%	12583.400	3976.409	107.797%	80537.316
x		92.462%	92.764%	95.980%	106.069%	89.861%	99.663%	101.668%	86891.945
σ		n/a	n/a	n/a	4.706%	n/a	n/a	6.379%	5988.399
%RSD		4.409	8.259	11.770	4.437	6.738	11.118	6.274	6.892

Performance Report

Sample details
Acquired at : 7/8/2019 10:13:43 AM
Report name : CCT KED [11/27/2018 4:58:37 PM]

Tune conditions

Major	
Extraction	-184.3
Lens 1	-1310
Lens 2	-80.0
Focus	0.0
D1	-54.9
D2	-140
Pole Bias	-14.0
Hexapole Bias	-16.5
Nebuliser	0.76

Minor	
Lens 3	-195.3
Forward power	1404
Horizontal	50
Vertical	289
DA	-30.6
Cool	13.0
Auxiliary	0.70
Sampling Depth	120

Global	
Standard resolution	120
High resolution	100
Analogue Detector	1951
PC Detector	3775

Add. Gases	
CCT-He	4.51
CCT-He	0.00

Sensitivity and stability results

Acquisition parameters
Sweeps : 100

Run	Time	51V	51Cl O	59Co	75Ar Cl	78Ar2	115In	140Ce	156Ce O	238U
Dwell (mSecs)		10.0	10.0	10.0	10.0	100.0	10.0	10.0	10.0	10.0
Limits	%RSD	-	-	-	-	-	5.0%	-	-	-
	Countrate	<1000	-	-	-	<20	>10000	-	-	-
1	10:13:43 AM	13.000	6.000	21285.891	0.000	2.100	39440.370	75432.662	527.015	99863.503
2	10:14:06 AM	12.000	8.000	21542.494	1.000	2.700	40016.881	75253.183	552.017	100364.98
3	10:14:29 AM	14.000	8.000	21325.985	0.000	2.100	39897.357	74644.194	504.014	102441.96
4	10:14:51 AM	12.000	6.000	21577.577	1.000	2.100	39280.681	76167.753	569.018	102543.09
5	10:15:14 AM	16.000	13.000	20864.917	0.000	2.600	39465.478	73919.307	514.015	99012.268
x		13.400	8.200	21319.373	0.400	2.320	39620.153	75083.420	533.216	100845.16
σ		1.67	2.86	284.67	0.55	0.30	318.48	847.74	26.90	1580.07
%RSD		12.487	34.922	1.335	136.931	13.074	0.804	1.129	5.045	1.567

Ratio results

Run	Time	51Cl O/59Co	75Ar Cl/115In	156Ce O/140Ce
Ratio limits		<0.1000	<0.0100	<0.0200
1	10:13:43 AM	0.000	0.000	0.007
2	10:14:06 AM	0.000	0.000	0.007
3	10:14:29 AM	0.000	0.000	0.007
4	10:14:51 AM	0.000	0.000	0.007
5	10:15:14 AM	0.001	0.000	0.007
x		0.0004	0.0000	0.0071
σ		0.00	0.00	0.00
%RSD		36.4220	136.9405	4.1544

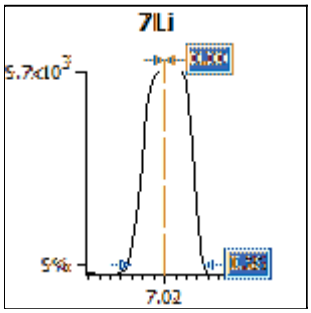
Result : The performance report passed.

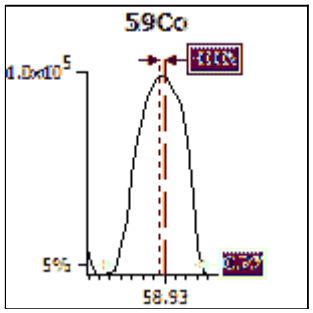
Performance Report

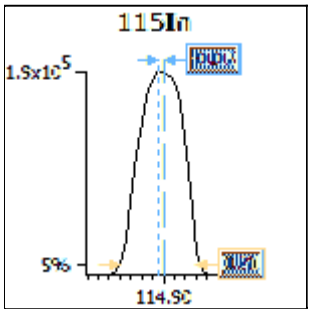
Sample details
Acquired at : 7/8/2019 10:07:54 AM
Report name : 1] XSII Xt Tune Standard Mode 3/13/19 [3/13/2019 2:14:29 PM]

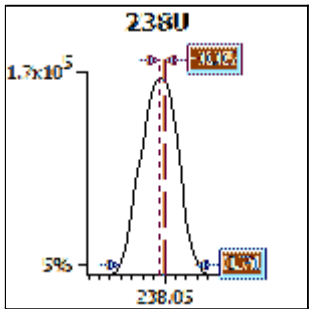
Mass Calibration verification

Acquisition parameters
Sweeps : 30
Dwell : 1.0 mSecs
Point spacing : 0.05 amu
Peak width measured at 5% of the peak maximum









Analyte	Limits			Results	
	Max. width	Min. width	Max. error	Peak width	Peak error
7Li	0.85	0.65	0.10	0.66	0.00
59Co	0.85	0.65	0.10	0.77	-0.05
115In	0.85	0.65	0.10	0.71	-0.05
238U	0.85	0.65	0.10	0.71	-0.05

Sample details
Acquired at : 7/8/2019 10:07:54 AM
Report name : 1] XSII Xt Tune Standard Mode 3/13/19 [3/13/2019 2:14:29 PM]

Tune conditions

Major	
Extraction	-227.5
Lens 1	-1318
Lens 2	-80.0
Focus	13.1
D1	-44.7
D2	-140
Pole Bias	-4.0
Hexapole Bias	-2.0
Nebuliser	0.76

Minor	
Lens 3	-195.3
Forward power	1404
Horizontal	50
Vertical	289
DA	-20.4
Cool	13.0
Auxiliary	0.70
Sampling Depth	100

Global	
Standard resolution	120
High resolution	100
Analogue Detector	1951
PC Detector	3775

Add. Gases	
CCT-He	0.00
CCT-He	0.00

Sensitivity and stability results

Acquisition parameters
Sweeps : 100

Run	Time	7Li	59Co	137Ba++	138Ba++	138Ba++	115In	137Ba	140Ce	156Ce O
Dwell (mSecs)		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Limits	%RSD	5.0%	5.0%	-	-	-	5.0%	-	-	-
	Countrate	>5000	>10000	-	-	-	>80000	-	-	-
1	10:08:00 AM	5556.698	93732.742	362.007	2273.284	2358.306	192437.44	27482.478	226115.51	4280.007
2	10:08:16 AM	5609.730	94315.725	391.008	2273.284	2228.273	193643.65	27741.262	226634.19	4274.004
3	10:08:31 AM	5506.667	94666.341	326.006	2390.314	2248.278	195427.21	27426.309	226661.87	4245.991
4	10:08:46 AM	5567.704	93904.501	413.009	2278.285	2433.326	195460.92	27871.660	228710.22	4354.042
5	10:09:01 AM	5475.649	93256.886	308.005	2319.296	2318.296	195402.69	27857.617	227134.44	4322.027
x		5543.290	93975.239	360.007	2306.893	2317.296	194474.38	27675.865	227051.25	4295.215
σ		52.69	541.62	43.69	50.47	83.42	1376.79	209.36	995.02	42.67
%RSD		0.951	0.576	12.135	2.188	3.600	0.708	0.756	0.438	0.993

Run	Time	238U
Dwell (mSecs)		10.0
Limits	%RSD	5.0%
	Countrate	>150000
1	10:08:00 AM	162608.39
2	10:08:16 AM	161270.88
3	10:08:31 AM	162128.94
4	10:08:46 AM	163834.10
5	10:09:01 AM	163647.79
x		162698.02
σ		1067.87
%RSD		0.656

Ratio results

Run	Time	137Ba++/137Ba	156Ce O/140Ce
Ratio limits		<0.0400	<0.0200
1	10:08:00 AM	0.013	0.019
2	10:08:16 AM	0.014	0.019
3	10:08:31 AM	0.012	0.019
4	10:08:46 AM	0.015	0.019
5	10:09:01 AM	0.011	0.019
x		0.0130	0.0189
σ		0.00	0.00
%RSD		11.8815	0.6709

Result : The performance report passed.

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG No.:

Project: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID	Lab Sample ID
AES-TW101-060319	400-171203-1
AES-MW3-060319	400-171203-2
AES-TW102-060319	400-171203-3
AES-MW4-060319	400-171203-4
AES-MW4-DUP-060319	400-171203-5
AES-TW103-060319	400-171203-6
AES-MW5-060319	400-171203-7
AES-FB-060319	400-171203-8
AES-TW104-060419	400-171203-9
AES-TW105-060419	400-171203-10
AES-TW106-060419	400-171203-11
AES-TW107-060419	400-171203-12
AES-TW108-060419	400-171203-13
AES-TW109-060419	400-171203-14
AES-FB-060419	400-171203-15

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-TW101-060319 Lab Sample ID: 400-171203-1

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 09:25

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	650	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	650	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	16000	250	170	mg/L			1	SM 2540C
16887-00-6	Chloride	4700	200	140	mg/L			100	SM 4500 Cl- E
16984-48-8	Fluoride	0.96	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	620	300	84	mg/L			60	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW3-060319 Lab Sample ID: 400-171203-2

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 10:36

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	550	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	550	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	8700	130	85	mg/L			1	SM 2540C
16887-00-6	Chloride	4100	200	140	mg/L			100	SM 4500 Cl- E
16984-48-8	Fluoride	1.6	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	1900	300	84	mg/L			60	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-TW102-060319 Lab Sample ID: 400-171203-3

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 11:27

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	350	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	350	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	41000	1000	680	mg/L			1	SM 2540C
16887-00-6	Chloride	9000	600	420	mg/L			300	SM 4500 Cl- E
16984-48-8	Fluoride	0.74	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	11000	3000	840	mg/L			600	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW4-060319 Lab Sample ID: 400-171203-4

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 13:52

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	800	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	800	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	16000	1000	680	mg/L			1	SM 2540C
16887-00-6	Chloride	4400	200	140	mg/L			100	SM 4500 Cl- E
16984-48-8	Fluoride	0.78	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	4500	1500	420	mg/L			300	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW4-DUP-060319 Lab Sample ID: 400-171203-5

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 14:04

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	810	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	810	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	13000	1000	680	mg/L			1	SM 2540C
16887-00-6	Chloride	4500	200	140	mg/L			100	SM 4500 Cl- E
16984-48-8	Fluoride	0.79	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	4300	1500	420	mg/L			300	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-TW103-060319 Lab Sample ID: 400-171203-6

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 14:51

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	320	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	320	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	32000	1000	680	mg/L			1	SM 2540C
16887-00-6	Chloride	5200	600	420	mg/L			300	SM 4500 Cl- E
16984-48-8	Fluoride	0.74	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	10000	1500	420	mg/L			300	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW5-060319 Lab Sample ID: 400-171203-7

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 16:07

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	500	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	500	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	9900	130	85	mg/L			1	SM 2540C
16887-00-6	Chloride	3800	200	140	mg/L			100	SM 4500 Cl- E
16984-48-8	Fluoride	0.42	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	2300	500	140	mg/L			100	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-FB-060319 Lab Sample ID: 400-171203-8

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/03/2019 16:19

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	3.4	5.0	3.4	mg/L	U		1	SM 2540C
16887-00-6	Chloride	1.4	2.0	1.4	mg/L	U		1	SM 4500 Cl- E
16984-48-8	Fluoride	0.032	0.10	0.032	mg/L	U		1	SM 4500 F C
14808-79-8	Sulfate	1.6	5.0	1.4	mg/L	J		1	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-TW104-060419 Lab Sample ID: 400-171203-9

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 09:12

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	600	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	600	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	13000	130	85	mg/L			1	SM 2540C
16887-00-6	Chloride	4800	200	140	mg/L			100	SM 4500 Cl- E
16984-48-8	Fluoride	0.78	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	1800	300	84	mg/L			60	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-TW105-060419 Lab Sample ID: 400-171203-10

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 10:27

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	820	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	820	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	12000	130	85	mg/L			1	SM 2540C
16887-00-6	Chloride	3600	200	140	mg/L			100	SM 4500 Cl- E
16984-48-8	Fluoride	1.2	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	3000	500	140	mg/L			100	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-TW106-060419 Lab Sample ID: 400-171203-11

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 11:23

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	830	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	830	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	50000	1000	680	mg/L			1	SM 2540C
16887-00-6	Chloride	6300	600	420	mg/L			300	SM 4500 Cl- E
16984-48-8	Fluoride	0.98	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	4400	1500	420	mg/L			300	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-TW107-060419 Lab Sample ID: 400-171203-12

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 13:37

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	510	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	510	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	39000	1000	680	mg/L			1	SM 2540C
16887-00-6	Chloride	7000	600	420	mg/L			300	SM 4500 Cl- E
16984-48-8	Fluoride	0.61	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	7800	1500	420	mg/L			300	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-TW108-060419 Lab Sample ID: 400-171203-13

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 14:33

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	530	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	530	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	26000	1000	680	mg/L			1	SM 2540C
16887-00-6	Chloride	6300	600	420	mg/L			300	SM 4500 Cl- E
16984-48-8	Fluoride	0.71	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	4200	1500	420	mg/L			300	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-TW109-060419 Lab Sample ID: 400-171203-14

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 15:38

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	500	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	500	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	13000	250	170	mg/L			1	SM 2540C
16887-00-6	Chloride	4000	200	140	mg/L			100	SM 4500 Cl- E
16984-48-8	Fluoride	0.66	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	2300	500	140	mg/L			100	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-FB-060419 Lab Sample ID: 400-171203-15

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG ID.:

Matrix: Water Date Sampled: 06/04/2019 16:18

Reporting Basis: WET Date Received: 06/06/2019 09:24

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	3.4	5.0	3.4	mg/L	U		1	SM 2540C
16887-00-6	Chloride	1.4	2.0	1.4	mg/L	U		1	SM 4500 Cl- E
16984-48-8	Fluoride	0.032	0.10	0.032	mg/L	U		1	SM 4500 F C
14808-79-8	Sulfate	1.6	5.0	1.4	mg/L	J		1	SM 4500 SO4 E

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Analyst: BAB Batch Start Date: 06/07/2019

Reporting Units: mg/L Analytical Batch No.: 443702

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
6	CCV	14:10	Alkalinity, Total	103	100	103	90-110		ALK-CCV-W_00068
			Bicarbonate Alkalinity as CaCO3	25.1	106	24			ALK-CCV-W_00068
			Carbonate Alkalinity as CaCO3	77.5	106	73			ALK-CCV-W_00068
17	CCV	15:16	Alkalinity, Total	102	100	102	90-110		ALK-CCV-W_00068
			Bicarbonate Alkalinity as CaCO3	21.8	106	21			ALK-CCV-W_00068
			Carbonate Alkalinity as CaCO3	80.0	106	75			ALK-CCV-W_00068
18	CCB	15:20	Alkalinity, Total	0.98				U	
			Bicarbonate Alkalinity as CaCO3	0.98				U	
			Carbonate Alkalinity as CaCO3	0.98				U	
1	CCV	17:00	Alkalinity, Total	104	100	104	90-110		ALK-CCV-W_00068
			Bicarbonate Alkalinity as CaCO3	43.0	106	41			ALK-CCV-W_00068
			Carbonate Alkalinity as CaCO3	60.7	106	57			ALK-CCV-W_00068
2	CCB	17:04	Alkalinity, Total	0.98				U	
			Bicarbonate Alkalinity as CaCO3	0.98				U	
			Carbonate Alkalinity as CaCO3	0.98				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Analyst: BAB Batch Start Date: 06/10/2019

Reporting Units: mg/L Analytical Batch No.: 443918

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
6	CCV	10:35	Alkalinity, Total	99.2	100	99	90-110		ALK-CCV-W_00068
			Bicarbonate Alkalinity as CaCO3	26.8	106	25			ALK-CCV-W_00068
			Carbonate Alkalinity as CaCO3	72.4	106	68			ALK-CCV-W_00068
17	CCV	11:39	Alkalinity, Total	104	100	104	90-110		ALK-CCV-W_00068
			Bicarbonate Alkalinity as CaCO3	31.6	106	30			ALK-CCV-W_00068
			Carbonate Alkalinity as CaCO3	72.3	106	68			ALK-CCV-W_00068
18	CCB	11:43	Alkalinity, Total	0.98				U	
			Bicarbonate Alkalinity as CaCO3	0.98				U	
			Carbonate Alkalinity as CaCO3	0.98				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Analyst: CLB Batch Start Date: 06/10/2019

Reporting Units: mg/L Analytical Batch No.: 443926

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
14	CCV	14:06	Total Dissolved Solids	262	293	89	78-122		GTDS-LCS-W_00096
26	CCV	14:06	Total Dissolved Solids	312	293	106	78-122		GTDS-LCS-W_00096

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Analyst: CLB Batch Start Date: 06/11/2019

Reporting Units: mg/L Analytical Batch No.: 444004

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
14	CCV	10:40	Total Dissolved Solids	340	293	116	78-122		GTDS-LCS-W_00096
26	CCV	10:40	Total Dissolved Solids	340	293	116	78-122		GTDS-LCS-W_00096

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Analyst: RRC Batch Start Date: 06/11/2019

Reporting Units: mg/L Analytical Batch No.: 444026

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
11	CCV	10:35	Chloride	34.8	35.0	99	90-110		CL-CCV-35ppm_00031
12	CCB	10:35	Chloride	0.60				U	
14	ICV	10:35	Chloride	30.5	30.0	102	90-110		CL-ICV-W_00054
15	ICB	10:35	Chloride	0.60				U	
23	CCV	10:38	Chloride	34.8	35.0	99	90-110		CL-CCV-35ppm_00031
24	CCB	10:38	Chloride	0.60				U	
35	CCV	10:45	Chloride	34.7	35.0	99	90-110		CL-CCV-35ppm_00031
36	CCB	10:45	Chloride	0.60				U	
48	CCV	11:04	Chloride	34.5	35.0	98	90-110		CL-CCV-35ppm_00031
49	CCB	11:04	Chloride	0.60				U	
54	CCV	11:05	Chloride	34.7	35.0	99	90-110		CL-CCV-35ppm_00031
55	CCB	11:05	Chloride	0.60				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Analyst: RRC Batch Start Date: 06/11/2019

Reporting Units: mg/L Analytical Batch No.: 444079

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	13:15	Chloride	35.4	35.0	101	90-110		CL-CCV-35ppm_00031
2	CCB	13:15	Chloride	0.60				U	
4	ICV	13:15	Chloride	31.4	30.0	105	90-110		CL-ICV-W_00054
5	ICB	13:15	Chloride	0.60				U	
13	CCV	13:18	Chloride	35.4	35.0	101	90-110		CL-CCV-35ppm_00031
14	CCB	13:18	Chloride	0.60				U	
25	CCV	13:25	Chloride	35.2	35.0	101	90-110		CL-CCV-35ppm_00031
26	CCB	13:25	Chloride	0.60				U	
36	CCV	13:26	Chloride	35.2	35.0	101	90-110		CL-CCV-35ppm_00031
37	CCB	13:26	Chloride	0.60				U	
38	CCV	15:11	Chloride	35.9	35.0	103	90-110		CL-CCV-35ppm_00031
39	CCB	15:11	Chloride	0.60				U	
50	CCV	15:22	Chloride	35.7	35.0	102	90-110		CL-CCV-35ppm_00031
51	CCB	15:22	Chloride	0.60				U	
59	CCV	15:24	Chloride	36.3	35.0	104	90-110		CL-CCV-35ppm_00031
60	CCB	15:24	Chloride	0.60				U	
61	CCV	15:54	Chloride	36.0	35.0	103	90-110		CL-CCV-35ppm_00031
62	CCB	15:54	Chloride	0.60				U	
69	CCV	15:56	Chloride	36.3	35.0	104	90-110		CL-CCV-35ppm_00031
70	CCB	15:56	Chloride	0.60				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Analyst: BAB Batch Start Date: 06/21/2019

Reporting Units: mg/L Analytical Batch No.: 445316

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
5	CCV	14:52	Fluoride	4.73	5.00	95	90-110		FL-CCV-S_00007
6	CCVL	14:56	Fluoride	0.480	0.500	96	50-150		FL-CCV-S_00007
18	CCV	15:37	Fluoride	4.64	5.00	93	90-110		FL-CCV-S_00007
19	CCB	15:41	Fluoride	0.032				U	
15	CCV	16:10	Fluoride	4.73	5.00	95	90-110		FL-CCV-S_00007
2	CCB	16:14	Fluoride	0.032				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Analyst: RRC Batch Start Date: 06/11/2019

Reporting Units: mg/L Analytical Batch No.: 444124

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	19:04	Sulfate	16.0	15.0	107	90-110		SO4-CCV-W_00032
2	CCB	19:04	Sulfate	1.4				U	
4	ICV	19:04	Sulfate	15.7	15.0	105	90-110		SO4-ICV-W_00062
5	ICB	19:04	Sulfate	1.4				U	
8	CCV	19:05	Sulfate	16.0	15.0	107	90-110		SO4-CCV-W_00032
9	CCB	19:05	Sulfate	1.4				U	
40	CCV	20:00	Sulfate	15.5	15.0	103	90-110		SO4-CCV-W_00032
41	CCB	20:00	Sulfate	1.54				J	
44	CCV	20:05	Sulfate	15.5	15.0	103	90-110		SO4-CCV-W_00032
45	CCB	20:05	Sulfate	1.53				J	
50	CCV	20:09	Sulfate	15.5	15.0	104	90-110		SO4-CCV-W_00032
51	CCB	20:09	Sulfate	1.41				J	
56	CCV	20:13	Sulfate	15.3	15.0	102	90-110		SO4-CCV-W_00032
57	CCB	20:13	Sulfate	1.4				U	
68	CCV	20:22	Sulfate	15.6	15.0	104	90-110		SO4-CCV-W_00032
69	CCB	20:22	Sulfate	1.4				U	
74	CCV	20:24	Sulfate	15.4	15.0	103	90-110		SO4-CCV-W_00032
75	CCB	20:24	Sulfate	1.4				U	
79	CCV	20:48	Sulfate	15.5	15.0	103	90-110		SO4-CCV-W_00032
80	CCB	20:48	Sulfate	1.4				U	
85	CCV	20:53	Sulfate	15.4	15.0	102	90-110		SO4-CCV-W_00032
86	CCB	20:53	Sulfate	1.4				U	
91	CCV	20:57	Sulfate	15.8	15.0	105	90-110		SO4-CCV-W_00032
92	CCB	20:57	Sulfate	1.4				U	
97	CCV	20:58	Sulfate	15.2	15.0	102	90-110		SO4-CCV-W_00032
98	CCB	20:58	Sulfate	1.4				U	
99	CCV	21:10	Sulfate	15.4	15.0	103	90-110		SO4-CCV-W_00032
100	CCB	21:10	Sulfate	1.4				U	
103	CCV	21:12	Sulfate	15.4	15.0	103	90-110		SO4-CCV-W_00032
104	CCB	21:12	Sulfate	1.4				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 443702 Date: 06/07/2019 13:54							
SM 2320B	MB 400-443702/4	Alkalinity, Total	0.98	U	mg/L	1.0	1
SM 2320B	MB 400-443702/4	Bicarbonate Alkalinity as CaCO3	0.98	U	mg/L	1.0	1
SM 2320B	MB 400-443702/4	Carbonate Alkalinity as CaCO3	0.98	U	mg/L	1.0	1
Batch ID: 443918 Date: 06/10/2019 10:18							
SM 2320B	MB 400-443918/4	Alkalinity, Total	0.98	U	mg/L	1.0	1
SM 2320B	MB 400-443918/4	Bicarbonate Alkalinity as CaCO3	0.98	U	mg/L	1.0	1
SM 2320B	MB 400-443918/4	Carbonate Alkalinity as CaCO3	0.98	U	mg/L	1.0	1
Batch ID: 443926 Date: 06/10/2019 14:06							
SM 2540C	MB 400-443926/1	Total Dissolved Solids	3.4	U	mg/L	5.0	1
Batch ID: 444004 Date: 06/11/2019 10:40							
SM 2540C	MB 400-444004/1	Total Dissolved Solids	3.4	U	mg/L	5.0	1
Batch ID: 444026 Date: 06/11/2019 10:35							
SM 4500 Cl- E	MB 400-444026/16	Chloride	1.4	U	mg/L	2.0	1
Batch ID: 444079 Date: 06/11/2019 13:15							
SM 4500 Cl- E	MB 400-444079/6	Chloride	1.4	U	mg/L	2.0	1
Batch ID: 445316 Date: 06/21/2019 14:47							
SM 4500 F C	MB 400-445316/3	Fluoride	0.032	U	mg/L	0.10	1
Batch ID: 444124 Date: 06/11/2019 19:04							
SM 4500 SO4 E	MB 400-444124/6	Sulfate	1.4	U	mg/L	5.0	1

5-IN
MATRIX SPIKE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 444079 Date: 06/11/2019 15:11											
SM 4500 Cl- E	400-171203-14	Chloride	4000		mg/L						
SM 4500 Cl- E MS	400-171203-14	Chloride	3800		mg/L	10.0	-1989	73-120			4
Batch ID: 445316 Date: 06/21/2019 15:06											
SM 4500 F C	400-171203-14	Fluoride	0.66		mg/L						
SM 4500 F C MS	400-171203-14	Fluoride	1.44		mg/L	1.00	78	75-125			
Batch ID: 444124 Date: 06/11/2019 20:57											
SM 4500 SO4 E	400-171203-14	Sulfate	2300		mg/L						
SM 4500 SO4 E MS	400-171203-14	Sulfate	2360		mg/L	10.0	740	77-128			4

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

5-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 444079 Date: 06/11/2019 15:11											
SM 4500 Cl- E	400-171203-14 MSD	Chloride	3740		mg/L	10.0	-2532	73-120	1	8	4
Batch ID: 445316 Date: 06/21/2019 15:10											
SM 4500 F C	400-171203-14 MSD	Fluoride	1.44		mg/L	1.00	78	75-125	0	4	
Batch ID: 444124 Date: 06/11/2019 20:57											
SM 4500 SO4 E	400-171203-14 MSD	Sulfate	2360		mg/L	10.0	752	77-128	0	5	4

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

6-IN
DUPLICATE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Matrix: Water

Method	Client Sample ID	Lab Sample ID	Analyte	Result	Unit	RPD	RPD Limit	Qual
Batch ID: 443702 Date: 06/07/2019 15:41								
SM 2320B	AES-MW4-060319	400-171203-4	Alkalinity, Total	800	mg/L			
SM 2320B	AES-MW4-060319	400-171203-4 DU	Alkalinity, Total	808	mg/L	0.7	20	
SM 2320B	AES-MW4-060319	400-171203-4	Bicarbonate Alkalinity as CaCO3	800	mg/L			
SM 2320B	AES-MW4-060319	400-171203-4 DU	Bicarbonate Alkalinity as CaCO3	808	mg/L	0.7	20	
SM 2320B	AES-MW4-060319	400-171203-4	Carbonate Alkalinity as CaCO3	0.98	mg/L			U
SM 2320B	AES-MW4-060319	400-171203-4 DU	Carbonate Alkalinity as CaCO3	0.98	mg/L	NC	20	U
Batch ID: 443918 Date: 06/10/2019 10:51								
SM 2320B	AES-TW109-060419	400-171203-14	Alkalinity, Total	500	mg/L			
SM 2320B	AES-TW109-060419	400-171203-14 DU	Alkalinity, Total	504	mg/L	0.8	20	
SM 2320B	AES-TW109-060419	400-171203-14	Bicarbonate Alkalinity as CaCO3	500	mg/L			
SM 2320B	AES-TW109-060419	400-171203-14 DU	Bicarbonate Alkalinity as CaCO3	504	mg/L	0.8	20	
SM 2320B	AES-TW109-060419	400-171203-14	Carbonate Alkalinity as CaCO3	0.98	mg/L			U
SM 2320B	AES-TW109-060419	400-171203-14 DU	Carbonate Alkalinity as CaCO3	0.98	mg/L	NC	20	U
Batch ID: 445316 Date: 06/21/2019 15:47								
SM 4500 F C	AES-TW104-060419	400-171203-9	Fluoride	0.78	mg/L			
SM 4500 F C	AES-TW104-060419	400-171203-9 DU	Fluoride	0.780	mg/L	0	4	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

7A-IN
LAB CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 443702	Date: 06/07/2019 14:03										
						LCS Source: ALK-ICV-W_00084					
SM 2320B	LCS 400-443702/5	Alkalinity, Total	112		mg/L	100	112	80-120			
Batch ID: 443918	Date: 06/10/2019 10:27										
						LCS Source: ALK-ICV-W_00084					
SM 2320B	LCS 400-443918/5	Alkalinity, Total	113		mg/L	100	113	80-120			
Batch ID: 443926	Date: 06/10/2019 14:06										
						LCS Source: GTDS-LCS-W_00096					
SM 2540C	LCS 400-443926/2	Total Dissolved Solids	318		mg/L	293	109	78-122			
Batch ID: 444004	Date: 06/11/2019 10:40										
						LCS Source: GTDS-LCS-W_00096					
SM 2540C	LCS 400-444004/2	Total Dissolved Solids	322		mg/L	293	110	78-122			
Batch ID: 444026	Date: 06/11/2019 10:35										
						LCS Source: CL-ICV-W_00054					
SM 4500 Cl- E	LCS 400-444026/17	Chloride	30.7		mg/L	30.0	102	90-110			
Batch ID: 444079	Date: 06/11/2019 13:15										
						LCS Source: CL-ICV-W_00054					
SM 4500 Cl- E	LCS 400-444079/7	Chloride	31.5		mg/L	30.0	105	90-110			
Batch ID: 445316	Date: 06/21/2019 14:49										
						LCS Source: FL-LCS-S_00013					
SM 4500 F C	LCS 400-445316/4	Fluoride	3.75		mg/L	4.00	94	90-110			
Batch ID: 444124	Date: 06/11/2019 19:04										
						LCS Source: SO4-ICV-W_00062					
SM 4500 SO4 E	LCS 400-444124/7	Sulfate	15.7		mg/L	15.0	105	90-110			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

7A-IN
METHOD REPORTING LIMIT CHECK
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 444026	Date: 06/11/2019 10:35										
						LCS Source: CL-CCVL-2ppm_00029					
SM 4500 Cl- E	MRL 400-444026/13	Chloride	1.39	J	mg/L	2.00	69	50-150			
Batch ID: 444079	Date: 06/11/2019 13:15										
						LCS Source: CL-CCVL-2ppm_00029					
SM 4500 Cl- E	MRL 400-444079/3	Chloride	1.37	J	mg/L	2.00	68	50-150			
Batch ID: 444124	Date: 06/11/2019 19:04										
						LCS Source: SO4-CCVL-W_00037					
SM 4500 SO4 E	MRL 400-444124/3	Sulfate	5.16		mg/L	5.00	103	50-150			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 2320B MDL Date: 09/23/2011 09:10

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Alkalinity, Total		1	0.98
Bicarbonate Alkalinity as CaCO3		1	0.98
Carbonate Alkalinity as CaCO3		1	0.98

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 2320B XMDL Date: 09/23/2011 09:11

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Alkalinity, Total		1	0.98
Bicarbonate Alkalinity as CaCO3		1	0.98
Carbonate Alkalinity as CaCO3		1	0.98

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: Balance 1

Method: SM 2540C MDL Date: 04/09/2012 08:46

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Total Dissolved Solids		5	3.4

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: Balance 1

Method: SM 2540C XMDL Date: 04/09/2012 08:46

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Total Dissolved Solids		5	3.4

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 Cl- E MDL Date: 08/22/2018 14:09

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Chloride		2	1.4

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 Cl- E XMDL Date: 10/31/2012 11:00

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Chloride		2	0.6

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 4500 F C MDL Date: 03/03/2015 14:05

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Fluoride		0.1	0.032

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 4500 F C XMDL Date: 04/22/2015 09:30

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Fluoride		0.1	0.032

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 SO4 E MDL Date: 11/03/2010 15:08

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Sulfate		5	1.4

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-171203-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 SO4 E XMDL Date: 11/03/2010 15:09

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Sulfate		5	1.4

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: AUTOTITRATOR Analysis Method: SM 2320B

Start Date: 06/07/2019 13:52 End Date: 06/07/2019 17:04

Lab Sample Id	D/F	Type	Time	Analytes																										
				Alk	BALKCC	CarAlk																								
ZZZZZZ			13:52																											
MB 400-443702/4	1	T	13:54	X	X	X																								
LCS 400-443702/5	1	T	14:03	X	X	X																								
CCV 400-443702/6	1		14:10	X	X	X																								
ZZZZZZ			14:15																											
ZZZZZZ			14:19																											
ZZZZZZ			14:23																											
ZZZZZZ			14:28																											
ZZZZZZ			14:33																											
ZZZZZZ			14:38																											
ZZZZZZ			14:43																											
400-171203-1	1	T	14:53	X	X	X																								
400-171203-2	1	T	15:01	X	X	X																								
400-171203-3	1	T	15:08	X	X	X																								
CCV 400-443702/17	1		15:16	X	X	X																								
CCB 400-443702/18	1		15:20	X	X	X																								
400-171203-4	1	T	15:30	X	X	X																								
400-171203-4 DU	1	T	15:41	X	X	X																								
400-171203-5	1	T	15:52	X	X	X																								
400-171203-6	1	T	15:59	X	X	X																								
400-171203-7	1	T	16:07	X	X	X																								
400-171203-8	1	T	16:13	X	X	X																								
400-171203-9	1	T	16:22	X	X	X																								
400-171203-10	1	T	16:33	X	X	X																								
400-171203-11	1	T	16:43	X	X	X																								
400-171203-12	1	T	16:51	X	X	X																								
CCV 400-443702/1	1		17:00	X	X	X																								
CCB 400-443702/2	1		17:04	X	X	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: AUTOTITRATOR Analysis Method: SM 2320B

Start Date: 06/10/2019 10:16 End Date: 06/10/2019 12:52

Lab Sample Id	D/F	Type	Time	Analytes																											
				Alk	BALKCC	CarAlk																									
ZZZZZZ			10:16																												
MB 400-443918/4	1	T	10:18	X	X	X																									
LCS 400-443918/5	1	T	10:27	X	X	X																									
CCV 400-443918/6	1		10:35	X	X	X																									
400-171203-14	1	T	10:43	X	X	X																									
400-171203-14 DU	1	T	10:51	X	X	X																									
400-171203-13	1	T	11:00	X	X	X																									
400-171203-15	1	T	11:05	X	X	X																									
ZZZZZZ			11:11																												
ZZZZZZ			11:14																												
ZZZZZZ			11:19																												
ZZZZZZ			11:22																												
ZZZZZZ			11:27																												
ZZZZZZ			11:30																												
CCV 400-443918/17	1		11:39	X	X	X																									
CCB 400-443918/18	1		11:43	X	X	X																									
ZZZZZZ			11:51																												
ZZZZZZ			12:01																												
ZZZZZZ			12:06																												
ZZZZZZ			12:14																												
ZZZZZZ			12:19																												
ZZZZZZ			12:22																												
ZZZZZZ			12:28																												
ZZZZZZ			12:30																												
ZZZZZZ			12:35																												
ZZZZZZ			12:41																												
CCV 400-443918/1			12:49																												
CCB 400-443918/2			12:52																												

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: Balance 1 Analysis Method: SM 2540C

Start Date: 06/10/2019 14:06 End Date: 06/10/2019 14:06

Lab Sample Id	D/F	Type	Time	Analytes																								
				TDS																								
MB 400-443926/1	1	T	14:06	X																								
LCS 400-443926/2	1	T	14:06	X																								
ZZZZZZ			14:06																									
ZZZZZZ			14:06																									
400-171203-6	1	T	14:06	X																								
400-171203-5	1	T	14:06	X																								
400-171203-3	1	T	14:06	X																								
400-171203-4	1	T	14:06	X																								
ZZZZZZ			14:06																									
ZZZZZZ			14:06																									
400-171203-1	1	T	14:06	X																								
400-171203-14	1	T	14:06	X																								
ZZZZZZ			14:06																									
CCV 400-443926/14	1		14:06	X																								
ZZZZZZ			14:06																									
ZZZZZZ			14:06																									
ZZZZZZ			14:06																									
400-171203-7	1	T	14:06	X																								
400-171203-2	1	T	14:06	X																								
ZZZZZZ			14:06																									
ZZZZZZ			14:06																									
ZZZZZZ			14:06																									
ZZZZZZ			14:06																									
ZZZZZZ			14:06																									
400-171203-8	1	T	14:06	X																								
CCV 400-443926/26	1		14:06	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: Balance 1 Analysis Method: SM 2540C

Start Date: 06/11/2019 10:40 End Date: 06/11/2019 10:40

Lab Sample Id	D/F	Type	Time	Analytes																								
				TDS																								
MB 400-444004/1	1	T	10:40	X																								
LCS 400-444004/2	1	T	10:40	X																								
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
400-171203-13	1	T	10:40	X																								
400-171203-11	1	T	10:40	X																								
400-171203-12	1	T	10:40	X																								
ZZZZZZ			10:40																									
400-171203-9	1	T	10:40	X																								
400-171203-10	1	T	10:40	X																								
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
CCV 400-444004/14	1		10:40	X																								
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
400-171203-15	1	T	10:40	X																								
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
ZZZZZZ			10:40																									
CCV 400-444004/26	1		10:40	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 06/11/2019 09:55 End Date: 06/11/2019 11:05

Lab Sample Id	D/F	Type	Time	Analytes																								
				Cl-																								
ZZZZZZ			09:55																									
ZZZZZZ			09:55																									
ZZZZZZ			09:55																									
ZZZZZZ			09:55																									
ZZZZZZ			09:55																									
ZZZZZZ			09:55																									
ZZZZZZ			09:55																									
CCV 400-444026/8			09:55																									
ZZZZZZ			09:55																									
ZZZZZZ			09:55																									
CCV 400-444026/11	1		10:35	X																								
CCB 400-444026/12	1		10:35	X																								
MRL 400-444026/13	1	T	10:35	X																								
ICV 400-444026/14	1		10:35	X																								
ICB 400-444026/15	1		10:35	X																								
MB 400-444026/16	1	T	10:35	X																								
LCS 400-444026/17	1	T	10:35	X																								
ZZZZZZ			10:35																									
ZZZZZZ			10:35																									
ZZZZZZ			10:35																									
ZZZZZZ			10:35																									
ZZZZZZ			10:35																									
CCV 400-444026/23	1		10:38	X																								
CCB 400-444026/24	1		10:38	X																								
ZZZZZZ			10:38																									
ZZZZZZ			10:38																									
ZZZZZZ			10:38																									
ZZZZZZ			10:38																									
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ZZZZZZ			10:38																									
ZZZZZZ			10:38																									
ZZZZZZ			10:38																									
ZZZZZZ			10:38																									
CCV 400-444026/35	1		10:45	X																								
CCB 400-444026/36	1		10:45	X																								
ZZZZZZ			10:45																									
ZZZZZZ			10:45																									
ZZZZZZ			10:45																									
ZZZZZZ			10:45																									
ZZZZZZ			10:45																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 06/11/2019 09:55 End Date: 06/11/2019 11:05

Lab Sample Id	D/F	Type	Time	Analytes																								
				Cl-																								
ZZZZZZ			10:45																									
ZZZZZZ			10:45																									
ZZZZZZ			10:45																									
ZZZZZZ			10:45																									
CCV 400-444026/46			10:45																									
CCB 400-444026/47			10:45																									
CCV 400-444026/48	1		11:04	X																								
CCB 400-444026/49	1		11:04	X																								
ZZZZZZ			11:04																									
ZZZZZZ			11:04																									
ZZZZZZ			11:04																									
400-171203-1	100	T	11:04	X																								
CCV 400-444026/54	1		11:05	X																								
CCB 400-444026/55	1		11:05	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 06/11/2019 13:15 End Date: 06/11/2019 15:56

Lab Sample Id	D/F	Type	Time	Analytes																								
				Cl-																								
CCV 400-444079/1	1		13:15	X																								
CCB 400-444079/2	1		13:15	X																								
MRL 400-444079/3	1	T	13:15	X																								
ICV 400-444079/4	1		13:15	X																								
ICB 400-444079/5	1		13:15	X																								
MB 400-444079/6	1	T	13:15	X																								
LCS 400-444079/7	1	T	13:15	X																								
ZZZZZZ			13:15																									
ZZZZZZ			13:15																									
ZZZZZZ			13:16																									
ZZZZZZ			13:16																									
ZZZZZZ			13:16																									
CCV 400-444079/13	1		13:18	X																								
CCB 400-444079/14	1		13:18	X																								
ZZZZZZ			13:18																									
ZZZZZZ			13:18																									
ZZZZZZ			13:18																									
ZZZZZZ			13:18																									
400-171203-8	1	T	13:18	X																								
ZZZZZZ			13:18																									
ZZZZZZ			13:19																									
ZZZZZZ			13:19																									
ZZZZZZ			13:19																									
ZZZZZZ			13:19																									
CCV 400-444079/25	1		13:25	X																								
CCB 400-444079/26	1		13:25	X																								
ZZZZZZ			13:25																									
ZZZZZZ			13:25																									
ZZZZZZ			13:25																									
ZZZZZZ			13:25																									
400-171203-15	1	T	13:25	X																								
ZZZZZZ			13:25																									
ZZZZZZ			13:26																									
ZZZZZZ			13:26																									
ZZZZZZ			13:26																									
CCV 400-444079/36	1		13:26	X																								
CCB 400-444079/37	1		13:26	X																								
CCV 400-444079/38	1		15:11	X																								
CCB 400-444079/39	1		15:11	X																								
400-171203-14	100	T	15:11	X																								
400-171203-14 MS	100	T	15:11	X																								

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 06/11/2019 13:15 End Date: 06/11/2019 15:56

Lab Sample Id	D/F	Type	Time	Analytes																								
				Cl-																								
400-171203-14 MSD	100	T	15:11	X																								
400-171203-2	100	T	15:11	X																								
ZZZZZZ			15:14																									
400-171203-4	100	T	15:14	X																								
400-171203-5	100	T	15:14	X																								
ZZZZZZ			15:14																									
400-171203-7	100	T	15:14	X																								
ZZZZZZ			15:14																									
CCV 400-444079/50	1		15:22	X																								
CCB 400-444079/51	1		15:22	X																								
400-171203-9	100	T	15:22	X																								
400-171203-10	100	T	15:22	X																								
ZZZZZZ			15:22																									
ZZZZZZ			15:22																									
ZZZZZZ			15:23																									
ZZZZZZ			15:23																									
ZZZZZZ			15:23																									
CCV 400-444079/59	1		15:24	X																								
CCB 400-444079/60	1		15:24	X																								
CCV 400-444079/61	1		15:54	X																								
CCB 400-444079/62	1		15:54	X																								
400-171203-3	300	T	15:54	X																								
400-171203-6	300	T	15:54	X																								
400-171203-11	300	T	15:54	X																								
400-171203-12	300	T	15:54	X																								
400-171203-13	300	T	15:56	X																								
ZZZZZZ			15:56																									
CCV 400-444079/69	1		15:56	X																								
CCB 400-444079/70	1		15:56	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: AUTOTITRATOR Analysis Method: SM 4500 F C

Start Date: 06/21/2019 14:47 End Date: 06/21/2019 16:14

Lab Sample Id	D/F	Type	Time	Analytes																								
				F																								
MB 400-445316/3	1	T	14:47	X																								
LCS 400-445316/4	1	T	14:49	X																								
CCV 400-445316/5	1		14:52	X																								
CCVL 400-445316/6	1		14:56	X																								
ZZZZZZ			14:59																									
400-171203-14	1	T	15:02	X																								
400-171203-14 MS	1	T	15:06	X																								
400-171203-14 MSD	1	T	15:10	X																								
400-171203-1	1	T	15:14	X																								
400-171203-2	1	T	15:16	X																								
400-171203-3	1	T	15:20	X																								
400-171203-4	1	T	15:22	X																								
400-171203-5	1	T	15:26	X																								
400-171203-6	1	T	15:30	X																								
400-171203-7	1	T	15:34	X																								
CCV 400-445316/18	1		15:37	X																								
CCB 400-445316/19	1		15:41	X																								
400-171203-9	1	T	15:45	X																								
400-171203-9 DU	1	T	15:47	X																								
400-171203-8	1	T	15:51	X																								
400-171203-10	1	T	15:54	X																								
400-171203-11	1	T	15:58	X																								
400-171203-12	1	T	16:02	X																								
400-171203-13	1	T	16:04	X																								
400-171203-15	1	T	16:08	X																								
CCV 400-445316/15	1		16:10	X																								
CCB 400-445316/2	1		16:14	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 06/11/2019 19:04 End Date: 06/11/2019 21:12

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
CCV 400-444124/1	1		19:04	X																								
CCB 400-444124/2	1		19:04	X																								
MRL 400-444124/3	1	T	19:04	X																								
ICV 400-444124/4	1		19:04	X																								
ICB 400-444124/5	1		19:04	X																								
MB 400-444124/6	1	T	19:04	X																								
LCS 400-444124/7	1	T	19:04	X																								
CCV 400-444124/8	1		19:05	X																								
CCB 400-444124/9	1		19:05	X																								
CCV 400-444124/10			19:24																									
CCB 400-444124/11			19:24																									
ZZZZZZ			19:24																									
ZZZZZZ			19:24																									
ZZZZZZ			19:24																									
ZZZZZZ			19:24																									
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ZZZZZZ			19:24																									
ZZZZZZ			19:24																									
ZZZZZZ			19:24																									
ZZZZZZ			19:24																									
CCV 400-444124/22			19:41																									
CCB 400-444124/23			19:41																									
ZZZZZZ			19:41																									
ZZZZZZ			19:41																									
ZZZZZZ			19:41																									
ZZZZZZ			19:41																									
ZZZZZZ			19:41																									
ZZZZZZ			19:41																									
ZZZZZZ			19:41																									
ZZZZZZ			19:41																									
CCV 400-444124/33			19:44																									
CCB 400-444124/34			19:44																									
ZZZZZZ			19:44																									
ZZZZZZ			19:44																									
ZZZZZZ			19:44																									
CCV 400-444124/38			19:47																									
CCB 400-444124/39			19:47																									
CCV 400-444124/40	1		20:00	X																								
CCB 400-444124/41	1		20:00	X																								

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 06/11/2019 19:04 End Date: 06/11/2019 21:12

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
400-171203-8	1	T	20:00	X																								
400-171203-15	1	T	20:00	X																								
CCV 400-444124/44	1		20:05	X																								
CCB 400-444124/45	1		20:05	X																								
ZZZZZZ			20:05																									
ZZZZZZ			20:05																									
ZZZZZZ			20:05																									
ZZZZZZ			20:05																									
CCV 400-444124/50	1		20:09	X																								
CCB 400-444124/51	1		20:09	X																								
ZZZZZZ			20:09																									
ZZZZZZ			20:09																									
400-171203-1	60	T	20:09	X																								
400-171203-2	60	T	20:09	X																								
CCV 400-444124/56	1		20:13	X																								
CCB 400-444124/57	1		20:13	X																								
ZZZZZZ			20:13																									
ZZZZZZ			20:13																									
ZZZZZZ			20:13																									
ZZZZZZ			20:13																									
CCV 400-444124/62			20:18																									
CCB 400-444124/63			20:18																									
ZZZZZZ			20:18																									
ZZZZZZ			20:18																									
ZZZZZZ			20:18																									
ZZZZZZ			20:18																									
CCV 400-444124/68	1		20:22	X																								
CCB 400-444124/69	1		20:22	X																								
400-171203-9	60	T	20:22	X																								
ZZZZZZ			20:22																									
ZZZZZZ			20:22																									
ZZZZZZ			20:22																									
CCV 400-444124/74	1		20:24	X																								
CCB 400-444124/75	1		20:24	X																								
ZZZZZZ			20:24																									
CCV 400-444124/77			20:26																									
CCB 400-444124/78			20:26																									
CCV 400-444124/79	1		20:48	X																								
CCB 400-444124/80	1		20:48	X																								
ZZZZZZ			20:48																									
400-171203-4	300	T	20:48	X																								

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-171203-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 06/11/2019 19:04 End Date: 06/11/2019 21:12

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
400-171203-5	300	T	20:48	X																								
400-171203-6	300	T	20:48	X																								
CCV 400-444124/85	1		20:53	X																								
CCB 400-444124/86	1		20:53	X																								
400-171203-14	100	T	20:53	X																								
400-171203-11	300	T	20:53	X																								
400-171203-12	300	T	20:53	X																								
400-171203-13	300	T	20:53	X																								
CCV 400-444124/91	1		20:57	X																								
CCB 400-444124/92	1		20:57	X																								
400-171203-14 MS	100	T	20:57	X																								
400-171203-14 MSD	100	T	20:57	X																								
400-171203-7	100	T	20:57	X																								
400-171203-10	100	T	20:57	X																								
CCV 400-444124/97	1		20:58	X																								
CCB 400-444124/98	1		20:58	X																								
CCV 400-444124/99	1		21:10	X																								
CCB 400-444124/100	1		21:10	X																								
400-171203-3	600	T	21:10	X																								
ZZZZZZ			21:10																									
CCV 400-444124/103	1		21:12	X																								
CCB 400-444124/104	1		21:12	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 443702 Batch Start Date: 06/07/19 13:52 Batch Analyst: Brooks, Barbara A

Batch Method: SM 2320B Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	CalcMsg	FinalAmount	ALK-CCV-W 00068	ALK-ICV-W 00084		
CCV 400-443702/1		SM 2320B		InitialAmount is blank	25 mL	25 mL			
CCB 400-443702/2		SM 2320B		InitialAmount is blank	25 mL				
MB 400-443702/4		SM 2320B		InitialAmount is blank	25 mL				
LCS 400-443702/5		SM 2320B		InitialAmount is blank	25 mL		25 mL		
CCV 400-443702/6		SM 2320B		InitialAmount is blank	25 mL	25 mL			
400-171203-A-1	AES-TW101-060319	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-2	AES-MW3-060319	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-3	AES-TW102-060319	SM 2320B	T	InitialAmount is blank	25 mL				
CCV 400-443702/17		SM 2320B		InitialAmount is blank	25 mL	25 mL			
CCB 400-443702/18		SM 2320B		InitialAmount is blank	25 mL				
400-171203-A-4	AES-MW4-060319	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-4 DU	AES-MW4-060319	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-5	AES-MW4-DUP-060319	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-6	AES-TW103-060319	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-7	AES-MW5-060319	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-8	AES-FB-060319	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-9	AES-TW104-060419	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-10	AES-TW105-060419	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-11	AES-TW106-060419	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-12	AES-TW107-060419	SM 2320B	T	InitialAmount is blank	25 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 443702 Batch Start Date: 06/07/19 13:52 Batch Analyst: Brooks, Barbara A

Batch Method: SM 2320B Batch End Date:

Batch Notes	
Acid ID	3751787 fisher
pH Buffer 1 ID	4407041
pH Buffer 2 ID	4562107
pH Buffer 3 ID	4453529
pH Buffer 4 ID	4085344
pH Buffer 5 ID	4326727
Probe ID	VWYI-1925
Normality of First Titrant	0.0213470 N
Titrant Standardization Date	09/14/2018

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 443918 Batch Start Date: 06/10/19 10:16 Batch Analyst: Brooks, Barbara A

Batch Method: SM 2320B Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	CalcMsg	FinalAmount	ALK-CCV-W 00068	ALK-ICV-W 00084		
MB 400-443918/4		SM 2320B		InitialAmount is blank	25 mL				
LCS 400-443918/5		SM 2320B		InitialAmount is blank	25 mL		25 mL		
CCV 400-443918/6		SM 2320B		InitialAmount is blank	25 mL	25 mL			
400-171203-A-14	AES-TW109-060419	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-14 DU	AES-TW109-060419	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-13	AES-TW108-060419	SM 2320B	T	InitialAmount is blank	25 mL				
400-171203-A-15	AES-FB-060419	SM 2320B	T	InitialAmount is blank	25 mL				
CCV 400-443918/17		SM 2320B		InitialAmount is blank	25 mL	25 mL			
CCB 400-443918/18		SM 2320B		InitialAmount is blank	25 mL				

Batch Notes	
Acid ID	3751787 fisher
pH Buffer 1 ID	4407041
pH Buffer 2 ID	4562107
pH Buffer 3 ID	4453529
pH Buffer 4 ID	4085344
pH Buffer 5 ID	4326727
Probe ID	VWYI-1925
Normality of First Titrant	0.0213470 N
Titrant Standardization Date	09/14/2018

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 443926 Batch Start Date: 06/10/19 14:06 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 06/11/19 16:53

Lab Sample ID	Client Sample ID	Method Chain	Basis	Conductivity	CrucibleID	InitialAmount	TareWeight	Weight1	Weight2
MB 400-443926/1		SM 2540C			404	50 mL	52.3761 g	52.3761 g	52.3761 g
LCS 400-443926/2		SM 2540C			12	50 mL	65.1964 g	65.2122 g	65.2123 g
400-171203-A-6	AES-TW103-060319	SM 2540C	T	31970 umhos/cm	33	0.25 mL	68.2705 g	68.2781 g	68.2784 g
400-171203-A-5	AES-MW4-DUP-060319	SM 2540C	T	20990 umhos/cm	126	0.25 mL	67.8115 g	67.8144 g	67.8147 g
400-171203-A-3	AES-TW102-060319	SM 2540C	T	39250 umhos/cm	s18	0.25 mL	62.9902 g	63.0000 g	63.0005 g
400-171203-A-4	AES-MW4-060319	SM 2540C	T	21040 umhos/cm	560	0.25 mL	67.0714 g	67.0759 g	67.0755 g
400-171203-A-1	AES-TW101-060319	SM 2540C	T	15290 umhos/cm	309	1 mL	66.1190 g	66.1359 g	66.1354 g
400-171203-A-14	AES-TW109-060419	SM 2540C	T	15000 umhos/cm	22	1 mL	56.2629 g	56.2752 g	56.2757 g
CCV 400-443926/14		SM 2540C			130	50 mL	58.1945 g	58.2076 g	58.2076 g
400-171203-A-7	AES-MW5-060319	SM 2540C	T	14160 umhos/cm	28	2 mL	57.5050 g	57.5242 g	57.5247 g
400-171203-A-2	AES-MW3-060319	SM 2540C	T	14550 umhos/cm	92	2 mL	60.3016 g	60.3193 g	60.3190 g
400-171203-A-8	AES-FB-060319	SM 2540C	T	4.00 umhos/cm	9	50 mL	65.3242 g	65.3242 g	65.3241 g
CCV 400-443926/26		SM 2540C			12	50 mL	72.6604 g	72.6758 g	72.6760 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Weight3	Weight4	WeightOne%Diff	WeightTwo%Diff	Weight4OK	Residue
MB 400-443926/1		SM 2540C		0 g	0 g	Pass	N/A	N/A	0 g
LCS 400-443926/2		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0158 g
400-171203-A-6	AES-TW103-060319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0076 g
400-171203-A-5	AES-MW4-DUP-060319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0029 g
400-171203-A-3	AES-TW102-060319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0098 g
400-171203-A-4	AES-MW4-060319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0045 g
400-171203-A-1	AES-TW101-060319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0169 g
400-171203-A-14	AES-TW109-060419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0123 g
CCV 400-443926/14		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0131 g
400-171203-A-7	AES-MW5-060319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0192 g
400-171203-A-2	AES-MW3-060319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0177 g
400-171203-A-8	AES-FB-060319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0 g

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 443926 Batch Start Date: 06/10/19 14:06 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 06/11/19 16:53

Lab Sample ID	Client Sample ID	Method Chain	Basis	Weight3	Weight4	WeightOne%Diff	WeightTwo%Diff	Weight4OK	Residue
CCV 400-443926/26		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0154 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Residue2	Residue3	Residue4	FinalAmount	CalcMsg	GTDS-LCS-W 00096
MB 400-443926/1		SM 2540C		0 g	N/A g	N/A g	50 mL	OK	
LCS 400-443926/2		SM 2540C		0.0159 g	N/A g	N/A g	50 mL	OK	50 mL
400-171203-A-6	AES-TW103-060319	SM 2540C	T	0.0079 g	N/A g	N/A g	50 mL	OK	
400-171203-A-5	AES-MW4-DUP-060319	SM 2540C	T	0.0032 g	N/A g	N/A g	50 mL	OK	
400-171203-A-3	AES-TW102-060319	SM 2540C	T	0.0103 g	N/A g	N/A g	50 mL	OK	
400-171203-A-4	AES-MW4-060319	SM 2540C	T	0.0041 g	N/A g	N/A g	50 mL	OK	
400-171203-A-1	AES-TW101-060319	SM 2540C	T	0.0164 g	N/A g	N/A g	50 mL	OK	
400-171203-A-14	AES-TW109-060419	SM 2540C	T	0.0128 g	N/A g	N/A g	50 mL	OK	
CCV 400-443926/14		SM 2540C		0.0131 g	N/A g	N/A g	50 mL	OK	50 mL
400-171203-A-7	AES-MW5-060319	SM 2540C	T	0.0197 g	N/A g	N/A g	50 mL	OK	
400-171203-A-2	AES-MW3-060319	SM 2540C	T	0.0174 g	N/A g	N/A g	50 mL	OK	
400-171203-A-8	AES-FB-060319	SM 2540C	T	-0.0001 g	N/A g	N/A g	50 mL	OK	
CCV 400-443926/26		SM 2540C		0.0156 g	N/A g	N/A g	50 mL	OK	50 mL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 443926 Batch Start Date: 06/10/19 14:06 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 06/11/19 16:53

Batch Notes	
Balance ID	denver
Date/Time - In - CW (WT2)	06/11/2019 12:50
Date/Time - Out - CW (WT2)	06/11/2019 13:57
Temperature - Start - CW (WT2) - Correct	180.0 Celsius
Temperature - End - CW (WT2) - Correct	180.0 Celsius
Temperature - Start-CW(WT2) -Uncorrected	181.0 Celsius
Temperature - End-CW(WT2) -Uncorrected	181.0 Celsius
Filter ID	16901431
Nominal Amount Used	50 mL
Oven ID	IN028
Thermometer ID	1946
Weight(WT1) Start Date/Time	06/10/2019 15:16
Weight(WT1) Date/Time Out	06/11/2019 10:24
Weight(WT1) Start Temp	98.0 Celsius
Weight(WT1) Temp Out	180.0 Celsius
Uncorrected Weight(WT1) Start Temp	99.0 Celsius
Uncorrected Weight(WT1) Temp Out	181.0 Celsius

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 444004 Batch Start Date: 06/11/19 10:40 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 06/12/19 16:48

Lab Sample ID	Client Sample ID	Method Chain	Basis	Conductivity	CrucibleID	InitialAmount	TareWeight	Weight1	Weight2
MB 400-444004/1		SM 2540C			1	50 mL	59.1974 g	59.1973 g	59.1972 g
LCS 400-444004/2		SM 2540C			22	50 mL	68.8510 g	68.8674 g	68.8671 g
400-171203-A-13	AES-TW108-060419	SM 2540C	T	23150 umhos/cm	121	0.25 mL	63.3788 g	63.3848 g	63.3852 g
400-171203-A-11	AES-TW106-060419	SM 2540C	T	21900 umhos/cm	9	0.25 mL	63.7170 g	63.7298 g	63.7295 g
400-171203-A-12	AES-TW107-060419	SM 2540C	T	27480 umhos/cm	15	0.25 mL	63.7270 g	63.7363 g	63.7368 g
400-171203-A-9	AES-TW104-060419	SM 2540C	T	14770 umhos/cm	235	2 mL	62.1767 g	62.2024 g	62.2020 g
400-171203-A-10	AES-TW105-060419	SM 2540C	T	13770 umhos/cm	51	2 mL	67.1773 g	67.2013 g	67.2017 g
CCV 400-444004/14		SM 2540C			v40	50 mL	64.1677 g	64.1850 g	64.1847 g
400-171203-A-15	AES-FB-060419	SM 2540C	T	1.60 umhos/cm	8	50 mL	59.7965 g	59.7964 g	59.7963 g
CCV 400-444004/26		SM 2540C			61	50 mL	62.1486 g	62.1659 g	62.1656 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Weight3	Weight4	WeightOne%Diff	WeightTwo%Diff	Weight4OK	Residue
MB 400-444004/1		SM 2540C		0 g	0 g	Pass	N/A	N/A	-0.0001 g
LCS 400-444004/2		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0164 g
400-171203-A-13	AES-TW108-060419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.006 g
400-171203-A-11	AES-TW106-060419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0128 g
400-171203-A-12	AES-TW107-060419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0093 g
400-171203-A-9	AES-TW104-060419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0257 g
400-171203-A-10	AES-TW105-060419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.024 g
CCV 400-444004/14		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0173 g
400-171203-A-15	AES-FB-060419	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	-0.0001 g
CCV 400-444004/26		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0173 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Residue2	Residue3	Residue4	FinalAmount	CalcMsg	GTDS-LCS-W 00096
MB 400-444004/1		SM 2540C		-0.0002 g	N/A g	N/A g	50 mL	OK	
LCS 400-444004/2		SM 2540C		0.0161 g	N/A g	N/A g	50 mL	OK	50 mL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 444004 Batch Start Date: 06/11/19 10:40 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 06/12/19 16:48

Lab Sample ID	Client Sample ID	Method Chain	Basis	Residue2	Residue3	Residue4	FinalAmount	CalcMsg	GTDS-LCS-W 00096
400-171203-A-13	AES-TW108-060419	SM 2540C	T	0.0064 g	N/A g	N/A g	50 mL	OK	
400-171203-A-11	AES-TW106-060419	SM 2540C	T	0.0125 g	N/A g	N/A g	50 mL	OK	
400-171203-A-12	AES-TW107-060419	SM 2540C	T	0.0098 g	N/A g	N/A g	50 mL	OK	
400-171203-A-9	AES-TW104-060419	SM 2540C	T	0.0253 g	N/A g	N/A g	50 mL	OK	
400-171203-A-10	AES-TW105-060419	SM 2540C	T	0.0244 g	N/A g	N/A g	50 mL	OK	
CCV 400-444004/14		SM 2540C		0.017 g	N/A g	N/A g	50 mL	OK	50 mL
400-171203-A-15	AES-FB-060419	SM 2540C	T	-0.0002 g	N/A g	N/A g	50 mL	OK	
CCV 400-444004/26		SM 2540C		0.017 g	N/A g	N/A g	50 mL	OK	50 mL

Batch Notes	
Balance ID	denver
Conductivity Meter ID	10k10072
Date/Time - In - CW (WT2)	06/12/2019 13:24
Date/Time - Out - CW (WT2)	06/12/2019 14:31
Temperature - Start - CW (WT2) - Correct	180.0 Celsius
Temperature - End - CW (WT2) - Correct	180.0 Celsius
Temperature - Start-CW(WT2) -Uncorrected	180.0 Celsius
Temperature - End-CW(WT2) -Uncorrected	180.0 Celsius
Filter ID	16901431
Nominal Amount Used	50 mL
Oven ID	IN035
Thermometer ID	a43-0035
Weight(WT1) Start Date/Time	06/11/2019 12:38
Weight(WT1) Date/Time Out	06/12/2019 10:44
Weight(WT1) Start Temp	98.0 Celsius
Weight(WT1) Temp Out	180.0 Celsius
Uncorrected Weight(WT1) Start Temp	98.0 Celsius
Uncorrected Weight(WT1) Temp Out	180.0 Celsius

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 444004 Batch Start Date: 06/11/19 10:40 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 06/12/19 16:48

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 444026 Batch Start Date: 06/11/19 09:55 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 Cl- E Batch End Date: 06/11/19 12:17

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CL-CCV-35ppm 00031	CL-CCVL-2ppm 00029	CL-ICV-W 00054	
CCV 400-444026/11		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444026/12		SM 4500 Cl- E		10 mL	10 mL				
MRL 400-444026/13		SM 4500 Cl- E		10 mL	10 mL		10 mL		
ICV 400-444026/14		SM 4500 Cl- E		10 mL	10 mL			10 mL	
ICB 400-444026/15		SM 4500 Cl- E		10 mL	10 mL				
MB 400-444026/16		SM 4500 Cl- E		10 mL	10 mL				
LCS 400-444026/17		SM 4500 Cl- E		10 mL	10 mL			10 mL	
CCV 400-444026/23		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444026/24		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-444026/35		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444026/36		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-444026/48		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444026/49		SM 4500 Cl- E		10 mL	10 mL				
400-171203-A-1	AES-TW101-060319	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-444026/54		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444026/55		SM 4500 Cl- E		10 mL	10 mL				

Batch Notes	

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 444079 Batch Start Date: 06/11/19 13:15 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 Cl- E Batch End Date: 06/11/19 16:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CL-CCV-35ppm 00031	CL-CCV-S 00017	CL-CCVL-2ppm 00029	CL-ICV-W 00054
CCV 400-444079/1		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444079/2		SM 4500 Cl- E		10 mL	10 mL				
MRL 400-444079/3		SM 4500 Cl- E		10 mL	10 mL			10 mL	
ICV 400-444079/4		SM 4500 Cl- E		10 mL	10 mL				10 mL
ICB 400-444079/5		SM 4500 Cl- E		10 mL	10 mL				
MB 400-444079/6		SM 4500 Cl- E		10 mL	10 mL				
LCS 400-444079/7		SM 4500 Cl- E		10 mL	10 mL				10 mL
CCV 400-444079/13		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444079/14		SM 4500 Cl- E		10 mL	10 mL				
400-171203-A-8	AES-FB-060319	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-444079/25		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444079/26		SM 4500 Cl- E		10 mL	10 mL				
400-171203-A-15	AES-FB-060419	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-444079/36		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444079/37		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-444079/38		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444079/39		SM 4500 Cl- E		10 mL	10 mL				
400-171203-A-14	AES-TW109-060419	SM 4500 Cl- E	T	10 mL	10 mL				
400-171203-A-14 MS	AES-TW109-060419	SM 4500 Cl- E	T	10 mL	10 mL		0.001 mL		
400-171203-A-14 MSD	AES-TW109-060419	SM 4500 Cl- E	T	10 mL	10 mL		0.001 mL		
400-171203-A-2	AES-MW3-060319	SM 4500 Cl- E	T	10 mL	10 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 444079 Batch Start Date: 06/11/19 13:15 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 Cl- E Batch End Date: 06/11/19 16:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CL-CCV-35ppm 00031	CL-CCV-S 00017	CL-CCVL-2ppm 00029	CL-ICV-W 00054
400-171203-A-4	AES-MW4-060319	SM 4500 Cl- E	T	10 mL	10 mL				
400-171203-A-5	AES-MW4-DUP-060319	SM 4500 Cl- E	T	10 mL	10 mL				
400-171203-A-7	AES-MW5-060319	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-444079/50		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444079/51		SM 4500 Cl- E		10 mL	10 mL				
400-171203-A-9	AES-TW104-060419	SM 4500 Cl- E	T	10 mL	10 mL				
400-171203-A-10	AES-TW105-060419	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-444079/59		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444079/60		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-444079/61		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444079/62		SM 4500 Cl- E		10 mL	10 mL				
400-171203-A-3	AES-TW102-060319	SM 4500 Cl- E	T	10 mL	10 mL				
400-171203-A-6	AES-TW103-060319	SM 4500 Cl- E	T	10 mL	10 mL				
400-171203-A-11	AES-TW106-060419	SM 4500 Cl- E	T	10 mL	10 mL				
400-171203-A-12	AES-TW107-060419	SM 4500 Cl- E	T	10 mL	10 mL				
400-171203-A-13	AES-TW108-060419	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-444079/69		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-444079/70		SM 4500 Cl- E		10 mL	10 mL				

Batch Notes	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 444079 Batch Start Date: 06/11/19 13:15 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 Cl- E Batch End Date: 06/11/19 16:00

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 445316 Batch Start Date: 06/21/19 14:47 Batch Analyst: Brooks, Barbara A

Batch Method: SM 4500 F C Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	FL-CCV-S 00007	FL-LCS-S 00013	TISAB 00023		
400-171203-A-4	AES-MW4-060319	SM 4500 F C	T				10 mL		
CCB 400-445316/2		SM 4500 F C					10 mL		
MB 400-445316/3		SM 4500 F C					10 mL		
LCS 400-445316/4		SM 4500 F C		100 mL		4 mL	10 mL		
CCV 400-445316/5		SM 4500 F C		100 mL	5 mL		10 mL		
CCVL 400-445316/6		SM 4500 F C		100 mL	0.5 mL		10 mL		
400-171203-A-14	AES-TW109-060419	SM 4500 F C	T				10 mL		
400-171203-A-14 MS	AES-TW109-060419	SM 4500 F C	T	10 mL	0.1 mL		10 mL		
400-171203-A-14 MSD	AES-TW109-060419	SM 4500 F C	T	10 mL	0.1 mL		10 mL		
400-171203-A-1	AES-TW101-060319	SM 4500 F C	T				10 mL		
400-171203-A-2	AES-MW3-060319	SM 4500 F C	T				10 mL		
400-171203-A-3	AES-TW102-060319	SM 4500 F C	T				10 mL		
400-171203-A-5	AES-MW4-DUP-060319	SM 4500 F C	T				10 mL		
CCV 400-445316/15		SM 4500 F C		100 mL	5 mL		10 mL		
400-171203-A-6	AES-TW103-060319	SM 4500 F C	T				10 mL		
400-171203-A-7	AES-MW5-060319	SM 4500 F C	T				10 mL		
CCV 400-445316/18		SM 4500 F C		100 mL	5 mL		10 mL		
CCB 400-445316/19		SM 4500 F C					10 mL		
400-171203-A-9	AES-TW104-060419	SM 4500 F C	T				10 mL		
400-171203-A-9 DU	AES-TW104-060419	SM 4500 F C	T				10 mL		
400-171203-A-8	AES-FB-060319	SM 4500 F C	T				10 mL		
400-171203-A-10	AES-TW105-060419	SM 4500 F C	T				10 mL		
400-171203-A-11	AES-TW106-060419	SM 4500 F C	T				10 mL		
400-171203-A-12	AES-TW107-060419	SM 4500 F C	T				10 mL		
400-171203-A-13	AES-TW108-060419	SM 4500 F C	T				10 mL		
400-171203-A-15	AES-FB-060419	SM 4500 F C	T				10 mL		

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 445316 Batch Start Date: 06/21/19 14:47 Batch Analyst: Brooks, Barbara A

Batch Method: SM 4500 F C Batch End Date:

Batch Notes	
Probe ID	27502-19

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 444124 Batch Start Date: 06/11/19 19:04 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date: 06/11/19 21:13

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-C-S 00016	SO4-CCV-W 00032	SO4-CCVL-W 00037	SO4-ICV-W 00062
CCV 400-444124/1		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/2		SM 4500 SO4 E		10 mL	10 mL				
MRL 400-444124/3		SM 4500 SO4 E		10 mL	10 mL			10 mL	
ICV 400-444124/4		SM 4500 SO4 E		10 mL	10 mL				10 mL
ICB 400-444124/5		SM 4500 SO4 E		10 mL	10 mL				
MB 400-444124/6		SM 4500 SO4 E		10 mL	10 mL				
LCS 400-444124/7		SM 4500 SO4 E		10 mL	10 mL				10 mL
CCV 400-444124/8		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/9		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-444124/40		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/41		SM 4500 SO4 E		10 mL	10 mL				
400-171203-A-8	AES-FB-060319	SM 4500 SO4 E	T	10 mL	10 mL				
400-171203-A-15	AES-FB-060419	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-444124/44		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/45		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-444124/50		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/51		SM 4500 SO4 E		10 mL	10 mL				
400-171203-A-1	AES-TW101-060319	SM 4500 SO4 E	T	10 mL	10 mL				
400-171203-A-2	AES-MW3-060319	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-444124/56		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/57		SM 4500 SO4 E		10 mL	10 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 444124 Batch Start Date: 06/11/19 19:04 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date: 06/11/19 21:13

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-C-S 00016	SO4-CCV-W 00032	SO4-CCVL-W 00037	SO4-ICV-W 00062
CCV 400-444124/68		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/69		SM 4500 SO4 E		10 mL	10 mL				
400-171203-A-9	AES-TW104-060419	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-444124/74		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/75		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-444124/79		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/80		SM 4500 SO4 E		10 mL	10 mL				
400-171203-A-4	AES-MW4-060319	SM 4500 SO4 E	T	10 mL	10 mL				
400-171203-A-5	AES-MW4-DUP-060319	SM 4500 SO4 E	T	10 mL	10 mL				
400-171203-A-6	AES-TW103-060319	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-444124/85		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/86		SM 4500 SO4 E		10 mL	10 mL				
400-171203-A-14	AES-TW109-060419	SM 4500 SO4 E	T	10 mL	10 mL				
400-171203-A-11	AES-TW106-060419	SM 4500 SO4 E	T	10 mL	10 mL				
400-171203-A-12	AES-TW107-060419	SM 4500 SO4 E	T	10 mL	10 mL				
400-171203-A-13	AES-TW108-060419	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-444124/91		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/92		SM 4500 SO4 E		10 mL	10 mL				
400-171203-A-14 MS	AES-TW109-060419	SM 4500 SO4 E	T	10 mL	10 mL	0.001 mL			
400-171203-A-14 MSD	AES-TW109-060419	SM 4500 SO4 E	T	10 mL	10 mL	0.001 mL			
400-171203-A-7	AES-MW5-060319	SM 4500 SO4 E	T	10 mL	10 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-171203-1

SDG No.:

Batch Number: 444124 Batch Start Date: 06/11/19 19:04 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date: 06/11/19 21:13

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-C-S 00016	SO4-CCV-W 00032	SO4-CCVL-W 00037	SO4-ICV-W 00062
400-171203-A-10	AES-TW105-060419	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-444124/97		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/98		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-444124/99		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/100		SM 4500 SO4 E		10 mL	10 mL				
400-171203-A-3	AES-TW102-060319	SM 4500 SO4 E	T	10 mL	10 mL				
400-171203-A-6	AES-TW103-060319	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-444124/103		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-444124/104		SM 4500 SO4 E		10 mL	10 mL				

Batch Notes	

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

PC-TitratION PLUS
Calibration Report

4437102

1st

BAB 6-7-19

Calibration Record # 2280

Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	06/07/2019
Channel	1	Time	9:24 AM
Probe Type	pH	Temperature	295.84 K 22.69 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-59.209	CorrCoeff	0.9997
Intercept	11.976	Equation: Y = (-59.209) X + (11.976)	

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-59.209	-65.00	-53.00
Intercept	11.976	-100.00	100.00
Correlation Coefficient	0.9997	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	192.13
	7.01	6.34
	10.03	-164.91

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TestAmerica-Pensacola

ALKALINITY METHOD EPA 310.1/ SM2320B
FLUORIDE METHOD EPA 340.2, SW846-9056/ SM4500-F-C
pH METHOD EPA 150.1, SW846-9040C, SW846-9045D

Run Number 8877 **Order Number** 20190607-2 N H2S04 -1.00000

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
06/07/2019	9:46 AM	PH9 LOT126024	25.00	8.91	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	.00	-1.000
06/07/2019	9:40 AM	PH 4 LOT 131596	25.00	3.96	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-220.49	-1.000
06/07/2019	9:41 AM	PH7 LOT 132908	25.00	7.09	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-.16	-1.000
06/07/2019	9:43 AM	PH10 LOT130972	25.00	9.99	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	.00	-1.000
06/07/2019	9:45 AM	PH5 LOT 126312	25.00	5.11	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-15.59	-1.000

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TestAmerica-Pensacola

ALKALINITY METHOD EPA 310.1/ SM2320B
FLUORIDE METHOD EPA 340.2, SW846-9056/ SM4500-F-C
pH METHOD EPA 150.1, SW846-9040C, SW846-9045D

Run Number 8880 **Order Number** 20190607-4 N H2S04 0.02135

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
06/07/2019	5:00 PM	ccv	25.00	9.89	0.710	2.427	2.515	103.61	.00	60.65	42.96	30.32	.01	-1.000
06/07/2019	5:04 PM	ccb	25.00	4.08	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
06/07/2019	1:52 PM	ALK-WASH	25.00	3.78	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
06/07/2019	1:54 PM	MB	25.00	4.00	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
06/07/2019	2:03 PM	LCS	25.00	10.04	1.173	2.615	2.677	111.67	.00	100.15	11.52	50.07	.00	-1.000
06/07/2019	2:10 PM	CCV	25.00	9.89	0.908	2.405	2.468	102.68	.00	77.54	25.13	38.77	.01	-1.000
06/07/2019	2:15 PM	171113-a5	25.00	6.53	0.000	0.348	0.391	13.02	.00	.00	13.02	.00	7.67	-1.000
06/07/2019	2:19 PM	171113-a5-du	25.00	6.61	0.000	0.379	0.427	14.15	.00	.00	14.15	.00	6.87	-1.000
06/07/2019	2:23 PM	400-171115-A-1	25.00	4.99	0.000	0.059	0.106	.52	.00	.00	.52	.00	10.66	-1.000
06/07/2019	2:28 PM	400-171115-A-2	25.00	6.68	0.000	0.521	0.580	22.24	.00	.00	22.24	.00	9.36	-1.000
06/07/2019	2:33 PM	400-171115-A-3	25.00	7.03	0.000	0.978	1.037	41.76	.00	.00	41.76	.00	7.74	-1.000
06/07/2019	2:38 PM	400-171115-A-4	25.00	6.63	0.000	0.392	0.476	13.16	.00	.00	13.16	.00	6.23	-1.000
06/07/2019	2:43 PM	400-171115-A-5	25.00	6.63	0.000	0.396	0.533	11.05	.00	.00	11.05	.00	5.16	-1.000
06/07/2019	2:53 PM	400-171203-A-1	25.00	7.15	0.000	15.268	15.500	651.86	.00	.00	651.86	.00	91.67	-1.000
06/07/2019	3:01 PM	400-171203-A-2	25.00	7.52	0.000	12.776	12.963	545.44	.00	.00	545.44	.00	32.63	-1.000
06/07/2019	3:08 PM	400-171203-A-3	25.00	7.58	0.000	8.309	8.596	354.76	.00	.00	354.76	.00	18.56	-1.000
06/07/2019	3:16 PM	ccv	25.00	10.06	0.937	2.385	2.481	101.81	.00	80.02	21.78	40.01	.00	-1.000
06/07/2019	3:20 PM	ccb	25.00	4.07	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
06/07/2019	3:30 PM	400-171203-A-4	25.00	7.71	0.000	18.788	19.127	802.13	.00	.00	802.13	.00	31.31	-1.000
06/07/2019	3:41 PM	400-171203-A-4-du	25.00	7.78	0.000	18.928	19.226	808.09	.00	.00	808.09	.00	26.98	-1.000
06/07/2019	3:52 PM	400-171203-A-5	25.00	7.74	0.000	19.025	19.352	812.24	.00	.00	812.24	.00	29.66	-1.000
06/07/2019	3:59 PM	400-171203-A-6	25.00	7.78	0.000	7.429	7.707	317.18	.00	.00	317.18	.00	10.47	-1.000
06/07/2019	4:07 PM	400-171203-A-7	25.00	7.27	0.000	11.619	11.810	496.05	.00	.00	496.05	.00	52.99	-1.000

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Run Number 8880 **Order Number** 20190607-4 N H2S04 0.02135

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
06/07/2019	4:13 PM	400-171203-A-8	25.00	5.58	0.000	0.077	0.145	.41	.00	.00	.41	.00	2.15	-1.000
06/07/2019	4:22 PM	400-171203-A-9	25.00	7.54	0.000	14.077	14.291	600.99	.00	.00	600.99	.00	34.81	-1.000
06/07/2019	4:33 PM	400-171203-A-10	25.00	7.73	0.000	19.256	19.571	822.13	.00	.00	822.13	.00	30.72	-1.000
06/07/2019	4:43 PM	400-171203-A-11	25.00	7.58	0.000	19.358	19.677	826.48	.00	.00	826.48	.00	43.19	-1.000
06/07/2019	4:51 PM	400-171203-A-12	25.00	7.78	0.000	11.851	12.130	505.96	.00	.00	505.96	.00	16.74	-1.000

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PC-TitratION PLUS
Calibration Report

443918

1st

BAB 6-10-19

Calibration Record # 2281

Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	06/10/2019
Channel	1	Time	7:06 AM
Probe Type	pH	Temperature	295.32 K 22.17 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-59.127	CorrCoeff	0.9995
Intercept	14.905	Equation: Y = (-59.127) X + (14.905)	

Calibration Validity True

Operator

	Result	Minimum	Maximum
Slope	-59.127	-65.00	-53.00
Intercept	14.905	-100.00	100.00
Correlation Coefficient	0.9995	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	195.67
	7.01	7.56
	10.03	-160.88

PC-TitratION PLUS by Man-Tech Associates, Inc.

CALRPRTLive1.SRW
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TestAmerica-Pensacola

ALKALINITY METHOD EPA 310.1/ SM2320B
FLUORIDE METHOD EPA 340.2, SW846-9056/ SM4500-F-C
pH METHOD EPA 150.1, SW846-9040C, SW846-9045D

Run Number 8882 **Order Number** 20190610-2 N H2S04 -1.00000

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
06/10/2019	7:22 AM	PH9 LOT126024	25.00	8.90	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	.00	-1.000
06/10/2019	7:14 AM	PH 4 LOT 131596	25.00	3.91	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-244.12	-1.000
06/10/2019	7:15 AM	PH7 LOT 132908	25.00	7.11	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-.16	-1.000
06/10/2019	7:17 AM	PH10 LOT130972	25.00	9.95	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	.00	-1.000
06/10/2019	7:20 AM	PH5 LOT 126312	25.00	5.12	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-15.28	-1.000

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TestAmerica-Pensacola

ALKALINITY METHOD EPA 310.1/ SM2320B
FLUORIDE METHOD EPA 340.2, SW846-9056/ SM4500-F-C
pH METHOD EPA 150.1, SW846-9040C, SW846-9045D

Run Number 8883 **Order Number** 20190610-3 N H2S04 0.02135

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
06/10/2019	12:49 PM	ccv	25.00	9.94	0.752	2.428	2.518	103.64	.00	64.24	39.40	32.12	.01	-1.000
06/10/2019	12:52 PM	ccb	25.00	4.09	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
06/10/2019	10:16 AM	ALK-WASH	25.00	8.36	0.001	0.318	0.371	11.31	.00	.10	11.21	.05	.10	-1.000
06/10/2019	10:18 AM	MB	25.00	3.97	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
06/10/2019	10:27 AM	LCS	25.00	10.11	1.047	2.650	2.712	113.15	.00	89.44	23.72	44.72	.00	-1.000
06/10/2019	10:35 AM	CCV	25.00	9.89	0.848	2.322	2.383	99.16	.00	72.39	26.77	36.19	.01	-1.000
06/10/2019	10:43 AM	400-171203-A-14	25.00	6.99	0.000	11.718	11.938	500.29	.00	.00	500.29	.00	101.41	-1.000
06/10/2019	10:51 AM	400-171203-A-14-du	25.00	6.91	0.000	11.813	12.025	504.34	.00	.00	504.34	.00	123.05	-1.000
06/10/2019	11:00 AM	400-171203-A-13	25.00	7.13	0.000	12.498	12.761	533.61	.00	.00	533.61	.00	79.04	-1.000
06/10/2019	11:05 AM	400-171203-A-15	25.00	5.81	0.000	0.094	0.183	.20	.00	.00	.20	.00	.63	-1.000
06/10/2019	11:11 AM	400-171308-A-1	25.00	5.62	0.000	0.097	0.173	.88	.00	.00	.88	.00	4.23	-1.000
06/10/2019	11:14 AM	400-171146-A-5	25.00	4.08	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
06/10/2019	11:19 AM	400-171146-A-6	25.00	6.79	0.000	2.274	2.368	97.08	.00	.00	97.08	.00	31.82	-1.000
06/10/2019	11:22 AM	400-171146-A-1	25.00	3.95	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
06/10/2019	11:27 AM	400-171146-A-2	25.00	6.47	0.000	1.423	1.506	60.77	.00	.00	60.77	.00	40.87	-1.000
06/10/2019	11:30 AM	400-171146-A-3	25.00	4.27	0.000	0.000	0.027	-1.14	.00	.00	-1.14	.00	-123.23	-1.000
06/10/2019	11:39 AM	ccv	25.00	10.25	0.847	2.432	2.541	103.84	.00	72.29	31.55	36.14	.00	-1.000
06/10/2019	11:43 AM	ccb	25.00	4.10	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
06/10/2019	11:51 AM	400-171133-D-3	25.00	8.83	0.787	10.845	11.031	463.02	.00	67.19	395.82	33.60	1.18	-1.000
06/10/2019	12:01 PM	400-171133-D-3-du	25.00	8.85	0.757	10.909	11.088	465.77	.00	64.64	401.13	32.32	1.14	-1.000
06/10/2019	12:06 PM	400-171133-D-1	25.00	6.75	0.000	0.978	1.062	41.74	.00	.00	41.74	.00	14.68	-1.000
06/10/2019	12:14 PM	400-171133-D-2	25.00	8.94	0.725	10.956	11.147	467.77	.00	61.92	405.85	30.96	.92	-1.000
06/10/2019	12:19 PM	400-171146-A-4	25.00	5.00	0.000	0.074	0.153	-.23	.00	.00	-.23	.00	-4.69	-1.000

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Run Number 8883 **Order Number** 20190610-3 N H2S04 0.02135

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
06/10/2019	12:22 PM	400-171146-A-10	25.00	4.52	0.000	0.006	0.077	-2.72	.00	.00	-2.72	.00	-165.20	-1.000
06/10/2019	12:28 PM	400-171146-A-11	25.00	6.06	0.000	0.410	0.498	13.72	.00	.00	13.72	.00	23.63	-1.000
06/10/2019	12:30 PM	400-171146-A-12	25.00	4.40	0.000	0.000	0.090	-3.84	.00	.00	-3.84	.00	-305.82	-1.000
06/10/2019	12:35 PM	400-171146-A-13	25.00	5.61	0.000	0.221	0.294	6.32	.00	.00	6.32	.00	31.18	-1.000
06/10/2019	12:41 PM	400-171146-A-14	25.00	5.81	0.000	0.085	0.168	.10	.00	.00	.10	.00	.31	-1.000

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Analyst Signature: _____

ICAL Batch 444026

Calibration results Aquakem 7.2.AQ2 Page: 1

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

1st Lev RRC 6.11.19

6/11/2019 9:59

Test CHLORIDE

Accepted - -

Resp. = A * Conc. ^ 2 + B * Conc. + C
A = 0
B = 0.018
C = 0.024

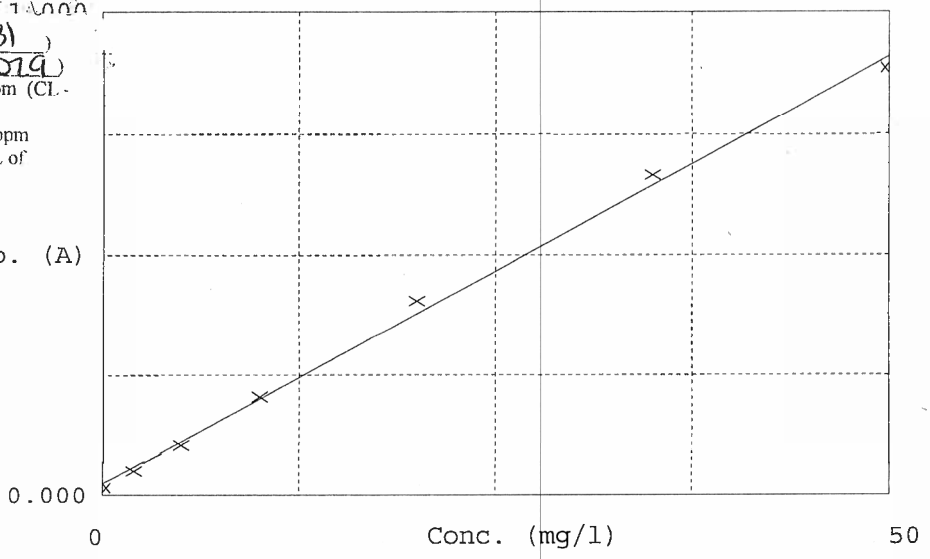
Coeff. of det. 0.997129

Errors QC rule violated

DATE	ICV	ICB	CCV-FIRST	CCV-LAST
6.11.19	102	ND	99	99
BATCH	**LCS**	**MS%R**	**MSD%R**	**RPD**
444026	102	118	120	1
		108	105	3

Correlation Coefficient must be ≥0.995 in order to pass

CL CCVH: TV=50ppm (CL-CCV-35ppm 00031)
CL CCVL: TV= 2.0ppm (CL-CCVL-2ppm 00019)
CL ICV: *9251 EVERY 10 SAMPLES TV= 30ppm (CL-ICV-W-00054)
MS/MSD: *9251 EVERY 10 SAMPLES TV= 10ppm (0.1mL CL-CCV-S-00017 spiked into 10mL of sample)



	Calibrator	Response	Calc. con.	Conc.	Errors
1	CL-0	0.015	-0.49365	0.00000	
2	CL-2	0.050	1.47476	2.00000	
3	CL-5	0.104	4.55473	5.00000	
4	CL-10	0.205	10.22040	10.00000	
5	CL-20	0.404	21.45605	20.00000	
6	CL-35	0.665	36.16225	35.00000	
7	CL-50	0.886	48.62546	50.00000	
8	CCV-CL(control)	0.650	35.35106	35.00000	
9	ICB-CL(control)	0.021	-0.13289	0.00000	Test limi
10	ICV-CL(control)	0.561	30.33833	30.00000	

CL: AQ LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	73-120%
RPD	8
R.L.	2.0mg/L

CL: NAq LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	75-125%
RPD	20
R.L.	40mg/kg

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

6/11/2019 12:17

Test: CHLORIDE

X=Rejected RRC 6.11.19

Sample Id	Result	Dil. 1 +	Response	Errors
CCV-CL	34.8017	0.0	0.641	
CCB-CL	-0.4085	0.0	0.016	Test limit low
mrl cl	1.3889	0.0	0.048	
icv cl	30.4740	0.0	0.564	
icb cl	-0.1898	0.0	0.020	Test limit low
mb cl	-0.1432	0.0	0.021	Test limit low
lcs cl	30.6631	0.0	0.567	
400-171152-B-1	1.0028	0.0	0.042	
171152-b-1 ms	11.8178	0.0	0.233	
171152-b-1 msd	11.9532	0.0	0.236	
X 400-170884-K-1	173.3862	0.0	3.097	Init abs.
400-170884-K-2	4.3384	0.0	0.101	
CCV-CL	34.7714	0.0	0.640	
CCB-CL	-0.3679	0.0	0.017	Test limit low
400-170884-K-4	54.4082	0.0	0.988	
X 400-171038-A-1	543.5941	0.0	9.659	Abs. high, Init abs.
400-171152-B-2	7.6618	0.0	0.160	
400-171152-B-3	8.3427	0.0	0.172	
400-171152-B-4	4.8222	0.0	0.109	
400-171152-A-5	9.1038	0.0	0.185	
400-171152-A-6	13.8307	0.0	0.269	
400-170911-A-2	1.8941	0.0	0.057	
170911-a-2 ms	12.7290	0.0	0.249	
170911-a-2 msd	12.4058	0.0	0.244	
CCV-CL	34.7325	0.0	0.639	
CCB-CL	-0.3516	0.0	0.017	Test limit low
400-171152-A-7	13.2018	0.0	0.258	
400-170911-A-1	1.4425	0.0	0.049	
400-170911-A-3	1.9600	0.0	0.058	
400-170911-A-4	1.6112	0.0	0.052	
400-170911-A-5	1.3640	0.0	0.048	
400-170911-A-6	1.6992	0.0	0.054	
400-170911-A-7	2.2170	0.0	0.063	
400-170911-A-8	1.8027	0.0	0.056	
X 400-171203-A-1	543.9476	0.0	9.665	Abs. high, Init abs.
CCV-CL	34.7457	0.0	0.640	
CCB-CL	-0.5623	0.0	0.014	Test limit low
CCV-CL	34.4648	0.0	0.635	
CCB-CL	-0.5023	0.0	0.015	Test limit low
400-170884-K-1	388.8813	19.0	0.368	
400-170884-K-4	57.4532	1.0	0.533	
400-171038-A-1	1803.7272	69.0	0.480	Test limit high
400-171203-A-1	4703.6230	99.0	0.857	Test limit high
CCV-CL	34.6538	0.0	0.638	
CCB-CL	-0.6711	0.0	0.012	Test limit low

N	33
Mean	256.2550
SD	865.89087
CV%	337.90

Colorimetric Data Review Checklist

LIMS Batch Number:	Filename:	Instrument ID (circle one): Konelab M
Analyst/1st Reviewer:	Method (circle): 375.4 7196A (325.2) 375.4 365.1	QC Type (circle): Standard
Matrix (circle): Drinking Water (Non-potable Water) Solid Leachate		Circle One: (Total) Soluble

Review Items	NA	Yes	No	2nd Rev	If No, why is data reportable?
A. Calibration/Instrument Run QC					
1. Number of Points: 1st order: 3 standards 2nd order: 6 standards		✓			
2. Linearity and intercept: $r \geq 0.995$ |x-intercept| < RL or < ½ RL (special projects)					
3. ICV, second source: run before samples 90-110% recovery					
4. CCV: 10% frequency & closing 90-110% recovery					If no, list details:
5. Cadmium Column Efficiency Check (353.2 & 4500NO3-E): 85-115% NO2 recovery					If no, list details:
6. ICB/CCB: run before samples, 10% frequency, & closing Result < RL Result < ½ RL (DoD or special project)					If no, list details:
B. Client Sample and QC Sample Results					
7. Samples with results > linear range diluted and reanalyzed?					Comments:
8. On-instrument response of diluted sample is >10X MB on-instrument response					Comments:
C. Preparation/Matrix QC					
9. Method Blank: one per preparation batch Result < RL Result < ½ RL (DoD or special project) *If no, list blank ID & explain:*					□ No analyte > RL in associated samples □ Sample results >10x blank □ Insufficient sample for reanalysis
10. LCS: one per preparation batch 90-110% recovery *If no, list LCS ID & explain:*					□ Insufficient sample for reanalysis □ LCS %R > QC limits & samples < RL
11. MS/MSD or MS/Dup frequency: A pair per 10 samples (routine) A pair per batch (4500-x) Laboratory derived limits (routine) 90-110% recovery (drinking water) *If no, list QC ID & explain:*					□ Insufficient sample

Review Items	Yes	No	2nd Rev	If No, why is data reportable?
D. Raw Data & TALS Data Entry				
12. Raw Data	✓			
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Out of control QC is clearly identified				
d. Any data that has a qualifier tick is commented on with appropriate action taken				
e. The first page of the run includes the filename, instrument, and analyst initials/signature				
13. Run Log				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Analyst initials/signature provided				
14. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct				
b. Method and matrix are correct				
c. Date and time match raw data				
d. Dilutions are correct				
e. Correct suffix designated (where applicable)				
15. TALS Worksheet Tab is complete and correct				
16. TALS Reagent Tab is complete and correct				
17. TALS QC Links Tab is correct				
18. TALS Sample Results Tab				
a. All unused data are marked Rejected or Accepted				
b. All reported analytes are marked Primary or Secondary				
19. TALS Batch Information Screen documentation is complete				
20. TALS Status set to appropriate review level	✓			
E. Final Report and NCMs (2nd level review)				
21. Were all job/project requirements met?				
22. Results for samples and QC correct on final report?				
23. Are all necessary scanned documents in TALS?				
24. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?				

2nd Reviewer: _____ **Review Date:** _____

Comments: _____

ICAL Batch 444026

Calibration results Aquakem 7.2.AQ2 Page: 1

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

1st Lev RRC 6.11.19

6/11/2019 9:59

Test CHLORIDE

Accepted - -

Resp. = A * Conc. ^ 2 + B * Conc. + C
A = 0
B = 0.018
C = 0.024

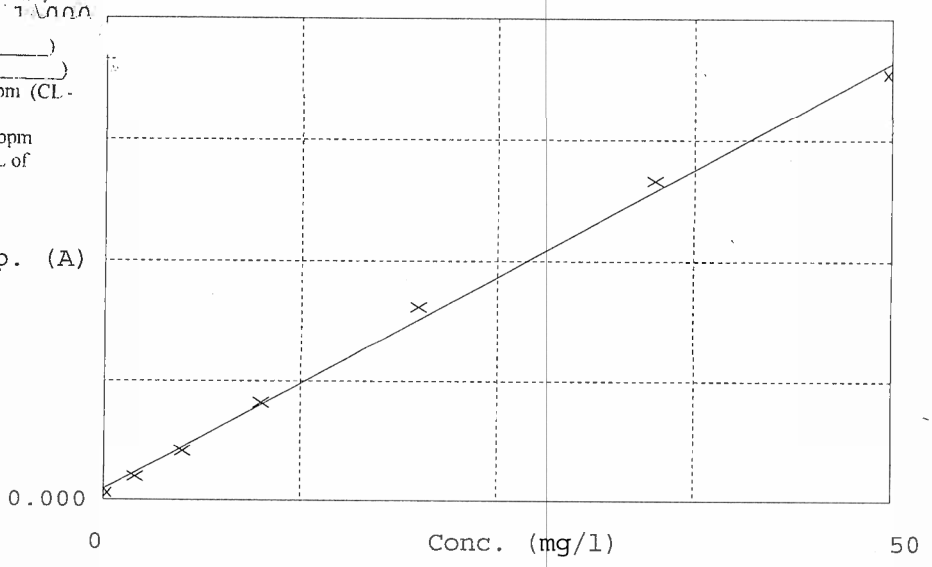
Coeff. of det. 0.997129

Errors QC rule violated

DATE	ICV	ICB	CCV-FIRST	CCV-LAST
6.11.19	105	ND	101	104
BATCH	**LCS**	**MS%R**	**MSD%R**	**RPD**
444079	105	99	96	1
		-1989	-2532	1

Correlation Coefficient must be ≥0.995 in order to pass

CL CCVH: TV=50ppm (CL -CCV-35ppm_ _____)
CL CCVL: TV= 2.0ppm (CL –CCVL-2ppm_ _____)
CL ICV: *9251 EVERY 10 SAMPLES TV= 30ppm (CL - ICV-W-_____)
MS/MSD: *9251 EVERY 10 SAMPLES TV= 10ppm (0.1mL CL-CCV-S-_____ spiked into 10mL of sample)



	Calibrator	Response	Calc. con.	Conc.	Errors
1	CL-0	0.015	-0.49365	0.00000	
2	CL-2	0.050	1.47476	2.00000	
3	CL-5	0.104	4.55473	5.00000	
4	CL-10	0.205	10.22040	10.00000	
5	CL-20	0.404	21.45605	20.00000	
6	CL-35	0.665	36.16225	35.00000	
7	CL-50	0.886	48.62546	50.00000	
8	CCV-CL(control)	0.650	35.35106	35.00000	
9	ICB-CL(control)	0.021	-0.13289	0.00000	Test limi
10	ICV-CL(control)	0.561	30.33833	30.00000	

CL: AQ LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	73-120%
RPD	8
R.L.	2.0mg/L

CL: NAq LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	75-125%
RPD	20
R.L.	40mg/kg

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

6/11/2019 16:00

Test: CHLORIDE

X=Rejected RRC 6.11.19

Sample Id	Result	Dil. 1 +	Response	Errors
CCV-CL	35.3743	0.0	0.651	
CCB-CL	-0.4743	0.0	0.015	Test limit low
mrl cl	1.3685	0.0	0.048	
icv cl	31.4388	0.0	0.581	
icb cl	-0.1142	0.0	0.022	Test limit low
mb cl	-0.0176	0.0	0.023	Test limit low
lcs cl	31.4799	0.0	0.582	
400-171203-A-14	544.2184	0.0	9.670	Abs. high, Init abs.
171203-a-14 ms	544.2929	0.0	9.671	Abs. high, Init abs.
171203-a-14 msd	544.4116	0.0	9.673	Abs. high, Init abs.
400-171203-A-2	544.2923	0.0	9.671	Abs. high, Init abs.
400-171203-A-3	543.9375	0.0	9.665	Abs. high, Init abs.
CCV-CL	35.4166	0.0	0.651	
CCB-CL	-0.4081	0.0	0.016	Test limit low
400-171203-A-4	543.3314	0.0	9.654	Abs. high, Init abs.
400-171203-A-5	543.5373	0.0	9.658	Abs. high, Init abs.
400-171203-A-6	543.6959	0.0	9.661	Abs. high, Init abs.
400-171203-A-7	544.0046	0.0	9.666	Abs. high, Init abs.
400-171203-A-8	0.4400	0.0	0.032	
400-171118-A-1	544.2700	0.0	9.671	Abs. high, Init abs.
400-171203-A-9	544.4286	0.0	9.674	Abs. high, Init abs.
400-170841-A-1	12.5076	0.0	0.245	
170841-a-1 ms	22.3596	0.0	0.420	
170841-a-1 msd	22.0628	0.0	0.415	
CCV-CL	35.2012	0.0	0.648	
CCB-CL	-0.4039	0.0	0.017	Test limit low
400-171203-A-10	543.3535	0.0	9.655	Abs. high, Init abs.
400-171203-A-11	543.4966	0.0	9.657	Abs. high, Init abs.
400-171203-A-12	543.6146	0.0	9.659	Abs. high, Init abs.
400-171203-A-13	543.8622	0.0	9.664	Abs. high, Init abs.
400-171203-A-15	0.4730	0.0	0.032	
400-171338-K-1	101.9412	0.0	1.831	Init abs.
400-171338-K-2	210.3156	0.0	3.752	Init abs.
400-170841-A-2	12.7650	0.0	0.250	
400-170841-A-3	125.2136	0.0	2.243	Init abs.
CCV-CL	35.2070	0.0	0.648	
CCB-CL	-0.6302	0.0	0.013	Test limit low
CCV-CL	35.9179	0.0	0.660	
CCB-CL	-0.6890	0.0	0.012	Test limit low
400-171203-A-14	3997.7734	99.0	0.732	Test limit high
171203-a-14 ms	3798.8262	99.0	0.697	Test limit high
171203-a-14 msd	3744.5950	99.0	0.687	Test limit high
400-171203-A-2	4074.3848	99.0	0.746	Test limit high
400-171203-A-3	7557.8154	99.0	1.363	Test limit high
400-171203-A-4	4429.9795	99.0	0.809	Test limit high
400-171203-A-5	4484.2583	99.0	0.819	Test limit high
400-171203-A-6	6569.9922	99.0	1.188	Test limit high
400-171203-A-7	3817.4968	99.0	0.700	Test limit high
400-171118-A-1	943.4896	99.0	0.191	
CCV-CL	35.7246	0.0	0.657	
CCB-CL	-0.7832	0.0	0.010	Test limit low
400-171203-A-9	4775.7490	99.0	0.870	Test limit high
400-171203-A-10	3615.9119	99.0	0.665	Test limit high
400-171203-A-11	6032.5298	99.0	1.093	Test limit high
400-171203-A-12	6517.5103	99.0	1.179	Test limit high

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

6/11/2019 16:00

Test: CHLORIDE

Sample Id	Result	Dil. 1 +	Response	Errors
400-171203-A-13	5826.9741	99.0	1.057	Test limit high
400-171338-K-2	578.3658	19.0	0.536	
400-170841-A-3	190.4636	19.0	0.193	
CCV-CL	36.3086	0.0	0.667	
CCB-CL	-0.8526	0.0	0.009	Test limit low
CCV-CL	35.9539	0.0	0.661	
CCB-CL	-0.8291	0.0	0.009	Test limit low
171203-a-3 10x	9006.0977	29.0	0.556	
171203-a-6 10x	5190.5024	29.0	0.330	
171203-a-11 10x	6318.0859	29.0	0.397	
171203-a-12 10x	6963.1504	29.0	0.435	
171203-a-13 10x	6267.4316	29.0	0.394	
400-171118-A-1	961.2091	69.0	0.267	
CCV-CL	36.2699	0.0	0.667	
CCB-CL	-0.7990	0.0	0.010	Test limit low

N	52
Mean	2199.8762
SD	2638.75073
CV%	119.95

Colorimetric Data Review Checklist

LIMS Batch Number:	**Filename:**	**Instrument ID (circle one):** Konelab M
Analyst/1st Reviewer:	**Method (circle):** 375.4 7196A 325.2 375.4 365.1	**QC Type (circle):** Standard
Matrix (circle): Drinking Water Non-potable Water Solid Leachate		**Circle One:** Total Soluble

Review Items	NA	Yes	No	2nd Rev	If No, why is data reportable?
A. Calibration/Instrument Run QC					
1. Number of Points: 1st order: 3 standards 2nd order: 6 standards					
2. Linearity and intercept: $r \geq 0.995$ |x-intercept| < RL or < ½ RL (special projects)					
3. ICV, second source: run before samples 90-110% recovery					
4. CCV: 10% frequency & closing 90-110% recovery					If no, list details:
5. Cadmium Column Efficiency Check (353.2 & 4500NO3-E): 85-115% NO2 recovery					If no, list details:
6. ICB/CCB: run before samples, 10% frequency, & closing Result < RL Result < ½ RL (DoD or special project)					If no, list details:
B. Client Sample and QC Sample Results					
7. Samples with results > linear range diluted and reanalyzed?					Comments:
8. On-instrument response of diluted sample is >10X MB on-instrument response					Comments:
C. Preparation/Matrix QC					
9. Method Blank: one per preparation batch Result < RL Result < ½ RL (DoD or special project) *If no, list blank ID & explain:*					□ No analyte > RL in associated samples □ Sample results >10x blank □ Insufficient sample for reanalysis
10. LCS: one per preparation batch 90-110% recovery *If no, list LCS ID & explain:*					□ Insufficient sample for reanalysis □ LCS %R > QC limits & samples < RL
11. MS/MSD or MS/Dup frequency: A pair per 10 samples (routine) A pair per batch (4500-x) Laboratory derived limits (routine) 90-110% recovery (drinking water) *If no, list QC ID & explain:*					□ Insufficient sample

Review Items	Yes	No	2nd Rev	If No, why is data reportable?
D. Raw Data & TALS Data Entry				
12. Raw Data				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Out of control QC is clearly identified				
d. Any data that has a qualifier tick is commented on with appropriate action taken				
e. The first page of the run includes the filename, instrument, and analyst initials/signature				
13. Run Log				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Analyst initials/signature provided				
14. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct				
b. Method and matrix are correct				
c. Date and time match raw data				
d. Dilutions are correct				
e. Correct suffix designated (where applicable)				
15. TALS Worksheet Tab is complete and correct				
16. TALS Reagent Tab is complete and correct				
17. TALS QC Links Tab is correct				
18. TALS Sample Results Tab				
a. All unused data are marked Rejected or Accepted				
b. All reported analytes are marked Primary or Secondary				
19. TALS Batch Information Screen documentation is complete				
20. TALS Status set to appropriate review level				
E. Final Report and NCMs (2nd level review)				
21. Were all job/project requirements met?				
22. Results for samples and QC correct on final report?				
23. Are all necessary scanned documents in TALS?				
24. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?				

2nd Reviewer: _____ **Review Date:** _____

Comments: _____

ICAL Batch: 444124

Calibration results Aquakem 7.2.AQ2 Page: 1

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

5/22/2019 13:20

1st ICAL 6.11.19

Test SULFATE

Accepted - -

Resp. = A * Conc. ^ 2 + B * Conc. + C
A = 0
B = 0.007
C = -0.003

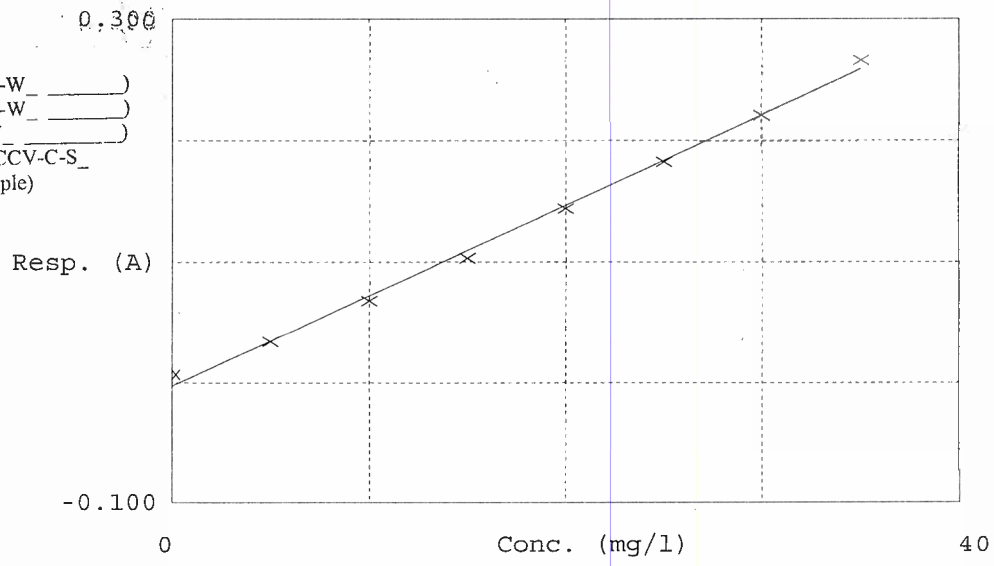
Coeff. of det. 0.996431

Errors

DATE	ICV	ICB	CCV-FIRST	CCV-LAST
6.11.19	105	ND	107	103
BATCH	**LCS**	**MS%R**	**MSD%R**	**RPD**
444124	105	-4	-74	3
		740	752	0

Correlation Coefficient must be ≥0.995 in order to pass

SO4 CCVH: TV=15ppm (SO4 -CCV-W_ _____)
SO4 CCVL: TV= 5ppm (SO4-CCVL-W_ _____)
SO4 ICV: TV= 15ppm (SO4 -ICV-W_ _____)
MS/MSD: TV= 10ppm (0.1mL SO4-CCV-C-S_ _____ spiked into 10mL of sample)



	Calibrator	Response	Calc. con.	Conc.	Errors
1	S0	0.007	1.23548	0.00000	
2	S1	0.034	4.89377	5.00000	
3	S2	0.068	9.41198	10.00000	
4	S3	0.103	14.13644	15.00000	
5	S4	0.144	19.61169	20.00000	
6	S5	0.182	24.80687	25.00000	
7	S6	0.220	29.93452	30.00000	
8	S7	0.265	35.96924	35.00000	
9	CCV-SO4 (control	0.102	14.06691	15.00000	
10	ICB-SO4 (control	0.007	1.22836	0.00000	
11	ICV-SO4 (control	0.103	14.10982	15.00000	

SO4: AQ LIMIT

ICV/LCS/CCV	90-110%
CCVL AT RL (5ppm)	50-150%
MS/MSD%R	70-128%
RPD	5
R.L.	5.0mg/L

SO4: NAq LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	59-146%
RPD	20
R.L.	100mg/kg

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

6/11/2019 21:13

Test: SULFATE

X=Rejected
RKC 6.11.19

Sample Id	Result	Dil.	1 +	Response	Errors
CCV-SO4	15.9900	0.0		0.117	
CCB-SO4	1.3454	0.0		0.007	
mrl so4	5.1550	0.0		0.036	
icv so4	15.7317	0.0		0.115	
icb so4	1.3324	0.0		0.007	
mb so4	1.3542	0.0		0.008	
lcs so4	15.7142	0.0		0.115	
CCV-SO4	15.9984	0.0		0.117	
CCB-SO4	1.3447	0.0		0.007	
CCV-SO4	15.9266	0.0		0.116	
CCB-SO4	1.3495	0.0		0.008	
500-164188-C-4	177.6465	0.0		1.321	Test limit high
164188-c-4 ms	177.7100	0.0		1.322	Test limit high
164188-c-4 msd	177.5326	0.0		1.320	Test limit high
400-171338-K-1	25.6022	0.0		0.188	
500-164188-C-5	100.1030	0.0		0.743	Test limit high
500-164188-C-6	141.2679	0.0		1.050	Test limit high
500-164188-C-7	97.2889	0.0		0.722	Test limit high
400-171203-A-1	280.1334	0.0		2.085	Test limit high
400-171203-A-2	334.5169	0.0		2.490	Init abs., Test limit hig
400-171203-A-3	340.0509	0.0		2.531	Init abs., Test limit hig
CCV-SO4	15.9643	0.0		0.116	
CCB-SO4	1.6823	0.0		0.010	
400-171203-A-4	326.4293	0.0		2.430	Init abs., Test limit hig
400-171203-A-5	329.8475	0.0		2.455	Init abs., Test limit hig
400-171203-A-14	357.8525	0.0		2.664	Init abs., Test limit hig
171203-a-14 ms	354.8557	0.0		2.641	Init abs., Test limit hig
171203-a-14 msd	356.6715	0.0		2.655	Init abs., Test limit hig
400-171203-A-6	341.5801	0.0		2.543	Init abs., Test limit hig
400-171203-A-7	353.5445	0.0		2.632	Init abs., Test limit hig
400-171203-A-9	344.0645	0.0		2.561	Init abs., Test limit hig
400-171203-A-10	352.8330	0.0		2.626	Init abs., Test limit hig
CCV-SO4	16.3296	0.0		0.119	
CCB-SO4	2.1763	0.0		0.014	Rule 1 violated
400-171203-A-11	359.8478	0.0		2.679	Init abs., Test limit hig
400-171203-A-12	349.3088	0.0		2.600	Init abs., Test limit hig
400-171203-A-13	364.8424	0.0		2.716	Init abs., Test limit hig
CCV-SO4	15.6223	0.0		0.114	
CCB-SO4	1.9185	0.0		0.012	
CCV-SO4	15.5162	0.0		0.113	
CCB-SO4	1.5380	0.0		0.009	
400-171203-A-8	1.6459	0.0		0.010	R
400-171203-A-15	1.5671	0.0		0.009	R
CCV-SO4	15.5033	0.0		0.113	
CCB-SO4	1.5295	0.0		0.009	
500-164188-C-4	260.1852	29.0		0.062	Test limit high
164188-c-4 ms	259.7672	29.0		0.062	Test limit high
164188-c-4 msd	252.8372	29.0		0.060	Test limit high
500-164188-C-5	117.5702	19.0		0.041	Test limit high
CCV-SO4	15.5333	0.0		0.113	
CCB-SO4	1.4109	0.0		0.008	
500-164188-C-6	185.6233	29.0		0.044	Test limit high
500-164188-C-7	107.4076	9.0		0.077	Test limit high
400-171203-A-1	616.0732	59.0		0.074	Test limit high
400-171203-A-2	1928.6206	59.0		0.237	Test limit high

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

6/11/2019 21:13

Test: SULFATE

Sample Id	Result	Dil. 1 +	Response	Errors
CCV-SO4	15.3450	0.0	0.112	
CCB-SO4	1.3789	0.0	0.008	
400-171203-A-3	8570.6191	59.0	1.062	Test limit high
400-171203-A-4	4621.2715	59.0	0.571	Test limit high
400-171203-A-5	4434.2871	59.0	0.548	Test limit high
400-171203-A-14	2376.3630	59.0	0.293	Test limit high
CCV-SO4	15.7240	0.0	0.115	
CCB-SO4	1.3673	0.0	0.008	
171203-a-14 ms	2323.6069	59.0	0.286	Test limit high
171203-a-14 msd	2335.0681	59.0	0.287	Test limit high
400-171203-A-6	8022.1709	59.0	0.994	Test limit high
400-171203-A-7	2328.2581	59.0	0.287	Test limit high
CCV-SO4	15.6040	0.0	0.114	
CCB-SO4	1.3816	0.0	0.008	
400-171203-A-9	1791.2156	59.0	0.220	Test limit high
400-171203-A-10	2887.4846	59.0	0.356	Test limit high
400-171203-A-11	4760.7031	59.0	0.589	Test limit high
400-171203-A-12	6790.7505	59.0	0.841	Test limit high
CCV-SO4	15.3917	0.0	0.112	
CCB-SO4	1.3607	0.0	0.008	
400-171203-A-13	4462.5225	59.0	0.552	Test limit high
CCV-SO4	15.4586	0.0	0.113	
CCB-SO4	1.3919	0.0	0.008	
CCV-SO4	15.5161	0.0	0.113	
CCB-SO4	1.3505	0.0	0.008	
171203-a-3 10x	11811.9688	29.0	0.291	Test limit high
171203-a-4 10x	4503.3364	29.0	0.109	Test limit high
171203-a-5 10x	4337.2827	29.0	0.105	Test limit high
171203-a-6 10x	10192.5635	29.0	0.251	Test limit high
CCV-SO4	15.3610	0.0	0.112	
CCB-SO4	1.3233	0.0	0.007	
400-171203-A-14	2281.3943	99.0	0.167	Test limit high
171203-a-11 10x	4395.4355	29.0	0.107	Test limit high
171203-a-12 10x	7798.2588	29.0	0.191	Test limit high
171203-a-13 10x	4159.4912	29.0	0.101	Test limit high
CCV-SO4	15.7699	0.0	0.115	
CCB-SO4	1.3556	0.0	0.008	
171203-a-14 ms	2355.3538	99.0	0.173	Test limit high
171203-a-14 msd	2356.5740	99.0	0.173	Test limit high
400-171203-A-7	2281.7449	99.0	0.167	Test limit high
400-171203-A-10	2951.5127	99.0	0.217	Test limit high
CCV-SO4	15.2379	0.0	0.111	
CCB-SO4	1.3116	0.0	0.007	
CCV-SO4	15.4483	0.0	0.113	
CCB-SO4	1.3175	0.0	0.007	
171203-a-3 10x	11445.3008	59.0	0.140	Test limit high
171203-a-6 10x	9866.1855	59.0	0.120	Test limit high
CCV-SO4	15.3967	0.0	0.112	
CCB-SO4	1.3558	0.0	0.008	

6/11/2019 21:13

Test: SULFATE

Sample Id	Result	Dil. 1 +	Response	Ô„

N	64
Mean	2285.2317
SD	3115.56299
CV%	136.33

Colorimetric Data Review Checklist

LIMS Batch Number:	**Filename:**	**Instrument ID (circle one):** Konelab M
Analyst/1st Reviewer:	**Method (circle):** 375.4 7196A 325.2 375.4 365.1	**QC Type (circle):** Standard
Matrix (circle): Drinking Water Non-potable Water Solid Leachate		**Circle One:** Total Soluble

Review Items	NA	Yes	No	2nd Rev	If No, why is data reportable?
A. Calibration/Instrument Run QC					
1. Number of Points: 1st order: 3 standards 2nd order: 6 standards					
2. Linearity and intercept: $r \geq 0.995$ |x-intercept| < RL or < ½ RL (special projects)					
3. ICV, second source: run before samples 90-110% recovery					
4. CCV: 10% frequency & closing 90-110% recovery					If no, list details:
5. Cadmium Column Efficiency Check (353.2 & 4500NO3-E): 85-115% NO2 recovery					If no, list details:
6. ICB/CCB: run before samples, 10% frequency, & closing Result < RL Result < ½ RL (DoD or special project)					If no, list details:
B. Client Sample and QC Sample Results					
7. Samples with results > linear range diluted and reanalyzed?					Comments:
8. On-instrument response of diluted sample is >10X MB on-instrument response					Comments:
C. Preparation/Matrix QC					
9. Method Blank: one per preparation batch Result < RL Result < ½ RL (DoD or special project) *If no, list blank ID & explain:*					□ No analyte > RL in associated samples □ Sample results >10x blank □ Insufficient sample for reanalysis
10. LCS: one per preparation batch 90-110% recovery *If no, list LCS ID & explain:*					□ Insufficient sample for reanalysis □ LCS %R > QC limits & samples < RL
11. MS/MSD or MS/Dup frequency: A pair per 10 samples (routine) A pair per batch (4500-x) Laboratory derived limits (routine) 90-110% recovery (drinking water) *If no, list QC ID & explain:*					□ Insufficient sample

Review Items	Yes	No	2nd Rev	If No, why is data reportable?
D. Raw Data & TALS Data Entry				
12. Raw Data				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Out of control QC is clearly identified				
d. Any data that has a qualifier tick is commented on with appropriate action taken				
e. The first page of the run includes the filename, instrument, and analyst initials/signature				
13. Run Log				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Analyst initials/signature provided				
14. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct				
b. Method and matrix are correct				
c. Date and time match raw data				
d. Dilutions are correct				
e. Correct suffix designated (where applicable)				
15. TALS Worksheet Tab is complete and correct				
16. TALS Reagent Tab is complete and correct				
17. TALS QC Links Tab is correct				
18. TALS Sample Results Tab				
a. All unused data are marked Rejected or Accepted				
b. All reported analytes are marked Primary or Secondary				
19. TALS Batch Information Screen documentation is complete				
20. TALS Status set to appropriate review level				
E. Final Report and NCMs (2nd level review)				
21. Were all job/project requirements met?				
22. Results for samples and QC correct on final report?				
23. Are all necessary scanned documents in TALS?				
24. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?				

2nd Reviewer: _____ **Review Date:** _____

Comments: _____

Subcontract Data

Shipping and Receiving Documents

Eurofins TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

400-171203 COC

eurofins Environment Testing TestAmerica

Client Information	Sampler: VICENTE PEREZ	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-84474-31664.1
Client Contact: Alberto Melendez	Phone: 787-209-6386	E-Mail: eric.lang@testamericainc.com		Page: Page 1 of 2
Company: DNA-Environment, LLC				Job #:
Address: 35 Calle Juan C Borbon Ste 67-227	Due Date Requested:			
City: Guaynabo	TAT Requested (days): 5-DAY TAT			
State, Zip: PR, 00969-5375				
Phone: 787-209-6386	PO #: 555			
Email: alberto.melendez@dnaenv.com	WO #:			
Project Name: CCR Groundwater Monitoring	Project #: 40008317			
Site: AES Puerto Rico LP, Guayama, PR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_Cl_E - Chloride, Field pH, SM4500_SO4_E - Sulfate, SM2540C - TDS, SM2320B - Alkalinity, Fluoride KRD	6020 - Total Metals (Li, Mo, Se, Ca, Fe, Mg, Mn, K, Na) B KRD	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D		
AES-TW101- 060319	6-3-19	0925	G	Water	N		X	X	2	(*) pH = 6.81
AES-MW3- 060319	6-3-19	1036	G	Water	N		X	X	2	pH = 7.00
AES-TW102- 060319	6-3-19	1127	G	Water	N		X	X	2	pH = 6.93
AES-MW4- 060319	6-3-19	1352	G	Water	N		X	X	2	pH = 7.16
AES-MW4-DUP- 060319	6-3-19	1404	G	Water	N		X	X	2	
AES-TW103- 060319	6-3-19	1451	G	Water	N		X	X	2	pH = 7.09
AES-MW5- 060319	6-3-19	1607	G	Water	N		X	X	2	pH = 6.56
AES-FB- 060319	6-3-19	1619	G	Water	N		X	X	2	
										(*) FIELD pH

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For Months

Deliverable Requested: I, II, III, IV, Other (specify): LEVEL IV

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: [signature]	Date/Time: 06-05-19 12:30	Company: DNA	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 6-6-19 9:24	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 1.7°C IR8, 2.8°C IR8

Ver: 01/16/2019

Eurofins TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

eurofins Environment Testing TestAmerica

Client Information	Sampler: VICENTE PEREZ	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-84474-31664.2
Client Contact: Alberto Melendez	Phone: 787-209-6386	E-Mail: eric.lang@testamericainc.com		Page: Page 2 of 2
Company: DNA-Environment, LLC				Job #:
Address: 35 Calle Juan C Borbon Ste 67-227	Due Date Requested:			
City: Guaynabo	TAT Requested (days): 5-DAY TAT			
State, Zip: PR, 00969-5375				
Phone: 787-209-6386	PO #: 555			
Email: alberto.melendez@dnaenv.com	WO #:			
Project Name: CCR Groundwater Monitoring	Project #: 40008317			
Site: AES Puerto Rico LP, Guayama, PR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_Cl_E - Chloride, Field pH, SM4500_SO4_E - Sulfate, SM2540C - TDS, SM2320B - Alkalinity, Fluoride (13 yrs)	6020 - Total Metals (Li, Mo, Se, Ca, Fe, Mg, Mn, K, Na)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D		
AES-TW104- 060419	6-4-19	0912	G	Water	N		X	X	2	(*) pH = 7.00
AES-TW105- 060419	6-4-19	1027	G	Water	N		X	X	2	pH = 7.14
AES-TW106- 060419	6-4-19	1123	G	Water	N		X	X	2	pH = 6.93
AES-TW107- 060419	6-4-19	1337	G	Water	N		X	X	2	pH = 7.18
AES-TW108- 060419	6-4-19	1433	G	Water	N		X	X	2	pH = 6.91
AES-TW109- 060419	6-4-19	1538	G	Water	N		X	X	2	pH = 6.76
AES-TW109- 060419 MS	6-4-19	1552	G	Water	N	Y	X	X	2	
AES-TW109- 060419 MSD	6-4-19	1604	G	Water	N	Y	X	X	2	
AES-FB- 060419	6-4-19	1618	G	Water	N		X	X	2	
										(*) FIELD pH

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For Months

Deliverable Requested: I, II, III, IV, Other (specify): LEVEL IV

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	06-05-19 12:30	DNA			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	6-6-19 9:24	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.7° IR

Ver: 01/16/2019

Eurofins TestAmerica, Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone: 850-474-1001 Fax: 850-478-2671

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-214681.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eric.lang@testamericainc.com	State of Origin: Puerto Rico	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Florida		Job #: 400-171203-1
Address: 2417 Bond Street, ,	Due Date Requested: 6/12/2019			
City: University Park	TAT Requested (days):			
State, Zip: IL, 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR GW Monitoring, AES Puerto Rico, LP	Project #: 40008317			
Site:	SSOW#:			

400-171203 COC

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020/3005A (MOD) Single Element	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
AES-TW101-060319 (400-171203-1)	6/3/19	09:25 Atlantic		Water			X	1	
AES-MW3-060319 (400-171203-2)	6/3/19	10:36 Atlantic		Water			X	1	
AES-TW102-060319 (400-171203-3)	6/3/19	11:27 Atlantic		Water			X	1	
AES-MW4-060319 (400-171203-4)	6/3/19	13:52 Atlantic		Water			X	1	
AES-MW4-DUP-060319 (400-171203-5)	6/3/19	14:04 Atlantic		Water			X	1	
AES-TW103-060319 (400-171203-6)	6/3/19	14:51 Atlantic		Water			X	1	
AES-MW5-060319 (400-171203-7)	6/3/19	16:07 Atlantic		Water			X	1	
AES-FB-060319 (400-171203-8)	6/3/19	16:19 Atlantic		Water			X	1	
AES-TW104-060419 (400-171203-9)	6/4/19	09:12 Atlantic		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kathy R Owen	7-3-19 1330	TA.pen	[signature]	7/5/19 1020	TA CHL

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: ~0.3 → 1.2

Ver: 01/16/2019

Eurofins TestAmerica, Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone: 850-474-1001 Fax: 850-478-2671

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-214681.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: eric.lang@testamericainc.com	State of Origin: Puerto Rico	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Florida		Job #: 400-171203-1
Address: 2417 Bond Street, ,	Due Date Requested: 6/12/2019			
City: University Park	TAT Requested (days):			
State, Zip: IL, 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR GW Monitoring, AES Puerto Rico, LP	Project #: 40008317			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020/3005A (MOD) Single Element	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
AES-TW105-060419 (400-171203-10)	6/4/19	10:27 Atlantic		Water			X	1	
AES-TW106-060419 (400-171203-11)	6/4/19	11:23 Atlantic		Water			X	1	
AES-TW107-060419 (400-171203-12)	6/4/19	13:37 Atlantic		Water			X	1	
AES-TW108-060419 (400-171203-13)	6/4/19	14:33 Atlantic		Water			X	1	
AES-TW109-060419 (400-171203-14)	6/4/19	15:38 Atlantic		Water			X	1	
AES-TW109-060419 (400-171203-14MS)	6/4/19	15:52 Atlantic	MS	Water			X	1	
AES-TW109-060419 (400-171203-14MSD)	6/4/19	16:04 Atlantic	MSD	Water			X	1	
AES-FB-060419 (400-171203-15)	6/4/19	16:18 Atlantic		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kathy R Avery	7-3-19 1330	TA-PEN	[signature]	7/5/19 1020	TA-CHT

Custody Seals Intact:	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
Δ Yes Δ No		

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-171203-1

Login Number: 171203
List Number: 1
Creator: Perez, Trina M

List Source: Eurofins TestAmerica, Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.7°C, 2.8C IR-8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	False	Sample splitting required for subcontract purposes.
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-171203-1

Login Number: 171203
List Number: 2
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago
List Creation: 07/05/19 10:32 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-171203-1

Login Number: 171203
List Number: 1
Creator: Perez, Trina M

List Source: Eurofins TestAmerica, Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.7°C, 2.8C IR-8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	False	Sample splitting required for subcontract purposes.
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-171203-1

Login Number: 171203
List Number: 2
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago
List Creation: 07/05/19 10:32 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Ðaliz Ëstades Santalíz

Licensed Chemist

To Whom It May Concern:

I, Daliz M. Estades Santaliz, in my capacity as Puerto Rico Certified Chemist, hereby certify the attached Analytical Results from CCR GW Monitoring AES-PR (Job ID:400-176914-1) Project and ID Numbers:

400-176914-1
400-176914-2
400-176914-3
400-176914-4
400-176914-5
400-176914-6
400-176914-7



Lcda. Daliz M. Estades Santaliz

PO Box 727
Dorado, PR 00646-0727

ANALYTICAL REPORT

Job Number: 400-176914-1

Job Description: CCR GW Monitoring, AES Puerto Rico, LP

For:
DNA-Environment, LLC
35 Calle Juan C Borbon
Ste 67-227
Guaynabo, PR 00969-5375

Attention: Alberto Melendez



Approved for release.
Eric A. Lang
Manager of Project Management
1/9/2020 1:35 PM

Eric A. Lang, Manager of Project Management
2417 Bond Street, University Park, IL, 60484
(708)534-5200
eric.lang@testamericainc.com
01/09/2020

The test results in this report meet all NELAP requirements for accredited parameters, unless otherwise noted, and relate only to the referenced samples. Pursuant to NELAP, this report may not be reproduced, except in full, without written approval from the laboratory. For questions please contact the Project Manager at the e-mail address listed on this page, or the telephone number at the bottom of the page. TestAmerica Pensacola Certifications and Approvals: Alabama (40150), Arizona (AZ0710), Arkansas (88-0689), Florida (E81010), Illinois (200041), Iowa (367), Kansas (E-10253), Kentucky UST (53), Louisiana (30748), Maryland (233), Massachusetts (M-FL094), Michigan (9912), New Hampshire (250510), New Jersey (FL006), North Carolina (314), Oklahoma (9810), Pennsylvania (68-00467), Rhode Island (LAO00307), South Carolina (96026), Tennessee (TN02907), Texas (T104704286-10-2), Virginia (00008), Washington (C2043), West Virginia (136), USDA Foreign Soil Permit (P330-08-00006).

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job Narrative
400-176914-1

Comments
No additional comments.

Receipt
The samples were received on 9/25/2019 8:52 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt time was 0.2º C.

Metals
The samples were originally analyzed at the Eurofins TestAmerica Pensacola laboratory. The results did not correlate with historical concentrations and we believe there were unidentified interferences on Pensacola's instruments (perhaps related to high concentrations of common minerals including Ca, Na). Due to the suspected interferences, the samples were reanalyzed at the Eurofins TestAmerica Chicago laboratory. The samples were also analyzed by a third party laboratory at the client's request and these results confirmed the results obtained by the Eurofins TestAmerica Chicago laboratory, which are reported here.

No additional analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Field Service / Mobile Lab
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: DNA-Environment, LLC
Job ID: 400-176914-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW1-092319
Lab Sample ID: 400-176914-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00043	J	0.0013	0.00023	mg/L	1		6020	Total Recoverable
Barium	0.035		0.0025	0.00073	mg/L	1		6020	Total Recoverable
Boron	0.27		0.050	0.013	mg/L	1		6020	Total Recoverable
Calcium	120		0.25	0.044	mg/L	1		6020	Total Recoverable
Cobalt	0.00069	J	0.0025	0.00040	mg/L	1		6020	Total Recoverable
Lithium	0.00054	J	0.0050	0.00050	mg/L	1		6020	Total Recoverable
Magnesium	48		0.20	0.049	mg/L	1		6020	Total Recoverable
Potassium	0.71		0.50	0.11	mg/L	1		6020	Total Recoverable
Selenium	0.0059		0.0013	0.00098	mg/L	1		6020	Total Recoverable
Sodium	330		2.0	0.77	mg/L	10		6020	Total Recoverable
Iron	0.14		0.10	0.047	mg/L	1		6020	Total Recoverable
Manganese	0.078		0.0025	0.00079	mg/L	1		6020	Total Recoverable
Alkalinity, Total	360		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	360		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	1400		25	17	mg/L	1		SM 2540C	Total/NA
Chloride	360		20	14	mg/L	10		SM 4500 Cl- E	Total/NA
Fluoride	0.67		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	310		100	28	mg/L	20		SM 4500 SO4 E	Total/NA
Field pH	6.59				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-MW2-092319
Lab Sample ID: 400-176914-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00031	J	0.0013	0.00023	mg/L	1		6020	Total Recoverable
Barium	0.14		0.0025	0.00073	mg/L	1		6020	Total Recoverable
Boron	0.16		0.050	0.013	mg/L	1		6020	Total Recoverable
Calcium	130		0.25	0.044	mg/L	1		6020	Total Recoverable
Cobalt	0.00057	J	0.0025	0.00040	mg/L	1		6020	Total Recoverable
Magnesium	53		0.20	0.049	mg/L	1		6020	Total Recoverable
Potassium	0.74		0.50	0.11	mg/L	1		6020	Total Recoverable
Sodium	76		0.20	0.077	mg/L	1		6020	Total Recoverable
Iron	0.095	J	0.10	0.047	mg/L	1		6020	Total Recoverable
Manganese	0.86		0.0025	0.00079	mg/L	1		6020	Total Recoverable
Alkalinity, Total	590		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	590		1.0	0.98	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: AES-MW2-092319 (Continued)
Lab Sample ID: 400-176914-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	670		10	6.8	mg/L	1		SM 2540C	Total/NA
Chloride	72		4.0	2.8	mg/L	2		SM 4500 Cl- E	Total/NA
Fluoride	0.71		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	8.0		5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA
Field pH	6.31				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-MW3-092319
Lab Sample ID: 400-176914-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0019		0.0013	0.00023	mg/L	1		6020	Total Recoverable
Barium	0.16		0.0025	0.00073	mg/L	1		6020	Total Recoverable
Boron	0.93		0.050	0.013	mg/L	1		6020	Total Recoverable
Calcium	270		1.3	0.22	mg/L	5		6020	Total Recoverable
Cobalt	0.0020	J	0.0025	0.00040	mg/L	1		6020	Total Recoverable
Lithium	0.0034	J	0.0050	0.00050	mg/L	1		6020	Total Recoverable
Magnesium	410		20	4.9	mg/L	100		6020	Total Recoverable
Molybdenum	0.15		0.015	0.0025	mg/L	1		6020	Total Recoverable
Potassium	18		0.50	0.11	mg/L	1		6020	Total Recoverable
Selenium	0.10		0.0013	0.00098	mg/L	1		6020	Total Recoverable
Sodium	2400		20	7.7	mg/L	100		6020	Total Recoverable
Iron	0.75		0.10	0.047	mg/L	1		6020	Total Recoverable
Manganese	1.0		0.0025	0.00079	mg/L	1		6020	Total Recoverable
Alkalinity, Total	550		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	550		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	9300		130	85	mg/L	1		SM 2540C	Total/NA
Chloride	3700		160	110	mg/L	80		SM 4500 Cl- E	Total/NA
Fluoride	1.7		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	1500		500	140	mg/L	100		SM 4500 SO4 E	Total/NA
Field pH	6.54				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-MW4-092319
Lab Sample ID: 400-176914-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0041		0.0013	0.00023	mg/L	1		6020	Total Recoverable
Barium	0.061		0.0025	0.00073	mg/L	1		6020	Total Recoverable
Boron	1.9		0.050	0.013	mg/L	1		6020	Total Recoverable
Calcium	650		1.3	0.22	mg/L	5		6020	Total Recoverable
Cobalt	0.00086	J	0.0025	0.00040	mg/L	1		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: DNA-Environment, LLC
Job ID: 400-176914-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW4-092319 (Continued)
Lab Sample ID: 400-176914-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.47		0.0050	0.00050	mg/L	1		6020	Total Recoverable
Magnesium	140		0.20	0.049	mg/L	1		6020	Total Recoverable
Molybdenum	0.35		0.015	0.0025	mg/L	1		6020	Total Recoverable
Potassium	1300		50	11	mg/L	100		6020	Total Recoverable
Selenium	0.0043		0.0013	0.00098	mg/L	1		6020	Total Recoverable
Sodium	7600		20	7.7	mg/L	100		6020	Total Recoverable
Iron	16		0.10	0.047	mg/L	1		6020	Total Recoverable
Manganese	3.0		0.0025	0.00079	mg/L	1		6020	Total Recoverable
Alkalinity, Total	610		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	610		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	31000		1000	680	mg/L	1		SM 2540C	Total/NA
Chloride	690		160	110	mg/L	80		SM 4500 Cl- E	Total/NA
Fluoride	0.66		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	8200		1500	420	mg/L	300		SM 4500 SO4 E	Total/NA
Field pH	6.58				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-MW4-DUP-092319
Lab Sample ID: 400-176914-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0034		0.0013	0.00023	mg/L	1		6020	Total Recoverable
Barium	0.061		0.0025	0.00073	mg/L	1		6020	Total Recoverable
Boron	1.9		0.050	0.013	mg/L	1		6020	Total Recoverable
Calcium	630		1.3	0.22	mg/L	5		6020	Total Recoverable
Cobalt	0.00084	J	0.0025	0.00040	mg/L	1		6020	Total Recoverable
Lithium	0.48		0.0050	0.00050	mg/L	1		6020	Total Recoverable
Magnesium	130		0.20	0.049	mg/L	1		6020	Total Recoverable
Molybdenum	0.37		0.015	0.0025	mg/L	1		6020	Total Recoverable
Potassium	1300		50	11	mg/L	100		6020	Total Recoverable
Selenium	0.0047		0.0013	0.00098	mg/L	1		6020	Total Recoverable
Sodium	7500		20	7.7	mg/L	100		6020	Total Recoverable
Iron	16		0.10	0.047	mg/L	1		6020	Total Recoverable
Manganese	3.1		0.0025	0.00079	mg/L	1		6020	Total Recoverable
Alkalinity, Total	610		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	610		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	23000		1000	680	mg/L	1		SM 2540C	Total/NA
Chloride	690		160	110	mg/L	80		SM 4500 Cl- E	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: AES-MW4-DUP-092319 (Continued)
Lab Sample ID: 400-176914-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.64		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	8500		1500	420	mg/L	300		SM 4500 SO4 E	Total/NA

Client Sample ID: AES-MW5-092319
Lab Sample ID: 400-176914-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.015		0.0013	0.00023	mg/L	1		6020	Total Recoverable
Barium	0.034		0.0025	0.00073	mg/L	1		6020	Total Recoverable
Boron	0.41		0.050	0.013	mg/L	1		6020	Total Recoverable
Calcium	840		1.3	0.22	mg/L	5		6020	Total Recoverable
Cobalt	0.0027		0.0025	0.00040	mg/L	1		6020	Total Recoverable
Lithium	0.0046	J	0.0050	0.00050	mg/L	1		6020	Total Recoverable
Magnesium	400		4.0	0.99	mg/L	20		6020	Total Recoverable
Molybdenum	0.0025	J	0.015	0.0025	mg/L	1		6020	Total Recoverable
Potassium	7.3		0.50	0.11	mg/L	1		6020	Total Recoverable
Selenium	0.0014		0.0013	0.00098	mg/L	1		6020	Total Recoverable
Sodium	2300		4.0	1.5	mg/L	20		6020	Total Recoverable
Iron	11		0.10	0.047	mg/L	1		6020	Total Recoverable
Manganese	13		0.013	0.0040	mg/L	5		6020	Total Recoverable
Alkalinity, Total	500		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	500		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	10000		130	85	mg/L	1		SM 2540C	Total/NA
Chloride	3700		160	110	mg/L	80		SM 4500 Cl- E	Total/NA
Fluoride	0.42		0.10	0.032	mg/L	1		SM 4500 F C	Total/NA
Sulfate	2200		500	140	mg/L	100		SM 4500 SO4 E	Total/NA
Field pH	6.03				SU	1		Field Sampling	Total/NA

Client Sample ID: AES-FB-092319
Lab Sample ID: 400-176914-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00051	J	0.0013	0.00023	mg/L	1		6020	Total Recoverable
Calcium	0.14	J	0.25	0.044	mg/L	1		6020	Total Recoverable
Lithium	0.0010	J	0.0050	0.00050	mg/L	1		6020	Total Recoverable
Magnesium	0.052	J	0.20	0.049	mg/L	1		6020	Total Recoverable
Iron	0.058	J	0.10	0.047	mg/L	1		6020	Total Recoverable
Manganese	0.0016	J	0.0025	0.00079	mg/L	1		6020	Total Recoverable
Sulfate	1.7	J	5.0	1.4	mg/L	1		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: AES-MW1-092319

Date Collected: 09/23/19 09:10
Date Received: 09/25/19 08:52

Lab Sample ID: 400-176914-1
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00043	J	0.0013	0.00023	mg/L		11/05/19 07:58	11/05/19 18:05	1
Barium	0.035		0.0025	0.00073	mg/L		11/05/19 07:58	11/05/19 18:05	1
Boron	0.27		0.050	0.013	mg/L		11/05/19 07:58	11/05/19 18:05	1
Calcium	120		0.25	0.044	mg/L		11/05/19 07:58	11/05/19 18:05	1
Cobalt	0.00069	J	0.0025	0.00040	mg/L		11/05/19 07:58	11/05/19 18:05	1
Lithium	0.00054	J	0.0050	0.00050	mg/L		11/05/19 07:58	11/05/19 18:05	1
Magnesium	48		0.20	0.049	mg/L		11/05/19 07:58	11/05/19 18:05	1
Molybdenum	0.0025	U	0.015	0.0025	mg/L		11/05/19 07:58	11/05/19 18:05	1
Potassium	0.71		0.50	0.11	mg/L		11/05/19 07:58	11/05/19 18:05	1
Selenium	0.0059		0.0013	0.00098	mg/L		11/05/19 07:58	11/05/19 18:05	1
Sodium	330		2.0	0.77	mg/L		11/05/19 07:58	11/18/19 13:21	10
Iron	0.14		0.10	0.047	mg/L		11/05/19 07:58	11/05/19 18:05	1
Manganese	0.078		0.0025	0.00079	mg/L		11/05/19 07:58	11/05/19 18:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	360		1.0	0.98	mg/L			10/01/19 11:37	1
Bicarbonate Alkalinity as CaCO3	360		1.0	0.98	mg/L			10/01/19 11:37	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			10/01/19 11:37	1
Total Dissolved Solids	1400		25	17	mg/L			09/26/19 14:38	1
Chloride	360		20	14	mg/L			09/27/19 22:52	10
Fluoride	0.67		0.10	0.032	mg/L			10/02/19 10:00	1
Sulfate	310		100	28	mg/L			09/28/19 11:36	20

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.59							09/23/19 07:10	1

Client Sample ID: AES-MW2-092319

Date Collected: 09/23/19 10:35
Date Received: 09/25/19 08:52

Lab Sample ID: 400-176914-2
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00031	J	0.0013	0.00023	mg/L		11/05/19 07:58	11/05/19 18:09	1
Barium	0.14		0.0025	0.00073	mg/L		11/05/19 07:58	11/05/19 18:09	1
Boron	0.16		0.050	0.013	mg/L		11/05/19 07:58	11/05/19 18:09	1
Calcium	130		0.25	0.044	mg/L		11/05/19 07:58	11/05/19 18:09	1
Cobalt	0.00057	J	0.0025	0.00040	mg/L		11/05/19 07:58	11/05/19 18:09	1
Lithium	0.00050	U	0.0050	0.00050	mg/L		11/05/19 07:58	11/05/19 18:09	1
Magnesium	53		0.20	0.049	mg/L		11/05/19 07:58	11/05/19 18:09	1
Molybdenum	0.0025	U	0.015	0.0025	mg/L		11/05/19 07:58	11/05/19 18:09	1
Potassium	0.74		0.50	0.11	mg/L		11/05/19 07:58	11/05/19 18:09	1
Selenium	0.00098	U	0.0013	0.00098	mg/L		11/05/19 07:58	11/05/19 18:09	1
Sodium	76		0.20	0.077	mg/L		11/05/19 07:58	11/05/19 18:09	1
Iron	0.095	J	0.10	0.047	mg/L		11/05/19 07:58	11/05/19 18:09	1
Manganese	0.86		0.0025	0.00079	mg/L		11/05/19 07:58	11/05/19 18:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	590		1.0	0.98	mg/L			10/01/19 10:57	1

Client Sample ID: AES-MW2-092319
Lab Sample ID: 400-176914-2
Date Collected: 09/23/19 10:35
Matrix: Water
Date Received: 09/25/19 08:52

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	590		1.0	0.98	mg/L			10/01/19 10:57	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			10/01/19 10:57	1
Total Dissolved Solids	670		10	6.8	mg/L			09/26/19 14:38	1
Chloride	72		4.0	2.8	mg/L			09/27/19 22:49	2
Fluoride	0.71		0.10	0.032	mg/L			10/02/19 09:51	1
Sulfate	8.0		5.0	1.4	mg/L			09/28/19 11:04	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.31				SU			09/23/19 08:35	1

Client Sample ID: AES-MW3-092319
Lab Sample ID: 400-176914-3
Date Collected: 09/23/19 13:10
Matrix: Water
Date Received: 09/25/19 08:52

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0019		0.0013	0.00023	mg/L		11/05/19 07:58	11/05/19 18:39	1
Barium	0.16		0.0025	0.00073	mg/L		11/05/19 07:58	11/05/19 18:39	1
Boron	0.93		0.050	0.013	mg/L		11/05/19 07:58	11/05/19 18:39	1
Calcium	270		1.3	0.22	mg/L		11/05/19 07:58	11/06/19 11:26	5
Cobalt	0.0020	J	0.0025	0.00040	mg/L		11/05/19 07:58	11/05/19 18:39	1
Lithium	0.0034	J	0.0050	0.00050	mg/L		11/05/19 07:58	11/05/19 18:39	1
Magnesium	410		20	4.9	mg/L		11/05/19 07:58	11/18/19 13:24	100
Molybdenum	0.15		0.015	0.0025	mg/L		11/05/19 07:58	11/05/19 18:39	1
Potassium	18		0.50	0.11	mg/L		11/05/19 07:58	11/05/19 18:39	1
Selenium	0.10		0.0013	0.00098	mg/L		11/05/19 07:58	11/05/19 18:39	1
Sodium	2400		20	7.7	mg/L		11/05/19 07:58	11/18/19 13:24	100
Iron	0.75		0.10	0.047	mg/L		11/05/19 07:58	11/05/19 18:39	1
Manganese	1.0		0.0025	0.00079	mg/L		11/05/19 07:58	11/05/19 18:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	550		1.0	0.98	mg/L			10/01/19 11:46	1
Bicarbonate Alkalinity as CaCO3	550		1.0	0.98	mg/L			10/01/19 11:46	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			10/01/19 11:46	1
Total Dissolved Solids	9300		130	85	mg/L			09/26/19 14:38	1
Chloride	3700		160	110	mg/L			09/27/19 23:13	80
Fluoride	1.7		0.10	0.032	mg/L			10/02/19 10:02	1
Sulfate	1500		500	140	mg/L			09/28/19 12:35	100

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.54				SU			09/23/19 11:10	1

Client Sample ID: AES-MW4-092319

Date Collected: 09/23/19 14:50
Date Received: 09/25/19 08:52

Lab Sample ID: 400-176914-4
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0041		0.0013	0.00023	mg/L		11/05/19 07:58	11/05/19 18:43	1
Barium	0.061		0.0025	0.00073	mg/L		11/05/19 07:58	11/05/19 18:43	1
Boron	1.9		0.050	0.013	mg/L		11/05/19 07:58	11/05/19 18:43	1
Calcium	650		1.3	0.22	mg/L		11/05/19 07:58	11/06/19 11:31	5
Cobalt	0.00086	J	0.0025	0.00040	mg/L		11/05/19 07:58	11/05/19 18:43	1
Lithium	0.47		0.0050	0.00050	mg/L		11/05/19 07:58	11/05/19 18:43	1
Magnesium	140		0.20	0.049	mg/L		11/05/19 07:58	11/05/19 18:43	1
Molybdenum	0.35		0.015	0.0025	mg/L		11/05/19 07:58	11/05/19 18:43	1
Potassium	1300		50	11	mg/L		11/05/19 07:58	11/18/19 13:28	100
Selenium	0.0043		0.0013	0.00098	mg/L		11/05/19 07:58	11/05/19 18:43	1
Sodium	7600		20	7.7	mg/L		11/05/19 07:58	11/18/19 13:28	100
Iron	16		0.10	0.047	mg/L		11/05/19 07:58	11/05/19 18:43	1
Manganese	3.0		0.0025	0.00079	mg/L		11/05/19 07:58	11/05/19 18:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	610		1.0	0.98	mg/L			10/01/19 11:56	1
Bicarbonate Alkalinity as CaCO3	610		1.0	0.98	mg/L			10/01/19 11:56	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			10/01/19 11:56	1
Total Dissolved Solids	31000		1000	680	mg/L			09/26/19 14:38	1
Chloride	690		160	110	mg/L			09/27/19 23:32	80
Fluoride	0.66		0.10	0.032	mg/L			10/02/19 10:05	1
Sulfate	8200		1500	420	mg/L			10/01/19 16:42	300

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.58				SU			09/23/19 12:50	1

Client Sample ID: AES-MW4-DUP-092319

Date Collected: 09/23/19 15:20
Date Received: 09/25/19 08:52

Lab Sample ID: 400-176914-5
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0034		0.0013	0.00023	mg/L		11/05/19 07:58	11/05/19 18:46	1
Barium	0.061		0.0025	0.00073	mg/L		11/05/19 07:58	11/05/19 18:46	1
Boron	1.9		0.050	0.013	mg/L		11/05/19 07:58	11/05/19 18:46	1
Calcium	630		1.3	0.22	mg/L		11/05/19 07:58	11/06/19 11:35	5
Cobalt	0.00084	J	0.0025	0.00040	mg/L		11/05/19 07:58	11/05/19 18:46	1
Lithium	0.48		0.0050	0.00050	mg/L		11/05/19 07:58	11/05/19 18:46	1
Magnesium	130		0.20	0.049	mg/L		11/05/19 07:58	11/05/19 18:46	1
Molybdenum	0.37		0.015	0.0025	mg/L		11/05/19 07:58	11/05/19 18:46	1
Potassium	1300		50	11	mg/L		11/05/19 07:58	11/18/19 13:32	100
Selenium	0.0047		0.0013	0.00098	mg/L		11/05/19 07:58	11/05/19 18:46	1
Sodium	7500		20	7.7	mg/L		11/05/19 07:58	11/18/19 13:32	100
Iron	16		0.10	0.047	mg/L		11/05/19 07:58	11/05/19 18:46	1
Manganese	3.1		0.0025	0.00079	mg/L		11/05/19 07:58	11/05/19 18:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	610		1.0	0.98	mg/L			10/01/19 12:06	1

Client Sample ID: AES-MW4-DUP-092319

Lab Sample ID: 400-176914-5
Matrix: Water

Date Collected: 09/23/19 15:20
Date Received: 09/25/19 08:52

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	610		1.0	0.98	mg/L			10/01/19 12:06	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			10/01/19 12:06	1
Total Dissolved Solids	23000		1000	680	mg/L			09/26/19 14:38	1
Chloride	690		160	110	mg/L			09/27/19 23:32	80
Fluoride	0.64		0.10	0.032	mg/L			10/02/19 10:08	1
Sulfate	8500		1500	420	mg/L			10/01/19 16:42	300

Client Sample ID: AES-MW5-092319

Lab Sample ID: 400-176914-6
Matrix: Water

Date Collected: 09/23/19 17:10
Date Received: 09/25/19 08:52

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015		0.0013	0.00023	mg/L		11/05/19 07:58	11/05/19 18:50	1
Barium	0.034		0.0025	0.00073	mg/L		11/05/19 07:58	11/05/19 18:50	1
Boron	0.41		0.050	0.013	mg/L		11/05/19 07:58	11/05/19 18:50	1
Calcium	840		1.3	0.22	mg/L		11/05/19 07:58	11/06/19 11:39	5
Cobalt	0.0027		0.0025	0.00040	mg/L		11/05/19 07:58	11/05/19 18:50	1
Lithium	0.0046	J	0.0050	0.00050	mg/L		11/05/19 07:58	11/05/19 18:50	1
Magnesium	400		4.0	0.99	mg/L		11/05/19 07:58	11/18/19 13:36	20
Molybdenum	0.0025	J	0.015	0.0025	mg/L		11/05/19 07:58	11/05/19 18:50	1
Potassium	7.3		0.50	0.11	mg/L		11/05/19 07:58	11/05/19 18:50	1
Selenium	0.0014		0.0013	0.00098	mg/L		11/05/19 07:58	11/05/19 18:50	1
Sodium	2300		4.0	1.5	mg/L		11/05/19 07:58	11/18/19 13:36	20
Iron	11		0.10	0.047	mg/L		11/05/19 07:58	11/05/19 18:50	1
Manganese	13		0.013	0.0040	mg/L		11/05/19 07:58	11/06/19 11:39	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	500		1.0	0.98	mg/L			10/01/19 12:29	1
Bicarbonate Alkalinity as CaCO3	500		1.0	0.98	mg/L			10/01/19 12:29	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			10/01/19 12:29	1
Total Dissolved Solids	10000		130	85	mg/L			09/26/19 14:38	1
Chloride	3700		160	110	mg/L			09/27/19 23:13	80
Fluoride	0.42		0.10	0.032	mg/L			10/02/19 10:10	1
Sulfate	2200		500	140	mg/L			09/28/19 12:35	100

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.03				SU			09/23/19 15:10	1

Client Sample ID: AES-FB-092319

Lab Sample ID: 400-176914-7
Matrix: Water

Date Collected: 09/23/19 17:35
Date Received: 09/25/19 08:52

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00051	J	0.0013	0.00023	mg/L		11/05/19 07:58	11/05/19 18:54	1
Barium	0.00073	U	0.0025	0.00073	mg/L		11/05/19 07:58	11/05/19 18:54	1
Boron	0.013	U	0.050	0.013	mg/L		11/05/19 07:58	11/05/19 18:54	1
Calcium	0.14	J	0.25	0.044	mg/L		11/05/19 07:58	11/05/19 18:54	1

Client: DNA-Environment, LLC
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Job ID: 400-176914-1

Client Sample ID: AES-FB-092319
Date Collected: 09/23/19 17:35
Date Received: 09/25/19 08:52

Lab Sample ID: 400-176914-7
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00040	U	0.0025	0.00040	mg/L		11/05/19 07:58	11/05/19 18:54	1
Lithium	**0.0010**	**J**	0.0050	0.00050	mg/L		11/05/19 07:58	11/05/19 18:54	1
Magnesium	**0.052**	**J**	0.20	0.049	mg/L		11/05/19 07:58	11/05/19 18:54	1
Molybdenum	0.0025	U	0.015	0.0025	mg/L		11/05/19 07:58	11/05/19 18:54	1
Potassium	0.11	U	0.50	0.11	mg/L		11/05/19 07:58	11/05/19 18:54	1
Selenium	0.00098	U	0.0013	0.00098	mg/L		11/05/19 07:58	11/05/19 18:54	1
Sodium	0.077	U	0.20	0.077	mg/L		11/05/19 07:58	11/18/19 13:43	1
Iron	**0.058**	**J**	0.10	0.047	mg/L		11/05/19 07:58	11/05/19 18:54	1
Manganese	**0.0016**	**J**	0.0025	0.00079	mg/L		11/05/19 07:58	11/05/19 18:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	0.98	U	1.0	0.98	mg/L			10/01/19 12:11	1
Bicarbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			10/01/19 12:11	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			10/01/19 12:11	1
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			09/26/19 14:38	1
Chloride	1.4	U	2.0	1.4	mg/L			09/27/19 22:22	1
Fluoride	0.032	U	0.10	0.032	mg/L			10/02/19 10:13	1
Sulfate	**1.7**	**J**	5.0	1.4	mg/L			09/28/19 11:16	1



Default Detection Limits

Client: DNA-Environment, LLC
Job ID: 400-176914-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Prep: 3005A

Analyte	RL	MDL	Units
Arsenic	0.0013	0.00023	mg/L
Barium	0.0025	0.00073	mg/L
Boron	0.050	0.013	mg/L
Calcium	0.25	0.044	mg/L
Cobalt	0.0025	0.00040	mg/L
Iron	0.10	0.047	mg/L
Lithium	0.0050	0.00050	mg/L
Magnesium	0.20	0.049	mg/L
Manganese	0.0025	0.00079	mg/L
Molybdenum	0.015	0.0025	mg/L
Potassium	0.50	0.11	mg/L
Selenium	0.0013	0.00098	mg/L
Sodium	0.20	0.077	mg/L

General Chemistry

Analyte	RL	MDL	Units
Alkalinity, Total	1.0	0.98	mg/L
Bicarbonate Alkalinity as CaCO3	1.0	0.98	mg/L
Carbonate Alkalinity as CaCO3	1.0	0.98	mg/L
Total Dissolved Solids	5.0	3.4	mg/L
Chloride	2.0	1.4	mg/L
Fluoride	0.10	0.032	mg/L
Sulfate	5.0	1.4	mg/L

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 500-513568/1-A
Matrix: Water
Analysis Batch: 513839

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 513568

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00023	U	0.0013	0.00023	mg/L		11/05/19 07:58	11/05/19 17:57	1
Barium	0.00073	U	0.0025	0.00073	mg/L		11/05/19 07:58	11/05/19 17:57	1
Boron	0.013	U	0.050	0.013	mg/L		11/05/19 07:58	11/05/19 17:57	1
Calcium	0.044	U	0.25	0.044	mg/L		11/05/19 07:58	11/05/19 17:57	1
Cobalt	0.00040	U	0.0025	0.00040	mg/L		11/05/19 07:58	11/05/19 17:57	1
Lithium	0.00050	U	0.0050	0.00050	mg/L		11/05/19 07:58	11/05/19 17:57	1
Magnesium	0.049	U	0.20	0.049	mg/L		11/05/19 07:58	11/05/19 17:57	1
Molybdenum	0.0025	U	0.015	0.0025	mg/L		11/05/19 07:58	11/05/19 17:57	1
Potassium	0.11	U	0.50	0.11	mg/L		11/05/19 07:58	11/05/19 17:57	1
Selenium	0.00098	U	0.0013	0.00098	mg/L		11/05/19 07:58	11/05/19 17:57	1
Sodium	0.077	U	0.20	0.077	mg/L		11/05/19 07:58	11/05/19 17:57	1
Iron	0.047	U	0.10	0.047	mg/L		11/05/19 07:58	11/05/19 17:57	1
Manganese	0.00079	U	0.0025	0.00079	mg/L		11/05/19 07:58	11/05/19 17:57	1

Lab Sample ID: MB 500-513568/1-A
Matrix: Water
Analysis Batch: 514059

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 513568

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	0.049	U	0.20	0.049	mg/L		11/05/19 07:58	11/06/19 10:44	1
Potassium	0.11	U	0.50	0.11	mg/L		11/05/19 07:58	11/06/19 10:44	1
Sodium	0.077	U	0.20	0.077	mg/L		11/05/19 07:58	11/06/19 10:44	1

Lab Sample ID: LCS 500-513568/2-A
Matrix: Water
Analysis Batch: 513839

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 513568

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.100	0.0992		mg/L		99	80 - 120
Barium	0.500	0.506		mg/L		101	80 - 120
Boron	1.00	1.05		mg/L		105	80 - 120
Calcium	10.0	9.13		mg/L		91	80 - 120
Cobalt	0.500	0.524		mg/L		105	80 - 120
Lithium	0.100	0.102		mg/L		102	80 - 120
Magnesium	10.0	10.4		mg/L		104	80 - 120
Molybdenum	1.00	0.996		mg/L		100	80 - 120
Potassium	10.0	10.4		mg/L		104	80 - 120
Selenium	0.100	0.100		mg/L		100	80 - 120
Sodium	10.0	10.3		mg/L		103	80 - 120
Iron	1.00	1.07		mg/L		107	80 - 120
Manganese	0.500	0.523		mg/L		105	80 - 120

Lab Sample ID: LCS 500-513568/2-A
Matrix: Water
Analysis Batch: 514059

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 513568

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Magnesium	10.0	10.4		mg/L		104	80 - 120
Potassium	10.0	10.3		mg/L		103	80 - 120

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 500-513568/2-A
Matrix: Water
Analysis Batch: 514059

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 513568

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sodium	10.0	10.3		mg/L		103	80 - 120

Lab Sample ID: 400-176914-2 MS
Matrix: Water
Analysis Batch: 513839

Client Sample ID: AES-MW2-092319
Prep Type: Total Recoverable
Prep Batch: 513568

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.00031	J	0.100	0.105		mg/L		104	75 - 125
Barium	0.14		0.500	0.643		mg/L		100	75 - 125
Boron	0.16		1.00	1.24		mg/L		107	75 - 125
Calcium	130		10.0	136	4	mg/L		95	75 - 125
Cobalt	0.00057	J	0.500	0.502		mg/L		100	75 - 125
Lithium	0.00050	U	0.100	0.102		mg/L		102	75 - 125
Magnesium	53		10.0	63.8	4	mg/L		106	75 - 125
Molybdenum	0.0025	U	1.00	1.05		mg/L		105	75 - 125
Potassium	0.74		10.0	10.9		mg/L		102	75 - 125
Selenium	0.00098	U	0.100	0.104		mg/L		104	75 - 125
Sodium	76		10.0	85.9	4	mg/L		99	75 - 125
Iron	0.095	J	1.00	1.07		mg/L		97	75 - 125
Manganese	0.86		0.500	1.44		mg/L		118	75 - 125

Lab Sample ID: 400-176914-2 MSD
Matrix: Water
Analysis Batch: 513839

Client Sample ID: AES-MW2-092319
Prep Type: Total Recoverable
Prep Batch: 513568

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.00031	J	0.100	0.103		mg/L		102	75 - 125	2	20
Barium	0.14		0.500	0.627		mg/L		97	75 - 125	3	20
Boron	0.16		1.00	1.20		mg/L		104	75 - 125	3	20
Calcium	130		10.0	128	4	mg/L		15	75 - 125	6	20
Cobalt	0.00057	J	0.500	0.493		mg/L		98	75 - 125	2	20
Lithium	0.00050	U	0.100	0.0987		mg/L		99	75 - 125	3	20
Magnesium	53		10.0	60.8	4	mg/L		76	75 - 125	5	20
Molybdenum	0.0025	U	1.00	1.04		mg/L		104	75 - 125	1	20
Potassium	0.74		10.0	10.7		mg/L		99	75 - 125	2	20
Selenium	0.00098	U	0.100	0.102		mg/L		102	75 - 125	2	20
Sodium	76		10.0	81.5	4	mg/L		56	75 - 125	5	20
Iron	0.095	J	1.00	1.04		mg/L		95	75 - 125	2	20
Manganese	0.86		0.500	1.38		mg/L		104	75 - 125	5	20

Lab Sample ID: 400-176914-2 DU
Matrix: Water
Analysis Batch: 513839

Client Sample ID: AES-MW2-092319
Prep Type: Total Recoverable
Prep Batch: 513568

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.00031	J	0.000267	J	mg/L		16	20
Barium	0.14		0.137		mg/L		4	20
Boron	0.16		0.162		mg/L		0.4	20
Calcium	130		124		mg/L		2	20

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-176914-2 DU
Matrix: Water
Analysis Batch: 513839

Client Sample ID: AES-MW2-092319
Prep Type: Total Recoverable
Prep Batch: 513568

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cobalt	0.00057	J	0.000548	J	mg/L		4	20
Lithium	0.00050	U	0.000658	J	mg/L		NC	20
Magnesium	53		52.7		mg/L		1	20
Molybdenum	0.0025	U	0.0025	U	mg/L		NC	20
Potassium	0.74		0.712		mg/L		3	20
Selenium	0.00098	U	0.00098	U	mg/L		NC	20
Sodium	76		74.7		mg/L		2	20
Iron	0.095	J	0.118	F5	mg/L		22	20
Manganese	0.86		0.847		mg/L		1	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 400-459540/4
Matrix: Water
Analysis Batch: 459540

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	0.98	U	1.0	0.98	mg/L			10/01/19 10:33	1
Bicarbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			10/01/19 10:33	1
Carbonate Alkalinity as CaCO3	0.98	U	1.0	0.98	mg/L			10/01/19 10:33	1

Lab Sample ID: LCS 400-459540/5
Matrix: Water
Analysis Batch: 459540

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	100	106		mg/L		106	80 - 120

Lab Sample ID: 400-176914-2 DU
Matrix: Water
Analysis Batch: 459540

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity, Total	590		604		mg/L		2	20
Bicarbonate Alkalinity as CaCO3	590		604		mg/L		2	20
Carbonate Alkalinity as CaCO3	0.98	U	0.98	U	mg/L		NC	20

Lab Sample ID: 400-176914-6 DU
Matrix: Water
Analysis Batch: 459540

Client Sample ID: AES-MW5-092319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity, Total	500		504		mg/L		0.6	20
Bicarbonate Alkalinity as CaCO3	500		504		mg/L		0.6	20
Carbonate Alkalinity as CaCO3	0.98	U	0.98	U	mg/L		NC	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 400-458839/1
Matrix: Water
Analysis Batch: 458839

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3.4	U	5.0	3.4	mg/L			09/26/19 14:38	1

Lab Sample ID: LCS 400-458839/2
Matrix: Water
Analysis Batch: 458839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	300		mg/L		102	78 - 122

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 400-459103/6
Matrix: Water
Analysis Batch: 459103

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.4	U	2.0	1.4	mg/L			09/27/19 21:52	1

Lab Sample ID: LCS 400-459103/7
Matrix: Water
Analysis Batch: 459103

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	30.0	31.5		mg/L		105	90 - 110

Lab Sample ID: MRL 400-459103/3
Matrix: Water
Analysis Batch: 459103

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.00	2.15		mg/L		108	50 - 150

Lab Sample ID: 400-176914-2 MS
Matrix: Water
Analysis Batch: 459103

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	72		1.00	78.1	4	mg/L		576	73 - 120

Lab Sample ID: 400-176914-2 MSD
Matrix: Water
Analysis Batch: 459103

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	72		1.00	78.7	4	mg/L		636	73 - 120	1	8

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 400-459681/3
Matrix: Water
Analysis Batch: 459681

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.032	U	0.10	0.032	mg/L			10/02/19 09:09	1

Lab Sample ID: LCS 400-459681/4
Matrix: Water
Analysis Batch: 459681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	4.00	4.26		mg/L		107	90 - 110

Lab Sample ID: 400-176914-2 MS
Matrix: Water
Analysis Batch: 459681

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.71		1.00	1.78		mg/L		107	75 - 125

Lab Sample ID: 400-176914-2 MSD
Matrix: Water
Analysis Batch: 459681

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.71		1.00	1.78		mg/L		107	75 - 125	0	4

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 400-459205/6
Matrix: Water
Analysis Batch: 459205

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.4	U	5.0	1.4	mg/L			09/28/19 11:04	1

Lab Sample ID: LCS 400-459205/7
Matrix: Water
Analysis Batch: 459205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	15.0	14.3		mg/L		95	90 - 110

Lab Sample ID: MRL 400-459205/3
Matrix: Water
Analysis Batch: 459205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	5.27		mg/L		105	50 - 150

Method: SM 4500 SO4 E - Sulfate, Total (Continued)

Lab Sample ID: 400-176914-2 MS
Matrix: Water
Analysis Batch: 459205

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	8.0		10.0	17.8		mg/L		98	77 - 128

Lab Sample ID: 400-176914-2 MSD
Matrix: Water
Analysis Batch: 459205

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	8.0		10.0	17.8		mg/L		98	77 - 128	0	5

Lab Sample ID: MB 400-459675/6
Matrix: Water
Analysis Batch: 459675

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.4	U	5.0	1.4	mg/L			10/01/19 16:39	1

Lab Sample ID: LCS 400-459675/22
Matrix: Water
Analysis Batch: 459675

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	15.0	15.1		mg/L		101	90 - 110

Lab Sample ID: MRL 400-459675/3
Matrix: Water
Analysis Batch: 459675

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	4.78	J	mg/L		96	50 - 150



Metals

Prep Batch: 513568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total Recoverable	Water	3005A	
400-176914-2	AES-MW2-092319	Total Recoverable	Water	3005A	
400-176914-3	AES-MW3-092319	Total Recoverable	Water	3005A	
400-176914-4	AES-MW4-092319	Total Recoverable	Water	3005A	
400-176914-5	AES-MW4-DUP-092319	Total Recoverable	Water	3005A	
400-176914-6	AES-MW5-092319	Total Recoverable	Water	3005A	
400-176914-7	AES-FB-092319	Total Recoverable	Water	3005A	
MB 500-513568/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-513568/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-176914-2 MS	AES-MW2-092319	Total Recoverable	Water	3005A	
400-176914-2 MSD	AES-MW2-092319	Total Recoverable	Water	3005A	
400-176914-2 DU	AES-MW2-092319	Total Recoverable	Water	3005A	

Analysis Batch: 513839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total Recoverable	Water	6020	513568
400-176914-2	AES-MW2-092319	Total Recoverable	Water	6020	513568
400-176914-3	AES-MW3-092319	Total Recoverable	Water	6020	513568
400-176914-4	AES-MW4-092319	Total Recoverable	Water	6020	513568
400-176914-5	AES-MW4-DUP-092319	Total Recoverable	Water	6020	513568
400-176914-6	AES-MW5-092319	Total Recoverable	Water	6020	513568
400-176914-7	AES-FB-092319	Total Recoverable	Water	6020	513568
MB 500-513568/1-A	Method Blank	Total Recoverable	Water	6020	513568
LCS 500-513568/2-A	Lab Control Sample	Total Recoverable	Water	6020	513568
400-176914-2 MS	AES-MW2-092319	Total Recoverable	Water	6020	513568
400-176914-2 MSD	AES-MW2-092319	Total Recoverable	Water	6020	513568
400-176914-2 DU	AES-MW2-092319	Total Recoverable	Water	6020	513568

Analysis Batch: 514059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-3	AES-MW3-092319	Total Recoverable	Water	6020	513568
400-176914-4	AES-MW4-092319	Total Recoverable	Water	6020	513568
400-176914-5	AES-MW4-DUP-092319	Total Recoverable	Water	6020	513568
400-176914-6	AES-MW5-092319	Total Recoverable	Water	6020	513568
MB 500-513568/1-A	Method Blank	Total Recoverable	Water	6020	513568
LCS 500-513568/2-A	Lab Control Sample	Total Recoverable	Water	6020	513568

Analysis Batch: 516022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total Recoverable	Water	6020	513568
400-176914-3	AES-MW3-092319	Total Recoverable	Water	6020	513568
400-176914-4	AES-MW4-092319	Total Recoverable	Water	6020	513568
400-176914-5	AES-MW4-DUP-092319	Total Recoverable	Water	6020	513568
400-176914-6	AES-MW5-092319	Total Recoverable	Water	6020	513568
400-176914-7	AES-FB-092319	Total Recoverable	Water	6020	513568

General Chemistry

Analysis Batch: 458839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 458839 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-2	AES-MW2-092319	Total/NA	Water	SM 2540C	
400-176914-3	AES-MW3-092319	Total/NA	Water	SM 2540C	
400-176914-4	AES-MW4-092319	Total/NA	Water	SM 2540C	
400-176914-5	AES-MW4-DUP-092319	Total/NA	Water	SM 2540C	
400-176914-6	AES-MW5-092319	Total/NA	Water	SM 2540C	
400-176914-7	AES-FB-092319	Total/NA	Water	SM 2540C	
MB 400-458839/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-458839/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 459103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total/NA	Water	SM 4500 Cl- E	
400-176914-2	AES-MW2-092319	Total/NA	Water	SM 4500 Cl- E	
400-176914-3	AES-MW3-092319	Total/NA	Water	SM 4500 Cl- E	
400-176914-4	AES-MW4-092319	Total/NA	Water	SM 4500 Cl- E	
400-176914-5	AES-MW4-DUP-092319	Total/NA	Water	SM 4500 Cl- E	
400-176914-6	AES-MW5-092319	Total/NA	Water	SM 4500 Cl- E	
400-176914-7	AES-FB-092319	Total/NA	Water	SM 4500 Cl- E	
MB 400-459103/6	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 400-459103/7	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
MRL 400-459103/3	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
400-176914-2 MS	AES-MW2-092319	Total/NA	Water	SM 4500 Cl- E	
400-176914-2 MSD	AES-MW2-092319	Total/NA	Water	SM 4500 Cl- E	

Analysis Batch: 459205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total/NA	Water	SM 4500 SO4 E	
400-176914-2	AES-MW2-092319	Total/NA	Water	SM 4500 SO4 E	
400-176914-3	AES-MW3-092319	Total/NA	Water	SM 4500 SO4 E	
400-176914-6	AES-MW5-092319	Total/NA	Water	SM 4500 SO4 E	
400-176914-7	AES-FB-092319	Total/NA	Water	SM 4500 SO4 E	
MB 400-459205/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-459205/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-459205/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
400-176914-2 MS	AES-MW2-092319	Total/NA	Water	SM 4500 SO4 E	
400-176914-2 MSD	AES-MW2-092319	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 459540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total/NA	Water	SM 2320B	
400-176914-2	AES-MW2-092319	Total/NA	Water	SM 2320B	
400-176914-3	AES-MW3-092319	Total/NA	Water	SM 2320B	
400-176914-4	AES-MW4-092319	Total/NA	Water	SM 2320B	
400-176914-5	AES-MW4-DUP-092319	Total/NA	Water	SM 2320B	
400-176914-6	AES-MW5-092319	Total/NA	Water	SM 2320B	
400-176914-7	AES-FB-092319	Total/NA	Water	SM 2320B	
MB 400-459540/4	Method Blank	Total/NA	Water	SM 2320B	
LCS 400-459540/5	Lab Control Sample	Total/NA	Water	SM 2320B	
400-176914-2 DU	AES-MW2-092319	Total/NA	Water	SM 2320B	
400-176914-6 DU	AES-MW5-092319	Total/NA	Water	SM 2320B	

General Chemistry

Analysis Batch: 459675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-4	AES-MW4-092319	Total/NA	Water	SM 4500 SO4 E	
400-176914-5	AES-MW4-DUP-092319	Total/NA	Water	SM 4500 SO4 E	
MB 400-459675/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-459675/22	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-459675/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 459681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total/NA	Water	SM 4500 F C	
400-176914-2	AES-MW2-092319	Total/NA	Water	SM 4500 F C	
400-176914-3	AES-MW3-092319	Total/NA	Water	SM 4500 F C	
400-176914-4	AES-MW4-092319	Total/NA	Water	SM 4500 F C	
400-176914-5	AES-MW4-DUP-092319	Total/NA	Water	SM 4500 F C	
400-176914-6	AES-MW5-092319	Total/NA	Water	SM 4500 F C	
400-176914-7	AES-FB-092319	Total/NA	Water	SM 4500 F C	
MB 400-459681/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 400-459681/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	
400-176914-2 MS	AES-MW2-092319	Total/NA	Water	SM 4500 F C	
400-176914-2 MSD	AES-MW2-092319	Total/NA	Water	SM 4500 F C	

Field Service / Mobile Lab

Analysis Batch: 461727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total/NA	Water	Field Sampling	
400-176914-2	AES-MW2-092319	Total/NA	Water	Field Sampling	
400-176914-3	AES-MW3-092319	Total/NA	Water	Field Sampling	
400-176914-4	AES-MW4-092319	Total/NA	Water	Field Sampling	
400-176914-6	AES-MW5-092319	Total/NA	Water	Field Sampling	

Client Sample ID: AES-MW1-092319
Lab Sample ID: 400-176914-1

Date Collected: 09/23/19 09:10
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		1	513839	11/05/19 18:05	ASF	TAL CHI
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		10	516022	11/18/19 13:21	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	459540	10/01/19 11:37	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	458839	09/26/19 14:38	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		10	459103	09/27/19 22:52	HES	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	459681	10/02/19 10:00	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		20	459205	09/28/19 11:36	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	461727	09/23/19 07:10	JVB	TAL PEN

Client Sample ID: AES-MW2-092319
Lab Sample ID: 400-176914-2

Date Collected: 09/23/19 10:35
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		1	513839	11/05/19 18:09	ASF	TAL CHI
Total/NA	Analysis	SM 2320B		1	459540	10/01/19 10:57	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	458839	09/26/19 14:38	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		2	459103	09/27/19 22:49	HES	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	459681	10/02/19 09:51	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	459205	09/28/19 11:04	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	461727	09/23/19 08:35	JVB	TAL PEN

Client Sample ID: AES-MW3-092319
Lab Sample ID: 400-176914-3

Date Collected: 09/23/19 13:10
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		1	513839	11/05/19 18:39	ASF	TAL CHI
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		5	514059	11/06/19 11:26	ASF	TAL CHI
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		100	516022	11/18/19 13:24	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	459540	10/01/19 11:46	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	458839	09/26/19 14:38	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		80	459103	09/27/19 23:13	HES	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	459681	10/02/19 10:02	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		100	459205	09/28/19 12:35	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	461727	09/23/19 11:10	JVB	TAL PEN

Client Sample ID: AES-MW4-092319
Lab Sample ID: 400-176914-4

Date Collected: 09/23/19 14:50
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		1	513839	11/05/19 18:43	ASF	TAL CHI
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		5	514059	11/06/19 11:31	ASF	TAL CHI
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		100	516022	11/18/19 13:28	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	459540	10/01/19 11:56	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	458839	09/26/19 14:38	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		80	459103	09/27/19 23:32	HES	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	459681	10/02/19 10:05	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		300	459675	10/01/19 16:42	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	461727	09/23/19 12:50	JVB	TAL PEN

Client Sample ID: AES-MW4-DUP-092319
Lab Sample ID: 400-176914-5

Date Collected: 09/23/19 15:20
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		1	513839	11/05/19 18:46	ASF	TAL CHI
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		5	514059	11/06/19 11:35	ASF	TAL CHI
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		100	516022	11/18/19 13:32	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	459540	10/01/19 12:06	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	458839	09/26/19 14:38	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		80	459103	09/27/19 23:32	HES	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	459681	10/02/19 10:08	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		300	459675	10/01/19 16:42	RRC	TAL PEN

Client Sample ID: AES-MW5-092319
Lab Sample ID: 400-176914-6

Date Collected: 09/23/19 17:10
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		1	513839	11/05/19 18:50	ASF	TAL CHI
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		5	514059	11/06/19 11:39	ASF	TAL CHI
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		20	516022	11/18/19 13:36	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	459540	10/01/19 12:29	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	458839	09/26/19 14:38	CLB	TAL PEN

Lab Chronicle

Client: DNA-Environment, LLC
Job ID: 400-176914-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW5-092319
Lab Sample ID: 400-176914-6
Date Collected: 09/23/19 17:10
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 Cl- E		80	459103	09/27/19 23:13	HES	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	459681	10/02/19 10:10	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		100	459205	09/28/19 12:35	RRC	TAL PEN
Total/NA	Analysis	Field Sampling		1	461727	09/23/19 15:10	JVB	TAL PEN

Client Sample ID: AES-FB-092319
Lab Sample ID: 400-176914-7
Date Collected: 09/23/19 17:35
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		1	513839	11/05/19 18:54	ASF	TAL CHI
Total Recoverable	Prep	3005A			513568	11/05/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020		1	516022	11/18/19 13:43	FXG	TAL CHI
Total/NA	Analysis	SM 2320B		1	459540	10/01/19 12:11	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	458839	09/26/19 14:38	CLB	TAL PEN
Total/NA	Analysis	SM 4500 Cl- E		1	459103	09/27/19 22:22	HES	TAL PEN
Total/NA	Analysis	SM 4500 F C		1	459681	10/02/19 10:13	BAB	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	459205	09/28/19 11:16	RRC	TAL PEN

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: DNA-Environment, LLC
Job ID: 400-176914-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Laboratory: Eurofins TestAmerica, Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Florida	NELAP	E81010	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Field Sampling		Water	Field pH
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3

Laboratory: Eurofins TestAmerica, Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-30-20
Georgia	State	N/A	04-30-20
Georgia (DW)	State	939	04-30-20
Hawaii	State	NA	04-30-20
Illinois	NELAP	IL00035	04-30-20
Indiana	State	C-IL-02	04-30-20
Iowa	State	082	05-01-20
Kansas	NELAP	E-10161	11-01-20
Kentucky (UST)	State	AI # 108083	04-30-20
Kentucky (WW)	State	KY90023	12-31-19
Louisiana	NELAP	02046	06-30-20
Mississippi	State	NA	04-30-20
New York	NELAP	12019	04-01-20
North Carolina (WW/SW)	State	291	12-31-19
North Dakota	State	R-194	04-30-20
Oklahoma	State	8908	08-31-20
South Carolina	State	77001003	04-30-20
USDA	US Federal Programs	P330-18-00018	02-11-21
Wisconsin	State	999580010	08-31-20
Wyoming	State	8TMS-Q	04-30-20

Method Summary

Client: DNA-Environment, LLC
Job ID: 400-176914-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL CHI
SM 2320B	Alkalinity	SM	TAL PEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PEN
SM 4500 Cl- E	Chloride, Total	SM	TAL PEN
SM 4500 F C	Fluoride	SM	TAL PEN
SM 4500 SO4 E	Sulfate, Total	SM	TAL PEN
Field Sampling	Field Sampling	EPA	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Sample Summary

Client: DNA-Environment, LLC
Job ID: 400-176914-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
400-176914-1	AES-MW1-092319	Water	09/23/19 09:10	09/25/19 08:52	
400-176914-2	AES-MW2-092319	Water	09/23/19 10:35	09/25/19 08:52	
400-176914-3	AES-MW3-092319	Water	09/23/19 13:10	09/25/19 08:52	
400-176914-4	AES-MW4-092319	Water	09/23/19 14:50	09/25/19 08:52	
400-176914-5	AES-MW4-DUP-092319	Water	09/23/19 15:20	09/25/19 08:52	
400-176914-6	AES-MW5-092319	Water	09/23/19 17:10	09/25/19 08:52	
400-176914-7	AES-FB-092319	Water	09/23/19 17:35	09/25/19 08:52	

Quantitation Limit Exceptions Summary

Client: DNA-Environment, LLC Job ID: 400-176914-1
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
6020	Selenium	Water	Total Recoverable	mg/L	0.0013	0.0025

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
ALK-CCV-W_00069	11/13/19	08/16/19	REAGENT WATER, Lot NA	1000 mL	ALK-CCV-S_00044	100 mL	Alkalinity, Total	100 mg/L
							Bicarbonate Alkalinity as CaCO3	106 mg/L
							Carbonate Alkalinity as CaCO3	106 mg/L
.ALK-CCV-S_00044	11/13/19	05/13/19	REAGENT WATER, Lot NA	1000 mL	Sodium_Carbon_00005	1.06 g	Alkalinity, Total	1000 mg/L
							Bicarbonate Alkalinity as CaCO3	1060 mg/L
							Carbonate Alkalinity as CaCO3	1060 mg/L
..Sodium_Carbon_00005	10/31/22	Fisher, Lot 174819			(Purchased Reagent)		Alkalinity, Total	943396 mg/L
							Bicarbonate Alkalinity as CaCO3	1000000 mg/L
							Carbonate Alkalinity as CaCO3	1000000 mg/L
ALK-ICV-W_00085	11/13/19	08/14/19	WATER, Lot N/A	1000 mL	ALK-ICV-S_00030	10 mL	Alkalinity, Total	100 mg/L
.ALK-ICV-S_00030	11/13/19	05/13/19	WATER, Lot N/A	1000 mL	Na2C03_00002	10.6 g	Alkalinity, Total	10000 mg/L
..Na2C03_00002	12/02/19	Alfa Aesar, Lot A16Z011			(Purchased Reagent)		Alkalinity, Total	943396 mg/L
CL-CCV-35ppm_00032	09/30/19	06/17/19	DI H2O, Lot NA	200 mL	CL-CCV-S_00017	7 mL	Chloride	35 ppm
.CL-CCV-S_00017	01/30/20	Aqua Solutions, Lot 8123126			(Purchased Reagent)		Chloride	1000 mg/L
							Chloride	1000 mg/L
CL-CCVL-2ppm_00030	11/30/19	09/04/19	DI H2O, Lot NA	250 mL	CL-CCV-S_00017	0.5 mL	Chloride	2 ppm
.CL-CCV-S_00017	01/30/20	Aqua Solutions, Lot 8123126			(Purchased Reagent)		Chloride	1000 mg/L
CL-ICV-W_00056	11/30/19	09/04/19	WATER, Lot NA	200 mL	CL-ICV-S_00016	6 mL	Chloride	30 mg/L
.CL-ICV-S_00016	08/30/20	Aqua Solutions, Lot 9081971			(Purchased Reagent)		Chloride	1000 mg/L
FL-CCV-S_00008	03/11/20	LabChem, Lot J067-19			(Purchased Reagent)		Fluoride	100 mg/L
FL-LCS-S_00013	01/30/20	RICCA, Lot 2901970			(Purchased Reagent)		Fluoride	100 mg/L
GTDS-LCS-W_00105	09/03/20	09/03/19	REAGENT GRADE WATER, Lot N/A	1000 mL	TDS-LCS-Stock_00010	5 mL	Total Dissolved Solids	293 mg/L
.TDS-LCS-Stock_00010	01/01/21	FISHER, Lot 051549 / 120731			(Purchased Reagent)		Total Dissolved Solids	58600 mg/L
SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-CCV-W_00033	09/30/19	07/10/19	WATER, Lot NA	200 mL	SO4-CCV-C-S_00016	3 mL	Sulfate	15 mg/L
.SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-CCV-W_00034	12/31/19	10/02/19	WATER, Lot NA	200 mL	SO4-CCV-C-S_00016	3 mL	Sulfate	15 mg/L
.SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-CCVL-W_00038	09/30/19	07/10/19	WATER, Lot NA	200 mL	SO4-CCV-C-S_00016	1 mL	Sulfate	5 mg/L
.SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-CCVL-W_00039	12/31/19	10/02/19	WATER, Lot NA	200 mL	SO4-CCV-C-S_00016	1 mL	Sulfate	5 mg/L
.SO4-CCV-C-S_00016	04/30/20	Ricca, Lot 1810H42			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-ICV-W_00063	09/30/19	07/10/19	DI WATER, Lot NA	200 mL	SO4-Cal-Stock_00013	3 mL	Sulfate	15 mg/L
.SO4-Cal-Stock_00013	03/31/20	Ricca, Lot 2809B22			(Purchased Reagent)		Sulfate	1000 mg/L
SO4-ICV-W_00064	12/31/19	10/02/19	DI WATER, Lot NA	200 mL	SO4-Cal-Stock_00013	3 mL	Sulfate	15 mg/L
.SO4-Cal-Stock_00013	03/31/20	Ricca, Lot 2809B22			(Purchased Reagent)		Sulfate	1000 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
M19HSPKMS_00002	03/01/20	08/09/19	Nitric Acid Water, Lot 221803	500 mL	M19CSTKIC_00005	4.5 mL	Selenium	10000 ug/L
					M19CSTKIC_00006	2.5 mL	Tl	10000 ug/L
					M19CSTKMS_00001	5 mL	U	10000 ug/L
					M19DSTKIC_00002	4 mL	Pb	10000 ug/L
					M19DSTKIC_00003	3 mL	Arsenic	10000 ug/L
					M19FSTKMS_00006	50 mL	Arsenic	10000 ug/L
							Barium	50000 ug/L
							Be	5000 ug/L
							Boron	100000 ug/L
							Cd	5000 ug/L
							Cobalt	50000 ug/L
							Cr	20000 ug/L
							Cu	25000 ug/L
							Iron	100000 ug/L
							Manganese	50000 ug/L
							Ni	50000 ug/L
							Pb	10000 ug/L
							Selenium	10000 ug/L
							Sr	100000 ug/L
							Tl	10000 ug/L
							V	50000 ug/L
							Zn	50000 ug/L
					M19FSTKMS_00007	50 mL	Ag	5000 ug/L
							Molybdenum	100000 ug/L
							Sb	50000 ug/L
							Si	500000 ug/L
							Sn	100000 ug/L
							Ti	100000 ug/L
					M19GSTKMS_00001	5 mL	Lithium	10000 ug/L
					M19HFSTKMS_00001	50 mL	Al	200000 ug/L
							Calcium	1000000 ug/L
							Magnesium	1000000 ug/L
							Potassium	1000000 ug/L
							Sodium	1000000 ug/L
.M19CSTKIC_00005	09/12/20	CPI International, Lot 982461-7			(Purchased Reagent)		Selenium	1000 ug/mL
.M19CSTKIC_00006	09/12/20	CPI International, Lot 148983-92			(Purchased Reagent)		Tl	1000 ug/mL
.M19CSTKMS_00001	03/01/20	CPI, Lot 984257-3			(Purchased Reagent)		U	1000 ug/mL
.M19DSTKIC_00002	10/03/20	CPI International, Lot 981329-18			(Purchased Reagent)		Pb	1000 ug/mL
.M19DSTKIC_00003	10/03/20	CPI International, Lot 175385-43			(Purchased Reagent)		Arsenic	1000 ug/mL
.M19FSTKMS_00006	05/31/20	Environmental Express, Lot 1912224			(Purchased Reagent)		Arsenic	40000 ug/L
							Barium	500000 ug/L
							Be	50000 ug/L
							Boron	1000000 ug/L
							Cd	50000 ug/L
							Cobalt	500000 ug/L
							Cr	200000 ug/L
							Cu	250000 ug/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Iron	1000000 ug/L
							Manganese	500000 ug/L
							Ni	500000 ug/L
							Pb	20000 ug/L
							Selenium	10000 ug/L
							Sr	1000000 ug/L
							Tl	50000 ug/L
							V	500000 ug/L
							Zn	500000 ug/L
.M19FSTKMS_00007	05/31/20	Environmental Express, Lot 1912225			(Purchased Reagent)		Ag	50000 ug/L
							Molybdenum	1000000 ug/L
							Sb	500000 ug/L
							Si	5000000 ug/L
							Sn	1000000 ug/L
							Ti	1000000 ug/L
.M19GSTKMS_00001	12/27/20	CPI International, Lot 751942-57			(Purchased Reagent)		Lithium	1000 ug/mL
.M19HFSTKMS_00001	05/31/20	Enviromental Express, Lot 1912223			(Purchased Reagent)		Al	2000000 ug/L
							Calcium	10000000 ug/L
							Magnesium	10000000 ug/L
							Potassium	10000000 ug/L
							Sodium	10000000 ug/L
M19ICRIMS_00001	08/30/20	09/16/19	acidic water, Lot 221803/221681	1000 mL	M18ESTKMS_00003	2 mL	Arsenic	2 ug/L
							Barium	5 ug/L
							Boron	100 ug/L
							Calcium	400 ug/L
							Cobalt	2 ug/L
							Iron	200 ug/L
							Lithium	20 ug/L
							Magnesium	400 ug/L
							Manganese	5 ug/L
							Molybdenum	8 ug/L
							Potassium	1000 ug/L
							Selenium	5 ug/L
							Sodium	400 ug/L
.M18ESTKMS_00003	08/30/20	CPI, Lot 10097009-1			(Purchased Reagent)		Arsenic	1 ug/mL
							Barium	2.5 ug/mL
							Boron	50 ug/mL
							Calcium	200 ug/mL
							Cobalt	1 ug/mL
							Iron	100 ug/mL
							Lithium	10 ug/mL
							Magnesium	200 ug/mL
							Manganese	2.5 ug/mL
							Molybdenum	4 ug/mL
							Potassium	500 ug/mL
							Selenium	2.5 ug/mL
							Sodium	200 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
M19IICVMS_00001	06/06/20	09/18/19	Acidified Water, Lot 221803/191984	1000 mL	M19FSTKMS_00008	2 mL	Calcium	20 ug/mL
							Iron	20 ug/mL
							Magnesium	20 ug/mL
							Potassium	20 ug/mL
							Sodium	20 ug/mL
					M19FSTKMS_00009	2 mL	Arsenic	0.2 ug/mL
							Barium	0.2 ug/mL
							Be	0.2 ug/mL
							Boron	0.2 ug/mL
							Cd	0.2 ug/mL
							Cobalt	0.2 ug/mL
							Cr	0.2 ug/mL
							Manganese	0.2 ug/mL
							Molybdenum	0.2 ug/mL
							Pb	0.2 ug/mL
							Sb	0.2 ug/mL
							Selenium	0.2 ug/mL
							Tl	0.2 ug/mL
					M19HSTKMS_00005	0.2 mL	Lithium	0.2 ug/mL
.M19FSTKMS_00008	06/30/20	HIGH PURITY, Lot 1917503-250			(Purchased Reagent)		Calcium	10000 ug/mL
							Iron	10000 ug/mL
							Magnesium	10000 ug/mL
							Potassium	10000 ug/mL
							Sodium	10000 ug/mL
.M19FSTKMS_00009	06/30/20	High Purity, Lot 191750502-250			(Purchased Reagent)		Arsenic	100 ug/mL
							Barium	100 ug/mL
							Be	100 ug/mL
							Boron	100 ug/mL
							Cd	100 ug/mL
							Cobalt	100 ug/mL
							Cr	100 ug/mL
							Manganese	100 ug/mL
							Molybdenum	100 ug/mL
							Pb	100 ug/mL
							Sb	100 ug/mL
							Selenium	100 ug/mL
							Tl	100 ug/mL
.M19HSTKMS_00005	08/30/20	CPI, Lot 711148110A-2			(Purchased Reagent)		Lithium	1000 ug/mL
M19JCCVMS_00001	03/12/20	10/08/19	Acidified Water, Lot 221803/240180	1000 mL	M19CINTMS_00002	2.5 mL	Lithium	250 ug/L
					M19DSTKIC_00001	5 mL	Calcium	25000 ug/L
							Iron	25000 ug/L
							Magnesium	25000 ug/L
							Sodium	25000 ug/L
					M19DSTKMS_00007	2.5 mL	Molybdenum	250 ug/L
							Sb	250 ug/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					M19GSTKIC_00004	2.5 mL	Potassium	25000 ug/L
					M19HSTKMS_00002	2.5 mL	Arsenic	250 ug/L
							Barium	250 ug/L
							Be	250 ug/L
							Boron	250 ug/L
							Cd	250 ug/L
							Cobalt	250 ug/L
							Cr	250 ug/L
							Manganese	250 ug/L
							Pb	250 ug/L
							Selenium	250 ug/L
							Tl	250 ug/L
.M19CINTMS_00002	03/12/20	03/07/19	Nitric Acid Water, Lot 216908	100 mL	M19BSTKMS_00004	10 mL	Lithium	100 ug/mL
..M19BSTKMS_00004	08/01/20	CPI Internatioanl, Lot 751942-43			(Purchased Reagent)		Lithium	1000 ug/mL
.M19DSTKIC_00001	04/05/20	Inorganic Ventures, Lot P2-MEB677991			(Purchased Reagent)		Calcium	5000 ug/mL
							Iron	5000 ug/mL
							Magnesium	5000 ug/mL
							Sodium	5000 ug/mL
.M19DSTKMS_00007	10/23/20	CPI International, Lot 10096462-3			(Purchased Reagent)		Molybdenum	100 ug/mL
							Sb	100 ug/mL
.M19GSTKIC_00004	01/11/21	CPI International, Lot 10100426-1			(Purchased Reagent)		Potassium	10000 ug/mL
.M19HSTKMS_00002	02/12/21	CPI International, Lot 10096462-1			(Purchased Reagent)		Arsenic	100 ug/mL
							Barium	100 ug/mL
							Be	100 ug/mL
							Boron	100 ug/mL
							Cd	100 ug/mL
							Cobalt	100 ug/mL
							Cr	100 ug/mL
							Manganese	100 ug/mL
							Pb	100 ug/mL
							Selenium	100 ug/mL
							Tl	100 ug/mL
M19JICSABMS_00002	11/06/19	10/30/19	n/a, Lot n/a	100 mL	M18JSTKMS_00002	0.2 mL	Ag	0.02 mg/L
					M18KICSAB_00001	0.2 mL	Arsenic	0.02 mg/L
							Barium	0.02 mg/L
							Be	0.02 mg/L
							Cd	0.02 mg/L
							Cobalt	0.02 mg/L
							Cr	0.02 mg/L
							Cu	0.02 mg/L
							Lithium	0.02 mg/L
							Manganese	0.02 mg/L
							Ni	0.02 mg/L
							Pb	0.02 mg/L
							Sb	0.01 mg/L
							Selenium	0.02 mg/L
							Sn	0.02 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Sr	0.02 mg/L
							Tl	0.01 mg/L
							V	0.02 mg/L
					M19FJICSA_00001	10 mL	Al	100 mg/L
							Calcium	100 mg/L
							Iron	100 mg/L
							Magnesium	100 mg/L
							Molybdenum	2 mg/L
							Potassium	100 mg/L
							Sodium	100 mg/L
							Ti	2 mg/L
					M19FSTKIC_00001	0.05 mL	Boron	0.05 mg/L
					M19FSTKMS_00002	0.02 mL	Zn	0.02 mg/L
.M18JSTKMS_00002	11/13/19	Inorganic Ventures, Lot N2-AG666190			(Purchased Reagent)		Ag	10 ug/mL
.M18KICSAB_00001	11/22/19	CPI, Lot 982898-1			(Purchased Reagent)		Arsenic	10 mg/L
							Barium	10 mg/L
							Be	10 mg/L
							Cd	10 mg/L
							Cobalt	10 mg/L
							Cr	10 mg/L
							Cu	10 mg/L
							Lithium	10 mg/L
							Manganese	10 mg/L
							Ni	10 mg/L
							Pb	10 mg/L
							Sb	5 mg/L
							Selenium	10 mg/L
							Sn	10 mg/L
							Sr	10 mg/L
							Tl	5 mg/L
							V	10 mg/L
.M19FJICSA_00001	10/15/20	CPI, Lot 1031403-1			(Purchased Reagent)		Al	1000 mg/L
							Calcium	1000 mg/L
							Iron	1000 mg/L
							Magnesium	1000 mg/L
							Molybdenum	20 mg/L
							Potassium	1000 mg/L
							Sodium	1000 mg/L
							Ti	20 mg/L
.M19FSTKIC_00001	06/06/20	CPI, Lot 10096922-2			(Purchased Reagent)		Boron	100 mg/L
.M19FSTKMS_00002	06/06/20	CPI, Lot 10096922-1			(Purchased Reagent)		Zn	100 mg/L
M19JICSAMS_00003	11/06/19	10/30/19	n/a, Lot n/a	100 mL	M19FJICSA_00001	10 mL	Al	100000 ug/L
							Calcium	100000 ug/L
							Iron	100000 ug/L
							Magnesium	100000 ug/L
							Molybdenum	2000 ug/L
							Potassium	100000 ug/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Sodium	100000 ug/L
							Ti	2000 ug/L
.M19FJICSA_00001	10/15/20		CPI, Lot 1031403-1		(Purchased Reagent)		Al	1000 mg/L
							Calcium	1000 mg/L
							Iron	1000 mg/L
							Magnesium	1000 mg/L
							Molybdenum	20 mg/L
							Potassium	1000 mg/L
							Sodium	1000 mg/L
							Ti	20 mg/L
M19KICSABMS_00002	11/22/19	11/18/19	n/a, Lot n/a	100 mL	M18KICSAB_00001	0.2 mL	Arsenic	0.02 mg/L
							Barium	0.02 mg/L
							Be	0.02 mg/L
							Cd	0.02 mg/L
							Cobalt	0.02 mg/L
							Cr	0.02 mg/L
							Cu	0.02 mg/L
							Lithium	0.02 mg/L
							Manganese	0.02 mg/L
							Ni	0.02 mg/L
							Pb	0.02 mg/L
							Sb	0.01 mg/L
							Selenium	0.02 mg/L
							Sn	0.02 mg/L
							Tl	0.01 mg/L
							V	0.02 mg/L
					M19FJICSA_00001	10 mL	Al	100 mg/L
							Calcium	100 mg/L
							Iron	100 mg/L
							Magnesium	100 mg/L
							Molybdenum	2 mg/L
							Potassium	100 mg/L
							Sodium	100 mg/L
							Ti	2 mg/L
					M19FSTKIC_00001	0.05 mL	Boron	0.05 mg/L
					M19FSTKMS_00002	0.02 mL	Zn	0.02 mg/L
					M19HSTKMS_00004	0.2 mL	Ag	0.02 mg/L
.M18KICSAB_00001	11/22/19		CPI, Lot 982898-1		(Purchased Reagent)		Arsenic	10 mg/L
							Barium	10 mg/L
							Be	10 mg/L
							Cd	10 mg/L
							Cobalt	10 mg/L
							Cr	10 mg/L
							Cu	10 mg/L
							Lithium	10 mg/L
							Manganese	10 mg/L
							Ni	10 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Pb	10 mg/L
							Sb	5 mg/L
							Selenium	10 mg/L
							Sn	10 mg/L
							Tl	5 mg/L
							V	10 mg/L
.M19FJICSA_00001	10/15/20		CPI, Lot 1031403-1		(Purchased Reagent)		Al	1000 mg/L
							Calcium	1000 mg/L
							Iron	1000 mg/L
							Magnesium	1000 mg/L
							Molybdenum	20 mg/L
							Potassium	1000 mg/L
							Sodium	1000 mg/L
							Ti	20 mg/L
.M19FSTKIC_00001	06/06/20		CPI, Lot 10096922-2		(Purchased Reagent)		Boron	100 mg/L
.M19FSTKMS_00002	06/06/20		CPI, Lot 10096922-1		(Purchased Reagent)		Zn	100 mg/L
.M19HSTKMS_00004	08/30/20		CPI, Lot 711148110A-2		(Purchased Reagent)		Ag	10 ug/mL
M19KICSAMS_00003	11/25/19	11/18/19	n/a, Lot n/a	100 mL	M19FJICSA_00001	10 mL	Al	100000 ug/L
							Calcium	100000 ug/L
							Iron	100000 ug/L
							Magnesium	100000 ug/L
							Molybdenum	2000 ug/L
							Potassium	100000 ug/L
							Sodium	100000 ug/L
							Ti	2000 ug/L
.M19FJICSA_00001	10/15/20		CPI, Lot 1031403-1		(Purchased Reagent)		Al	1000 mg/L
							Calcium	1000 mg/L
							Iron	1000 mg/L
							Magnesium	1000 mg/L
							Molybdenum	20 mg/L
							Potassium	1000 mg/L
							Sodium	1000 mg/L
							Ti	20 mg/L

Reagent

CL-CCV-S_00017

Aqua Solutions, Inc.
6913 Highway 225
Deer Park, TX, 77536
281/479-2569

Certificate of Analysis / QC Results

Customer PO # :

Packaged Product: EOP005
CHLORIDE STANDARD 1000 PPM W/W AS CL- (500ML)

Lot # 8123126

Chemical Product: EOP005F
CHLORIDE STANDARD 1000 PPM W/W AS CL-

Test	Target/UOM	Range	Result
PREPARED TO FORMULATION ON	YES		YES
FILE	YES		
CHLORIDE PPM	1000.0	980.0 - 1020.0	1011.5
	PPM		
APPEARANCE AND COLOR	CLEAR LIQUID		PASS
	APPEARANCE		
INSTRUMENTS USED DURING PREPARATION	INSTRUMENT		M53,VF1-13,M61
EXPIRATION DATE	MM/DD/YY		01/30/20
	MM/DD/YYYY		
SHELF LIFE OF PRODUCT	1 YEAR		1 YEAR
	TIME		

Made 12/31/18

This is to certify that the product listed above has been prepared according to the agreed upon formulation. The solutions producer has a Quality Management System which governs each step of the manufacturing process to insure the production of a consistent product. Traceability from the producer's lot numbers to the original manufacturer's lot number is maintained. Certificates of Analysis for the raw materials used to prepare this product are available upon request.

The weights and/or volumes used to prepare this product are N.I.S.T. Traceable. All balances used in the preparation of product are calibrated daily against N.I.S.T. Traceable weights. The balances are maintained and serviced on a regular basis by an outside certified company. All volumetric glassware used is N.I.S.T. Traceable and certified as meeting Class A specifications.

Unless otherwise agreed to, all chemicals used in the preparation of this product are Reagent ACS grade.

Aqua Solutions' Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by DNV Certificate Number 51119-2003-AQ-USA-ANAB

Richard Post

Quality Manager
Aqua Solutions, Inc.

4512564
ID. CL-CCV-S_00017
Exp 01/30/20 Prpd:RRC Opn:03/04/19
1000PPM Chloride Std

Reagent

CL-ICV-S_00016

R. 8/23/19

4730147
ID: CL-ICV-S_00016
Exp:08/30/20 Prpd:RRC Opn:09/04/19
1000ppm Chloride ICV Stan

Aqua Solutions, Inc.
6913 Highway 225
Deer Park, TX, 77536
281/479-2569

Certificate of Analysis / QC Results

Customer: FIS010 / FISHER SCIENTIFIC*

Packaged Product: EOP005
CHLORIDE STANDARD 1000 PPM W/W AS CL- (500ML)

Lot # 9081971

Chemical Product: EOP005F
CHLORIDE STANDARD 1000 PPM W/W AS CL-

Test	Target/UOM	Range	Result
PREPARED TO FORMULATION ON FILE	YES YES		YES
CHLORIDE PPM	1000.0 PPM	980.0 - 1020.0	981.2
APPEARANCE AND COLOR	CLEAR LIQUID APPEARANCE		PASS
INSTRUMENTS USED DURING PREPARATION	INSTRUMENT		M53,M61,VF1-12
EXPIRATION DATE	MM/DD/YY MM/DD/YYYY		08/30/20
SHELF LIFE OF PRODUCT	1 YEAR TIME		1 YEAR

Made 08/20/19

This is to certify that the product listed above has been prepared according to the agreed upon formulation. The solutions producer has a Quality Management System which governs each step of the manufacturing process to insure the production of a consistent product. Traceability from the producer's lot numbers to the original manufacturer's lot number is maintained. Certificates of Analysis for the raw materials used to prepare this product are available upon request.

The weights and/or volumes used to prepare this product are N.I.S.T. Traceable. All balances used in the preparation of product are calibrated daily against N.I.S.T. Traceable weights. The balances are maintained and serviced on a regular basis by an outside certified company. All volumetric glassware used is N.I.S.T. Traceable and certified as meeting Class A specifications.

Unless otherwise agreed to, all chemicals used in the preparation of this product are Reagent ACS grade.

Aqua Solutions' Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by DNV Certificate Number 51119-2009-AQ-USA-ANAB.

Richard Stout

Quality Manager
Aqua Solutions, Inc.

Reagent

FL-CCV-S_00008

LabChem
performance through chemistry
Jackson's Pointe Commerce Park - Building 1000
1010 Jackson's Pointe Court, Zelienople, PA 16063
Ph: 412-826-5230 | Fax: 724-473-0647 | www.labchem.com

CERTIFICATE OF ANALYSIS

Description: FLUORIDE STANDARD, 100ppm (1mL = 0.1mg F)

Mfg. Date: 03/11/2019

Catalog Number: LC14580

Exp. Date: 03/11/2020

Lot Number: J067-19

ANALYTICAL SECTION

Test	Specification	Test Result
Appearance	clear, colorless solution	Pass Test
Concentration	100.0ppm +/- 0.5ppm	100.0ppm
Traceable to NIST	Potassium Fluoride	2203

Intended Use - Product is intended for use in manufacturing procedures and laboratory procedures and protocols.

Storage Information - Unless otherwise noted on the product label, store the product under normal lab conditions in its tightly closed, original container. Do not pipet directly from the container or return unused portions to the container.

Instructions for Handling and Use - Please refer to the associated product label and Safety Data Sheet (SDS) for information regarding safety and handling of this product.

Preparation - All products are manufactured and tested according to established, documented procedures and methodology. Production documentation records manufacturing data, raw material traceability and testing history on a per lot basis. Balances, thermometers, and glassware are calibrated before first use and on a regular schedule with references traceable to NIST standards.

Submitted by: Greg Albright, Chemist Supervisor



An ISO9001:2008 certified company. Registration # 0306-01

04/01/2019 4:30 PM

Form #17.13 07/28/2016

Reagent

FL-LCS-S_00013

RICCA CHEMICAL COMPANY®

1841 Broad Street
Pocomoke City, MD 21851
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customerservice@riccachemical.com

Certificate of Analysis

Fluoride Standard, 100 ppm F^-

Lot Number: 2901970 **Product Number:** 3171

Manufacture Date: JAN 14, 2019
Expiration Date: JAN 2020

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.
The concentration is confirmed by Fluoride ISE and is certified traceable to NIST SRM 2203.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Fluoride	7681-49-4	High Purity

Test	Specification	Result
Appearance	Colorless liquid	Passed
Fluoride (F)	99.5-100.5 ppm	100.5 ppm

Specification	Reference
Stock Fluoride Solution	APHA (4500-F- C)
Stock Fluoride Solution	EPA (340.1)
Fluoride Standard Solution (100 mg/L F-)	EPA (SW-846) (9214)
Sodium Fluoride, Stock Solution, 1.0 mL = 0.1 mg F	EPA (340.2)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
3171-16	500 mL natural poly	12 months
3171-32	1 L natural poly	12 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Tara Jones

Tara Jones (01/14/2019)
Quality Control Supervisor
This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

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Reagent

Na2C03_00002

Certificate of Analysis

Alfa Aesar®
A Johnson Matthey Company

Product No.: 33377

Product: Sodium carbonate, ACS primary standard, 99.95-100.05% (dried basis)

Lot No.: A16Z011

Appearance	White, fine granular
Clarity of solution (10 g/100 mL)	Clear and complete

Test	Limits	Results
Loss on drying at 285°C	1.0 % max	0.1%
Insoluble matter	0.01 % max	0.003%
Nitrogen compounds	0.001 % max	0.0003 %
Chloride	0.001 % max	0.0003 %
Phosphate	0.001 % max	0.0004 %
Heavy metals	5 ppm max	3 ppm
Ammonium hydroxide precipitate	0.01 % max	0.004 %
Iron	5 ppm max	3 ppm
Potassium	0.005 % max	0.002 %
Sulfur compounds	0.003 % max	0.0009 %
Silica	0.005 % max	0.001 %
Assay	99.95 – 100.05 %	99.99 %
Calcium (by AA)	0.03 % max	0.004 %
Magnesium	0.004 % max	0.002 %
Arsenic	1 ppm max	0.1 ppm

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Reagent

SO4-Cal-Stock_00013

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1-888-GO-RICCA
customerservice@riccachemical.com

Certificate of Analysis

Sulfate Standard, 1000 ppm SO_4^{2-}

Lot Number: 2809B22 **Product Number:** 8112

Manufacture Date: SEP 14, 2018
Expiration Date: MAR 2020

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Sulfate Anhydrous	7757-82-6	ACS

Test	Specification	Result
Appearance	Colorless liquid	Passed
Sulfate (SO_4)	995-1005 ppm	1000 ppm

Specification	Reference
Sulfate Solution Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5542)
Sulfate Stock Solution, 1 mL = 1 mg SO4	EPA (SW-846) (9036)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	EPA (SW-846) (9056)
Sulfate solution (1000 ppm)	TAPPI (T 699 om-87)
Sulfate Stock Solution, 1 mL = 1 mg SO42	EPA (375.2)
Sulfate Solution, Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5996)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
8112-16	500 mL natural poly	18 months
8112-4	120 mL natural poly	18 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Andy Baumgartner (09/14/2018)
Quality Control Supervisor
This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

Sulfate ICV

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Reagent

SO4-CCV-C-S_00016

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Arlington, TX 76012
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customerservice@riccachemical.com

Certificate of Analysis

Sulfate Standard, 1000 ppm SO_4^{2-}

Lot Number: 1810H42 **Product Number:** 8112

Manufacture Date: OCT 23, 2018
Expiration Date: APR 2020

The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is based upon the volumetric method of preparation.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Sodium Sulfate Anhydrous	7757-82-6	ACS

Test	Specification	Result
Appearance	Colorless liquid	Passed
Sulfate (SO_4)	995-1005 ppm	1000 ppm

Specification	Reference
Sulfate Solution Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5542)
Sulfate Stock Solution, 1 mL = 1 mg SO4	EPA (SW-846) (9036)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	EPA (SW-846) (9056)
Sulfate solution (1000 ppm)	TAPPI (T 699 om-87)
Sulfate Stock Solution, 1 mL = 1 mg SO42	EPA (375.2)
Sulfate Solution, Stock (1.00 mL = 1.00 mg SO4)	ASTM (D 5996)
Sulfate Stock Solution (1.00 mL = 1.00 mg SO42-)	ASTM (D 4327)

Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
8112-16	500 mL natural poly	18 months
8112-4	120 mL natural poly	18 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

Sulfate CCV

Israel Alamudun (10/23/2018)
Quality Control Supervisor
This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This test report shall not be reproduced, except in full, without the written approval of Ricca Chemical Company.

Reagent

Sodium_Carbon_00005

ThermoFisher SCIENTIFIC

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

ThermoFisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2008 standard by SAI Global Certificate Number CERT - 0090918

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. ThermoFisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Certain products (USP/FCC/NF/EP/BP/JP grades) are sold for use in food, drug, or medical device manufacturing.ThermoFisher does not maintain DMF's with the FDA. The following are the actual analytical results obtained:

Catalog Number	S263	Quality Test / Release Date	10/13/2017
Lot Number	174819		
Description	SODIUM CARBONATE, ANHYDROUS, CERTIFIED A.C.S.		
Country of Origin	China	Suggested Retest Date	Oct/2022
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		
Chemical Comment			

Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	White crystalline powder or powder
SULFUR COMPOUNDS	%	<= 0.003	<0.003
SILICA (SiO2)	%	<= 0.005	<0.005
PHOSPHATE (PO4)	%	<= 0.001	<0.001
POTASSIUM (K)	%	<= 0.005	<0.005
MAGNESIUM	%	<= 0.005	<0.005
ASSAY	%	>= 99.5	100.4
HEAVY METALS (as Pb)	ppm	<= 5	<5
INSOLUBLE MATTER	%	<= 0.01	0.004
LOSS ON HEATING @ 285 DEG C	%	<= 1.0	0.33
CHLORIDE	%	<= 0.001	<0.001
CALCIUM	%	<= 0.03	<0.03
IRON (Fe)	ppm	<= 5	<5
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST

Teresa Bailey-Wyche

Quality Assurance Specialist - Certificate of Analysis Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

METALS

COVER PAGE
METALS

Lab Name: Eurofins TestAmerica, Chicago Job Number: 400-176914-1

SDG No.:

Project: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID	Lab Sample ID
AES-MW1-092319	400-176914-1
AES-MW2-092319	400-176914-2
AES-MW3-092319	400-176914-3
AES-MW4-092319	400-176914-4
AES-MW4-DUP-092319	400-176914-5
AES-MW5-092319	400-176914-6
AES-FB-092319	400-176914-7

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW1-092319 Lab Sample ID: 400-176914-1

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG ID.:

Matrix: Water Date Sampled: 09/23/2019 09:10

Reporting Basis: WET Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.00043	0.00025	0.00023	mg/L			1	6020
7440-39-3	Barium	0.035	0.00050	0.00073	mg/L			1	6020
7440-42-8	Boron	0.27	0.010	0.013	mg/L			1	6020
7440-70-2	Calcium	120	0.050	0.044	mg/L			1	6020
7440-48-4	Cobalt	0.00069	0.00050	0.00040	mg/L			1	6020
7439-93-2	Lithium	0.00054	0.0010	0.00050	mg/L	J		1	6020
7439-95-4	Magnesium	48	0.040	0.049	mg/L			1	6020
7439-98-7	Molybdenum	0.0025	0.0030	0.0025	mg/L	U		1	6020
7440-09-7	Potassium	0.71	0.10	0.11	mg/L			1	6020
7782-49-2	Selenium	0.0059	0.00025	0.00098	mg/L			1	6020
7440-23-5	Sodium	330	0.40	0.77	mg/L			10	6020
7439-89-6	Iron	0.14	0.020	0.047	mg/L			1	6020
7439-96-5	Manganese	0.078	0.00050	0.00079	mg/L			1	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW2-092319
Lab Sample ID: 400-176914-2
Lab Name: Eurofins TestAmerica, Chicago
Job No.: 400-176914-1
SDG ID.:
Matrix: Water
Date Sampled: 09/23/2019 10:35
Reporting Basis: WET
Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.00031	0.00025	0.00023	mg/L			1	6020
7440-39-3	Barium	0.14	0.00050	0.00073	mg/L			1	6020
7440-42-8	Boron	0.16	0.010	0.013	mg/L			1	6020
7440-70-2	Calcium	130	0.050	0.044	mg/L			1	6020
7440-48-4	Cobalt	0.00057	0.00050	0.00040	mg/L			1	6020
7439-93-2	Lithium	0.00050	0.0010	0.00050	mg/L	U		1	6020
7439-95-4	Magnesium	53	0.040	0.049	mg/L			1	6020
7439-98-7	Molybdenum	0.0025	0.0030	0.0025	mg/L	U		1	6020
7440-09-7	Potassium	0.74	0.10	0.11	mg/L			1	6020
7782-49-2	Selenium	0.00098	0.00025	0.00098	mg/L	U		1	6020
7440-23-5	Sodium	76	0.040	0.077	mg/L			1	6020
7439-89-6	Iron	0.095	0.020	0.047	mg/L			1	6020
7439-96-5	Manganese	0.86	0.00050	0.00079	mg/L			1	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW3-092319 | Lab Sample ID: 400-176914-3

Lab Name: Eurofins TestAmerica, Chicago | Job No.: 400-176914-1

SDG ID.:

Matrix: Water | Date Sampled: 09/23/2019 13:10

Reporting Basis: WET | Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.0019	0.00025	0.00023	mg/L			1	6020
7440-39-3	Barium	0.16	0.00050	0.00073	mg/L			1	6020
7440-42-8	Boron	0.93	0.010	0.013	mg/L			1	6020
7440-70-2	Calcium	270	0.25	0.22	mg/L			5	6020
7440-48-4	Cobalt	0.0020	0.00050	0.00040	mg/L			1	6020
7439-93-2	Lithium	0.0034	0.0010	0.00050	mg/L			1	6020
7439-95-4	Magnesium	410	4.0	4.9	mg/L			100	6020
7439-98-7	Molybdenum	0.15	0.0030	0.0025	mg/L			1	6020
7440-09-7	Potassium	18	0.10	0.11	mg/L			1	6020
7782-49-2	Selenium	0.10	0.00025	0.00098	mg/L			1	6020
7440-23-5	Sodium	2400	4.0	7.7	mg/L			100	6020
7439-89-6	Iron	0.75	0.020	0.047	mg/L			1	6020
7439-96-5	Manganese	1.0	0.00050	0.00079	mg/L			1	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW4-092319
Lab Sample ID: 400-176914-4
Lab Name: Eurofins TestAmerica, Chicago
Job No.: 400-176914-1
SDG ID.:
Matrix: Water
Date Sampled: 09/23/2019 14:50
Reporting Basis: WET
Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.0041	0.00025	0.00023	mg/L			1	6020
7440-39-3	Barium	0.061	0.00050	0.00073	mg/L			1	6020
7440-42-8	Boron	1.9	0.010	0.013	mg/L			1	6020
7440-70-2	Calcium	650	0.25	0.22	mg/L			5	6020
7440-48-4	Cobalt	0.00086	0.00050	0.00040	mg/L			1	6020
7439-93-2	Lithium	0.47	0.0010	0.00050	mg/L			1	6020
7439-95-4	Magnesium	140	0.040	0.049	mg/L			1	6020
7439-98-7	Molybdenum	0.35	0.0030	0.0025	mg/L			1	6020
7440-09-7	Potassium	1300	10	11	mg/L			100	6020
7782-49-2	Selenium	0.0043	0.00025	0.00098	mg/L			1	6020
7440-23-5	Sodium	7600	4.0	7.7	mg/L			100	6020
7439-89-6	Iron	16	0.020	0.047	mg/L			1	6020
7439-96-5	Manganese	3.0	0.00050	0.00079	mg/L			1	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW4-DUP-092319 | Lab Sample ID: 400-176914-5

Lab Name: Eurofins TestAmerica, Chicago | Job No.: 400-176914-1

SDG ID.:

Matrix: Water | Date Sampled: 09/23/2019 15:20

Reporting Basis: WET | Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.0034	0.00025	0.00023	mg/L			1	6020
7440-39-3	Barium	0.061	0.00050	0.00073	mg/L			1	6020
7440-42-8	Boron	1.9	0.010	0.013	mg/L			1	6020
7440-70-2	Calcium	630	0.25	0.22	mg/L			5	6020
7440-48-4	Cobalt	0.00084	0.00050	0.00040	mg/L			1	6020
7439-93-2	Lithium	0.48	0.0010	0.00050	mg/L			1	6020
7439-95-4	Magnesium	130	0.040	0.049	mg/L			1	6020
7439-98-7	Molybdenum	0.37	0.0030	0.0025	mg/L			1	6020
7440-09-7	Potassium	1300	10	11	mg/L			100	6020
7782-49-2	Selenium	0.0047	0.00025	0.00098	mg/L			1	6020
7440-23-5	Sodium	7500	4.0	7.7	mg/L			100	6020
7439-89-6	Iron	16	0.020	0.047	mg/L			1	6020
7439-96-5	Manganese	3.1	0.00050	0.00079	mg/L			1	6020



1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-MW5-092319
Lab Sample ID: 400-176914-6
Lab Name: Eurofins TestAmerica, Chicago
Job No.: 400-176914-1
SDG ID.:
Matrix: Water
Date Sampled: 09/23/2019 17:10
Reporting Basis: WET
Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.015	0.00025	0.00023	mg/L			1	6020
7440-39-3	Barium	0.034	0.00050	0.00073	mg/L			1	6020
7440-42-8	Boron	0.41	0.010	0.013	mg/L			1	6020
7440-70-2	Calcium	840	0.25	0.22	mg/L			5	6020
7440-48-4	Cobalt	0.0027	0.00050	0.00040	mg/L			1	6020
7439-93-2	Lithium	0.0046	0.0010	0.00050	mg/L			1	6020
7439-95-4	Magnesium	400	0.80	0.99	mg/L			20	6020
7439-98-7	Molybdenum	0.0025	0.0030	0.0025	mg/L	J		1	6020
7440-09-7	Potassium	7.3	0.10	0.11	mg/L			1	6020
7782-49-2	Selenium	0.0014	0.00025	0.00098	mg/L			1	6020
7440-23-5	Sodium	2300	0.80	1.5	mg/L			20	6020
7439-89-6	Iron	11	0.020	0.047	mg/L			1	6020
7439-96-5	Manganese	13	0.0025	0.0040	mg/L			5	6020



FORM IA-IN

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS - TOTAL RECOVERABLE

Client Sample ID: AES-FB-092319 | Lab Sample ID: 400-176914-7

Lab Name: Eurofins TestAmerica, Chicago | Job No.: 400-176914-1

SDG ID.:

Matrix: Water | Date Sampled: 09/23/2019 17:35

Reporting Basis: WET | Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.00051	0.00025	0.00023	mg/L			1	6020
7440-39-3	Barium	0.00073	0.00050	0.00073	mg/L	U		1	6020
7440-42-8	Boron	0.013	0.010	0.013	mg/L	U		1	6020
7440-70-2	Calcium	0.14	0.050	0.044	mg/L			1	6020
7440-48-4	Cobalt	0.00040	0.00050	0.00040	mg/L	U		1	6020
7439-93-2	Lithium	0.0010	0.0010	0.00050	mg/L			1	6020
7439-95-4	Magnesium	0.052	0.040	0.049	mg/L			1	6020
7439-98-7	Molybdenum	0.0025	0.0030	0.0025	mg/L	U		1	6020
7440-09-7	Potassium	0.11	0.10	0.11	mg/L	U		1	6020
7782-49-2	Selenium	0.00098	0.00025	0.00098	mg/L	U		1	6020
7440-23-5	Sodium	0.077	0.040	0.077	mg/L	U		1	6020
7439-89-6	Iron	0.058	0.020	0.047	mg/L			1	6020
7439-96-5	Manganese	0.0016	0.00050	0.00079	mg/L			1	6020



2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

ICV Source: M19IICVMS_00001 Concentration Units: ug/L

CCV Source: M19JCCVMS_00001

Analyte	ICV 500-513839/7 11/05/2019 15:47				CCV 500-513839/37 11/05/2019 17:43				CCV 500-513839/48 11/05/2019 18:31			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Arsenic	198		200	99	252		250	101	244		250	97
Barium	196		200	98	253		250	101	248		250	99
Boron	204		200	102	248		250	99	267		250	107
Calcium	19900		20000	100	24600		25000	98	24800		25000	99
Cobalt	202		200	101	252		250	101	254		250	102
Iron	20100		20000	100	25000		25000	100	25300		25000	101
Lithium	198		200	99	244		250	97	256		250	102
Magnesium	19900		20000	99	24900		25000	100	25000		25000	100
Manganese	202		200	101	248		250	99	250		250	100
Molybdenum	201		200	101	254		250	101	249		250	100
Potassium	20200		20000	101	25000		25000	100	25100		25000	101
Selenium	199		200	99	254		250	102	245		250	98
Sodium	20100		20000	100	24800		25000	99	25200		25000	101
Antimony	212		200	106	257		250	103	250		250	100
Beryllium	198		200	99	242		250	97	253		250	101
Cadmium	202		200	101	257		250	103	253		250	101
Chromium	204		200	102	250		250	100	252		250	101
Lead	204		200	102	259		250	104	258		250	103
Thallium	205		200	102	263		250	105	264		250	106

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

ICV Source: M19IICVMS_00001 Concentration Units: ug/L

CCV Source: M19JCCVMS_00001

Analyte	CCV 500-513839/59 11/05/2019 19:13											
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Arsenic	250		250	100								
Barium	251		250	100								
Boron	249		250	100								
Calcium	25700		25000	103								
Cobalt	254		250	102								
Iron	25700		25000	103								
Lithium	233		250	93								
Magnesium	25500		25000	102								
Manganese	257		250	103								
Molybdenum	253		250	101								
Potassium	26200		25000	105								
Selenium	256		250	102								
Sodium	25600		25000	102								
Antimony	256		250	103								
Beryllium	243		250	97								
Cadmium	257		250	103								
Chromium	255		250	102								
Lead	258		250	103								
Thallium	265		250	106								

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

ICV Source: M19IICVMS_00001 Concentration Units: ug/L

CCV Source: M19JCCVMS_00001

Analyte	ICV 500-514059/7 11/06/2019 10:12				CCV 500-514059/13 11/06/2019 10:36				CCV 500-514059/23 11/06/2019 11:15			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Calcium	20200		20000	101	25400		25000	101	25300		25000	101
Manganese	206		200	103	256		250	103	257		250	103
Antimony	212		200	106	259		250	104	259		250	104
Arsenic	199		200	100	257		250	103	254		250	102
Barium	201		200	100	258		250	103	258		250	103
Beryllium	204		200	102	258		250	103	269		250	108
Boron	212		200	106	257		250	103	254		250	101
Cadmium	203		200	101	261		250	104	260		250	104
Chromium	203		200	102	255		250	102	257		250	103
Cobalt	207		200	103	260		250	104	263		250	105
Iron	20600		20000	103	25700		25000	103	26000		25000	104
Lead	200		200	100	263		250	105	262		250	105
Lithium	204		200	102	260		250	104	266		250	106
Molybdenum	202		200	101	259		250	103	258		250	103
Selenium	202		200	101	259		250	104	255		250	102
Thallium	201		200	101	265		250	106	263		250	105

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

ICV Source: M19IICVMS_00001 Concentration Units: ug/L

CCV Source: M19JCCVMS_00001

Analyte	CCV 500-514059/30 11/06/2019 11:43											
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Calcium	25400		25000	102								
Manganese	254		250	102								
Antimony	259		250	104								
Arsenic	264		250	105								
Barium	266		250	107								
Beryllium	257		250	103								
Boron	252		250	101								
Cadmium	264		250	106								
Chromium	250		250	100								
Cobalt	255		250	102								
Iron	25400		25000	102								
Lead	260		250	104								
Lithium	250		250	100								
Molybdenum	260		250	104								
Selenium	267		250	107								
Thallium	263		250	105								

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

ICV Source: M19IICVMS_00001 Concentration Units: ug/L

CCV Source: M19JCCVMS_00001

Analyte	ICV 500-516022/7 11/18/2019 10:10				CCV 500-516022/55 11/18/2019 13:13				CCV 500-516022/64 11/18/2019 13:47			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Magnesium	19900		20000	99	25900		25000	103	26300		25000	105
Potassium	19800		20000	99	25500		25000	102	25900		25000	104
Sodium	20000		20000	100	25800		25000	103	26300		25000	105
Antimony	206		200	103	248		250	99	245		250	98
Arsenic	196		200	98	245		250	98	242		250	97
Barium	199		200	99	247		250	99	246		250	98
Beryllium	204		200	102	267		250	107				
Cadmium	198		200	99	254		250	101	252		250	101
Calcium	19500		20000	98	25000		25000	100	25200		25000	101
Chromium	198		200	99	256		250	102	260		250	104
Cobalt	204		200	102	264		250	106	269		250	108
Iron	19900		20000	99	26100		25000	104	26500		25000	106
Lead	201		200	100	254		250	102	259		250	103
Lithium	206		200	103	268		250	107	276		250	110
Manganese	200		200	100	255		250	102	258		250	103
Molybdenum	196		200	98	247		250	99	246		250	98
Selenium	198		200	99	244		250	97	240		250	96
Thallium	203		200	101	255		250	102	259		250	104

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Method: 6020 Instrument ID: ICPMS4

Lab Sample ID: CRI 500-514059/12 Concentration Units: ug/L

CRQL Check Standard Source: M19ICRIMS_00001

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Arsenic	2.00	1.88		94	50-150
Barium	5.00	5.28		106	50-150
Boron	100	97.5		98	50-150
Calcium	400	407		102	50-150
Cobalt	2.00	2.11		106	50-150
Lithium	20.0	21.1		105	50-150
Molybdenum	8.00	8.38		105	50-150
Selenium	5.00	4.74		95	50-150
Iron	200	226		113	50-150
Manganese	5.00	5.29		106	50-150

Lab Sample ID: CRI 500-516022/12 Concentration Units: ug/L

CRQL Check Standard Source: M19ICRIMS_00001

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Arsenic	2.00	2.01		100	50-150
Barium	5.00	5.11		102	50-150
Boron	100	99.6		100	50-150
Calcium	400	405		101	50-150
Cobalt	2.00	2.18		109	50-150
Lithium	20.0	20.0		100	50-150
Magnesium	400	427		107	50-150
Molybdenum	8.00	8.33		104	50-150
Potassium	1000	1060		106	50-150
Selenium	5.00	4.84		97	50-150
Sodium	400	395		99	50-150
Iron	200	222		111	50-150
Manganese	5.00	5.21		104	50-150

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 500-513839/8 11/05/2019 15:51		CCB 500-513839/38 11/05/2019 17:47		CCB 500-513839/49 11/05/2019 18:35		CCB 500-513839/60 11/05/2019 19:17	
		Found	C	Found	C	Found	C	Found	C
Arsenic	1.0	0.23	U	0.23	U	0.23	U	0.23	U
Barium	2.5	0.828	J	0.73	U	0.73	U	0.73	U
Boron	50	13	U	13	U	13	U	13	U
Calcium	200	44	U	44	U	44	U	44	U
Cobalt	1.0	0.40	U	0.40	U	0.40	U	0.40	U
Iron	100	47	U	47	U	47	U	47	U
Lithium	2.0	0.733	J	0.50	U	0.50	U	0.50	U
Magnesium	200	49	U	49	U	49	U	49	U
Manganese	2.5	0.79	U	0.79	U	0.79	U	0.79	U
Molybdenum	5.0	2.5	U	2.5	U	2.5	U	2.5	U
Potassium	500	110	U	110	U	110	U	110	U
Selenium	2.5	0.98	U	0.98	U	0.98	U	0.98	U
Sodium	200	77	U	77	U	77	U	226	
Antimony	3.0	1.3	U	1.3	U	1.3	U	1.3	U
Beryllium	1.0	0.53	U	0.53	U	0.53	U	0.53	U
Cadmium	0.50	0.17	U	0.17	U	0.17	U	0.17	U
Chromium	5.0	1.1	U	1.1	U	1.1	U	1.1	U
Lead	0.50	0.19	U	0.19	U	0.19	U	0.19	U
Thallium	2.0	0.57	U	0.57	U	0.57	U	0.57	U

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 500-514059/8 11/06/2019 10:17		CCB 500-514059/14 11/06/2019 10:40		CCB 500-514059/24 11/06/2019 11:18		CCB 500-514059/31 11/06/2019 11:47	
		Found	C	Found	C	Found	C	Found	C
Calcium	200	44	U	44	U	44	U	44	U
Manganese	2.5	0.79	U	0.79	U	0.79	U	0.79	U
Antimony	3.0	1.3	U	1.3	U	1.3	U	1.3	U
Arsenic	1.0	0.23	U	0.23	U	0.23	U	0.23	U
Barium	2.5	0.73	U	0.73	U	0.73	U	0.73	U
Beryllium	1.0	0.53	U	0.53	U	0.53	U	0.53	U
Boron	50	13	U	13	U	13	U	13	U
Cadmium	0.50	0.17	U	0.17	U	0.17	U	0.17	U
Chromium	5.0	1.1	U	1.1	U	1.1	U	1.1	U
Cobalt	1.0	0.40	U	0.40	U	0.40	U	0.40	U
Iron	100	47	U	47	U	47	U	47	U
Lead	0.50	0.19	U	0.19	U	0.19	U	0.19	U
Lithium	2.0	0.583	J	0.50	U	0.50	U	0.50	U
Molybdenum	5.0	2.5	U	2.5	U	2.5	U	2.5	U
Selenium	2.5	0.98	U	0.98	U	0.98	U	0.98	U
Thallium	2.0	0.57	U	0.57	U	0.57	U	0.57	U

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 500-516022/9 11/18/2019 10:18		CCB 500-516022/56 11/18/2019 13:17		CCB 500-516022/65 11/18/2019 13:51			
		Found	C	Found	C	Found	C	Found	C
Magnesium	200	49	U	49	U	49	U		
Potassium	500	110	U	110	U	110	U		
Sodium	200	77	U	77	U	77	U		
Antimony	3.0	1.3	U	1.3	U	1.3	U		
Arsenic	1.0	0.23	U	0.23	U	0.23	U		
Barium	2.5	0.73	U	0.73	U	0.73	U		
Beryllium	1.0	0.53	U	0.53	U	0.53	U		
Boron	50	13	U	14.1	J	13	U		
Cadmium	0.50	0.17	U	0.17	U	0.17	U		
Calcium	200	44	U	44	U	44	U		
Chromium	5.0	1.1	U	1.1	U	1.1	U		
Cobalt	1.0	0.40	U	0.40	U	0.40	U		
Iron	100	47	U	47	U	47	U		
Lead	0.50	0.19	U	0.19	U	0.19	U		
Lithium	2.0	0.50	U	0.50	U	0.50	U		
Manganese	2.5	0.79	U	0.79	U	0.79	U		
Molybdenum	5.0	2.5	U	2.5	U	2.5	U		
Selenium	2.5	0.98	U	0.98	U	0.98	U		
Thallium	2.0	0.57	U	0.57	U	0.57	U		

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Concentration Units: mg/L Lab Sample ID: MB 500-513568/1-A

Instrument Code: ICPMS4 Batch No.: 513839

CAS No.	Analyte	Concentration	C	Q	Method
7440-38-2	Arsenic	0.00023	U		6020
7440-39-3	Barium	0.00073	U		6020
7440-42-8	Boron	0.013	U		6020
7440-70-2	Calcium	0.044	U		6020
7440-48-4	Cobalt	0.00040	U		6020
7439-93-2	Lithium	0.00050	U		6020
7439-95-4	Magnesium	0.049	U		6020
7439-98-7	Molybdenum	0.0025	U		6020
7440-09-7	Potassium	0.11	U		6020
7782-49-2	Selenium	0.00098	U		6020
7440-23-5	Sodium	0.077	U		6020
7439-89-6	Iron	0.047	U		6020
7439-96-5	Manganese	0.00079	U		6020

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Lab Sample ID: ICSA 500-513839/10 Instrument ID: ICPMS4

Lab File ID: 010ICSA.d ICS Source: M19JICSAMS_00003

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Arsenic		**-0.0660**	
Barium		**0.307**	
Boron		**1.59**	
Calcium	**100000**	**103278**	**103**
Cobalt		**0.258**	
Iron	**100000**	**98238**	**98**
Lithium		**-0.283**	
Magnesium	**100000**	**100391**	**100**
Manganese		**0.328**	
Molybdenum	**2000**	**2090**	**104**
Potassium	**100000**	**102143**	**102**
Selenium		**0.228**	
Sodium	**100000**	**101607**	**102**
Aluminum	*100000*	*101600*	*102*
Antimony		*0.0830*	
Beryllium		*0.0700*	
Cadmium		*0.344*	
Chromium		*0.620*	
Copper		*0.137*	
Lead		*0.186*	
Nickel		*0.219*	
Silver		*0.0180*	
Strontium		*3.27*	
Thallium		*0.0270*	
Tin		*0.0090*	
Titanium	*2000*	*2039*	*102*
Vanadium		*-0.989*	
Zinc		*0.739*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Lab Sample ID: ICSAB 500-513839/11 Instrument ID: ICPMS4

Lab File ID: 011ICSB.d ICS Source: M19JICSABMS_00002

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Arsenic	**20.0**	**22.4**	**112**
Barium	**20.0**	**22.9**	**115**
Boron	**50.0**	**52.8**	**106**
Calcium	**100000**	**105017**	**105**
Cobalt	**20.0**	**20.3**	**102**
Iron	**100000**	**101354**	**101**
Lithium	**20.0**	**20.4**	**102**
Magnesium	**100000**	**102663**	**103**
Manganese	**20.0**	**21.4**	**107**
Molybdenum	**2000**	**2164**	**108**
Potassium	**100000**	**102987**	**103**
Selenium	**20.0**	**23.5**	**118**
Sodium	**100000**	**102347**	**102**
Aluminum	*100000*	*103463*	*103*
Antimony	*10.0*	*11.1*	*111*
Beryllium	*20.0*	*18.2*	*91*
Cadmium	*20.0*	*22.0*	*110*
Chromium	*20.0*	*21.2*	*106*
Copper	*20.0*	*21.7*	*109*
Lead	*20.0*	*21.8*	*109*
Nickel	*20.0*	*19.7*	*98*
Silver	*20.0*	*21.4*	*107*
Thallium	*10.0*	*10.8*	*108*
Tin	*20.0*	*22.5*	*112*
Titanium	*2000*	*2086*	*104*
Vanadium	*20.0*	*19.6*	*98*
Zinc	*20.0*	*22.9*	*115*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Lab Sample ID: ICSA 500-514059/10 Instrument ID: ICPMS4

Lab File ID: 010ICSA.d ICS Source: M19JICSAMS_00003

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Calcium	**100000**	**100052**	**100**
Manganese		**0.454**	
Aluminum	*100000*	*98169*	*98*
Antimony		*0.0830*	
Arsenic		*-0.124*	
Barium		*0.281*	
Beryllium		*0.142*	
Boron		*2.83*	
Cadmium		*0.207*	
Chromium		*0.609*	
Cobalt		*0.255*	
Copper		*0.0700*	
Iron	*100000*	*97334*	*97*
Lead		*0.177*	
Lithium		*0.217*	
Magnesium	*100000*	*100127*	*100*
Molybdenum	*2000*	*2044*	*102*
Nickel		*0.231*	
Potassium	*100000*	*99523*	*100*
Selenium		*0.0080*	
Silver		*0.0180*	
Sodium	*100000*	*99248*	*99*
Strontium		*3.08*	
Thallium		*0.0350*	
Tin		*0.0320*	
Titanium	*2000*	*1983*	*99*
Vanadium		*-1.69*	
Zinc		*0.801*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Lab Sample ID: ICSAB 500-514059/11 Instrument ID: ICPMS4

Lab File ID: 011ICSB.d ICS Source: M19JICSABMS_00002

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Calcium	**100000**	**100626**	**101**
Manganese	**20.0**	**20.0**	**100**
Aluminum	*100000*	*98379*	*98*
Antimony	*10.0*	*10.6*	*106*
Arsenic	*20.0*	*21.2*	*106*
Barium	*20.0*	*20.2*	*101*
Beryllium	*20.0*	*19.0*	*95*
Boron	*50.0*	*46.4*	*93*
Cadmium	*20.0*	*21.2*	*106*
Chromium	*20.0*	*20.2*	*101*
Cobalt	*20.0*	*19.7*	*98*
Copper	*20.0*	*20.5*	*103*
Iron	*100000*	*97857*	*98*
Lead	*20.0*	*20.8*	*104*
Lithium	*20.0*	*20.0*	*100*
Magnesium	*100000*	*99811*	*100*
Molybdenum	*2000*	*2052*	*103*
Nickel	*20.0*	*19.2*	*96*
Potassium	*100000*	*99709*	*100*
Selenium	*20.0*	*22.0*	*110*
Silver	*20.0*	*20.8*	*104*
Sodium	*100000*	*99712*	*100*
Strontium	*20.0*	*24.1*	*120*
Thallium	*10.0*	*10.5*	*105*
Tin	*20.0*	*21.0*	*105*
Titanium	*2000*	*2014*	*101*
Vanadium	*20.0*	*18.2*	*91*
Zinc	*20.0*	*21.6*	*108*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Lab Sample ID: ICSA 500-516022/10 Instrument ID: ICPMS4

Lab File ID: 010ICSA.d ICS Source: M19KICSAMS_00003

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Magnesium	**100000**	**100399**	**100**
Potassium	**100000**	**99786**	**100**
Sodium	**100000**	**100065**	**100**
Aluminum	*100000*	*99380*	*99*
Antimony		*0.122*	
Arsenic		*-0.0020*	
Barium		*0.248*	
Beryllium		*0.0830*	
Boron		*0.327*	
Cadmium		*0.267*	
Calcium	*100000*	*98875*	*99*
Chromium		*0.664*	
Cobalt		*0.276*	
Iron	*100000*	*97799*	*98*
Lead		*0.186*	
Lithium		*-0.316*	
Manganese		*0.458*	
Molybdenum	*2000*	*2020*	*101*
Nickel		*0.283*	
Selenium		*0.426*	
Silver		*0.126*	
Strontium		*3.11*	
Thallium		*0.0420*	
Tin		*0.0250*	
Titanium	*2000*	*1981*	*99*
Vanadium		*-0.817*	
Zinc		*1.40*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Lab Sample ID: ICSAB 500-516022/11 Instrument ID: ICPMS4

Lab File ID: 011ICSB.d ICS Source: M19KICSABMS_00002

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Magnesium	**100000**	**98621**	**99**
Potassium	**100000**	**99775**	**100**
Sodium	**100000**	**99801**	**100**
Aluminum	*100000*	*98993*	*99*
Antimony	*10.0*	*10.5*	*105*
Arsenic	*20.0*	*21.5*	*108*
Barium	*20.0*	*20.8*	*104*
Beryllium	*20.0*	*18.1*	*91*
Boron	*50.0*	*52.0*	*104*
Cadmium	*20.0*	*20.8*	*104*
Calcium	*100000*	*99050*	*99*
Chromium	*20.0*	*19.8*	*99*
Cobalt	*20.0*	*19.7*	*98*
Copper	*20.0*	*17.9*	*90*
Iron	*100000*	*96465*	*96*
Lead	*20.0*	*20.4*	*102*
Lithium	*20.0*	*19.9*	*100*
Manganese	*20.0*	*20.0*	*100*
Molybdenum	*2000*	*2019*	*101*
Nickel	*20.0*	*19.1*	*95*
Selenium	*20.0*	*22.4*	*112*
Silver	*20.0*	*21.0*	*105*
Thallium	*10.0*	*10.2*	*102*
Tin	*20.0*	*20.9*	*105*
Titanium	*2000*	*1987*	*99*
Vanadium	*20.0*	*19.0*	*95*
Zinc	*20.0*	*21.9*	*109*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS - TOTAL RECOVERABLE

Client ID: AES-MW2-092319 MS Lab ID: 400-176914-2 MS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Matrix: Water Concentration Units: mg/L

% Solids:

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Arsenic	0.105		0.00031		0.100	104	75-125		6020
Barium	0.643		0.14		0.500	100	75-125		6020
Boron	1.24		0.16		1.00	107	75-125		6020
Calcium	136		130		10.0	95	75-125	4	6020
Cobalt	0.502		0.00057		0.500	100	75-125		6020
Lithium	0.102		0.00050	U	0.100	102	75-125		6020
Magnesium	63.8		53		10.0	106	75-125	4	6020
Molybdenum	1.05		0.0025	U	1.00	105	75-125		6020
Potassium	10.9		0.74		10.0	102	75-125		6020
Selenium	0.104		0.00098	U	0.100	104	75-125		6020
Sodium	85.9		76		10.0	99	75-125	4	6020
Iron	1.07		0.095		1.00	97	75-125		6020
Manganese	1.44		0.86		0.500	118	75-125		6020

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VA - IN

5A-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
METALS - TOTAL RECOVERABLE

Client ID: AES-MW2-092319 MSD
Lab ID: 400-176914-2 MSD
Lab Name: Eurofins TestAmerica, Chicago
Job No.: 400-176914-1
SDG No.:
Matrix: Water
Concentration Units: mg/L
% Solids:

Analyte	(SDR)	C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Arsenic	0.103		0.100	102	75-125	2	20		6020
Barium	0.627		0.500	97	75-125	3	20		6020
Boron	1.20		1.00	104	75-125	3	20		6020
Calcium	128		10.0	15	75-125	6	20	4	6020
Cobalt	0.493		0.500	98	75-125	2	20		6020
Lithium	0.0987		0.100	99	75-125	3	20		6020
Magnesium	60.8		10.0	76	75-125	5	20	4	6020
Molybdenum	1.04		1.00	104	75-125	1	20		6020
Potassium	10.7		10.0	99	75-125	2	20		6020
Selenium	0.102		0.100	102	75-125	2	20		6020
Sodium	81.5		10.0	56	75-125	5	20	4	6020
Iron	1.04		1.00	95	75-125	2	20		6020
Manganese	1.38		0.500	104	75-125	5	20		6020

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VD - IN

6-IN
DUPLICATES
METALS - TOTAL RECOVERABLE

Client ID: AES-MW2-092319 DU
Lab ID: 400-176914-2 DU
Lab Name: Eurofins TestAmerica, Chicago
Job No.: 400-176914-1
SDG No.:
% Solids for Sample:
% Solids for Duplicate:
Matrix: Water
Concentration Units: mg/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Arsenic	0.00025	0.00031		0.000267		16		6020
Barium	0.00050	0.14		0.137		4		6020
Boron	0.010	0.16		0.162		0.4		6020
Calcium	0.050	130		124		2		6020
Cobalt	0.00050	0.00057		0.000548		4		6020
Lithium	0.0010	0.00050	U	0.000658	J	NC		6020
Magnesium	0.040	53		52.7		1		6020
Molybdenum	0.0030	0.0025	U	0.0025	U	NC		6020
Potassium	0.10	0.74		0.712		3		6020
Selenium	0.00025	0.00098	U	0.00098	U	NC		6020
Sodium	0.040	76		74.7		2		6020
Iron	0.020	0.095		0.118		22	F3	6020
Manganese	0.00050	0.86		0.847		1		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

7A-IN
LAB CONTROL SAMPLE
METALS - TOTAL RECOVERABLE

Lab ID: LCS 500-513568/2-A

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

Sample Matrix: Water LCS Source: M19HSPKMS_00002

Analyte	Water(mg/L)							
	True	Found	C	%R	Limits		Q	Method
Arsenic	0.100	0.0992		99	80	120		6020
Barium	0.500	0.506		101	80	120		6020
Boron	1.00	1.05		105	80	120		6020
Calcium	10.0	9.13		91	80	120		6020
Cobalt	0.500	0.524		105	80	120		6020
Lithium	0.100	0.102		102	80	120		6020
Magnesium	10.0	10.4		104	80	120		6020
Molybdenum	1.00	0.996		100	80	120		6020
Potassium	10.0	10.4		104	80	120		6020
Selenium	0.100	0.100		100	80	120		6020
Sodium	10.0	10.3		103	80	120		6020
Iron	1.00	1.07		107	80	120		6020
Manganese	0.500	0.523		105	80	120		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS - TOTAL RECOVERABLE

Lab ID: 400-176914-2

SDG No:

Lab Name: Eurofins TestAmerica, Chicago Job No: 400-176914-1

Matrix: Water Concentration Units: mg/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Arsenic	0.00031		0.0012	U	NC		6020
Barium	0.14		0.137		3.9		6020
Boron	0.16		0.248		NC		6020
Calcium	130		121		4.4		6020
Cobalt	0.00057		0.0020	U	NC		6020
Lithium	0.00050	U	0.0025	U	NC		6020
Magnesium	53		53.8		1.1		6020
Molybdenum	0.0025	U	0.012	U	NC		6020
Potassium	0.74		0.690		NC		6020
Selenium	0.00098	U	0.0049	U	NC		6020
Sodium	76		75.8		0.25		6020
Iron	0.095		0.23	U	NC		6020
Manganese	0.86		0.840		1.9		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

9-IN
DETECTION LIMITS
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Chicago Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: ICPMS4

Method: 6020 MDL Date: 03/29/2017 10:13

Prep Method: 3005A

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (ug/L)
Arsenic		0.00125	0.232
Barium		0.0025	0.73
Boron		0.05	12.7
Calcium		0.25	44.3
Cobalt		0.0025	0.402
Lithium		0.005	0.5
Molybdenum		0.015	2.46
Selenium		0.00125	0.982

9-IN
DETECTION LIMITS
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Chicago Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: ICPMS4

Method: 6020 MDL Date: 03/29/2017 10:13

Prep Method: 3005A

Analyte	Wavelength/ Mass	RL (ug/L)	MDL (ug/L)
Iron		100	46.7
Magnesium		200	49.4
Manganese		2.5	0.791
Potassium		500	111
Sodium		200	77.3

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS - TOTAL RECOVERABLE

Lab Name: Eurofins TestAmerica, Chicago Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: ICPMS4

Method: 6020 XMDL Date: 03/29/2017 10:16

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Arsenic		1	0.232
Barium		2.5	0.73
Boron		50	12.7
Calcium		200	44.3
Cobalt		1	0.402
Iron		100	46.7
Lithium		2	0.5
Magnesium		200	49.4
Manganese		2.5	0.791
Molybdenum		5	2.46
Potassium		500	111
Selenium		2.5	0.982
Sodium		200	77.3

11-IN
LINEAR RANGES
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Date: 05/31/2016 14:50

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Arsenic		5000	6020
Barium		5000	6020
Boron		5000	6020
Calcium		250000	6020
Cobalt		5000	6020
Lithium		5000	6020
Magnesium		250000	6020
Molybdenum		5000	6020
Potassium		250000	6020
Selenium		5000	6020
Sodium		250000	6020
Iron		250000	6020
Manganese		5000	6020

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Prep Method: 3005A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight	Initial Volume (mL)	Final Volume (mL)
MB 500-513568/1-A	11/05/2019 07:58	513568		50	50
LCS 500-513568/2-A	11/05/2019 07:58	513568		50	50
400-176914-1	11/05/2019 07:58	513568		50	50
400-176914-2	11/05/2019 07:58	513568		50	50
400-176914-2 DU	11/05/2019 07:58	513568		50	50
400-176914-2 MS	11/05/2019 07:58	513568		50	50
400-176914-2 MSD	11/05/2019 07:58	513568		50	50
400-176914-3	11/05/2019 07:58	513568		50	50
400-176914-4	11/05/2019 07:58	513568		50	50
400-176914-5	11/05/2019 07:58	513568		50	50
400-176914-6	11/05/2019 07:58	513568		50	50
400-176914-7	11/05/2019 07:58	513568		50	50

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/05/2019 15:24 End Date: 11/05/2019 22:02

Lab Sample Id	D/F	Type	Time	Analytes																									
				As	B	Ba	Ca	Co	Fe	K	Li	Mg	Mn	Mo	Na	Se														
ZZZZZZ			15:24																										
ICIS 500-513839/2			15:27	X	X	X	X	X	X	X	X	X	X	X	X	X														
STD1 500-513839/3 IC	1		15:32	X	X	X	X	X	X	X	X	X	X	X	X	X														
STD2 500-513839/4 IC	1		15:36	X	X	X	X	X	X	X	X	X	X	X	X	X														
STD3 500-513839/5 IC	1		15:40	X	X	X	X	X	X	X	X	X	X	X	X	X														
ZZZZZZ			15:44																										
ICV 500-513839/7	1		15:47	X	X	X	X	X	X	X	X	X	X	X	X	X														
ICB 500-513839/8	1		15:51	X	X	X	X	X	X	X	X	X	X	X	X	X														
ICVL 500-513839/9			15:55																										
ICSA 500-513839/10	1		15:59	X	X	X	X	X	X	X	X	X	X	X	X	X														
ICSAB 500-513839/11	1		16:03	X	X	X	X	X	X	X	X	X	X	X	X	X														
ZZZZZZ			16:07																										
CCV 500-513839/13			16:10																										
CCB 500-513839/14			16:14																										
ZZZZZZ			16:18																										
ZZZZZZ			16:22																										
ZZZZZZ			16:26																										
ZZZZZZ			16:30																										
ZZZZZZ			16:34																										
ZZZZZZ			16:38																										
ZZZZZZ			16:42																										
ZZZZZZ			16:46																										
ZZZZZZ			16:49																										
ZZZZZZ			16:53																										
CCV 500-513839/25			16:57																										
CCB 500-513839/26			17:01																										
ZZZZZZ			17:05																										
ZZZZZZ			17:09																										
ZZZZZZ			17:12																										
ZZZZZZ			17:16																										
ZZZZZZ			17:20																										
ZZZZZZ			17:24																										
ZZZZZZ			17:28																										
ZZZZZZ			17:32																										
ZZZZZZ			17:35																										
ZZZZZZ			17:39																										
CCV 500-513839/37	1		17:43	X	X	X	X	X	X	X	X	X	X	X	X	X														
CCB 500-513839/38	1		17:47	X	X	X	X	X	X	X	X	X	X	X	X	X														
CCVL 500-513839/39			17:53																										
MB 500-513568/1-A	1	R	17:57	X	X	X	X	X	X	X	X	X	X	X	X	X														
LCS 500-513568/2-A	1	R	18:01	X	X	X	X	X	X	X	X	X	X	X	X	X														
400-176914-1	1	R	18:05	X	X	X	X	X	X	X	X	X	X	X		X														

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/05/2019 15:24 End Date: 11/05/2019 22:02

Lab Sample Id	D/F	Type	Time	Analytes																									
				As	B	Ba	Ca	Co	Fe	K	Li	Mg	Mn	Mo	Na	Se													
400-176914-2	1	R	18:09	X	X	X	X	X	X	X	X	X	X	X	X	X													
400-176914-2 DU	1	R	18:16	X	X	X	X	X	X	X	X	X	X	X	X	X													
400-176914-2 MS	1	R	18:20	X	X	X	X	X	X	X	X	X	X	X	X	X													
400-176914-2 MSD	1	R	18:23	X	X	X	X	X	X	X	X	X	X	X	X	X													
400-176914-2 SD	5	R	18:27	X	X	X	X	X	X	X	X	X	X	X	X	X													
CCV 500-513839/48	1		18:31	X	X	X	X	X	X	X	X	X	X	X	X	X													
CCB 500-513839/49	1		18:35	X	X	X	X	X	X	X	X	X	X	X	X	X													
400-176914-3	1	R	18:39	X	X	X		X	X	X	X		X	X		X													
400-176914-4	1	R	18:43	X	X	X		X	X		X	X	X	X		X													
400-176914-5	1	R	18:46	X	X	X		X	X		X	X	X	X		X													
400-176914-6	1	R	18:50	X	X	X		X	X	X	X			X		X													
400-176914-7	1	R	18:54	X	X	X	X	X	X	X	X	X	X	X		X													
ZZZZZZ			18:58																										
ZZZZZZ			19:02																										
ZZZZZZ			19:06																										
ZZZZZZ			19:09																										
CCV 500-513839/59	1		19:13	X	X	X	X	X	X	X	X	X	X	X	X	X													
CCB 500-513839/60	1		19:17	X	X	X	X	X	X	X	X	X	X	X	X	X													
ZZZZZZ			19:21																										
ZZZZZZ			19:25																										
ZZZZZZ			19:29																										
ZZZZZZ			19:32																										
ZZZZZZ			19:36																										
ZZZZZZ			19:40																										
CCV 500-513839/67			19:44																										
CCB 500-513839/68			19:48																										
CCVL 500-513839/69			19:52																										
ZZZZZZ			19:55																										
ZZZZZZ			19:59																										
ZZZZZZ			20:03																										
ZZZZZZ			20:07																										
ZZZZZZ			20:11																										
ZZZZZZ			20:15																										
ZZZZZZ			20:18																										
ZZZZZZ			20:22																										
ZZZZZZ			20:26																										
ZZZZZZ			20:30																										
CCV 500-513839/80			20:34																										
CCB 500-513839/81			20:38																										
ZZZZZZ			20:41																										
ZZZZZZ			20:45																										
ZZZZZZ			20:49																										

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/05/2019 15:24 End Date: 11/05/2019 22:02

Lab Sample Id	D/F	Type	Time	Analytes																								
				As	B	Ba	Ca	Co	Fe	K	Li	Mg	Mn	Mo	Na	Se													
ZZZZZZ			20:53																									
ZZZZZZ			20:57																									
ZZZZZZ			21:01																									
ZZZZZZ			21:05																									
ZZZZZZ			21:08																									
ZZZZZZ			21:12																									
ZZZZZZ			21:16																									
CCV 500-513839/92			21:20																									
CCB 500-513839/93			21:24																									
ZZZZZZ			21:28																									
ZZZZZZ			21:31																									
ZZZZZZ			21:35																									
ZZZZZZ			21:39																									
ZZZZZZ			21:43																									
ZZZZZZ			21:47																									
ZZZZZZ			21:51																									
ZZZZZZ			21:55																									
CCV 500-513839/102			21:58																									
CCB 500-513839/103			22:02																									

Prep Types:
R = Total Recoverable

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/06/2019 09:49 End Date: 11/06/2019 21:08

Lab Sample Id	D/F	Type	Time	Analytes																									
				Ca	Mn																								
ZZZZZZ			09:49																										
ICIS 500-514059/2			09:53	X	X																								
STD1 500-514059/3 IC	1		09:57	X	X																								
STD2 500-514059/4 IC	1		10:01	X	X																								
STD3 500-514059/5 IC	1		10:05	X	X																								
ZZZZZZ			10:08																										
ICV 500-514059/7	1		10:12	X	X																								
ICB 500-514059/8	1		10:17	X	X																								
ICVL 500-514059/9			10:21																										
ICSA 500-514059/10	1		10:24	X	X																								
ICSAB 500-514059/11	1		10:28	X	X																								
CRI 500-514059/12	1		10:32	X	X																								
CCV 500-514059/13	1		10:36	X	X																								
CCB 500-514059/14	1		10:40	X	X																								
ZZZZZZ			10:44																										
ZZZZZZ			10:48																										
ZZZZZZ			10:52																										
ZZZZZZ			10:55																										
ZZZZZZ			10:59																										
ZZZZZZ			11:03																										
ZZZZZZ			11:07																										
ZZZZZZ			11:11																										
CCV 500-514059/23	1		11:15	X	X																								
CCB 500-514059/24	1		11:18	X	X																								
CCVL 500-514059/25			11:22																										
400-176914-3	5	R	11:26	X																									
400-176914-4	5	R	11:31	X																									
400-176914-5	5	R	11:35	X																									
400-176914-6	5	R	11:39	X	X																								
CCV 500-514059/30	1		11:43	X	X																								
CCB 500-514059/31	1		11:47	X	X																								
ZZZZZZ			11:50																										
ZZZZZZ			11:54																										
ZZZZZZ			11:58																										
ZZZZZZ			12:02																										
ZZZZZZ			12:05																										
ZZZZZZ			12:09																										
ZZZZZZ			12:13																										
ZZZZZZ			12:17																										
CCV 500-514059/40			12:20																										
CCB 500-514059/41			12:24																										
ZZZZZZ			12:28																										

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/06/2019 09:49 End Date: 11/06/2019 21:08

Lab Sample Id	D/F	Type	Time	Analytes																								
				Ca	Mn																							
ZZZZZZ			12:32																									
ZZZZZZ			12:36																									
ZZZZZZ			12:39																									
ZZZZZZ			12:43																									
ZZZZZZ			12:47																									
ZZZZZZ			12:51																									
ZZZZZZ			12:54																									
CCV 500-514059/50			12:59																									
CCB 500-514059/51			13:03																									
CCVL 500-514059/52			13:07																									
ZZZZZZ			13:10																									
ZZZZZZ			13:14																									
ZZZZZZ			13:18																									
ZZZZZZ			13:22																									
ZZZZZZ			13:25																									
CCV 500-514059/58			13:29																									
CCB 500-514059/59			13:33																									
ZZZZZZ			13:37																									
ZZZZZZ			13:40																									
ZZZZZZ			13:44																									
ZZZZZZ			13:48																									
ZZZZZZ			13:52																									
ZZZZZZ			13:55																									
ZZZZZZ			14:02																									
ZZZZZZ			14:06																									
ZZZZZZ			14:09																									
ZZZZZZ			14:13																									
CCV 500-514059/70			14:17																									
CCB 500-514059/71			14:21																									
ZZZZZZ			14:25																									
ZZZZZZ			14:29																									
ZZZZZZ			14:32																									
ZZZZZZ			14:36																									
ZZZZZZ			14:40																									
ZZZZZZ			14:44																									
ZZZZZZ			14:48																									
ZZZZZZ			14:52																									
ZZZZZZ			14:56																									
CCV 500-514059/81			14:59																									
CCB 500-514059/82			15:03																									
CCVL 500-514059/83			15:07																									
ZZZZZZ			15:11																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/06/2019 09:49 End Date: 11/06/2019 21:08

Lab Sample Id	D/F	Type	Time	Analytes																								
				Ca	Mn																							
ZZZZZZ			15:15																									
ZZZZZZ			15:19																									
ZZZZZZ			15:22																									
ZZZZZZ			15:26																									
ZZZZZZ			15:30																									
ZZZZZZ			15:34																									
ZZZZZZ			15:38																									
ZZZZZZ			15:42																									
ZZZZZZ			15:46																									
CCV 500-514059/94			15:49																									
CCB 500-514059/95			15:53																									
ZZZZZZ			15:57																									
ZZZZZZ			16:01																									
ZZZZZZ			16:05																									
ZZZZZZ			16:09																									
ZZZZZZ			16:12																									
ZZZZZZ			16:16																									
CCV 500-514059/102			16:20																									
CCB 500-514059/103			16:24																									
ZZZZZZ			16:28																									
ZZZZZZ			16:31																									
ZZZZZZ			16:35																									
ZZZZZZ			16:39																									
ZZZZZZ			16:43																									
ZZZZZZ			16:47																									
ZZZZZZ			16:51																									
ZZZZZZ			16:55																									
ZZZZZZ			16:58																									
ZZZZZZ			17:02																									
CCV 500-514059/114			17:06																									
CCB 500-514059/115			17:10																									
CCVL 500-514059/116			17:14																									
ZZZZZZ			17:18																									
ZZZZZZ			17:21																									
ZZZZZZ			17:25																									
ZZZZZZ			17:29																									
ZZZZZZ			17:33																									
ZZZZZZ			17:37																									
ZZZZZZ			17:41																									
ZZZZZZ			17:45																									
ZZZZZZ			17:48																									
ZZZZZZ			17:52																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/06/2019 09:49 End Date: 11/06/2019 21:08

Lab Sample Id	D/F	Type	Time	Analytes																								
				Ca	Mn																							
CCV 500-514059/127			17:56																									
CCB 500-514059/128			18:00																									
ZZZZZZ			18:04																									
ZZZZZZ			18:08																									
ZZZZZZ			18:12																									
ZZZZZZ			18:15																									
ZZZZZZ			18:19																									
ZZZZZZ			18:23																									
ZZZZZZ			18:27																									
ZZZZZZ			18:31																									
ZZZZZZ			18:34																									
ZZZZZZ			18:38																									
CCV 500-514059/139			18:42																									
CCB 500-514059/140			18:46																									
ZZZZZZ			18:50																									
ZZZZZZ			18:54																									
ZZZZZZ			18:58																									
ZZZZZZ			19:01																									
ZZZZZZ			19:05																									
ZZZZZZ			19:09																									
ZZZZZZ			19:13																									
ZZZZZZ			19:17																									
ZZZZZZ			19:21																									
ZZZZZZ			19:24																									
CCV 500-514059/151			19:28																									
CCB 500-514059/152			19:32																									
CCVL 500-514059/153			19:36																									
ZZZZZZ			19:40																									
ZZZZZZ			19:44																									
ZZZZZZ			19:47																									
ZZZZZZ			19:51																									
ZZZZZZ			19:55																									
ZZZZZZ			19:59																									
ZZZZZZ			20:03																									
ZZZZZZ			20:07																									
ZZZZZZ			20:10																									
ZZZZZZ			20:14																									
CCV 500-514059/164			20:18																									
CCB 500-514059/165			20:22																									
ZZZZZZ			20:26																									
ZZZZZZ			20:29																									
ZZZZZZ			20:33																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/06/2019 09:49 End Date: 11/06/2019 21:08

Lab Sample Id	D/F	Type	Time	Analytes																								
				Ca	Mn																							
ZZZZZZ			20:37																									
ZZZZZZ			20:41																									
ZZZZZZ			20:45																									
ZZZZZZ			20:49																									
ZZZZZZ			20:53																									
ZZZZZZ			20:56																									
ZZZZZZ			21:00																									
CCV 500-514059/176			21:04																									
CCB 500-514059/177			21:08																									

Prep Types:
R = Total Recoverable

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/18/2019 09:48 End Date: 11/18/2019 15:06

Lab Sample Id	D/F	Type	Time	Analytes																										
				K	Mg	Na																								
ZZZZZZ			09:48																											
ICIS 500-516022/2			09:51	X	X	X																								
STD1 500-516022/3 IC	1		09:55	X	X	X																								
STD2 500-516022/4 IC	1		09:59	X	X	X																								
STD3 500-516022/5 IC	1		10:03	X	X	X																								
ZZZZZZ			10:07																											
ICV 500-516022/7	1		10:10	X	X	X																								
ICVL 500-516022/8			10:14																											
ICB 500-516022/9	1		10:18	X	X	X																								
ICSA 500-516022/10	1		10:22	X	X	X																								
ICSAB 500-516022/11	1		10:26	X	X	X																								
CRI 500-516022/12	1		10:29	X	X	X																								
CCV 500-516022/13			10:33																											
CCB 500-516022/14			10:37																											
ZZZZZZ			10:41																											
ZZZZZZ			10:44																											
ZZZZZZ			10:48																											
ZZZZZZ			10:52																											
ZZZZZZ			10:56																											
ZZZZZZ			10:59																											
ZZZZZZ			11:03																											
ZZZZZZ			11:07																											
CCV 500-516022/23			11:11																											
CCB 500-516022/24			11:14																											
ZZZZZZ			11:18																											
ZZZZZZ			11:22																											
ZZZZZZ			11:26																											
ZZZZZZ			11:30																											
ZZZZZZ			11:33																											
ZZZZZZ			11:37																											
CCV 500-516022/31			11:41																											
CCB 500-516022/32			11:45																											
CCVL 500-516022/33			11:49																											
ZZZZZZ			11:52																											
ZZZZZZ			11:56																											
ZZZZZZ			12:00																											
ZZZZZZ			12:04																											
ZZZZZZ			12:08																											
ZZZZZZ			12:12																											
ZZZZZZ			12:16																											
ZZZZZZ			12:20																											
CCV 500-516022/42			12:23																											

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/18/2019 09:48 End Date: 11/18/2019 15:06

Lab Sample Id	D/F	Type	Time	Analytes																										
				K	Mg	Na																								
CCB 500-516022/43			12:27																											
CCVL 500-516022/44			12:31																											
ZZZZZZ			12:35																											
ZZZZZZ			12:38																											
ZZZZZZ			12:42																											
ZZZZZZ			12:46																											
ZZZZZZ			12:50																											
ZZZZZZ			12:53																											
ZZZZZZ			12:57																											
ZZZZZZ			13:02																											
ZZZZZZ			13:06																											
ZZZZZZ			13:09																											
CCV 500-516022/55	1		13:13	X	X	X																								
CCB 500-516022/56	1		13:17	X	X	X																								
400-176914-1	10	R	13:21			X																								
400-176914-3	100	R	13:24		X	X																								
400-176914-4	100	R	13:28	X		X																								
400-176914-5	100	R	13:32	X		X																								
400-176914-6	20	R	13:36		X	X																								
ZZZZZZ			13:39																											
400-176914-7	1	R	13:43			X																								
CCV 500-516022/64	1		13:47	X	X	X																								
CCB 500-516022/65	1		13:51	X	X	X																								
ZZZZZZ			13:55																											
ZZZZZZ			13:58																											
ZZZZZZ			14:02																											
ZZZZZZ			14:06																											
ZZZZZZ			14:10																											
ZZZZZZ			14:13																											
ZZZZZZ			14:17																											
ZZZZZZ			14:21																											
ZZZZZZ			14:25																											
ZZZZZZ			14:29																											
CCV 500-516022/76			14:32																											
CCB 500-516022/77			14:36																											
ZZZZZZ			14:40																											
ZZZZZZ			14:44																											
ZZZZZZ			14:47																											
ZZZZZZ			14:51																											
ZZZZZZ			14:55																											
CCV 500-516022/83			14:59																											
CCB 500-516022/84			15:02																											

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Instrument ID: ICPMS4 Analysis Method: 6020

Start Date: 11/18/2019 09:48 End Date: 11/18/2019 15:06

Lab Sample Id	D/F	Type	Time	Analytes																								
				K	Mg	Na																						
CCVL 500-516022/85			15:06																									

Prep Types:
R = Total Recoverable

FORM XIII-IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

ICP-MS Instrument ID: ICPMS4 Start Date: 11/05/2019 End Date: 11/05/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Sc	Q	Element Y-89	Q	Element Rh-103	Q	Element Tb	Q	Element Bi	Q
STD1 500-513839/3 IC	15:32	102		102		100		104		101	
STD2 500-513839/4 IC	15:36	99		100		98		103		100	
STD3 500-513839/5 IC	15:40	98		100		95		102		96	
ICV 500-513839/7	15:47	100		101		97		105		99	
ICB 500-513839/8	15:51	97		98		98		100		101	
ICSA 500-513839/10	15:59	103		102		91		102		92	
ICSAB 500-513839/11	16:03	100		97		88		96		89	
CCV 500-513839/37	17:43	98		98		94		102		97	
CCB 500-513839/38	17:47	94		94		95		95		96	
MB 500-513568/1-A	17:57	94		94		93		95		95	
LCS 500-513568/2-A	18:01	95		97		96		102		99	
400-176914-1	18:05	95		95		86		96		91	
400-176914-2	18:09	99		101		90		99		94	
400-176914-2 DU	18:16	96		98		89		99		93	
400-176914-2 MS	18:20	95		99		90		100		94	
400-176914-2 MSD	18:23	96		100		91		101		94	
400-176914-2 SD	18:27	99		100		96		104		102	
CCV 500-513839/48	18:31	94		95		93		102		97	
CCB 500-513839/49	18:35	94		97		97		99		100	
400-176914-3	18:39	95		92		79		86		76	
400-176914-4	18:43	87		78		65		72		62	
400-176914-5	18:46	86		80		63		72		64	
400-176914-6	18:50	100		103		76		83		73	
400-176914-7	18:54	113		107		99		99		95	
CCV 500-513839/59	19:13	92		94		90		100		96	
CCB 500-513839/60	19:17	92		95		94		97		99	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

ICP-MS Instrument ID: ICPMS4 Start Date: 11/06/2019 End Date: 11/06/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Sc	Q	Element Y-89	Q	Element Rh-103	Q	Element Tb	Q	Element Bi	Q
STD1 500-514059/3 IC	09:57	101		100		100		103		103	
STD2 500-514059/4 IC	10:01	96		95		95		102		99	
STD3 500-514059/5 IC	10:05	95		96		94		102		96	
ICV 500-514059/7	10:12	95		96		95		102		101	
ICB 500-514059/8	10:17	93		94		96		99		101	
ICSA 500-514059/10	10:24	99		96		91		102		95	
ICSAB 500-514059/11	10:28	98		95		90		101		94	
CRI 500-514059/12	10:32	98		96		100		104		107	
CCV 500-514059/13	10:36	97		97		95		105		100	
CCB 500-514059/14	10:40	95		95		98		102		104	
MB 500-513568/1-A	10:44	91		91		93		95		99	
LCS 500-513568/2-A	10:48	97		96		97		104		102	
CCV 500-514059/23	11:15	93		93		93		102		100	
CCB 500-514059/24	11:18	93		95		97		101		102	
400-176914-3	11:26	97		94		89		97		91	
400-176914-4	11:31	97		90		83		90		82	
400-176914-5	11:35	99		91		83		91		84	
400-176914-6	11:39	100		96		87		92		86	
CCV 500-514059/30	11:43	101		96		94		101		99	
CCB 500-514059/31	11:47	99		96		98		100		101	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

ICP-MS Instrument ID: ICPMS4 Start Date: 11/18/2019 End Date: 11/18/2019

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Sc	Q	Element Y-89	Q	Element Rh-103	Q	Element Tb	Q	Element Bi	Q
STD1 500-516022/3 IC	09:55	102		102		101		104		105	
STD2 500-516022/4 IC	09:59	102		102		100		104		102	
STD3 500-516022/5 IC	10:03	104		104		98		104		99	
ICV 500-516022/7	10:10	107		108		102		106		102	
ICB 500-516022/9	10:18	97		97		99		101		101	
ICSA 500-516022/10	10:22	111		106		96		104		98	
ICSAB 500-516022/11	10:26	112		107		97		105		98	
CRI 500-516022/12	10:29	110		109		106		108		108	
CCV 500-516022/55	13:13	104		104		102		109		109	
CCB 500-516022/56	13:17	113		114		115		115		119	
400-176914-1	13:21	104		105		105		109		109	
400-176914-3	13:24	106		107		105		107		108	
400-176914-4	13:28	103		105		103		106		108	
400-176914-5	13:32	104		103		103		107		108	
400-176914-6	13:36	105		105		102		107		105	
400-176914-6	13:39	106		105		106		108		109	
400-176914-7	13:43	102		104		108		107		112	
CCV 500-516022/64	13:47	102		104		103		110		108	
CCB 500-516022/65	13:51	102		102		106		106		109	

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Batch Number: 513568 Batch Start Date: 11/05/19 07:58 Batch Analyst: Nalepka, Laura M

Batch Method: 3005A Batch End Date: 11/05/19 08:28

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	M19HSPKMS 00002			
MB 500-513568/1		3005A, 6020		50 mL	50 mL				
LCS 500-513568/2		3005A, 6020		50 mL	50 mL	0.5 mL			
400-176914-B-1	AES-MW1-092319	3005A, 6020	R	50 mL	50 mL				
400-176914-B-2	AES-MW2-092319	3005A, 6020	R	50 mL	50 mL				
400-176914-B-2 DU	AES-MW2-092319	3005A, 6020	R	50 mL	50 mL				
400-176914-B-2 MS	AES-MW2-092319	3005A, 6020	R	50 mL	50 mL	0.5 mL			
400-176914-B-2 MSD	AES-MW2-092319	3005A, 6020	R	50 mL	50 mL	0.5 mL			
400-176914-B-3	AES-MW3-092319	3005A, 6020	R	50 mL	50 mL				
400-176914-B-4	AES-MW4-092319	3005A, 6020	R	50 mL	50 mL				
400-176914-B-5	AES-MW4-DUP-092319	3005A, 6020	R	50 mL	50 mL				
400-176914-B-6	AES-MW5-092319	3005A, 6020	R	50 mL	50 mL				
400-176914-B-7	AES-FB-092319	3005A, 6020	R	50 mL	50 mL				

Batch Notes	
Batch Comment	filter/plungers: 93053754
Temperature - Corrected - End	98 Degrees C
Temperature - Corrected - Start	98 Degrees C
Digestion End Time	11/05/2019 08:28
Digestion Start Time	11/05/2019 07:58
Digestion Unit ID	2604
Hydrochloric Acid ID	191984
Nitric Acid ID	221803
Pipette/Syringe/Dispenser ID	2850
Thermometer ID	2102558
Digestion Tube/Cup ID	1904199
Temperature - Uncorrected - End	98 Degrees C
Temperature - Uncorrected - Start	98 Degrees C

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Chicago Job No.: 400-176914-1

SDG No.:

Batch Number: 513568 Batch Start Date: 11/05/19 07:58 Batch Analyst: Nalepka, Laura M

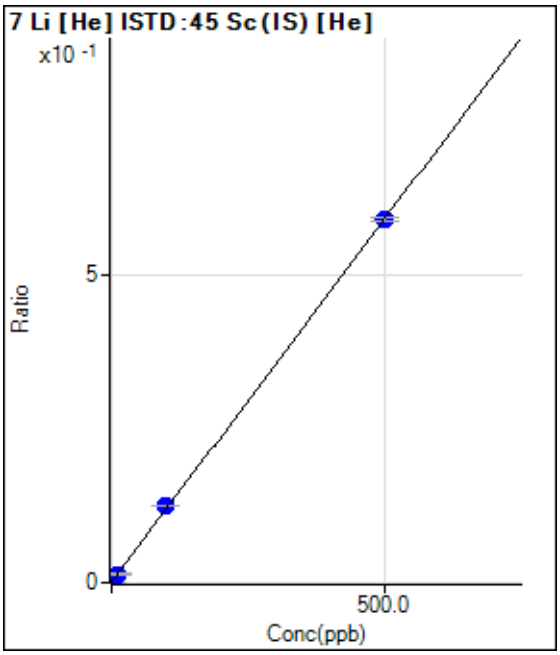
Batch Method: 3005A Batch End Date: 11/05/19 08:28

Basis	Basis Description
R	Total Recoverable

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Batch Folder: C:\Agilent\ICPMH\1\DATA\MS4110519He-2.b\
Analysis File: MS4110519He-2.batch.bin
DA Date-Time: 11/5/2019 3:41:02 PM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

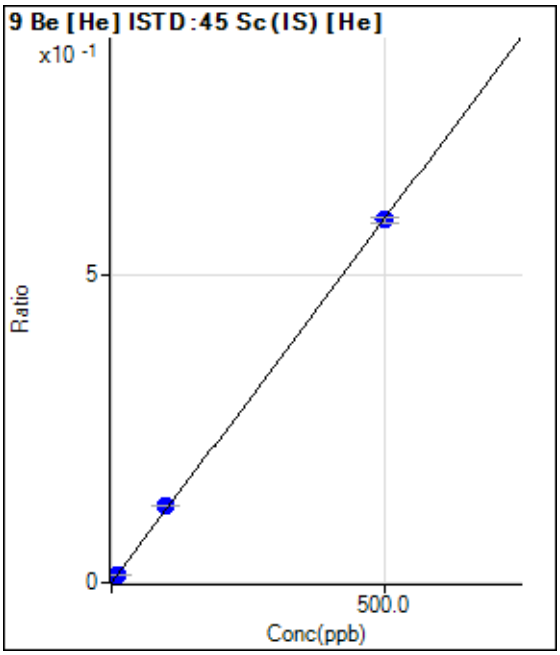
Level	Standard Data File	Sample Name	Acq. Date-Time
1	002CALB.d	ICIS	11/5/2019 3:27:51 PM
2	003CALS.d	Std1	11/5/2019 3:32:22 PM
3	004CALS.d	Std2	11/5/2019 3:36:19 PM
4	005CALS.d	Std3	11/5/2019 3:40:11 PM



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	123.34	0.0010	P	32.2
2	☐	10.000	10.805	1666.82	0.0138	P	7.0
3	☐	100.000	105.098	14576.58	0.1249	P	1.9
4	☐	500.000	498.964	68624.28	0.5892	P	0.9

y = 0.0012 * x + 0.0010
R = 0.9999
DL = 0.856
BEC = 0.8869

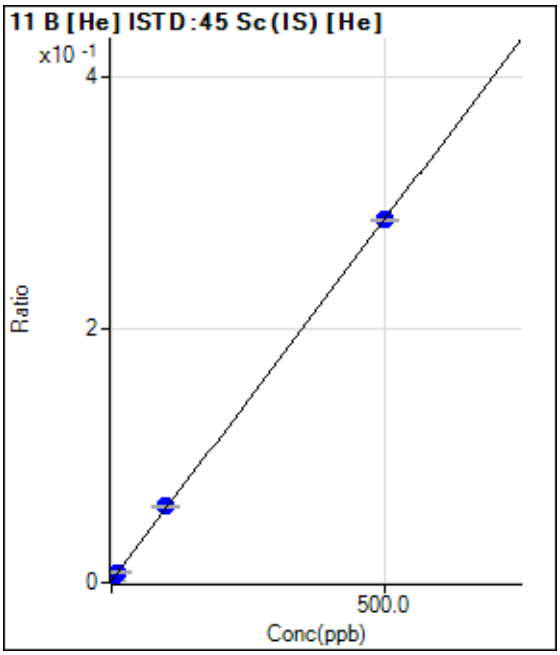
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	0.00	0.0000	P	
2	☐	10.000	10.603	1513.47	0.0125	P	15.4
3	☐	100.000	105.859	14569.89	0.1249	P	1.9
4	☐	500.000	498.816	68537.59	0.5884	P	1.5

y = 0.0012 * x + 0.0000E+000
R = 0.9999
DL = 0
BEC = 0

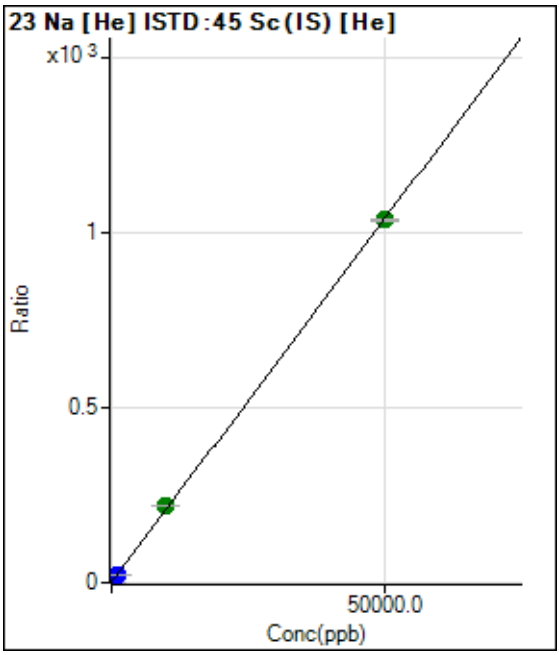
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	186.68	0.0016	P	16.3
2	☐	10.000	11.719	1000.08	0.0083	P	3.2
3	☐	100.000	102.476	7011.68	0.0601	P	2.4
4	☐	500.000	499.470	33409.47	0.2868	P	0.4

y = 5.7113E-004 * x + 0.0016
R = 1.0000
DL = 1.35
BEC = 2.756

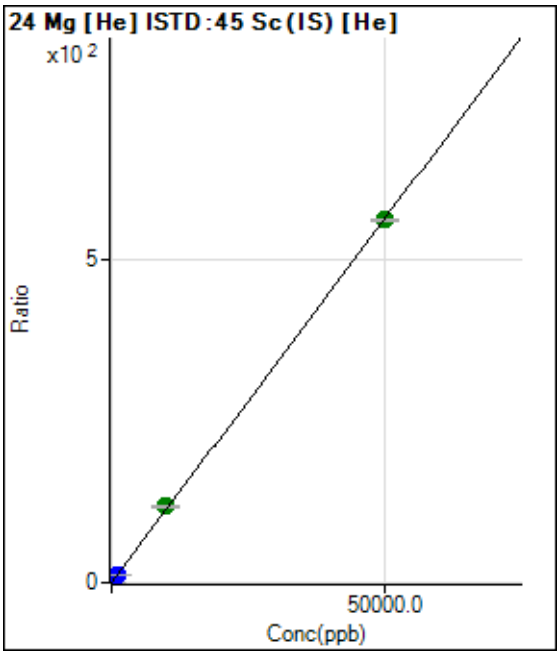
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	119562.54	1.0091	P	0.2
2	☐	1000.000	1052.892	2764374.23	22.8537	P	0.6
3	☐	10000.00	10535.62	25621605.45	219.5946	A	1.7
4	☐	50000.00	49891.81	120683818.2	1,036.128	A	0.6

y = 0.0207 * x + 1.0091
R = 0.9999
DL = 0.2309
BEC = 48.64

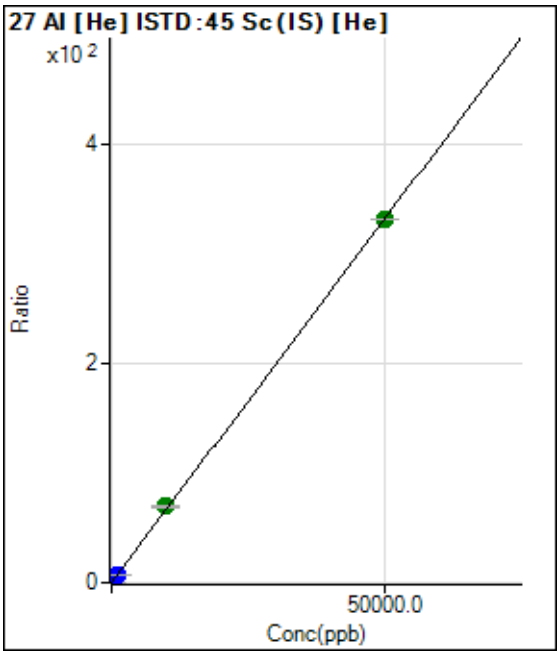
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10813.77	0.0913	P	5.6
2	☐	1000.000	1069.225	1467340.97	12.1310	P	0.5
3	☐	10000.00	10476.81	13773570.63	118.0623	A	2.5
4	☐	50000.00	49903.25	65460757.36	562.0120	A	0.2

y = 0.0113 * x + 0.0913
R = 1.0000
DL = 1.364
BEC = 8.108

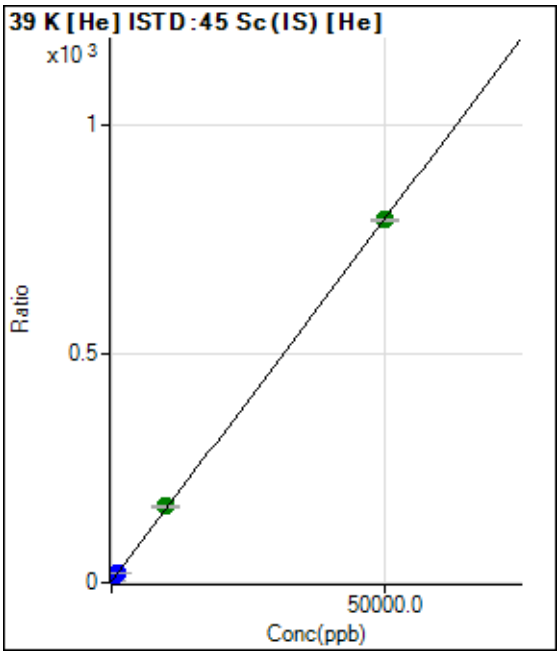
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4354.06	0.0368	P	8.0
2	☐	1000.000	1041.853	839049.31	6.9366	P	1.2
3	☐	10000.00	10451.10	8079945.71	69.2513	A	1.8
4	☐	50000.00	49908.94	38503172.76	330.5688	A	0.1

y = 0.0066 * x + 0.0368
R = 1.0000
DL = 1.325
BEC = 5.552

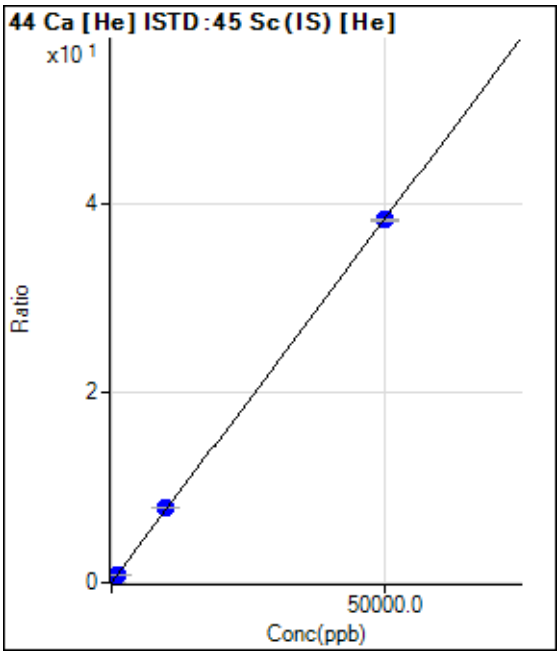
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	290792.00	2.4550	P	2.5
2	☐	1000.000	1048.480	2303199.08	19.0411	P	0.7
3	☐	10000.00	10376.74	19439084.29	166.6069	A	1.7
4	☐	50000.00	49923.68	92272081.96	792.2079	A	0.7

y = 0.0158 * x + 2.4550
R = 1.0000
DL = 11.53
BEC = 155.2

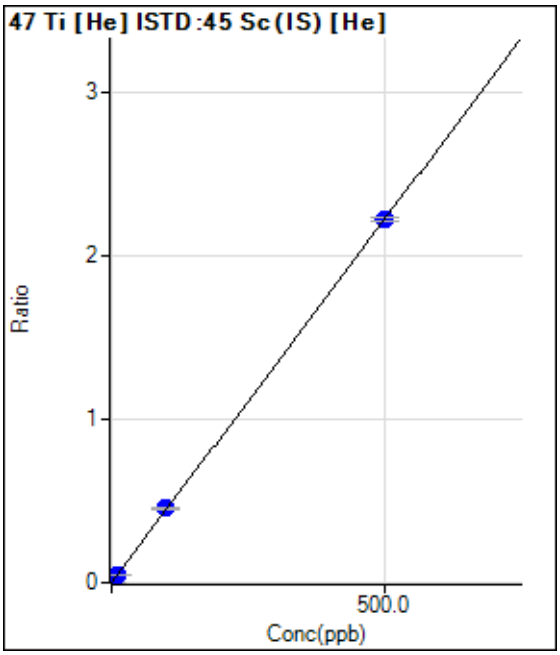
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1527.50	0.0129	P	13.2
2	☐	1000.000	1018.381	95940.58	0.7931	P	1.5
3	☐	10000.00	10307.16	922845.87	7.9099	P	2.1
4	☐	50000.00	49938.20	4458007.77	38.2741	P	0.7

y = 7.6617E-004 * x + 0.0129
R = 1.0000
DL = 6.637
BEC = 16.81

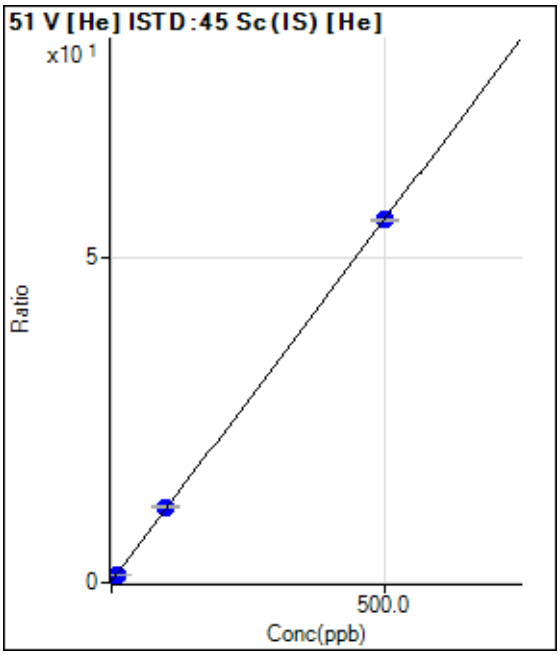
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6.67	0.0001	P	173.
2	☐	10.000	10.375	5577.81	0.0461	P	5.3
3	☐	100.000	101.952	52809.54	0.4527	P	2.6
4	☐	500.000	499.602	258350.81	2.2180	P	0.9

y = 0.0044 * x + 5.7094E-005
R = 1.0000
DL = 0.06682
BEC = 0.01286

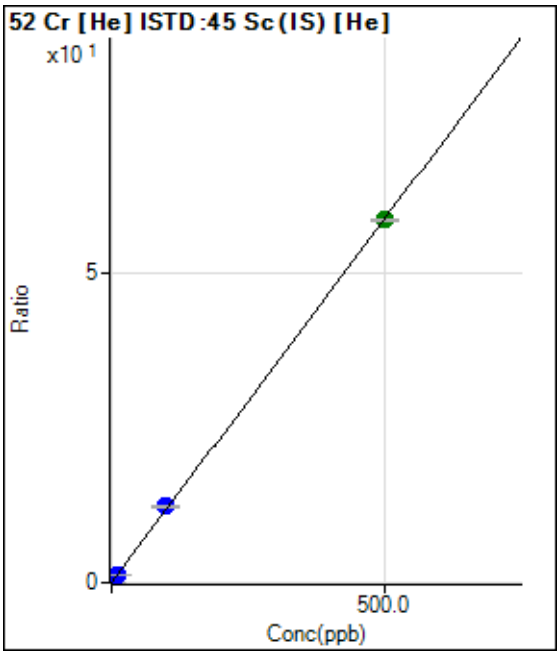
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23704.20	0.2000	P	1.4
2	☐	10.000	10.058	159501.99	1.3186	P	1.1
3	☐	100.000	102.431	1352510.14	11.5922	P	1.9
4	☐	500.000	499.513	6494071.57	55.7548	P	0.4

y = 0.1112 * x + 0.2000
R = 1.0000
DL = 0.07436
BEC = 1.799

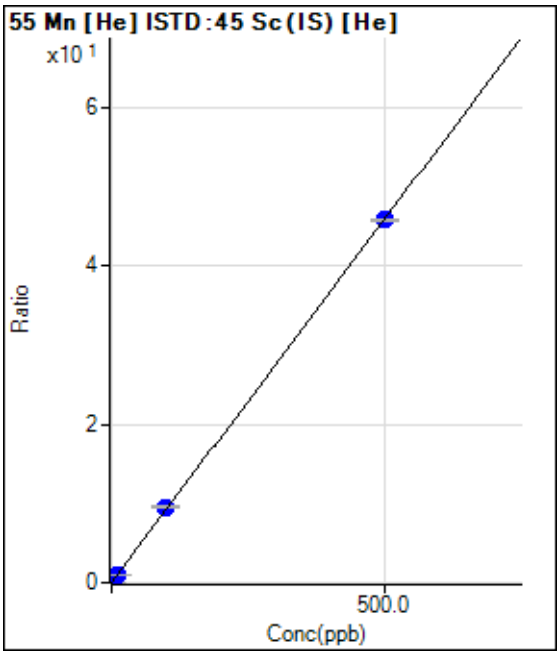
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2937.07	0.0248	P	3.2
2	☐	10.000	10.437	151221.94	1.2502	P	1.4
3	☐	100.000	104.720	1437240.24	12.3196	P	2.5
4	☐	500.000	499.047	6827422.19	58.6163	A	0.6

y = 0.1174 * x + 0.0248
R = 1.0000
DL = 0.02038
BEC = 0.2111

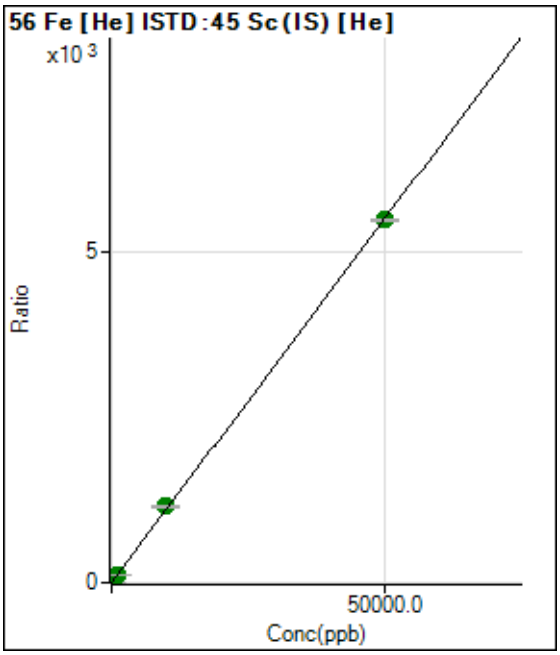
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1483.47	0.0125	P	2.4
2	☐	10.000	10.181	114368.22	0.9456	P	2.3
3	☐	100.000	103.840	1111747.87	9.5288	P	2.0
4	☐	500.000	499.228	5330364.92	45.7636	P	0.8

y = 0.0916 * x + 0.0125
R = 1.0000
DL = 0.009904
BEC = 0.1366

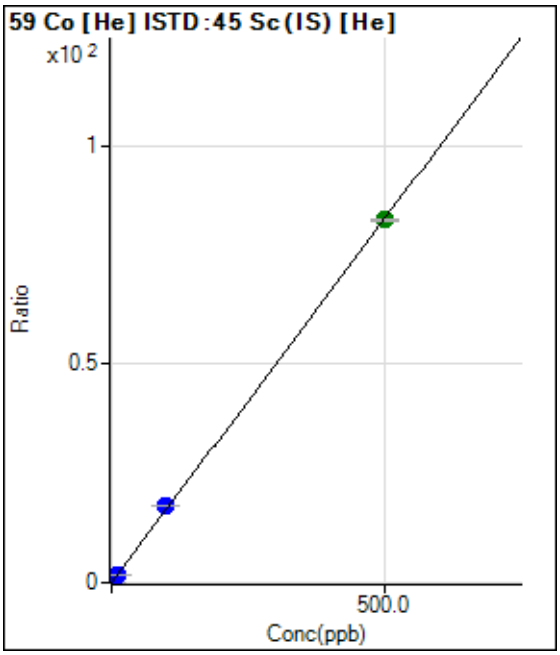
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	44081.81	0.3722	P	3.3
2	☐	1000.000	1055.513	14053365.62	116.1822	A	0.3
3	☐	10000.00	10513.80	134631751.3	1,153.938	A	2.1
4	☐	50000.00	49896.12	637696377.1	5,474.930	A	0.3

y = 0.1097 * x + 0.3722
R = 0.9999
DL = 0.3358
BEC = 3.392

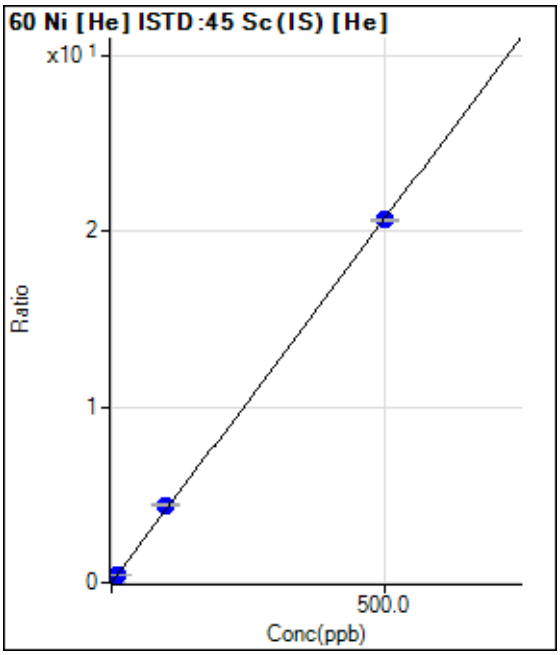
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	173.34	0.0015	P	40.5
2	☐	10.000	10.515	211944.06	1.7522	P	0.7
3	☐	100.000	105.828	2055923.30	17.6219	P	2.2
4	☐	500.000	498.824	9674166.52	83.0565	A	0.7

y = 0.1665 * x + 0.0015
R = 0.9999
DL = 0.0107
BEC = 0.008809

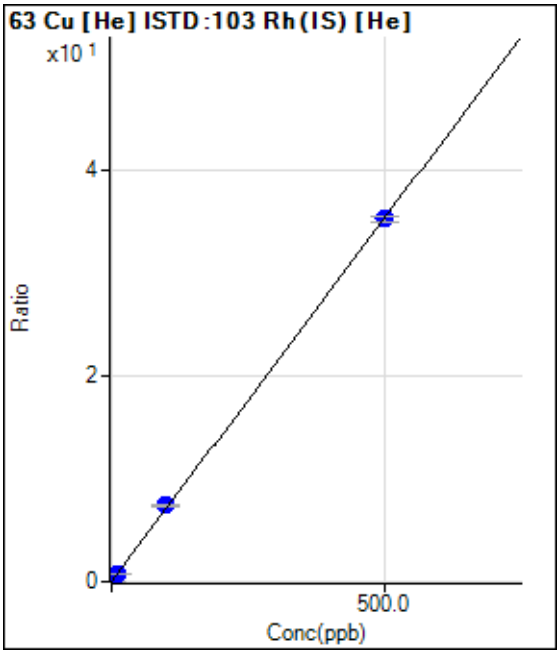
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	293.35	0.0025	P	6.6
2	☐	10.000	10.439	52596.13	0.4348	P	1.3
3	☐	100.000	106.111	513014.43	4.3972	P	2.2
4	☐	500.000	498.769	2406346.94	20.6596	P	0.7

y = 0.0414 * x + 0.0025
R = 0.9999
DL = 0.01183
BEC = 0.05973

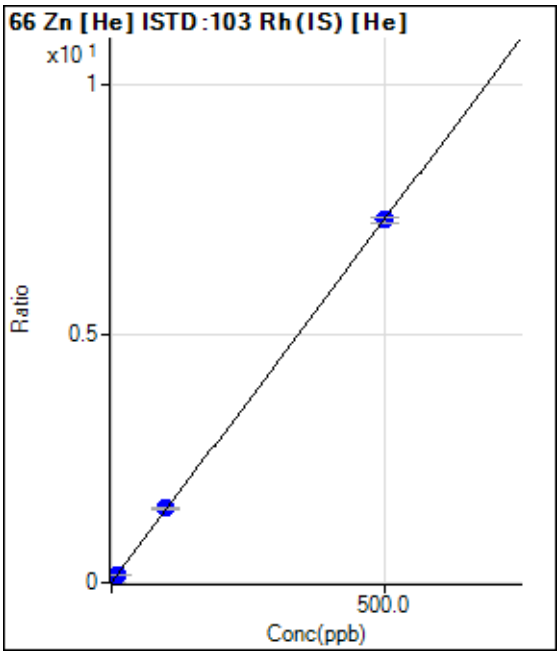
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2970.30	0.0164	P	2.5
2	☐	10.000	10.687	140197.48	0.7729	P	2.4
3	☐	100.000	104.529	1312607.86	7.4157	P	1.3
4	☐	500.000	499.080	6096047.26	35.3448	P	1.6

y = 0.0708 * x + 0.0164
R = 1.0000
DL = 0.01749
BEC = 0.2316

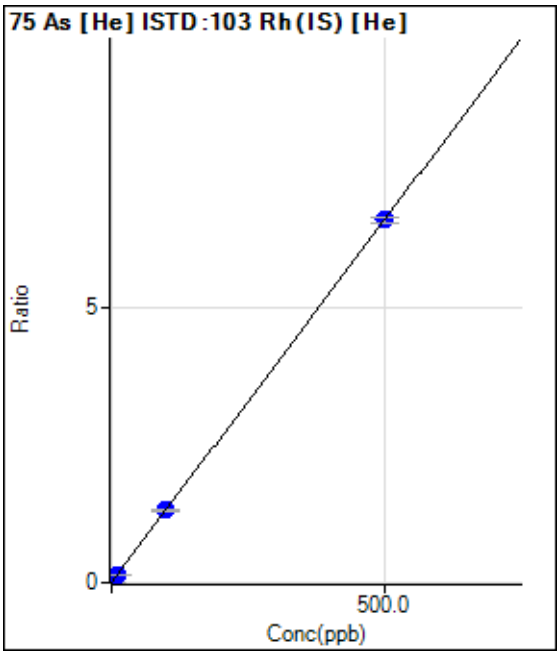
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	813.39	0.0045	P	23.7
2	☐	10.000	10.036	27399.71	0.1510	P	2.1
3	☐	100.000	102.775	266307.41	1.5046	P	2.2
4	☐	500.000	499.444	1258134.23	7.2945	P	1.8

y = 0.0146 * x + 0.0045
R = 1.0000
DL = 0.2194
BEC = 0.308

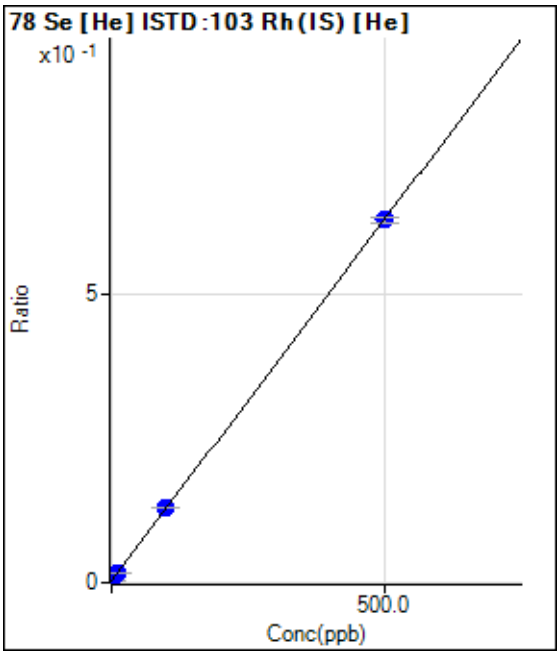
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	785.69	0.0043	P	2.9
2	☐	10.000	9.818	24259.49	0.1337	P	1.8
3	☐	100.000	99.749	233448.27	1.3189	P	1.3
4	☐	500.000	500.054	1137339.87	6.5944	P	1.7

y = 0.0132 * x + 0.0043
R = 1.0000
DL = 0.02889
BEC = 0.329

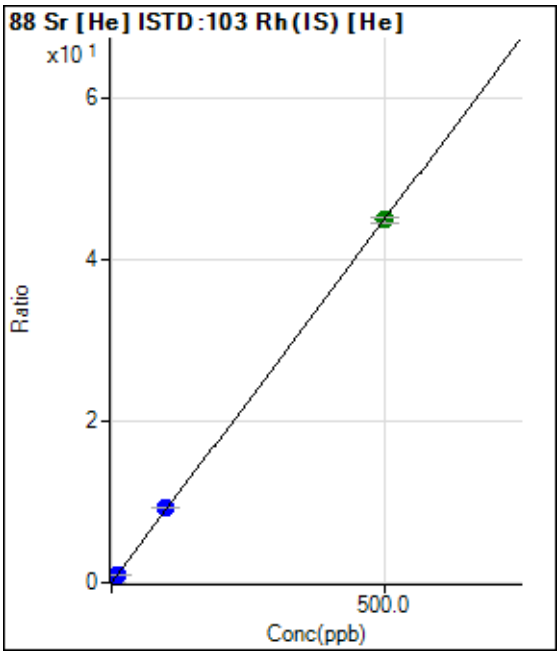
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	507.01	0.0028	P	0.5
2	☐	10.000	9.975	2779.25	0.0153	P	2.8
3	☐	100.000	101.354	23020.79	0.1301	P	0.9
4	☐	500.000	499.730	108703.83	0.6302	P	1.4

y = 0.0013 * x + 0.0028
R = 1.0000
DL = 0.0312
BEC = 2.229

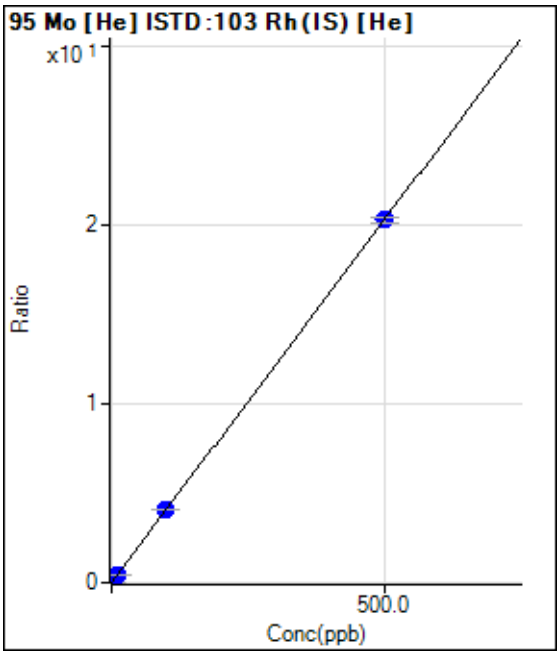
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	610.03	0.0034	P	21.6
2	☐	10.000	10.033	164329.56	0.9059	P	2.4
3	☐	100.000	102.461	1632013.10	9.2201	P	1.0
4	☐	500.000	499.507	7750469.68	44.9356	A	1.3

y = 0.0900 * x + 0.0034
R = 1.0000
DL = 0.02431
BEC = 0.03745

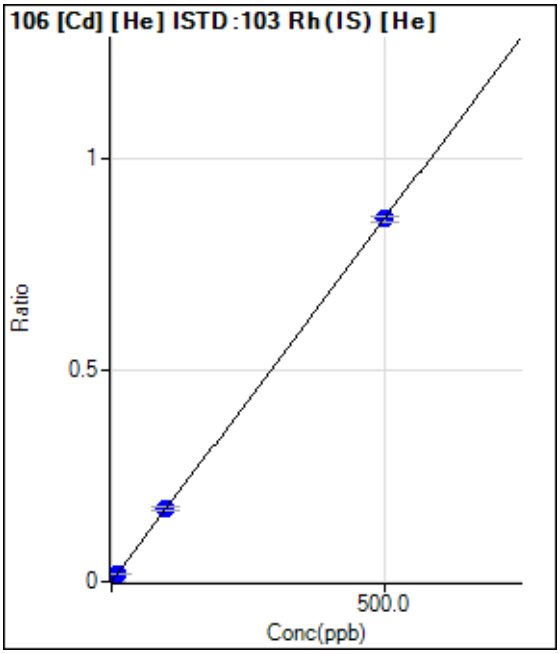
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	66.67	0.0004	P	61.8
2	☐	10.000	9.923	73053.53	0.4028	P	3.1
3	☐	100.000	100.817	723723.92	4.0889	P	1.6
4	☐	500.000	499.838	3496039.74	20.2705	P	1.8

y = 0.0406 * x + 3.6992E-004
R = 1.0000
DL = 0.01691
BEC = 0.009122

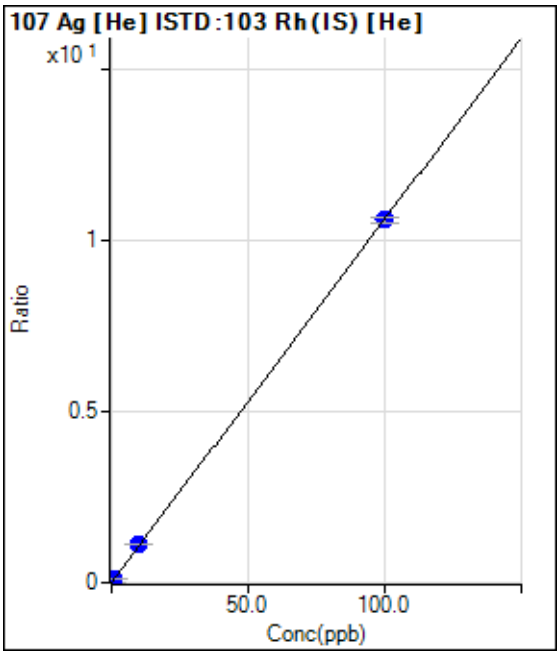
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	26.67	0.0001	P	77.2
2	☐	10.000	9.952	3123.76	0.0172	P	5.3
3	☐	100.000	100.334	30506.22	0.1724	P	3.5
4	☐	500.000	499.934	148031.18	0.8583	P	1.3

y = 0.0017 * x + 1.4634E-004
R = 1.0000
DL = 0.1974
BEC = 0.08526

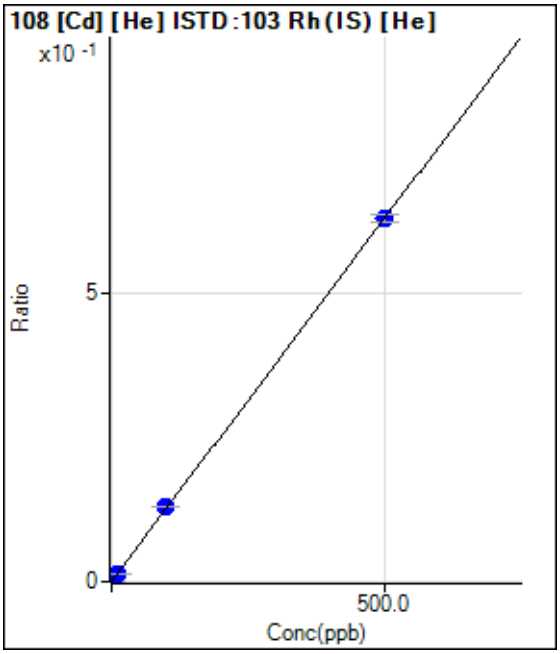
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	73.33	0.0004	P	29.0
2	☐	1.000	1.049	20303.42	0.1118	P	3.5
3	☐	10.000	10.718	201551.90	1.1386	P	0.2
4	☐	100.000	99.928	1830359.50	10.6125	P	1.6

y = 0.1062 * x + 4.0524E-004
R = 1.0000
DL = 0.00332
BEC = 0.003816

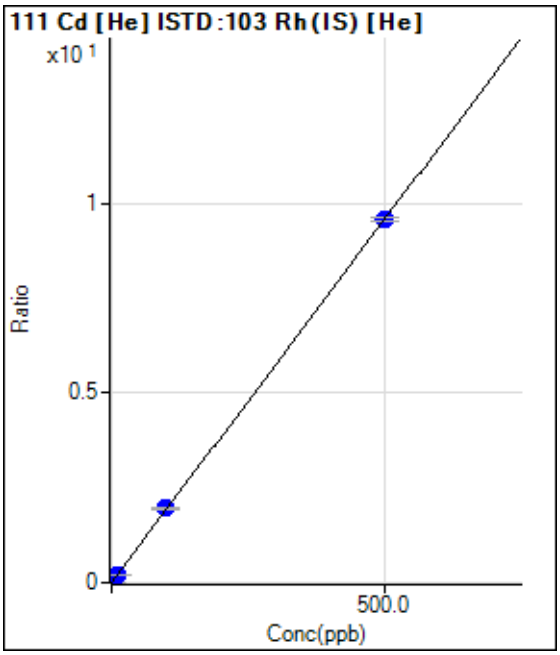
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3.33	0.0000	P	173.
2	☐	10.000	9.642	2203.58	0.0121	P	7.1
3	☐	100.000	102.797	22883.51	0.1293	P	0.9
4	☐	500.000	499.448	108320.47	0.6280	P	2.0

y = 0.0013 * x + 1.8659E-005
R = 1.0000
DL = 0.0771
BEC = 0.01484

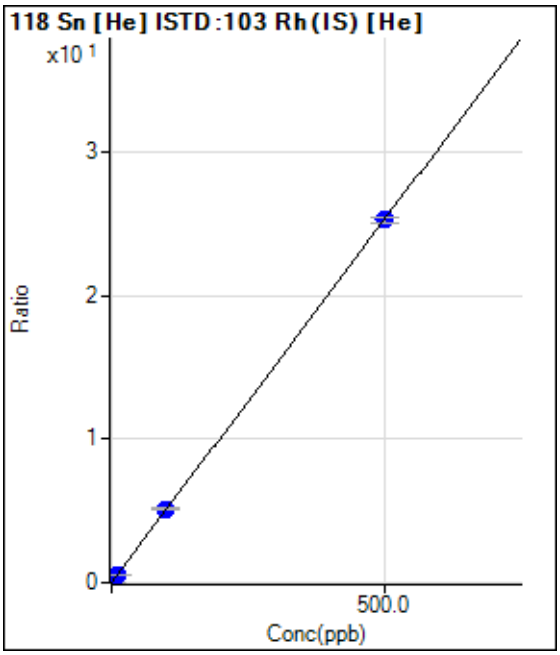
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	33.46	0.0002	P	64.2
2	☐	10.000	10.184	35395.08	0.1951	P	4.7
3	☐	100.000	102.443	347159.23	1.9613	P	1.1
4	☐	500.000	499.508	1649457.05	9.5625	P	0.9

y = 0.0191 * x + 1.8384E-004
R = 1.0000
DL = 0.0185
BEC = 0.009603

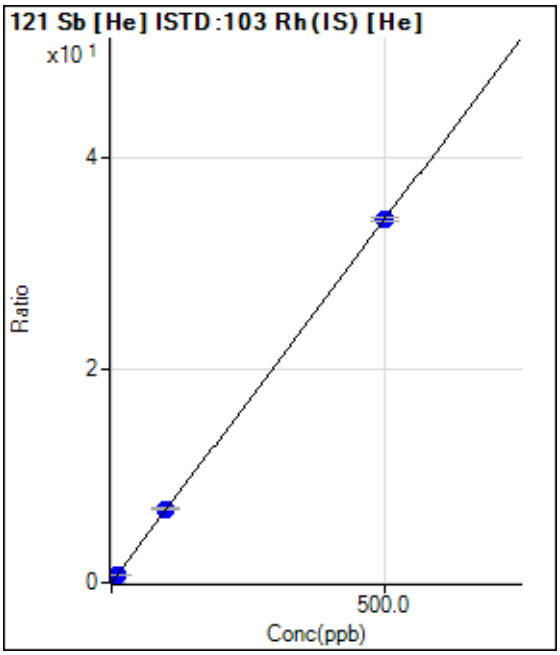
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1230.11	0.0068	P	11.1
2	☐	10.000	10.128	94315.66	0.5199	P	2.9
3	☐	100.000	101.773	913859.34	5.1628	P	0.9
4	☐	500.000	499.643	4367019.52	25.3196	P	1.5

y = 0.0507 * x + 0.0068
R = 1.0000
DL = 0.04476
BEC = 0.1339

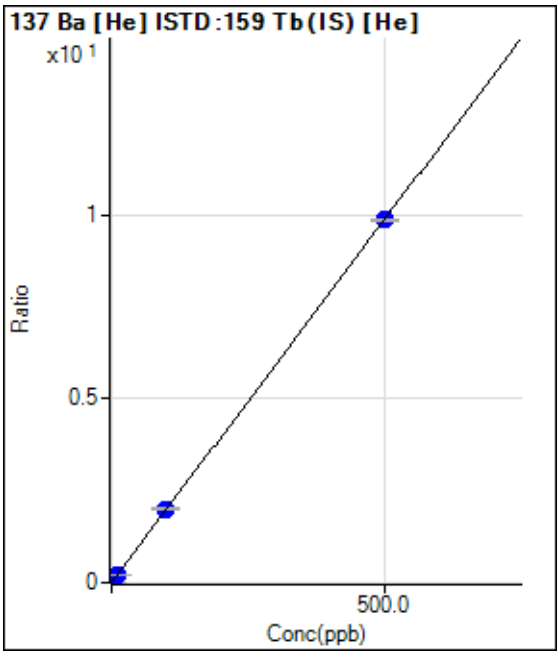
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1040.08	0.0058	P	36.9
2	☐	10.000	10.006	125033.20	0.6892	P	1.9
3	☐	100.000	101.632	1229807.77	6.9479	P	1.2
4	☐	500.000	499.674	5887992.00	34.1367	P	1.2

y = 0.0683 * x + 0.0058
R = 1.0000
DL = 0.09328
BEC = 0.08431

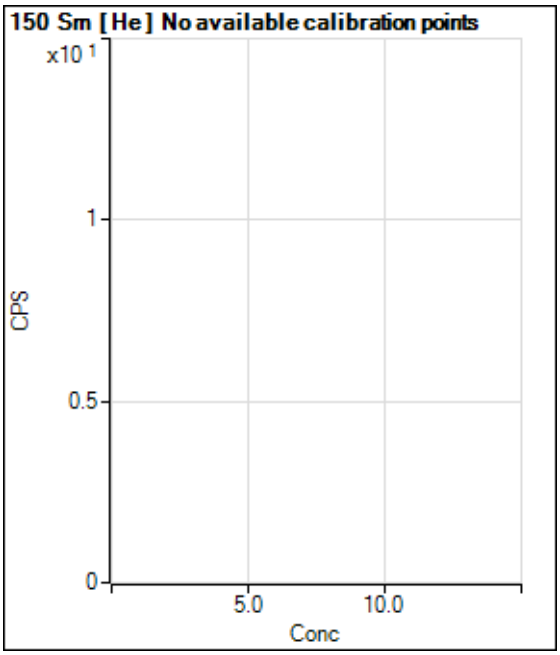
Weight: <None>
Min Conc: 0



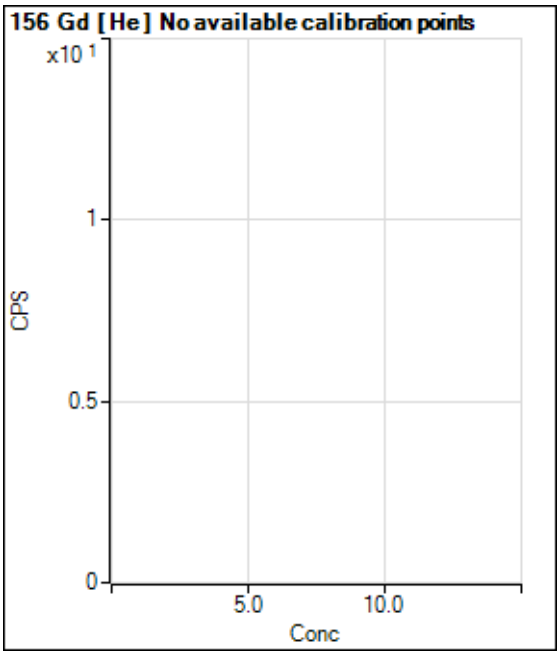
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	136.68	0.0007	P	18.5
2	☐	10.000	10.208	43971.90	0.2023	P	2.6
3	☐	100.000	101.750	434083.59	2.0106	P	0.9
4	☐	500.000	499.646	2114378.30	9.8703	P	0.4

y = 0.0198 * x + 6.5411E-004
R = 1.0000
DL = 0.01835
BEC = 0.03311

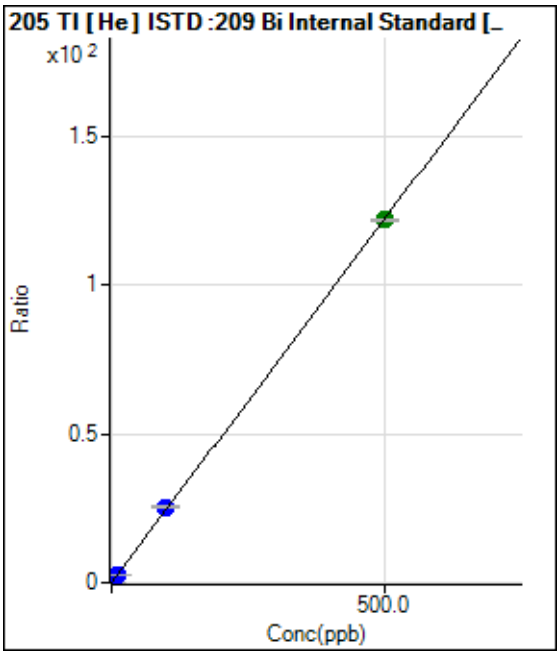
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



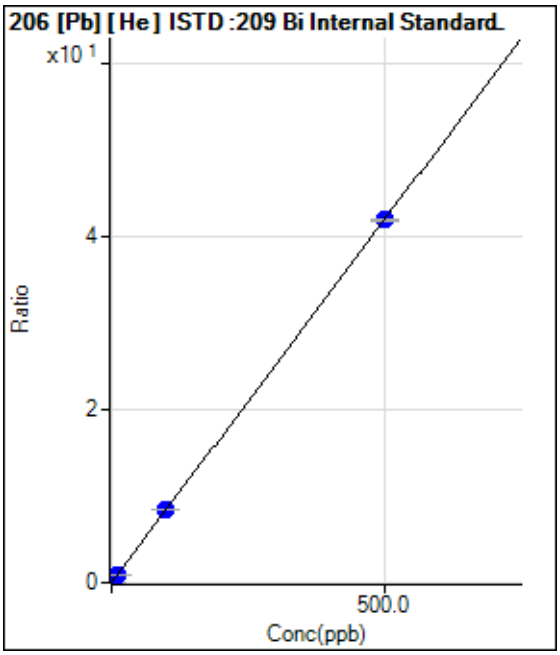
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	103.34	0.0008	P	48.7
2	☐	10.000	10.422	315596.13	2.5450	P	0.4
3	☐	100.000	104.354	3105231.41	25.4743	P	0.6
4	☐	500.000	499.121	14229098.96	121.8398	A	0.3

y = 0.2441 * x + 8.4587E-004
R = 1.0000
DL = 0.005062
BEC = 0.003465

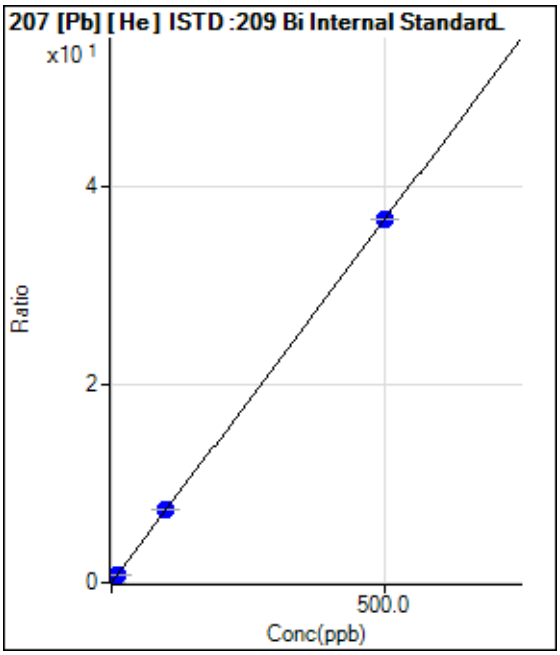
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	153.34	0.0013	P	16.5
2	☐	10.000	10.055	104565.01	0.8432	P	1.1
3	☐	100.000	101.295	1034128.66	8.4837	P	0.5
4	☐	500.000	499.740	4887403.26	41.8496	P	0.4

y = 0.0837 * x + 0.0013
R = 1.0000
DL = 0.007388
BEC = 0.01497

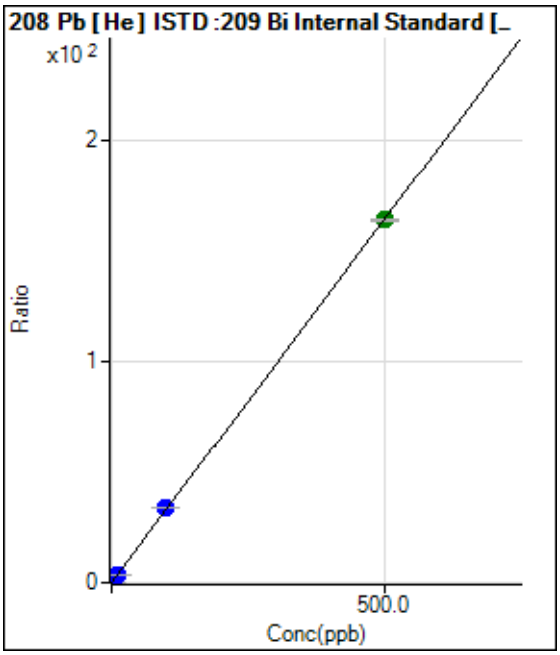
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	143.34	0.0012	P	27.2
2	☐	10.000	10.096	91863.24	0.7408	P	1.3
3	☐	100.000	100.450	897165.25	7.3601	P	0.4
4	☐	500.000	499.908	4277184.94	36.6240	P	0.1

y = 0.0733 * x + 0.0012
R = 1.0000
DL = 0.01303
BEC = 0.01597

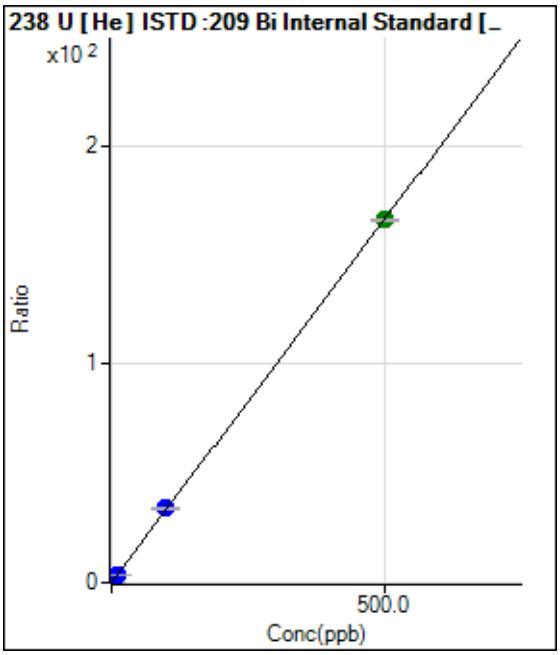
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	646.70	0.0053	P	13.4
2	☐	10.000	10.319	421291.21	3.3973	P	0.5
3	☐	100.000	103.121	4132485.69	33.9018	P	0.6
4	☐	500.000	499.369	19170217.01	164.1510	A	0.6

y = 0.3287 * x + 0.0053
R = 1.0000
DL = 0.006449
BEC = 0.01607

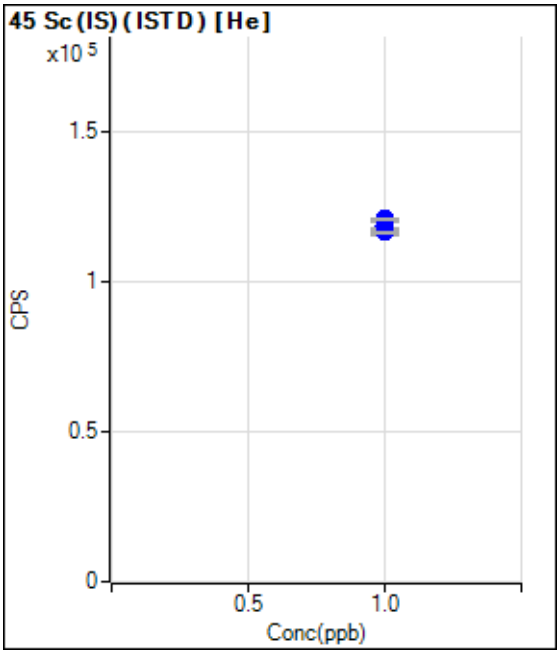
Weight: <None>
Min Conc: 0



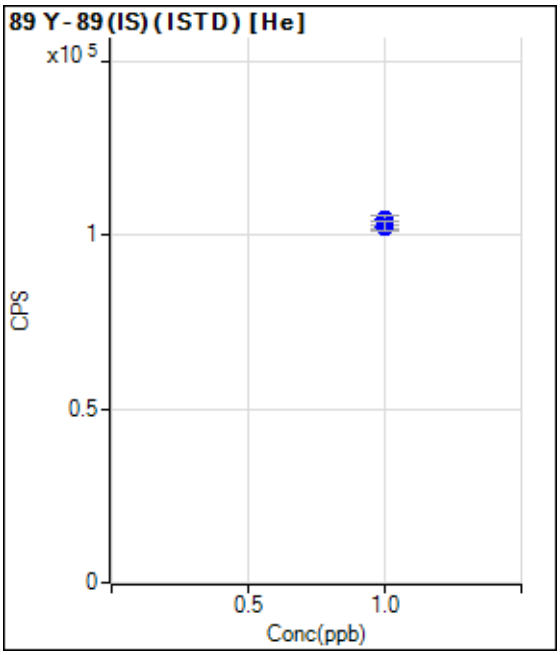
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	50.00	0.0004	P	73.4
2	☐	10.000	9.802	404239.77	3.2598	P	0.5
3	☐	100.000	102.152	4140759.63	33.9696	P	0.5
4	☐	500.000	499.574	19401556.79	166.1272	A	0.6

y = 0.3325 * x + 4.1145E-004
R = 1.0000
DL = 0.002726
BEC = 0.001237

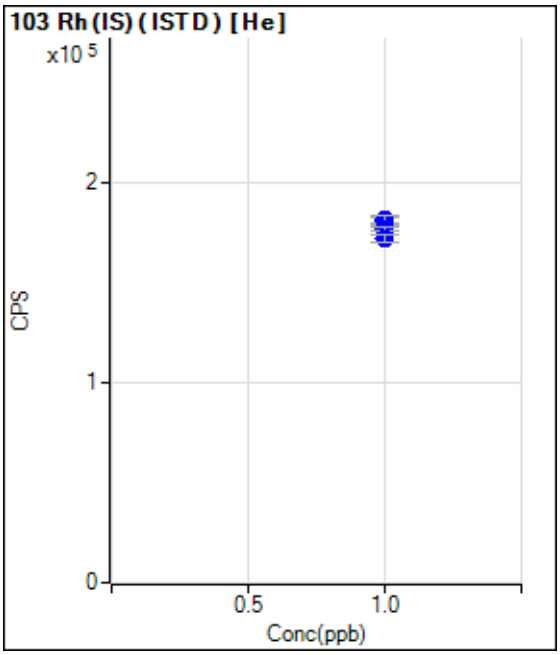
Weight: <None>
Min Conc: 0



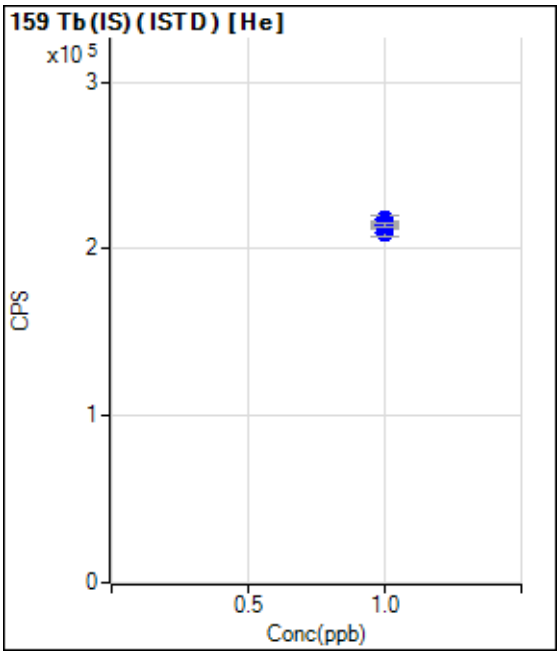
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		118489.08		P	2.1
2	☐	1.000		120959.40		P	0.4
3	☐	1.000		116706.94		P	2.3
4	☐	1.000		116475.43		P	0.3



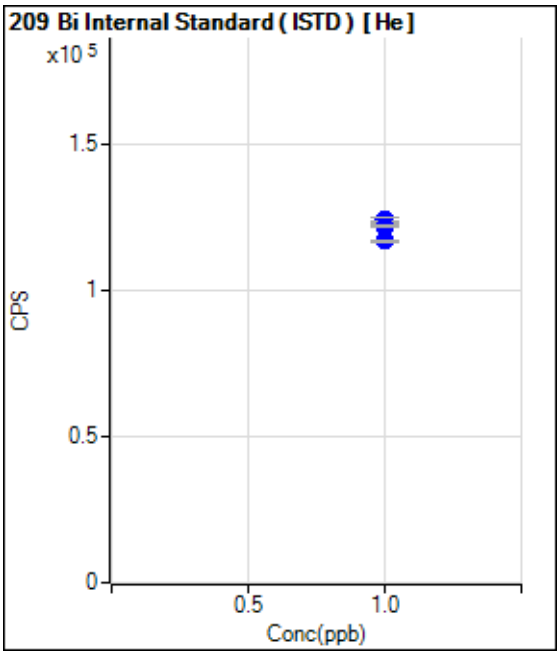
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		102487.83		P	1.0
2	☐	1.000		104437.22		P	2.7
3	☐	1.000		102420.99		P	1.1
4	☐	1.000		102636.06		P	2.3



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		181175.78		P	1.3
2	☐	1.000		181470.06		P	2.6
3	☐	1.000		177020.13		P	1.2
4	☐	1.000		172512.70		P	2.2



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		209424.07		P	2.3
2	☐	1.000		217456.00		P	2.3
3	☐	1.000		215908.00		P	0.5
4	☐	1.000		214214.28		P	1.0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		122347.01		P	1.4
2	☐	1.000		124010.20		P	0.9
3	☐	1.000		121896.66		P	0.2
4	☐	1.000		116786.90		P	0.7

Batch Summary Report

Batch Folder: C:\Agilent\ICPMH\1\DATA\MS4110519He-2.b\
Analysis File: MS4110519He-2.batch.bin
Tune Step: #1 He

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
1		11/5/2019 3:24:06 PM	001CALB.d	blk I.S /tune	CalBlk	1	1.0000
2		11/5/2019 3:27:51 PM	002CALB.d	ICIS	CalBlk	1	1.0000
3		11/5/2019 3:32:22 PM	003CALS.d	Std1	CalStd	2	1.0000
4		11/5/2019 3:36:19 PM	004CALS.d	Std2	CalStd	3	1.0000
5		11/5/2019 3:40:11 PM	005CALS.d	Std3	CalStd	4	1.0000
6		11/5/2019 3:44:02 PM	006_QCS.d	S1	QCS		1.0000
7		11/5/2019 3:47:52 PM	007_ICV.d	ICV	ICV		1.0000
8		11/5/2019 3:51:42 PM	008_ICB.d	ICB	ICB		1.0000
9		11/5/2019 3:55:34 PM	009LICV.d	ICVL	LLICV		1.0000
10		11/5/2019 3:59:24 PM	010ICSA.d	icsa	ICSA		1.0000
11		11/5/2019 4:03:12 PM	011ICSB.d	icsab	ICSB		1.0000
12		11/5/2019 4:07:03 PM	012SMPL.d	CRI	Sample		1.0000
13		11/5/2019 4:10:54 PM	013_CCV.d	CCV	CCV		1.0000
14		11/5/2019 4:14:45 PM	014_CCB.d	CCB	CCB		1.0000
15		11/5/2019 4:18:35 PM	015_PB.d	mb 500-513650/1-a	PB		1.0000
16		11/5/2019 4:22:25 PM	016_LCS.d	lcs 500-513650/2-a	LCS		1.0000
17		11/5/2019 4:26:17 PM	017SMPL.d	500-172222-g-1-b	Sample		1.0000
18		11/5/2019 4:30:10 PM	018SMPL.d	500-172222-g-2-b	Sample		1.0000
19		11/5/2019 4:34:02 PM	019SMPL.d	500-172222-g-3-b	Sample		1.0000
20		11/5/2019 4:38:19 PM	020SMPL.d	500-172222-g-5-b	Sample		1.0000
21		11/5/2019 4:42:11 PM	021SMPL.d	500-172222-g-7-b	Sample		1.0000
22		11/5/2019 4:46:03 PM	022SMPL.d	500-172222-g-9-b	Sample		1.0000
23		11/5/2019 4:49:53 PM	023SMPL.d	500-172222-g-10-b	Sample		1.0000
24		11/5/2019 4:53:47 PM	024SMPL.d	500-172222-g-11-e	Sample		1.0000
25		11/5/2019 4:57:38 PM	025_CCV.d	CCV	CCV		1.0000
26		11/5/2019 5:01:30 PM	026_CCB.d	CCB	CCB		1.0000
27		11/5/2019 5:05:18 PM	027SMPL.d	500-172222-g-11-f du	Sample		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
28		11/5/2019 5:09:07 PM	028SMPL.d	500-172222-g-11-g ms	Sample		1.0000
29		11/5/2019 5:12:56 PM	029SMPL.d	500-172222-g-11-h msd	Sample		1.0000
30		11/5/2019 5:16:47 PM	030SMPL.d	500-172222-g-11-e SD@5	Sample		1.0000
31		11/5/2019 5:20:38 PM	031SMPL.d	500-172222-g-13-b	Sample		1.0000
32		11/5/2019 5:24:28 PM	032SMPL.d	500-172222-g-15-b	Sample		1.0000
33		11/5/2019 5:28:19 PM	033SMPL.d	500-172222-g-17-b	Sample		1.0000
34		11/5/2019 5:32:11 PM	034SMPL.d	500-172222-g-18-b	Sample		1.0000
35		11/5/2019 5:35:56 PM	035SMPL.d	500-172222-g-20-b	Sample		1.0000
36		11/5/2019 5:39:44 PM	036SMPL.d	500-172222-g-22-b	Sample		1.0000
37		11/5/2019 5:43:35 PM	037_CCV.d	CCV	CCV		1.0000
38		11/5/2019 5:47:25 PM	038_CCB.d	CCB	CCB		1.0000
39		11/5/2019 5:53:58 PM	039LCCV.d	CCVL	LLCCV		1.0000
40		11/5/2019 5:57:43 PM	040_PB.d	mb 500-513568/1-a	PB		1.0000
41		11/5/2019 6:01:30 PM	041_LCS.d	lcs 500-513568/2-a	LCS		1.0000
42		11/5/2019 6:05:16 PM	042SMPL.d	400-176914-b-1-c	Sample		1.0000
43		11/5/2019 6:09:01 PM	043SMPL.d	400-176914-b-2-g	Sample		1.0000
44		11/5/2019 6:16:11 PM	044SMPL.d	400-176914-b-2-h du	Sample		1.0000
45		11/5/2019 6:20:02 PM	045SMPL.d	400-176914-b-2-i ms	Sample		1.0000
46		11/5/2019 6:23:52 PM	046SMPL.d	400-176914-b-2-j msd	Sample		1.0000
47		11/5/2019 6:27:44 PM	047SMPL.d	400-176914-b-2-g SD@5	Sample		1.0000
48		11/5/2019 6:31:33 PM	048_CCV.d	CCV	CCV		1.0000
49		11/5/2019 6:35:19 PM	049_CCB.d	CCB	CCB		1.0000
50		11/5/2019 6:39:11 PM	050SMPL.d	400-176914-b-3-c	Sample		1.0000
51		11/5/2019 6:43:01 PM	051SMPL.d	400-176914-b-4-c	Sample		1.0000
52		11/5/2019 6:46:52 PM	052SMPL.d	400-176914-b-5-c	Sample		1.0000
53		11/5/2019 6:50:42 PM	053SMPL.d	400-176914-b-6-c	Sample		1.0000
54		11/5/2019 6:54:32 PM	054SMPL.d	400-176914-b-7-c	Sample		1.0000
55		11/5/2019 6:58:22 PM	055SMPL.d	500-171892-g-1-a	Sample		1.0000
56		11/5/2019 7:02:12 PM	056SMPL.d	500-171892-h-1-b	Sample		1.0000
57		11/5/2019 7:06:01 PM	057SMPL.d	500-171892-g-2-a	Sample		1.0000
58		11/5/2019 7:09:52 PM	058SMPL.d	500-171892-h-2-b	Sample		1.0000
59		11/5/2019 7:13:41 PM	059_CCV.d	CCV	CCV		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
60		11/5/2019 7:17:30 PM	060_CCB.d	CCB	CCB		1.0000
61		11/5/2019 7:21:22 PM	061SMPL.d	500-171892-h-3-b	Sample		1.0000
62		11/5/2019 7:25:12 PM	062SMPL.d	500-171892-h-3-b	Sample		1.0000
63		11/5/2019 7:29:03 PM	063SMPL.d	500-171892-g-4-a	Sample		1.0000
64		11/5/2019 7:32:54 PM	064SMPL.d	500-171892-h-4-b	Sample		1.0000
65		11/5/2019 7:36:44 PM	065SMPL.d	500-171892-g-5-a	Sample		1.0000
66		11/5/2019 7:40:31 PM	066SMPL.d	500-171892-h-5-b	Sample		1.0000
67		11/5/2019 7:44:21 PM	067_CCV.d	CCV	CCV		1.0000
68		11/5/2019 7:48:12 PM	068_CCB.d	CCB	CCB		1.0000
69		11/5/2019 7:52:04 PM	069LCCV.d	CCVL	LLCCV		1.0000
70		11/5/2019 7:55:53 PM	070_PB.d	mb 500-513582/1-a	PB		1.0000
71		11/5/2019 7:59:44 PM	071_LCS.d	lcs 500-513582/2-a	LCS		1.0000
72		11/5/2019 8:03:35 PM	072SMPL.d	500-172264-e-1-a	Sample		1.0000
73		11/5/2019 8:07:24 PM	073SMPL.d	500-172264-e-1-b du	Sample		1.0000
74		11/5/2019 8:11:15 PM	074SMPL.d	500-172264-e-1-c ms	Sample		1.0000
75		11/5/2019 8:15:05 PM	075SMPL.d	500-172264-e-1-d msd	Sample		1.0000
76		11/5/2019 8:18:50 PM	076SMPL.d	500-172264-e-1-a	Sample		1.0000
77		11/5/2019 8:22:41 PM	077SMPL.d	500-172264-e-2-a	Sample		1.0000
78		11/5/2019 8:26:30 PM	078SMPL.d	500-172264-e-3-a	Sample		1.0000
79		11/5/2019 8:30:20 PM	079SMPL.d	500-172264-e-4-a	Sample		1.0000
80		11/5/2019 8:34:12 PM	080_CCV.d	CCV	CCV		1.0000
81		11/5/2019 8:38:03 PM	081_CCB.d	CCB	CCB		1.0000
82		11/5/2019 8:41:54 PM	082SMPL.d	500-172264-e-5-a	Sample		1.0000
83		11/5/2019 8:45:46 PM	083SMPL.d	500-172264-e-6-a	Sample		1.0000
84		11/5/2019 8:49:39 PM	084SMPL.d	500-172264-e-7-a	Sample		1.0000
85		11/5/2019 8:53:30 PM	085SMPL.d	500-172264-e-8-a	Sample		1.0000
86		11/5/2019 8:57:20 PM	086SMPL.d	0-172264-e-9-a	Sample		1.0000
87		11/5/2019 9:01:10 PM	087SMPL.d	500-172264-e-10-a	Sample		1.0000
88		11/5/2019 9:05:01 PM	088SMPL.d	500-172264-e-11-a	Sample		1.0000
89		11/5/2019 9:08:52 PM	089SMPL.d	500-172264-e-12-a	Sample		1.0000
90		11/5/2019 9:12:43 PM	090SMPL.d	500-172264-e-13-a	Sample		1.0000
91		11/5/2019 9:16:34 PM	091SMPL.d	500-172264-e-14-a	Sample		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
92		11/5/2019 9:20:25 PM	092_CCV.d	CCV	CCV		1.0000
93		11/5/2019 9:24:15 PM	093_CCB.d	CCB	CCB		1.0000
94		11/5/2019 9:28:07 PM	094SMPL.d	500-172264-e-15-a	Sample		1.0000
95		11/5/2019 9:31:59 PM	095SMPL.d	500-172264-e-16-a	Sample		1.0000
96		11/5/2019 9:35:49 PM	096SMPL.d	500-172264-e-17-a	Sample		1.0000
97		11/5/2019 9:39:41 PM	097_PB.d	mb 500-513652/1-a	PB		1.0000
98		11/5/2019 9:43:26 PM	098_LCS.d	lcs 500-513652/2-a	LCS		1.0000
99		11/5/2019 9:47:18 PM	099_LCS.d	lcsd 500-513652/3-a	LCS		1.0000
100		11/5/2019 9:51:09 PM	100SMPL.d	500-171453-a-2-b	Sample		1.0000
101		11/5/2019 9:55:00 PM	101SMPL.d	500-171453-a-3-b	Sample		1.0000
102		11/5/2019 9:58:51 PM	102_CCV.d	CCV	CCV		1.0000
103		11/5/2019 10:02:42 PM	103_CCB.d	CCB	CCB		1.0000

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	93.33	N/A	0.000	0.00	N/A	0.248	196.67	440.092
2	ICIS	0.000	123.34	N/A	0.000	0.00	N/A	0.000	186.68	N/A
3	Std1	10.805	1666.82	7.612	10.603	1513.47	15.418	11.719	1000.08	3.922
4	Std2	105.098	14576.58	1.921	105.859	14569.89	1.874	102.476	7011.68	2.495
5	Std3	498.964	68624.28	0.938	498.816	68537.59	1.468	499.470	33409.47	0.362
6	S1	496.532	69534.95	2.620	492.894	68982.40	1.217	504.737	34384.66	0.274
7	ICV	197.922	27625.92	1.181	198.337	27585.65	1.445	204.403	13945.92	3.414
8	ICB	0.733	220.01	18.434	0.098	13.33	86.610	5.254	526.70	14.571
9	ICVL	9.998	1406.78	0.494	1.148	143.34	69.995	55.393	3620.53	10.656
10	icsa	<0.000	86.67	N/A	0.070	10.00	2.776	1.593	303.35	88.902
11	icsab	20.370	2937.06	20.470	18.159	2516.97	10.541	52.760	3730.54	6.332
12	CRI	18.885	2817.00	10.677	1.980	280.01	25.814	101.293	7188.42	8.951
13	CCV	262.557	36348.59	7.576	260.202	35881.04	9.631	259.439	17536.13	6.748
14	CCB	0.087	133.34	355.054	0.122	16.67	69.958	1.822	303.35	33.483
15	mb 500-51365...	0.292	156.68	182.844	0.113	13.33	173.205	2.832	363.35	82.906
16	lcs 500-513650...	92.827	13542.39	11.180	46.467	6718.20	11.239	1001.634	70368.12	10.136
17	500-172222-g-...	<0.000	96.67	N/A	0.086	13.33	86.924	5.743	610.04	17.590
18	500-172222-g-...	<0.000	73.33	N/A	0.039	6.67	173.205	1.187	286.68	126.021
19	500-172222-g-...	6.119	1103.41	10.051	0.180	26.67	86.990	33.374	2740.35	18.024
20	500-172222-g-...	6.108	1050.07	8.467	0.022	3.33	173.205	31.182	2466.95	14.361
21	500-172222-g-...	7.243	1226.76	8.083	0.023	3.33	173.205	32.518	2570.30	15.263
22	500-172222-g-...	<0.000	60.00	N/A	0.020	3.33	173.205	0.152	216.68	315.808
23	500-172222-g-...	<0.000	93.34	N/A	0.000	0.00	N/A	0.160	220.01	270.317
24	500-172222-g-...	7.244	1250.10	12.649	0.022	3.33	173.205	45.815	3613.86	10.275
25	CCV	252.137	34294.24	1.800	255.884	34708.52	1.991	260.641	17299.23	1.087
26	CCB	0.310	153.34	135.112	0.153	20.00	81.706	2.752	340.01	24.030

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	8.027	1386.78	6.845	0.000	0.00	N/A	45.409	3630.54	0.949
28	500-172222-g-...	99.498	16581.79	16.766	44.510	7395.14	11.294	972.741	78144.12	15.284
29	500-172222-g-...	122.060	18457.00	1.779	52.188	7838.75	4.194	1167.550	85120.36	2.087
30	500-172222-g-...	1.941	410.02	16.798	0.161	23.33	89.136	20.111	1606.83	8.806
31	500-172222-g-...	8.059	1446.78	8.451	0.083	13.33	118.176	47.548	3930.59	6.198
32	500-172222-g-...	14.434	2256.90	3.894	0.023	3.33	173.205	102.060	7475.23	7.169
33	500-172222-g-...	14.476	2173.56	7.288	0.000	0.00	N/A	105.291	7401.90	3.856
34	500-172222-g-...	14.005	2166.89	12.935	0.023	3.33	173.205	103.962	7528.57	11.423
35	500-172222-g-...	11.739	1843.52	9.037	0.000	0.00	N/A	99.120	7208.48	4.162
36	500-172222-g-...	11.630	1790.15	0.749	0.070	10.00	100.315	105.914	7528.57	5.452
37	CCV	243.748	33596.17	1.655	242.302	33305.95	1.254	248.342	16711.93	2.559
38	CCB	0.079	126.67	572.330	0.229	30.00	67.583	5.667	536.70	9.915
39	CCVL	9.850	1456.79	4.852	1.375	186.68	24.039	53.374	3690.52	6.238
40	mb 500-51356...	<0.000	113.34	N/A	0.054	6.67	173.205	2.055	310.01	61.069
41	lcs 500-513568...	102.179	13692.54	1.971	52.315	6958.34	5.054	1053.260	67989.27	0.805
42	400-176914-b-...	0.542	190.01	64.149	0.000	0.00	N/A	265.729	17315.91	2.835
43	400-176914-b-...	0.371	173.34	78.031	0.024	3.33	173.205	163.080	11070.61	3.125
44	400-176914-b-...	0.658	206.68	36.293	0.000	0.00	N/A	162.466	10720.44	4.781
45	400-176914-b-2-...	101.805	13562.40	3.833	53.077	7015.05	1.558	1236.222	79269.92	4.289
46	400-176914-b-2-...	98.677	13352.19	5.032	51.901	6968.35	4.280	1203.125	78365.96	0.935
47	400-176914-b-...	<0.000	113.34	N/A	0.070	10.00	173.205	49.557	3517.16	4.889
48	CCV	255.767	33833.61	2.045	253.479	33426.05	5.318	267.074	17245.84	3.103
49	CCB	0.020	120.00	1884.424	0.277	36.67	67.251	9.745	796.72	3.529
50	400-176914-b-...	3.358	563.37	8.444	0.073	10.00	173.205	928.311	59719.46	2.469
51	400-176914-b-...	470.337	57216.96	1.662	0.000	0.00	N/A	1881.167	110835.03	1.874
52	400-176914-b-...	480.335	57942.89	2.465	0.028	3.33	173.205	1883.338	110040.97	1.594
53	400-176914-b-...	4.601	766.71	12.485	0.000	0.00	N/A	405.198	27595.84	4.876
54	400-176914-b-...	1.000	296.68	52.162	0.042	6.67	173.205	10.542	1013.42	5.805
55	500-171892-g-...	1.718	380.02	24.539	0.068	10.00	1.544	15.854	1316.78	6.614
56	500-171892-h-...	1.694	356.69	4.647	0.096	13.33	43.614	13.124	1063.41	8.663

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	3.735	663.38	8.686	0.256	36.67	103.510	58.998	4297.37	5.400
58	500-171892-h-...	5.554	833.39	16.712	0.050	6.67	173.205	59.391	3897.26	12.332
59	CCV	232.769	29989.76	1.966	242.700	31171.92	1.700	249.027	15657.56	1.506
60	CCB	0.040	120.00	1475.961	0.051	6.67	86.607	3.544	393.35	13.151
61	500-171892-h-...	16.987	2270.24	6.854	0.131	16.67	35.588	50.213	3257.11	10.266
62	500-171892-h-...	13.985	1926.85	11.987	0.000	0.00	N/A	49.060	3253.76	0.974
63	500-171892-g-...	9.118	1280.10	1.888	0.000	0.00	N/A	50.329	3290.45	7.748
64	500-171892-h-...	9.251	1256.77	12.102	0.000	0.00	N/A	49.450	3137.07	3.960
65	500-171892-g-...	27.939	3623.88	1.988	0.079	10.00	97.939	42.820	2773.67	6.523
66	500-171892-h-...	27.556	3513.83	5.213	0.054	6.67	173.205	44.053	2800.34	9.314
67	CCV	249.548	29979.82	1.761	250.530	30016.37	1.302	253.272	14850.11	3.227
68	CCB	0.296	146.67	153.623	0.081	10.00	100.241	4.730	450.02	27.018
69	CCVL	9.859	1356.79	4.565	1.083	136.68	19.221	53.100	3417.14	9.355
70	mb 500-51358...	0.359	156.67	85.603	0.132	16.67	125.820	1.778	273.35	78.132
71	lcs 500-513582...	109.261	12391.49	14.672	51.579	5837.93	7.243	1147.786	62856.81	11.045
72	500-172264-e-...	21.492	2803.67	2.723	0.027	3.33	173.205	176.338	10873.81	4.786
73	500-172264-e-...	20.209	2676.97	8.027	0.000	0.00	N/A	164.663	10290.08	7.410
74	500-172264-e-...	119.800	15444.00	2.689	49.389	6324.74	1.462	1208.480	75094.86	0.682
75	500-172264-e-...	112.443	14129.47	3.137	47.488	5924.59	1.957	1177.445	71299.01	1.784
76	500-172264-e-...	3.456	546.70	16.094	0.215	26.67	142.903	52.088	3347.11	6.043
77	500-172264-e-...	14.838	1960.19	8.768	0.027	3.33	173.205	71.315	4474.08	6.616
78	500-172264-e-...	3.101	500.03	17.254	0.080	10.00	173.205	14.806	1066.75	17.075
79	500-172264-e-...	28.571	3777.22	12.358	0.000	0.00	N/A	119.729	7618.66	10.540
80	CCV	239.047	28817.79	0.998	248.228	29829.62	4.531	261.723	15387.37	2.658
81	CCB	<0.000	60.00	N/A	0.057	6.67	86.604	5.643	483.36	26.020
82	500-172264-e-...	7.552	1030.08	16.714	0.054	6.67	173.205	268.835	16077.97	2.953
83	500-172264-e-...	11.303	1506.80	8.225	0.028	3.33	173.205	15.830	1113.42	2.408
84	500-172264-e-...	18.097	2276.90	13.833	0.055	6.67	86.646	311.534	18306.86	1.123
85	500-172264-e-...	38.772	4727.50	5.657	0.056	6.67	173.205	342.068	19928.55	0.730
86	0-172264-e-9-a	25.280	2993.70	0.493	0.059	6.67	86.636	258.246	14466.49	1.775

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	24.478	3100.40	11.413	0.000	0.00	N/A	69.100	4257.34	4.696
88	500-172264-e-...	13.325	1736.83	9.360	0.028	3.33	173.205	78.120	4784.19	4.087
89	500-172264-e-...	8.070	1040.07	47.980	0.028	3.33	173.205	254.227	14800.06	26.277
90	500-172264-e-...	9.870	1286.78	9.887	0.000	0.00	N/A	90.283	5341.06	11.580
91	500-172264-e-...	22.535	2933.72	9.217	0.000	0.00	N/A	156.505	9666.37	5.437
92	CCV	242.774	28968.02	2.944	245.131	29168.48	1.407	258.615	15056.95	2.136
93	CCB	<0.000	100.01	N/A	0.224	26.67	55.020	2.505	300.01	31.660
94	500-172264-e-...	19.235	2403.59	22.420	0.000	0.00	N/A	117.594	6904.95	26.640
95	500-172264-e-...	11.551	1513.47	15.021	0.137	16.67	34.368	50.125	3120.40	1.837
96	500-172264-e-...	3.791	560.03	7.539	0.000	0.00	N/A	200.343	11781.14	2.765
97	mb 500-51365...	<0.000	96.67	N/A	0.117	13.33	87.724	4.124	406.69	58.144
98	lcs 500-513652...	93.487	11364.13	4.748	47.413	5717.83	10.097	1025.314	59986.88	3.360
99	lcsd 500-51365...	108.876	11604.30	20.442	56.610	6031.26	13.665	1196.625	61548.93	18.605
100	500-171453-a-...	<0.000	113.34	N/A	0.127	16.67	125.818	8.658	736.71	24.752
101	500-171453-a-...	<0.000	60.00	N/A	6.991	906.73	9.021	1486.636	93521.94	1.288
102	CCV	247.093	28931.40	1.805	249.006	29084.89	2.499	283.091	16161.36	1.325
103	CCB	0.259	133.34	160.969	0.086	10.00	99.384	12.918	886.73	6.830

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	10.332	142523.40	44.488	<0.000	10343.55	N/A	0.009	4314.04	3659.579
2	ICIS	0.000	119562.54	N/A	0.000	10813.77	N/A	0.000	4354.06	N/A
3	Std1	1052.892	2764374.23	0.590	1069.225	1467340.97	0.535	1041.853	839049.31	1.182
4	Std2	10535.622	25621605.45	1.725	10476.814	13773570.63	2.505	10451.105	8079945.71	1.826
5	Std3	49891.818	1.20684E+08	0.567	49903.253	65460757.36	0.245	49908.942	38503172.76	0.126
6	S1	49352.192	1.21575E+08	1.140	48839.724	65248427.36	0.413	49383.710	38803307.76	0.280
7	ICV	20053.833	49163710.93	1.539	19873.115	26391148.77	0.639	20016.086	15632629.77	0.460
8	ICB	2.582	122361.65	7.106	<0.000	8315.67	N/A	2.449	6101.41	18.177
9	ICVL	225.940	621072.44	11.468	226.958	288374.29	11.038	111.298	84303.20	11.313
10	icsa	101606.670	2.56018E+08	2.294	100391.180	1.37199E+08	3.174	101600.382	81674598.78	2.699
11	icsab	102347.223	2.50163E+08	2.858	102663.342	1.36112E+08	3.503	103462.809	80659515.46	4.247
12	CRI	420.458	1177303.42	9.614	417.268	579219.55	9.416	206.995	170188.23	9.845
13	CCV	25658.595	62364569.07	9.192	25520.231	33619853.67	8.789	25916.493	20082826.37	8.407
14	CCB	2.662	123107.46	61.203	<0.000	8412.38	N/A	1.584	5467.76	11.418
15	mb 500-51365...	0.934	118509.05	776.951	<0.000	6681.49	N/A	0.321	4500.76	191.314
16	lcs 500-513650...	9638.151	24656760.47	9.963	9624.298	13286847.30	11.974	1935.432	1574127.48	12.444
17	500-172222-g-...	24.313	186424.12	39.441	3.125	15641.00	36.109	<0.000	2056.91	N/A
18	500-172222-g-...	<0.000	117308.09	N/A	6.085	20756.46	38.493	<0.000	3947.30	N/A
19	500-172222-g-...	5078.549	14168497.71	12.402	10458.766	15705606.85	11.757	<0.000	3134.27	N/A
20	500-172222-g-...	5304.753	14151344.37	4.321	10909.398	15664638.94	3.659	<0.000	2440.34	N/A
21	500-172222-g-...	4837.909	12954614.81	2.736	10642.834	15326374.77	2.164	<0.000	3944.31	N/A
22	500-172222-g-...	208.394	698313.04	10.049	0.418	12571.78	168.694	<0.000	1906.86	N/A
23	500-172222-g-...	217.662	727770.88	5.576	1.849	14756.80	38.381	<0.000	1450.14	N/A
24	500-172222-g-...	4934.978	13481533.13	3.215	11491.713	16884241.42	2.914	<0.000	3550.55	N/A
25	CCV	25558.866	61089627.42	1.728	25572.134	33120953.67	1.777	25942.029	19759604.71	1.540
26	CCB	4.168	117656.63	174.730	0.799	10717.06	220.123	3.659	6538.16	40.558

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	4907.949	13571566.47	0.022	11438.301	17009682.25	0.333	<0.000	3497.35	N/A
28	500-172222-g-...	13418.381	39211963.58	14.747	19111.406	30216297.88	14.648	1863.767	1735551.95	15.763
29	500-172222-g-...	15852.526	42011499.38	0.974	22337.920	32041122.02	1.324	2310.255	1953089.50	0.938
30	500-172222-g-...	918.681	2468948.98	1.301	2170.869	3018469.33	1.296	<0.000	4087.33	N/A
31	500-172222-g-...	4723.449	13554623.96	4.131	10899.168	16806405.17	5.319	<0.000	4004.45	N/A
32	500-172222-g-...	17755.463	46152892.64	3.159	22727.703	31987864.52	2.936	<0.000	2200.26	N/A
33	500-172222-g-...	18355.770	45800494.32	2.519	23468.678	31713327.03	1.499	<0.000	2113.56	N/A
34	500-172222-g-...	17955.787	46220264.31	4.094	23060.202	32141265.36	4.012	<0.000	3290.68	N/A
35	500-172222-g-...	17830.217	45958690.98	1.416	22825.315	31855372.03	1.351	<0.000	2223.58	N/A
36	500-172222-g-...	17294.819	43660847.68	0.581	20756.231	28368715.41	1.519	<0.000	2596.97	N/A
37	CCV	24798.081	60063610.77	0.821	24919.725	32704830.35	1.388	25089.486	19364771.79	0.806
38	CCB	<0.000	110258.01	N/A	<0.000	7868.79	N/A	<0.000	3647.21	N/A
39	CCVL	207.459	611379.81	0.980	211.452	284470.37	1.165	103.131	82818.70	2.223
40	mb 500-51356...	16.454	150542.44	24.302	<0.000	9632.99	N/A	0.901	4764.22	61.579
41	lcs 500-513568...	10266.136	24121747.97	1.487	10447.473	13270828.97	1.334	2074.235	1552644.40	1.510
42	400-176914-b-...	304298.282	7.13019E+08	1.177	48421.129	61577627.42	1.116	110.621	86926.21	8.686
43	400-176914-b-...	75980.881	1.84369E+08	1.618	53255.079	70101315.62	1.288	56.754	48232.16	1.429
44	400-176914-b-...	74688.528	1.76138E+08	0.448	52714.349	67434517.33	0.930	73.254	59282.62	1.461
45	400-176914-b-2-...	85907.414	1.99806E+08	1.644	63842.537	80551058.80	1.956	2049.709	1524920.71	2.519
46	400-176914-b-2-...	81545.035	1.92589E+08	0.662	60811.281	77919237.17	0.285	2010.937	1519445.91	0.351
47	400-176914-b-...	15158.198	37132961.95	3.099	10763.340	14276080.21	2.779	10.903	12825.28	4.891
48	CCV	25158.133	58486202.46	2.131	24996.509	31488827.03	2.539	25253.323	18709243.06	2.489
49	CCB	11.609	139350.96	21.725	0.377	10650.36	120.226	1.717	5364.42	37.596
50	400-176914-b-...	OR		N/A	389173.991	4.92113E+08	1.891	4.398	7405.23	10.533
51	400-176914-b-...	OR		N/A	135233.199	1.56882E+08	1.141	6.398	8152.26	12.438
52	400-176914-b-...	OR		N/A	133052.444	1.53051E+08	1.113	4.994	7135.24	7.458
53	400-176914-b-...	OR		N/A	376953.160	5.03029E+08	1.250	12.300	14076.84	62.469
54	400-176914-b-...	1726.385	4914176.28	6.469	51.536	89618.34	7.066	7.750	11761.08	5.907
55	500-171892-g-...	21386.505	55118417.51	1.192	18588.164	25951417.95	1.638	151.532	128915.84	3.106
56	500-171892-h-...	21278.928	51887542.56	0.807	19730.150	26062722.94	0.281	6.296	9201.92	32.411

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	57253.213	1.44824E+08	0.610	37660.408	51669412.57	0.915	2199.302	1778835.08	0.323
58	500-171892-h-...	63803.104	1.45590E+08	6.091	36358.366	45004134.33	6.141	6.586	8835.97	11.700
59	CCV	25567.051	57866867.47	1.109	25521.372	31300192.87	1.679	26318.808	18981754.30	2.525
60	CCB	226.241	623478.00	0.905	<0.000	6584.84	N/A	0.471	4360.77	75.637
61	500-171892-h-...	50625.822	1.13311E+08	2.846	71992.689	87377575.36	2.958	870.789	625414.29	3.755
62	500-171892-h-...	48619.893	1.11013E+08	0.760	63688.477	78855142.16	1.241	<0.000	3720.56	N/A
63	500-171892-g-...	39905.354	89981188.66	0.286	41646.328	50913159.24	0.849	17.464	16545.16	3.501
64	500-171892-h-...	41280.075	90221691.99	1.158	43101.897	51077634.24	1.064	<0.000	3790.59	N/A
65	500-171892-g-...	38071.412	84333442.08	2.852	37342.003	44837266.00	3.799	1159.200	822543.56	3.161
66	500-171892-h-...	38322.317	83417518.76	1.273	38799.940	45789997.65	0.998	1.981	5227.80	36.546
67	CCV	25540.387	53919207.53	1.458	25699.224	29400608.73	0.803	26029.890	17512756.41	0.855
68	CCB	146.641	426921.19	0.812	<0.000	6520.94	N/A	<0.000	3560.51	N/A
69	CCVL	347.647	880419.60	0.918	202.233	253630.58	0.433	99.676	74631.56	0.519
70	mb 500-51358...	170.736	483304.34	3.618	<0.000	7328.52	N/A	<0.000	3713.89	N/A
71	lcs 500-513582...	11099.258	22108665.50	12.080	11236.090	12098063.99	12.589	2231.145	1415308.52	12.722
72	500-172264-e-...	89659.405	1.97800E+08	0.346	156893.224	1.87758E+08	1.217	2.158	5428.97	117.302
73	500-172264-e-...	94623.191	2.11303E+08	7.977	167714.612	2.03099E+08	8.668	1.426	5004.30	43.254
74	500-172264-e-...	103724.755	2.33703E+08	0.847	174651.023	2.13483E+08	0.615	2040.153	1470602.43	0.887
75	500-172264-e-...	99376.491	2.18181E+08	0.417	167828.667	1.99893E+08	0.702	1986.755	1395613.42	0.802
76	500-172264-e-...	19746.649	43871742.68	2.485	35114.751	42242834.37	3.363	0.116	4007.30	503.035
77	500-172264-e-...	97789.945	2.14592E+08	0.697	148513.961	1.76802E+08	0.334	3.069	6037.93	23.975
78	500-172264-e-...	36477.541	80571775.47	0.900	32230.826	38595404.42	1.206	14.434	14066.21	10.493
79	500-172264-e-...	136252.015	3.08172E+08	9.293	59239.138	72687925.58	9.589	2.458	5764.51	43.932
80	CCV	25226.836	53423924.20	1.597	25241.124	28962525.40	2.471	25635.727	17298890.99	2.489
81	CCB	103.198	318202.14	4.724	0.340	9603.06	222.449	1.109	4450.77	56.459
82	500-172264-e-...	107610.162	2.31554E+08	1.225	57196.574	66780107.34	0.746	7.008	8644.42	40.787
83	500-172264-e-...	18801.710	41021024.39	1.519	32595.013	38504496.93	1.866	3.395	6211.38	18.735
84	500-172264-e-...	189402.511	4.00797E+08	1.424	220881.676	2.53587E+08	2.241	1.085	4484.14	27.487
85	500-172264-e-...	226849.188	4.76268E+08	1.859	156876.285	1.78718E+08	2.411	2.440	5351.08	30.178
86	0-172264-e-9-a	227609.549	4.58374E+08	1.552	57763.138	63129902.39	1.699	0.762	4060.66	22.213

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	231509.558	4.98390E+08	1.699	130897.694	1.52912E+08	1.978	2.124	5271.06	46.588
88	500-172264-e-...	43780.611	94184701.93	2.701	73827.363	86101922.05	3.392	20.328	17763.15	2.275
89	500-172264-e-...	81535.118	1.71489E+08	22.415	46944.709	53536457.54	22.972	2.390	5354.41	63.217
90	500-172264-e-...	86935.568	1.81385E+08	8.710	55064.356	62282872.41	10.020	1.909	4954.28	51.186
91	500-172264-e-...	91801.931	2.02535E+08	2.025	195635.540	2.34130E+08	1.824	3.653	6478.14	14.818
92	CCV	25297.627	53040505.88	1.782	25352.512	28804023.74	0.488	26015.875	17382837.24	1.300
93	CCB	75.648	257031.43	4.370	1.561	10860.56	35.214	1.942	4957.59	33.181
94	500-172264-e-...	70317.011	1.47638E+08	21.090	121340.370	1.37938E+08	22.380	0.448	3977.34	403.593
95	500-172264-e-...	87633.562	1.87948E+08	1.001	126751.324	1.47472E+08	1.357	7.345	8825.91	3.482
96	500-172264-e-...	76936.202	1.62217E+08	0.195	16000.810	18308002.23	0.215	4.972	7078.41	5.048
97	mb 500-51365...	81.443	281935.52	25.550	<0.000	8145.60	N/A	0.237	3997.28	464.095
98	lcs 500-513652...	10006.216	21316958.85	1.045	10033.384	11553929.41	1.125	1981.132	1344303.63	2.384
99	lcsd 500-51365...	11319.204	21213236.35	17.651	11538.634	11694689.41	17.554	2286.872	1364683.15	18.214
100	500-171453-a-...	47143.882	1.10872E+08	1.329	7862.997	10035852.77	1.470	<0.000	1086.75	N/A
101	500-171453-a-...	78.507	289977.88	4.042	17.288	31191.59	216.474	289.379	214734.05	1.664
102	CCV	25792.026	53070420.88	1.229	25640.258	28588121.24	1.150	26242.250	17207830.16	1.167
103	CCB	64.184	231734.77	1.720	<0.000	7965.50	N/A	2.320	5164.34	24.291

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	1.660	288876.06	832.120	<0.000	1402.02	N/A	0.032	23.33	122.636
2	ICIS	0.000	290792.00	N/A	0.000	1527.50	N/A	0.000	6.67	N/A
3	Std1	1048.480	2303199.08	0.753	1018.381	95940.58	1.476	10.375	5577.81	5.260
4	Std2	10376.748	19439084.29	1.754	10307.162	922845.87	2.120	101.952	52809.54	2.566
5	Std3	49923.681	92272081.96	0.721	49938.200	4458007.77	0.690	499.602	258350.81	0.931
6	S1	49302.382	92801471.95	1.267	49302.865	4482573.81	0.775	496.118	261268.58	1.704
7	ICV	20180.181	37921692.77	1.242	19927.546	1801437.42	0.380	199.581	104476.31	2.416
8	ICB	<0.000	278643.72	N/A	3.475	1789.59	24.482	0.124	70.00	27.556
9	ICVL	568.161	1247834.62	11.488	211.466	19054.02	11.567	5.118	2493.62	2.392
10	icsa	102142.720	1.96420E+08	2.803	103277.603	9607257.59	2.038	2038.608	1098560.32	1.972
11	icsab	102986.992	1.92113E+08	3.250	105017.349	9474835.57	3.511	2085.588	1090013.94	3.823
12	CRI	1032.836	2273071.01	10.243	400.424	38628.92	11.059	10.215	5491.11	9.465
13	CCV	25977.859	48348975.95	8.875	25756.796	2308619.02	9.446	259.271	134648.51	8.535
14	CCB	0.681	285311.97	299.431	1.416	1614.93	143.716	0.084	50.00	46.038
15	mb 500-51365...	<0.000	281997.83	N/A	0.565	1543.11	262.730	0.057	36.67	44.693
16	lcs 500-513650...	9593.563	18916607.22	10.294	8517.141	801073.43	11.768	946.589	514645.36	12.345
17	500-172222-g-...	36.108	372601.99	72.128	2.835	1848.00	120.403	0.233	133.34	33.476
18	500-172222-g-...	29.410	379506.18	98.554	0.077	1695.97	1488.742	0.063	43.33	34.700
19	500-172222-g-...	4589.363	10001301.10	12.134	38458.718	3927767.18	11.903	0.181	113.35	80.415
20	500-172222-g-...	4757.962	9904273.60	3.614	40097.758	3916123.07	3.899	0.099	63.33	22.510
21	500-172222-g-...	4608.745	9629300.90	3.036	38997.712	3819627.62	2.609	0.864	504.60	116.278
22	500-172222-g-...	45.687	416013.47	38.441	10.697	2758.20	32.799	0.046	33.33	110.755
23	500-172222-g-...	39.234	404993.54	27.740	17.465	3447.59	32.697	<0.000	6.67	N/A
24	500-172222-g-...	4260.573	9107404.45	3.687	41516.655	4149391.07	2.700	0.142	90.00	28.846
25	CCV	25871.794	47342179.29	1.825	25522.177	2250035.27	1.299	254.616	129989.01	1.846
26	CCB	15.526	289929.33	156.164	7.208	2000.29	12.146	0.076	40.00	99.283

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	4243.203	9182753.20	0.347	41357.352	4183438.42	0.418	0.243	150.03	64.000
28	500-172222-g-...	12757.685	28667938.74	14.862	44441.305	4776653.11	15.444	899.090	559779.65	15.384
29	500-172222-g-...	15333.147	31200219.54	1.174	50219.635	4901439.29	0.709	1108.999	626963.26	0.913
30	500-172222-g-...	788.497	1836535.03	1.199	7694.404	726853.64	1.360	0.537	300.01	29.425
31	500-172222-g-...	4065.942	9140578.20	4.761	39313.104	4124133.30	4.953	0.207	133.34	22.053
32	500-172222-g-...	3327.141	6882801.56	3.575	86848.077	8315724.00	3.698	0.155	93.34	27.267
33	500-172222-g-...	3491.026	6919737.61	1.477	90861.090	8351911.18	2.383	0.156	90.00	18.859
34	500-172222-g-...	3419.510	6997079.48	4.348	88688.755	8409361.12	4.100	0.198	116.67	42.974
35	500-172222-g-...	3878.005	7905112.59	1.242	87729.913	8329621.11	1.353	0.102	63.33	45.166
36	500-172222-g-...	4030.197	8033430.92	1.766	79332.604	7376148.67	1.758	0.203	116.67	45.160
37	CCV	25044.705	46447352.64	1.152	24611.351	2198602.69	0.375	246.361	127443.75	0.485
38	CCB	5.527	283744.15	40.081	<0.000	1399.02	N/A	0.014	13.33	82.898
39	CCVL	535.986	1258129.33	0.936	196.678	18819.20	3.726	4.949	2533.64	7.176
40	mb 500-51356...	18.367	306007.78	61.229	27.925	3807.25	23.353	0.080	46.67	31.693
41	lcs 500-513568...	10417.569	18851000.14	1.914	9134.555	790322.45	1.672	1018.434	509681.53	1.025
42	400-176914-b-...	705.597	1537430.34	2.312	123227.314	10662464.92	1.269	3.677	1850.18	7.552
43	400-176914-b-...	735.176	1646289.56	1.430	126146.868	11298260.22	1.238	1.284	673.38	13.373
44	400-176914-b-...	712.253	1558680.50	1.441	123735.298	10770510.87	0.298	2.347	1190.11	9.260
45	400-176914-b-2-...	10904.496	19601275.13	2.018	135677.336	11647586.96	2.996	1004.043	499404.46	1.919
46	400-176914-b-2-...	10681.925	19502501.79	1.226	127693.482	11132421.48	0.140	987.784	498959.87	0.441
47	400-176914-b-...	137.935	545734.32	7.012	24131.373	2177616.79	2.967	0.488	263.35	36.961
48	CCV	25145.429	44763859.34	1.550	24756.697	2122696.73	2.449	245.345	121847.25	2.693
49	CCB	2.952	279007.13	99.214	1.409	1557.14	33.920	0.034	23.33	36.383
50	400-176914-b-...	17797.671	31891115.36	2.080	261687.564	22516861.05	2.109	0.209	110.01	14.605
51	400-176914-b-...	1220895.850	1.98980E+09	1.620	584234.489	46114255.27	1.321	0.630	293.35	14.110
52	400-176914-b-...	1226032.981	1.98141E+09	1.073	585279.505	45812417.33	0.517	0.516	240.01	14.393
53	400-176914-b-...	7303.646	13980612.71	2.178	683095.374	62026998.40	1.477	0.404	220.01	23.927
54	400-176914-b-...	88.395	514268.61	6.134	140.535	16091.33	3.229	0.111	73.33	53.704
55	500-171892-g-...	650.251	1579149.66	1.902	44372.642	4214948.73	1.680	2.496	1376.85	27.787
56	500-171892-h-...	587.035	1376821.80	1.087	46031.692	4137190.94	0.307	0.256	140.00	58.489

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	1648.105	3474911.20	1.341	114842.517	10720163.30	0.637	32.573	17621.71	8.032
58	500-171892-h-...	1492.582	2864694.44	6.728	106699.576	8986567.50	5.828	0.558	276.68	33.780
59	CCV	26202.834	45400067.66	1.312	25740.236	2148722.34	1.340	255.742	123623.39	2.131
60	CCB	16.666	297193.35	14.403	1.361	1521.94	79.527	0.056	33.33	76.185
61	500-171892-h-...	1598.715	2990118.71	3.609	178622.062	14751451.79	2.832	16.280	7777.69	19.932
62	500-171892-h-...	1411.707	2725086.84	1.334	158557.866	13357638.97	0.487	0.219	113.34	5.695
63	500-171892-g-...	1567.657	2958442.98	0.305	115346.041	9594510.26	0.179	0.610	300.02	24.773
64	500-171892-h-...	1587.963	2901299.75	1.982	118145.056	9525183.68	1.880	0.187	93.34	6.672
65	500-171892-g-...	1240.971	2354669.18	4.110	109615.001	8954263.99	4.223	30.099	14290.88	9.577
66	500-171892-h-...	1186.821	2224562.15	0.931	108580.715	8718763.43	0.580	0.202	100.00	9.842
67	CCV	25932.404	41913106.88	1.048	25398.147	1977699.63	0.157	251.152	113251.35	0.505
68	CCB	7.923	271871.79	35.340	<0.000	1324.25	N/A	0.030	20.00	72.370
69	CCVL	523.944	1150435.30	1.418	203.874	18105.63	3.814	4.473	2133.56	10.961
70	mb 500-51358...	14.617	285290.27	24.239	14.608	2551.20	26.110	0.058	33.33	42.916
71	lcs 500-513582...	11230.791	17212349.33	12.605	9665.638	708853.58	12.609	1087.006	461141.35	12.507
72	500-172264-e-...	3655.954	6407139.70	0.660	34829.795	2837314.83	0.877	0.305	150.01	17.723
73	500-172264-e-...	3959.599	7006295.31	7.006	36974.821	3048976.42	7.894	0.344	170.01	50.055
74	500-172264-e-...	13988.714	24285381.31	1.693	45670.166	3799566.71	0.690	999.085	481457.47	1.044
75	500-172264-e-...	13529.168	22896080.49	0.686	43543.864	3530065.92	0.311	962.892	452151.88	0.777
76	500-172264-e-...	796.864	1608784.92	3.175	7563.644	620364.74	3.152	0.288	143.34	41.015
77	500-172264-e-...	2278.668	4070247.54	0.796	35944.312	2912791.50	0.297	0.434	210.01	36.415
78	500-172264-e-...	573.384	1225438.16	1.559	43222.918	3522270.97	1.135	0.269	133.34	24.299
79	500-172264-e-...	2459.849	4508628.37	9.659	82059.199	6853875.74	9.067	0.171	90.00	16.761
80	CCV	25466.552	41291466.05	1.869	24941.788	1947977.80	2.583	248.216	112254.86	3.170
81	CCB	10.374	264624.38	23.758	14.396	2447.60	171.274	0.319	150.06	67.046
82	500-172264-e-...	3345.827	5741236.16	1.528	51169.551	4065619.05	1.108	0.241	116.67	24.188
83	500-172264-e-...	1090.228	2066485.23	1.393	56260.164	4522305.35	1.922	0.361	173.34	31.640
84	500-172264-e-...	3569.620	6007041.16	2.714	97412.561	7610500.45	2.475	0.319	150.01	8.321
85	500-172264-e-...	5422.584	8926765.70	2.155	172940.547	13405209.69	2.979	0.165	80.00	13.860
86	0-172264-e-9-a	3441.470	5520702.21	2.607	185067.111	13761573.37	1.762	0.118	56.67	55.888

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	2292.899	4017609.73	1.396	140162.947	11141225.71	2.635	0.183	90.00	43.721
88	500-172264-e-...	1759.664	3137346.10	3.043	86851.220	6893124.51	3.145	0.334	160.01	27.657
89	500-172264-e-...	3091.809	5204070.55	23.497	41852.495	3244594.19	23.615	0.227	100.01	74.263
90	500-172264-e-...	2700.432	4540359.93	9.199	64887.417	4994461.86	10.020	0.226	103.34	73.301
91	500-172264-e-...	4879.242	8464628.00	0.361	49729.572	4050760.92	1.586	0.595	286.68	8.127
92	CCV	25655.948	41184061.05	1.332	24969.816	1930991.78	1.291	247.792	110963.32	2.271
93	CCB	11.576	262923.08	47.838	3.119	1521.53	53.385	0.055	30.00	107.883
94	500-172264-e-...	2607.737	4422827.33	21.937	108578.195	8409780.24	21.569	0.133	70.00	71.458
95	500-172264-e-...	1506.400	2715709.75	0.936	109242.093	8648763.75	1.642	0.177	86.67	68.819
96	500-172264-e-...	2071.743	3577839.42	0.625	37823.295	2944501.51	0.341	0.150	73.33	47.162
97	mb 500-51365...	13.790	278919.23	209.247	2.075	1502.13	196.352	0.043	26.67	113.790
98	lcs 500-513652...	10032.937	16468857.25	1.939	8493.003	666181.60	2.499	963.722	437141.88	2.513
99	lcsd 500-51365...	11408.679	16453371.84	17.822	9778.994	675275.38	17.277	1115.393	445305.12	17.756
100	500-171453-a-...	<0.000	275804.27	N/A	32735.105	2841507.89	1.137	0.114	63.33	46.146
101	500-171453-a-...	<0.000	269681.08	N/A	<0.000	1077.96	N/A	0.076	43.33	41.692
102	CCV	26152.166	41193469.39	1.478	25314.356	1921114.68	1.490	253.558	111443.49	1.894
103	CCB	7.672	255051.30	33.615	<0.000	1252.64	N/A	0.063	33.33	40.652

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.111	24725.61	165.744	<0.000	2686.99	N/A	<0.000	823.39	N/A
2	ICIS	0.000	23704.20	N/A	0.000	2937.07	N/A	0.000	1483.47	N/A
3	Std1	10.058	159501.99	1.338	10.437	151221.94	1.451	10.181	114368.22	2.321
4	Std2	102.431	1352510.14	1.939	104.720	1437240.24	2.515	103.840	1111747.87	1.964
5	Std3	499.513	6494071.57	0.408	499.047	6827422.19	0.607	499.228	5330364.92	0.805
6	S1	493.174	6530501.36	0.200	493.368	6874479.27	0.498	492.613	5356640.75	0.705
7	ICV	198.244	2622941.16	0.617	203.574	2820649.85	0.676	202.103	2184981.63	0.778
8	ICB	<0.000	21037.16	N/A	<0.000	2823.70	N/A	<0.000	1173.43	N/A
9	ICVL	5.317	86225.89	14.142	5.628	74701.53	10.972	2.789	29222.68	10.539
10	icsa	<0.000	10927.34	N/A	0.620	11844.73	0.985	0.328	5164.34	10.875
11	icsab	19.607	280345.36	3.041	21.230	296362.56	3.804	21.360	231931.38	3.833
12	CRI	10.025	158923.05	12.201	10.380	150175.70	11.972	5.391	61258.76	9.340
13	CCV	259.380	3397036.51	8.985	263.198	3615038.17	9.691	259.870	2786288.29	9.105
14	CCB	<0.000	22288.67	N/A	<0.000	2666.98	N/A	<0.000	1293.43	N/A
15	mb 500-51365...	<0.000	22796.09	N/A	<0.000	2740.37	N/A	<0.000	543.37	N/A
16	lcs 500-513650...	471.282	6445874.91	11.962	197.162	2838019.75	12.266	488.625	5486703.25	12.012
17	500-172222-g-...	<0.000	9139.48	N/A	<0.000	2910.36	N/A	0.013	1683.49	257.010
18	500-172222-g-...	<0.000	8275.70	N/A	<0.000	2293.59	N/A	0.013	1796.84	79.675
19	500-172222-g-...	<0.000	14189.94	N/A	0.055	4164.02	60.109	296.253	3619112.44	11.881
20	500-172222-g-...	<0.000	14860.37	N/A	0.064	4110.69	44.933	310.175	3623507.13	3.902
21	500-172222-g-...	<0.000	15841.43	N/A	<0.000	2907.03	N/A	314.243	3681765.88	2.223
22	500-172222-g-...	<0.000	9840.03	N/A	0.123	5144.33	13.525	0.062	2386.95	36.493
23	500-172222-g-...	<0.000	10153.54	N/A	0.016	3527.22	109.616	<0.000	866.73	N/A
24	500-172222-g-...	<0.000	13415.93	N/A	<0.000	2533.62	N/A	16.233	195625.77	2.316
25	CCV	256.650	3305187.35	1.522	259.406	3504969.85	1.315	256.950	2709276.11	0.907
26	CCB	0.050	22071.81	519.841	0.016	2850.36	266.117	0.010	1450.14	152.603

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	<0.000	11664.47	N/A	<0.000	2533.63	N/A	16.392	199898.54	0.630
28	500-172222-g-...	446.085	6985523.64	15.460	185.608	3060272.97	15.165	475.637	6115184.91	15.302
29	500-172222-g-...	547.324	7777254.88	0.728	227.839	3409546.93	0.936	579.744	6767302.61	0.778
30	500-172222-g-...	0.091	25850.53	57.312	0.010	3193.80	116.810	3.145	37001.38	0.428
31	500-172222-g-...	<0.000	13279.10	N/A	<0.000	2760.34	N/A	30.241	380890.75	5.733
32	500-172222-g-...	<0.000	17803.40	N/A	0.007	3193.76	358.024	202.438	2319621.11	3.085
33	500-172222-g-...	<0.000	18597.58	N/A	0.035	3467.16	23.927	209.856	2308486.99	1.989
34	500-172222-g-...	<0.000	17546.60	N/A	<0.000	3033.74	N/A	134.579	1527829.87	3.687
35	500-172222-g-...	<0.000	15057.18	N/A	0.000	3077.07	2182.658	290.533	3300487.14	1.063
36	500-172222-g-...	0.424	29994.14	9.542	<0.000	2957.07	N/A	135.368	1506779.67	0.553
37	CCV	247.358	3228813.49	0.046	250.398	3428383.49	0.425	248.080	2650447.88	0.729
38	CCB	0.049	22926.27	109.433	<0.000	2753.68	N/A	<0.000	1013.41	N/A
39	CCVL	5.336	91331.92	3.743	5.330	74872.65	1.428	2.550	28337.96	1.153
40	mb 500-51356...	<0.000	11174.12	N/A	0.074	3737.24	13.044	0.020	1603.48	76.871
41	lcs 500-513568...	508.080	6391836.57	1.716	211.745	2805075.27	1.386	522.945	5403160.13	1.686
42	400-176914-b-...	5.635	93366.06	0.976	4.807	66521.39	1.735	77.532	803743.97	1.326
43	400-176914-b-...	3.911	74216.39	4.453	0.162	5117.65	10.260	855.738	9167395.28	1.982
44	400-176914-b-...	3.698	69439.70	1.238	0.150	4820.91	12.051	846.582	8814005.07	1.193
45	400-176914-b-2-...	510.064	6378028.24	2.078	208.051	2739357.56	2.569	1444.013	14827425.20	2.336
46	400-176914-b-2-...	497.259	6315086.57	0.314	201.971	2700792.25	0.483	1375.646	14344526.87	0.408
47	400-176914-b-...	1.240	39774.38	10.284	0.025	3270.47	93.004	167.912	1812468.93	3.512
48	CCV	249.369	3123978.39	2.783	252.386	3316565.16	2.816	250.411	2567869.86	2.329
49	CCB	0.103	23587.30	35.786	0.041	3300.47	35.540	0.030	1700.18	30.446
50	400-176914-b-...	4.929	84075.54	3.955	0.263	6248.10	5.626	1012.110	10415417.97	2.464
51	400-176914-b-...	2.325	47223.35	9.267	0.255	5637.84	16.236	3044.643	28744202.90	1.574
52	400-176914-b-...	1.313	35324.66	18.816	0.231	5307.72	3.040	3119.377	29204663.73	0.482
53	400-176914-b-...	1.875	48419.89	3.483	1.229	20032.50	0.958	10286.238	1.11709E+08	1.549
54	400-176914-b-...	3.483	78411.38	1.265	0.325	8409.08	8.422	1.632	21627.87	6.726
55	500-171892-g-...	1.363	43580.34	11.808	4.876	74019.08	1.831	7956.969	90373255.32	1.855
56	500-171892-h-...	0.756	33313.84	11.526	1.206	19515.24	3.993	8702.921	93527245.27	0.189

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	6.460	111885.16	1.472	5.693	84445.13	1.912	468.158	5228028.36	1.060
58	500-171892-h-...	0.994	34178.88	6.539	0.394	7815.47	9.428	399.183	4021818.69	6.105
59	CCV	253.971	3097259.12	2.014	254.694	3258617.87	1.667	257.288	2568645.07	1.692
60	CCB	0.150	23684.16	34.301	<0.000	2637.00	N/A	0.094	2313.60	9.369
61	500-171892-h-...	2.786	54963.68	3.711	3.330	44820.58	4.479	2934.541	28983176.23	3.398
62	500-171892-h-...	<0.000	13606.06	N/A	0.378	7602.04	9.906	2079.091	20949774.69	0.283
63	500-171892-g-...	1.485	39637.19	7.042	1.205	18043.22	18.870	417.327	4152892.54	0.569
64	500-171892-h-...	1.425	37723.04	3.500	0.841	12998.73	2.145	441.499	4258556.39	1.233
65	500-171892-g-...	5.119	82005.82	6.783	7.767	99922.38	2.212	37.502	367748.99	3.594
66	500-171892-h-...	1.588	39470.26	2.233	1.524	21347.67	2.911	35.656	343722.20	0.930
67	CCV	254.478	2894911.62	0.719	258.539	3085554.02	1.208	256.466	2388395.07	0.115
68	CCB	0.199	23407.02	40.780	0.015	2797.19	185.385	0.043	1733.51	32.335
69	CCVL	5.301	84546.74	2.148	5.170	67658.85	1.114	2.560	26454.85	4.065
70	mb 500-51358...	0.419	26177.88	22.982	0.134	4297.41	18.256	0.078	2090.22	30.178
71	lcs 500-513582...	547.770	5837905.33	13.223	227.452	2553126.52	13.102	565.400	4950476.49	13.099
72	500-172264-e-...	1.742	41849.36	5.159	0.307	6468.20	2.055	269.647	2627559.44	0.836
73	500-172264-e-...	2.261	48540.36	16.631	0.160	4690.84	21.652	286.254	2823181.63	8.122
74	500-172264-e-...	501.320	6073751.57	0.871	203.702	2598763.45	0.397	797.599	7935412.18	1.032
75	500-172264-e-...	485.868	5736728.66	0.448	196.600	2444066.42	0.613	768.368	7449153.64	0.274
76	500-172264-e-...	2.712	53599.42	0.332	0.093	3810.60	15.845	59.281	581593.51	3.694
77	500-172264-e-...	6.278	94959.37	1.939	0.662	10830.57	5.382	26.048	253708.07	0.881
78	500-172264-e-...	2.880	55331.17	3.584	0.335	6818.30	6.102	25.396	248769.83	1.824
79	500-172264-e-...	4.439	75665.69	11.108	0.193	5167.72	20.108	0.416	5488.08	24.290
80	CCV	249.658	2848859.23	2.785	252.122	3017818.60	3.029	251.540	2349592.72	2.454
81	CCB	0.592	26862.16	3.621	0.022	2773.69	73.533	0.024	1483.47	30.158
82	500-172264-e-...	3.595	62211.67	4.429	0.187	4840.89	16.937	5.340	52020.74	3.204
83	500-172264-e-...	2.026	44603.11	6.720	0.216	5267.74	6.184	62.331	600465.46	1.569
84	500-172264-e-...	3.341	58281.18	2.715	0.292	6021.33	5.740	295.009	2757927.98	1.695
85	500-172264-e-...	2.803	51796.41	2.407	0.244	5404.41	10.005	58.288	541715.57	1.573
86	0-172264-e-9-a	2.949	51221.49	6.681	0.208	4780.88	7.236	11.220	100986.91	2.780

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	3.408	60076.99	1.575	0.434	7855.54	4.127	195.601	1860839.66	2.223
88	500-172264-e-...	3.366	59498.30	3.482	0.469	8263.01	10.753	4.038	39634.10	2.012
89	500-172264-e-...	4.059	65908.81	33.617	0.496	8415.74	31.011	5.553	52883.58	22.673
90	500-172264-e-...	3.913	63854.36	12.452	0.268	5651.19	18.647	17.075	158426.99	10.088
91	500-172264-e-...	10.966	150880.22	2.805	0.955	14556.86	1.867	70.977	692639.60	1.595
92	CCV	251.973	2846841.73	1.315	253.812	3008268.18	1.124	252.453	2334910.07	1.319
93	CCB	0.769	28448.12	19.297	0.045	3007.06	23.959	0.035	1560.85	95.954
94	500-172264-e-...	2.935	53150.83	35.838	0.259	5587.83	40.072	22.899	213123.68	22.516
95	500-172264-e-...	3.272	58257.69	5.857	0.362	6948.44	4.570	224.474	2126766.11	1.179
96	500-172264-e-...	3.042	54679.75	3.181	0.149	4290.72	15.837	188.945	1759875.91	0.278
97	mb 500-51365...	2.041	44593.04	31.631	0.015	2780.34	200.714	0.012	1440.12	65.511
98	lcs 500-513652...	483.589	5516054.29	1.611	199.766	2398807.62	2.689	500.147	4684662.02	1.839
99	lcsd 500-51365...	558.294	5599729.08	18.164	231.613	2447428.04	17.840	576.909	4754343.26	18.014
100	500-171453-a-...	<0.000	13212.47	N/A	<0.000	1630.15	N/A	0.037	1800.18	64.621
101	500-171453-a-...	798.134	9781656.52	0.672	185.698	2399800.64	0.799	566.712	5711204.08	1.258
102	CCV	256.717	2846066.10	1.580	258.350	3005002.35	1.622	257.381	2336102.10	1.331
103	CCB	0.551	25870.78	12.342	0.050	3030.40	57.560	0.046	1653.48	53.299

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.768	53313.09	20.335	0.005	276.68	68.347	0.004	306.69	66.884
2	ICIS	0.000	44081.81	N/A	0.000	173.34	N/A	0.000	293.35	N/A
3	Std1	1055.513	14053365.62	0.282	10.515	211944.06	0.748	10.439	52596.13	1.290
4	Std2	10513.809	1.34632E+08	2.057	105.828	2055923.30	2.217	106.111	513014.43	2.193
5	Std3	49896.128	6.37696E+08	0.324	498.824	9674166.52	0.721	498.769	2406346.94	0.705
6	S1	49177.440	6.40069E+08	1.058	492.892	9734684.65	1.169	492.260	2418709.60	0.721
7	ICV	20082.282	2.59820E+08	0.901	202.343	3972010.98	0.437	204.025	996513.29	0.904
8	ICB	3.385	85630.52	5.977	0.041	960.07	20.269	0.027	413.36	56.204
9	ICVL	114.277	1407186.54	10.171	1.149	21060.59	6.548	2.328	10787.24	8.870
10	icsa	98238.055	1.30829E+09	2.369	0.258	5401.09	1.521	0.219	1400.12	15.707
11	icsab	101354.116	1.30912E+09	3.994	20.346	398743.82	5.914	19.682	96221.01	5.101
12	CRI	219.830	2960664.95	10.091	2.108	42608.04	10.125	4.206	21370.93	8.918
13	CCV	26102.123	3.34883E+08	9.395	263.244	5124539.61	9.397	261.627	1267175.94	9.329
14	CCB	3.669	89631.39	5.203	0.028	703.38	34.611	0.038	470.03	46.485
15	mb 500-51365...	1.552	61733.10	90.285	0.005	276.68	74.334	0.003	300.02	148.416
16	lcs 500-513650...	1000.594	13492661.47	12.153	488.861	9976289.02	11.249	492.746	2499970.33	12.080
17	500-172222-g-...	0.717	55414.73	93.579	0.090	2036.92	41.261	0.190	1273.44	30.724
18	500-172222-g-...	0.239	51974.33	175.867	0.016	540.03	12.589	0.283	1856.85	11.232
19	500-172222-g-...	14.017	254381.79	15.508	0.107	2583.66	6.661	1.382	7985.57	7.795
20	500-172222-g-...	13.836	240835.97	5.274	0.124	2823.70	9.630	1.376	7578.70	1.241
21	500-172222-g-...	14.557	251664.03	2.934	0.085	2003.53	4.062	1.504	8269.07	6.623
22	500-172222-g-...	12.281	225354.68	8.345	0.007	343.35	22.558	0.270	1786.84	14.893
23	500-172222-g-...	0.262	52816.96	64.078	0.002	226.68	91.582	0.148	1133.42	9.604
24	500-172222-g-...	7.710	158858.68	2.919	0.043	1133.43	24.607	0.896	5164.32	2.969
25	CCV	25910.406	3.26948E+08	1.162	259.851	4975294.09	1.164	258.901	1233367.84	0.624
26	CCB	4.905	97400.94	30.822	0.039	856.72	24.394	0.054	503.36	49.432

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	8.372	170335.31	1.172	0.051	1310.11	17.399	0.948	5507.78	5.711
28	500-172222-g-...	932.671	14404669.78	15.334	454.728	10615199.22	15.638	458.770	2664868.30	15.438
29	500-172222-g-...	1148.490	16094011.01	0.873	554.701	11760928.99	1.494	559.424	2950726.31	0.939
30	500-172222-g-...	2.237	75994.19	3.142	0.088	1980.19	14.121	0.227	1460.12	0.186
31	500-172222-g-...	9.742	197248.19	6.278	0.054	1423.46	1.988	0.856	5187.68	5.770
32	500-172222-g-...	24.913	388064.07	2.490	0.106	2376.92	9.898	2.509	13299.13	7.407
33	500-172222-g-...	36.652	527004.28	2.637	0.105	2266.92	7.344	2.563	13022.19	5.613
34	500-172222-g-...	10.641	190404.38	9.115	0.099	2220.24	14.165	2.402	12608.56	5.799
35	500-172222-g-...	13.546	230271.31	1.058	0.172	3720.58	1.512	2.016	10650.45	4.099
36	500-172222-g-...	4.559	105857.36	4.196	0.118	2556.97	3.488	3.185	16305.21	0.481
37	CCV	25018.543	3.19888E+08	0.519	251.613	4881577.22	0.587	250.101	1207187.33	1.199
38	CCB	2.414	71106.83	3.399	0.030	723.39	37.007	0.014	343.35	214.387
39	CCVL	106.399	1386216.49	1.226	1.074	20753.55	1.723	2.210	10813.87	5.239
40	mb 500-51356...	3.931	89479.80	15.751	0.005	263.35	69.304	0.053	523.37	27.447
41	lcs 500-513568...	1071.818	13298084.38	1.082	524.286	9839803.81	1.487	529.633	2472805.69	1.470
42	400-176914-b-...	143.679	1822285.03	1.143	0.692	13175.72	1.893	5.147	24345.14	3.179
43	400-176914-b-...	95.128	1263401.49	2.182	0.572	11297.61	3.291	0.532	2863.69	6.179
44	400-176914-b-...	118.162	1514909.66	1.183	0.548	10537.05	4.802	0.572	2970.39	5.518
45	400-176914-b-2-...	1066.276	13148148.14	2.817	502.110	9366195.48	2.701	500.926	2324737.15	1.354
46	400-176914-b-2-...	1041.319	13042449.39	1.255	492.631	9331220.90	1.139	487.843	2298884.03	0.638
47	400-176914-b-...	18.948	288471.44	4.464	0.165	3397.16	7.527	0.140	976.74	18.317
48	CCV	25344.699	3.11045E+08	2.271	253.758	4725286.07	2.357	251.922	1167106.26	2.624
49	CCB	4.786	100039.48	9.153	0.062	1316.78	9.672	0.036	443.36	35.905
50	400-176914-b-...	748.241	9261089.86	2.134	2.003	37596.15	5.023	3.181	15067.27	4.004
51	400-176914-b-...	15784.109	1.78458E+08	0.751	0.858	14863.83	2.687	9.628	41328.55	2.282
52	400-176914-b-...	15994.067	1.79294E+08	1.146	0.843	14486.82	3.499	9.431	40155.54	2.877
53	400-176914-b-...	10505.970	1.36652E+08	1.066	2.740	54228.03	1.724	5.435	26962.40	2.876
54	400-176914-b-...	58.343	904106.65	1.306	0.003	253.35	63.125	0.085	800.06	7.891
55	500-171892-g-...	32054.609	4.35919E+08	1.883	68.082	1405153.99	0.993	13.084	67486.04	1.959
56	500-171892-h-...	32799.725	4.22047E+08	0.892	68.869	1344807.33	0.606	12.913	63002.18	0.918

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	6155.334	82319897.11	0.572	1.627	33183.82	1.282	13.686	69343.40	2.643
58	500-171892-h-...	2911.751	35150104.48	6.210	0.289	5454.43	6.781	1.718	8088.98	7.674
59	CCV	25746.363	3.07630E+08	1.344	254.104	4606957.01	1.482	253.548	1143654.15	1.840
60	CCB	4.825	98547.14	64.441	0.028	666.72	30.174	<0.000	220.01	N/A
61	500-171892-h-...	5234.266	61937459.08	2.634	15.377	276034.07	4.367	58.199	259999.00	4.162
62	500-171892-h-...	3546.459	42822424.36	0.889	9.190	168402.06	0.512	34.497	157347.30	1.634
63	500-171892-g-...	2442.044	29125230.40	1.169	4.276	77451.40	0.428	5.749	26114.39	1.475
64	500-171892-h-...	2409.846	27860378.75	1.105	4.992	87603.89	0.950	5.157	22732.76	2.088
65	500-171892-g-...	1098.319	12886406.06	3.976	0.900	16148.26	2.639	6.847	30501.99	3.143
66	500-171892-h-...	45.488	561970.24	1.474	0.295	5307.73	1.728	4.464	19632.14	3.792
67	CCV	26227.770	2.92320E+08	1.186	259.096	4381787.23	1.068	257.295	1082582.20	1.113
68	CCB	2.279	65555.40	9.064	0.023	550.03	9.160	<0.000	173.34	N/A
69	CCVL	103.800	1259317.56	1.868	1.040	18694.30	3.204	2.202	10029.99	5.230
70	mb 500-51358...	3.653	82086.21	5.835	0.004	220.01	123.645	0.021	356.68	146.832
71	lcs 500-513582...	1176.808	12374423.57	12.462	578.741	9197140.28	14.231	568.372	2248597.52	13.173
72	500-172264-e-...	238.675	2822629.34	0.993	0.638	11444.38	7.692	0.774	3667.22	9.596
73	500-172264-e-...	248.099	2967350.06	8.832	0.621	11284.21	7.183	1.107	5194.35	11.106
74	500-172264-e-...	1284.785	15342054.77	0.929	499.355	9025372.16	0.230	490.179	2203903.56	0.967
75	500-172264-e-...	1244.455	14481468.95	0.608	485.979	8558807.17	0.438	473.187	2073147.10	0.593
76	500-172264-e-...	52.797	658529.44	3.245	0.198	3673.90	6.147	0.206	1176.76	3.576
77	500-172264-e-...	12.714	186830.17	1.118	0.162	3010.39	6.142	0.572	2763.69	8.039
78	500-172264-e-...	15.237	217328.30	0.781	0.179	3323.82	6.082	1.023	4767.52	5.529
79	500-172264-e-...	7.554	130593.24	18.930	0.063	1303.44	7.048	1.104	5264.39	6.732
80	CCV	25647.590	2.86711E+08	2.217	252.656	4285707.96	1.979	251.094	1059634.52	2.492
81	CCB	3.683	78397.59	12.872	0.041	833.39	20.571	0.027	363.35	73.109
82	500-172264-e-...	9.606	147711.67	12.062	0.039	820.06	31.848	0.635	2983.74	2.817
83	500-172264-e-...	24.330	319031.45	1.920	0.165	3040.40	6.003	1.517	6848.33	7.680
84	500-172264-e-...	61.858	730132.70	1.639	0.892	15297.62	3.456	2.121	9212.87	0.497
85	500-172264-e-...	10.961	159330.10	2.474	0.099	1813.51	2.745	2.099	9046.12	3.495
86	0-172264-e-9-a	15.985	206331.83	1.833	0.105	1843.52	14.206	6.317	25630.19	2.709

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	34.940	436284.58	3.000	0.918	16011.57	4.534	136.991	588828.79	2.325
88	500-172264-e-...	25.237	325359.73	3.071	0.041	850.06	13.460	1.553	6915.04	6.567
89	500-172264-e-...	20.725	267689.00	27.345	0.017	460.03	29.480	0.817	3660.55	27.393
90	500-172264-e-...	6.328	107101.25	15.665	0.086	1583.48	5.249	0.994	4377.43	13.483
91	500-172264-e-...	63.968	785491.03	1.958	3.712	65842.69	1.727	0.955	4467.47	4.985
92	CCV	25914.970	2.86847E+08	0.743	254.078	4267304.73	0.368	251.789	1052107.46	0.779
93	CCB	4.943	91139.68	14.948	0.055	1066.75	10.637	0.013	300.01	116.487
94	500-172264-e-...	8.394	130429.38	32.285	0.132	2373.60	20.468	8.313	34997.35	22.672
95	500-172264-e-...	28.020	356101.87	1.427	0.364	6418.19	1.603	1.493	6644.92	1.336
96	500-172264-e-...	107.041	1230617.95	1.187	0.150	2683.66	7.549	0.447	2130.23	4.976
97	mb 500-51365...	1.482	55846.29	54.302	0.001	163.34	194.609	<0.000	163.34	N/A
98	lcs 500-513652...	1042.152	11721565.24	1.733	512.871	8725748.00	1.515	501.342	2121809.65	1.980
99	lcsd 500-51365...	1202.218	11894187.32	17.906	585.974	8770393.41	18.147	576.399	2147061.17	17.720
100	500-171453-a-...	<0.000	33918.41	N/A	0.090	1866.87	3.547	0.085	676.71	25.649
101	500-171453-a-...	1757.292	21239596.35	0.645	0.127	2490.29	4.792	160.334	730303.87	1.646
102	CCV	26375.225	2.86491E+08	1.748	258.491	4260490.77	1.420	257.948	1057674.88	1.864
103	CCB	4.396	84635.30	6.192	0.052	1003.41	8.279	0.024	343.35	68.637

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.031	3244.81	34.193	0.038	880.06	121.270	0.016	794.02	144.136
2	ICIS	0.000	2970.30	N/A	0.000	813.39	N/A	0.000	785.69	N/A
3	Std1	10.687	140197.48	2.438	10.036	27399.71	2.181	9.818	24259.49	1.817
4	Std2	104.529	1312607.86	1.314	102.775	266307.41	2.199	99.749	233448.27	1.290
5	Std3	499.080	6096047.26	1.554	499.444	1258134.23	1.763	500.054	1137339.87	1.675
6	S1	498.647	6140839.76	0.829	497.710	1264028.55	1.077	499.032	1144350.29	0.987
7	ICV	203.914	2535119.21	0.767	202.293	518780.89	0.568	198.116	458779.94	0.054
8	ICB	0.042	3441.51	21.007	0.220	1366.79	16.216	<0.000	701.69	N/A
9	ICVL	2.364	30842.73	11.158	21.823	54245.54	9.933	1.110	3181.98	13.875
10	icsa	0.137	4319.50	16.609	0.739	2530.30	19.600	<0.000	574.34	N/A
11	icsab	21.720	247833.08	3.081	22.909	54048.02	3.273	22.411	47790.92	3.601
12	CRI	7.691	102556.30	8.845	42.071	113083.09	9.396	1.884	5333.86	9.674
13	CCV	259.721	3235213.20	6.885	257.652	661882.15	7.287	255.252	592135.52	7.069
14	CCB	0.028	3335.94	42.568	0.267	1523.46	17.210	<0.000	729.02	N/A
15	mb 500-51365...	<0.000	2814.71	N/A	<0.000	640.04	N/A	<0.000	685.68	N/A
16	lcs 500-513650...	244.665	3219176.89	12.115	486.138	1318033.89	12.580	95.619	234863.66	11.860
17	500-172222-g-...	<0.000	2561.34	N/A	0.111	1156.76	73.008	<0.000	279.33	N/A
18	500-172222-g-...	0.003	3173.67	824.977	1.081	3873.91	13.612	<0.000	227.67	N/A
19	500-172222-g-...	0.554	10716.87	14.852	2.043	6608.21	13.819	1.036	3467.70	11.921
20	500-172222-g-...	0.647	11569.68	5.664	2.240	6921.70	3.372	1.091	3481.37	4.967
21	500-172222-g-...	0.488	9374.93	3.338	1.339	4430.78	9.646	1.127	3533.72	1.038
22	500-172222-g-...	1.620	24603.64	8.870	1.414	4717.52	9.038	<0.000	245.00	N/A
23	500-172222-g-...	0.055	3853.83	17.602	0.091	1103.41	51.276	<0.000	237.33	N/A
24	500-172222-g-...	0.621	11014.82	5.878	0.478	2093.57	6.872	0.868	2876.59	1.577
25	CCV	263.176	3162394.11	1.037	260.551	645806.85	0.717	256.804	574709.58	1.371
26	CCB	0.045	3261.48	50.012	0.276	1406.78	48.575	0.036	798.69	125.115

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	0.615	11191.62	4.949	0.374	1860.19	3.830	0.886	2991.28	4.650
28	500-172222-g-...	245.641	3423452.92	13.583	496.750	1427017.32	13.623	98.405	255744.08	14.444
29	500-172222-g-...	300.578	3806369.85	1.353	609.553	1591308.93	1.143	121.659	287387.28	1.269
30	500-172222-g-...	0.134	4665.15	4.271	0.350	1730.17	15.109	0.161	1165.05	6.835
31	500-172222-g-...	2.382	34980.84	3.969	1.389	4684.18	11.432	0.845	2923.60	9.363
32	500-172222-g-...	0.298	6698.08	2.795	1.351	4314.07	19.710	1.019	3171.65	6.141
33	500-172222-g-...	2.498	33120.40	2.842	2.671	7451.95	5.134	1.083	3190.65	4.264
34	500-172222-g-...	2.544	34164.66	4.544	2.720	7675.39	9.128	1.079	3226.32	7.127
35	500-172222-g-...	2.238	30919.48	1.059	2.774	7955.56	0.876	1.033	3175.31	1.365
36	500-172222-g-...	2.715	36011.82	2.928	3.009	8355.68	8.735	0.961	2938.27	3.575
37	CCV	257.364	3088870.16	0.472	255.517	632554.44	0.801	251.979	563253.81	0.507
38	CCB	0.017	3032.55	25.125	0.141	1126.76	51.211	0.025	803.02	55.978
39	CCVL	2.146	29763.05	0.177	20.286	53148.55	1.861	1.029	3163.64	3.852
40	mb 500-51356...	0.192	5059.71	9.248	5.008	13108.87	1.681	<0.000	330.34	N/A
41	lcs 500-513568...	255.845	3151369.80	0.876	506.766	1286757.56	0.440	99.208	228050.44	0.810
42	400-176914-b-...	1.030	13977.04	0.936	6.524	15607.81	0.471	0.425	1554.41	3.371
43	400-176914-b-...	1.127	15747.51	1.528	5.429	13706.10	7.259	0.312	1384.06	19.328
44	400-176914-b-...	1.172	15918.74	6.504	6.309	15477.73	7.796	0.267	1258.38	1.284
45	400-176914-b-2-...	259.157	2993064.40	1.177	517.415	1231833.47	1.396	104.609	225436.91	0.858
46	400-176914-b-2-...	253.303	2948828.56	2.443	506.812	1216252.40	1.841	102.784	223280.54	2.110
47	400-176914-b-...	0.270	6196.77	2.232	1.584	4824.26	10.611	0.102	991.36	7.192
48	CCV	250.060	2995946.97	1.664	247.738	612211.40	1.923	243.720	543847.23	1.758
49	CCB	<0.000	2848.06	N/A	0.159	1193.43	55.899	0.034	839.36	69.711
50	400-176914-b-...	5.697	59897.94	1.737	5.502	12101.57	4.362	1.941	4271.22	6.530
51	400-176914-b-...	1.087	11048.20	3.504	5.460	9950.00	7.354	4.119	6926.79	6.830
52	400-176914-b-...	1.564	14610.95	7.854	7.618	13275.72	3.158	3.354	5570.94	1.551
53	400-176914-b-...	0.813	10144.28	7.059	9.742	20132.87	1.036	14.789	27343.54	1.185
54	400-176914-b-...	0.394	7958.64	5.931	7.503	20489.94	3.883	0.511	1989.79	4.365
55	500-171892-g-...	2.766	35928.33	0.810	22.501	56366.00	3.012	8.821	20417.08	1.161
56	500-171892-h-...	0.192	4987.47	5.699	8.017	20232.91	0.761	9.229	20971.08	0.912

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	4.836	57317.16	2.552	48.934	114847.98	2.913	4.882	10973.61	1.075
58	500-171892-h-...	0.335	6319.05	14.619	11.628	27473.35	4.588	4.017	9026.45	6.612
59	CCV	252.505	2926196.48	0.526	251.840	601979.62	0.785	250.209	540031.44	0.007
60	CCB	<0.000	2197.96	N/A	0.103	1016.74	10.775	0.007	751.69	155.159
61	500-171892-h-...	3.306	38685.44	5.226	51.340	116509.19	3.363	10.341	21727.37	4.548
62	500-171892-h-...	0.116	3821.60	6.849	11.377	26495.36	0.789	9.189	19484.30	2.026
63	500-171892-g-...	0.569	8908.02	1.261	9.126	21648.07	2.530	8.587	18475.17	1.551
64	500-171892-h-...	0.222	5009.69	5.703	5.494	13202.34	0.940	8.700	18549.91	2.176
65	500-171892-g-...	5.368	60961.65	1.195	11.942	27493.24	3.869	0.773	2232.82	3.901
66	500-171892-h-...	0.338	6255.68	4.200	4.886	11757.87	4.391	0.401	1492.41	1.776
67	CCV	248.636	2788041.63	0.608	249.026	575982.40	1.504	243.756	509081.85	0.777
68	CCB	<0.000	1925.70	N/A	0.050	870.06	130.722	0.014	753.02	50.461
69	CCVL	1.977	26066.93	1.626	19.184	47434.70	2.704	0.969	2850.92	4.875
70	mb 500-51358...	0.971	14464.09	2.750	3.863	10346.93	3.916	0.006	750.35	331.007
71	lcs 500-513582...	268.216	2905232.38	12.039	536.167	1196602.22	12.800	104.234	210681.22	12.051
72	500-172264-e-...	0.852	11813.15	2.940	7.589	17756.70	2.038	0.752	2194.82	5.064
73	500-172264-e-...	0.932	12955.08	9.547	6.670	16011.59	10.033	0.825	2399.18	4.742
74	500-172264-e-...	254.054	2843389.33	1.711	507.457	1170710.84	2.109	105.039	219355.21	1.566
75	500-172264-e-...	247.114	2681213.85	2.669	492.719	1102094.88	2.085	101.750	206004.30	2.728
76	500-172264-e-...	0.135	4118.34	3.821	2.249	5917.94	6.053	0.320	1356.40	4.984
77	500-172264-e-...	3.315	38149.79	0.794	5.793	13532.66	4.353	0.984	2629.55	0.676
78	500-172264-e-...	5.691	66187.89	0.800	7.336	17613.34	4.221	0.648	2032.46	3.788
79	500-172264-e-...	2.010	25786.55	9.238	8.322	20429.88	11.443	2.425	5898.39	9.367
80	CCV	246.972	2731000.93	1.227	244.415	557496.49	1.589	241.428	497244.09	0.885
81	CCB	<0.000	1636.77	N/A	0.133	1033.42	33.667	0.053	808.02	47.558
82	500-172264-e-...	0.512	8040.90	4.218	9.955	22903.05	3.079	0.607	1886.11	8.377
83	500-172264-e-...	3.634	43140.56	0.314	6.332	15280.89	4.336	0.570	1867.44	4.610
84	500-172264-e-...	2.815	32533.65	1.190	5.898	13669.44	5.074	1.191	3022.29	1.707
85	500-172264-e-...	1.038	13209.74	1.382	6.755	15147.47	0.426	0.899	2377.51	3.463
86	0-172264-e-9-a	1.384	16615.00	1.396	5.329	11954.73	4.899	3.389	7120.20	1.055

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	9.095	99069.58	0.876	6.268	14400.10	8.825	0.708	2050.47	4.765
88	500-172264-e-...	1.365	17603.77	2.512	23.756	54717.00	1.087	0.639	1987.13	3.046
89	500-172264-e-...	0.530	8222.09	30.689	7.644	17823.50	17.744	0.650	1971.79	30.964
90	500-172264-e-...	1.305	16463.73	9.220	6.480	14997.31	9.587	0.633	1917.45	14.003
91	500-172264-e-...	0.200	4614.03	10.301	5.112	11961.45	5.226	0.762	2174.82	4.120
92	CCV	248.032	2709626.07	1.339	247.228	557080.66	1.358	244.382	497257.78	0.954
93	CCB	<0.000	1544.54	N/A	0.090	933.39	29.162	0.071	848.03	38.040
94	500-172264-e-...	2.164	25835.50	24.083	9.787	22512.48	20.352	0.587	1848.44	28.831
95	500-172264-e-...	1.464	18293.43	3.279	7.876	18207.15	3.155	0.674	2015.13	4.060
96	500-172264-e-...	0.106	3730.47	17.572	5.270	12695.35	4.295	0.929	2584.88	0.657
97	mb 500-51365...	<0.000	1318.96	N/A	0.538	1976.89	35.159	0.140	998.03	42.642
98	lcs 500-513652...	240.421	2719195.66	0.936	479.090	1116945.90	1.135	94.124	198693.05	1.067
99	lcsd 500-51365...	274.314	2756512.53	17.092	545.701	1130146.78	17.325	107.023	200671.30	17.100
100	500-171453-a-...	2.001	26131.46	3.557	0.156	1120.09	22.654	<0.000	347.00	N/A
101	500-171453-a-...	1614.813	19650401.44	0.399	1282.312	3217903.60	0.976	29.542	67663.94	0.992
102	CCV	247.329	2719414.89	1.233	245.984	557833.03	1.708	242.505	496569.79	1.995
103	CCB	<0.000	2121.28	N/A	0.186	1150.09	47.822	0.056	809.35	14.239

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	487.68	N/A	0.011	750.05	133.472	0.009	126.67	85.674
2	ICIS	0.000	507.01	N/A	0.000	610.03	N/A	0.000	66.67	N/A
3	Std1	9.975	2779.25	3.466	10.033	164329.56	2.441	9.923	73053.53	3.070
4	Std2	101.354	23020.79	0.897	102.461	1632013.10	0.977	100.817	723723.92	1.627
5	Std3	499.730	108703.83	1.435	499.507	7750469.68	1.330	499.838	3496039.74	1.757
6	S1	498.637	109354.24	0.599	501.613	7847102.38	0.588	498.722	3517056.30	0.934
7	ICV	198.695	44254.49	0.470	202.746	3199887.45	0.643	201.217	1431555.81	0.610
8	ICB	<0.000	480.34	N/A	0.047	1350.12	17.512	0.052	440.02	5.549
9	ICVL	2.526	1002.70	19.529	4.294	65474.62	8.776	4.304	29397.29	8.410
10	icsa	0.228	511.01	35.346	3.269	49274.67	2.592	2089.564	14036103.54	1.091
11	icsab	23.512	5154.81	3.449	25.821	370950.88	3.422	2163.779	13989993.54	4.758
12	CRI	4.739	1598.42	15.297	8.047	132935.72	9.518	8.325	61764.01	10.026
13	CCV	256.985	57220.46	6.958	261.828	4141042.12	7.086	258.137	1839705.65	7.952
14	CCB	<0.000	474.34	N/A	0.037	1216.76	34.903	0.084	686.71	11.825
15	mb 500-51365...	<0.000	482.34	N/A	0.005	680.04	136.766	0.039	350.02	17.415
16	lcs 500-513650...	97.501	23245.43	12.801	956.498	15978896.43	12.093	929.514	7004557.82	11.323
17	500-172222-g-...	<0.000	495.68	N/A	0.153	3203.85	41.592	0.306	2413.62	3.703
18	500-172222-g-...	<0.000	524.34	N/A	<0.000	493.36	N/A	0.056	496.70	35.920
19	500-172222-g-...	0.161	577.34	188.118	138.304	2399224.50	9.113	1.130	8919.49	6.074
20	500-172222-g-...	0.207	569.34	30.961	142.740	2389303.46	3.374	1.170	8886.13	7.043
21	500-172222-g-...	0.287	581.34	59.879	141.515	2343711.00	1.269	1.127	8475.86	3.322
22	500-172222-g-...	0.171	565.68	103.977	0.049	1453.46	27.880	0.039	366.69	13.503
23	500-172222-g-...	<0.000	530.68	N/A	0.012	846.73	59.853	0.017	203.34	37.431
24	500-172222-g-...	0.379	597.34	8.527	156.324	2565813.97	0.148	1.238	9226.27	3.252
25	CCV	259.193	55670.22	0.917	263.650	4022685.05	1.650	257.534	1771288.15	1.546
26	CCB	0.103	487.34	190.346	0.079	1743.50	15.163	0.074	556.70	14.667

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	0.301	593.34	14.469	154.867	2602476.58	0.918	1.286	9806.66	2.760
28	500-172222-g-...	101.014	25468.33	15.290	1099.372	19450139.29	13.740	910.642	7255779.27	14.822
29	500-172222-g-...	125.597	28689.82	1.376	1325.267	21309331.35	1.898	1112.939	8067791.96	1.710
30	500-172222-g-...	0.057	517.68	123.825	28.421	461495.88	1.467	0.762	5641.19	2.263
31	500-172222-g-...	0.142	563.68	74.891	151.045	2569711.37	3.311	1.318	10196.96	6.468
32	500-172222-g-...	0.143	531.68	26.723	292.508	4697311.28	2.833	2.626	19071.82	3.825
33	500-172222-g-...	0.300	544.34	55.003	302.474	4663931.18	3.527	2.756	19215.20	4.755
34	500-172222-g-...	0.435	582.01	15.498	296.249	4634958.99	3.912	2.444	17289.79	5.952
35	500-172222-g-...	0.066	509.68	71.664	255.810	4070274.63	1.400	2.059	14830.71	3.382
36	500-172222-g-...	0.356	560.01	76.262	268.212	4167033.38	1.698	3.624	25430.78	4.101
37	CCV	253.766	54445.95	1.030	257.872	3929940.88	0.525	253.592	1742143.05	0.899
38	CCB	<0.000	474.34	N/A	0.024	946.74	26.761	0.050	413.36	37.913
39	CCVL	2.223	988.36	3.936	4.015	64452.97	3.544	3.925	28205.28	0.653
40	mb 500-51356...	0.126	498.68	128.044	0.049	1313.44	17.070	0.035	303.35	25.880
41	lcs 500-513568...	100.335	22387.26	0.528	1010.318	15800253.51	0.798	996.315	7024609.48	1.281
42	400-176914-b-...	5.903	1597.75	5.369	792.889	11162426.50	1.725	1.482	9466.45	3.092
43	400-176914-b-...	0.124	483.68	86.798	555.591	8183608.21	1.254	1.685	11247.65	3.117
44	400-176914-b-...	0.153	479.01	96.320	546.707	7881544.26	1.840	1.624	10617.27	3.736
45	400-176914-b-2-...	104.313	21804.85	2.305	1580.255	23171089.65	1.161	1050.384	6943620.94	1.080
46	400-176914-b-2-...	102.224	21549.51	1.703	1542.875	22804208.83	2.527	1036.155	6904318.02	2.117
47	400-176914-b-...	<0.000	464.01	N/A	102.679	1611690.55	2.176	0.516	3713.91	8.233
48	CCV	244.947	52480.05	1.077	250.841	3816140.88	1.505	249.294	1709602.68	1.800
49	CCB	<0.000	474.68	N/A	0.044	1290.12	21.465	0.108	833.39	18.322
50	400-176914-b-...	99.518	18233.60	2.550	5960.856	76541055.53	1.315	153.061	885982.82	1.351
51	400-176914-b-...	4.273	965.03	6.203	9937.662	1.05708E+08	2.126	353.892	1697051.38	2.414
52	400-176914-b-...	4.651	991.70	8.088	10251.182	1.05823E+08	2.349	369.630	1720355.44	2.113
53	400-176914-b-...	1.442	632.01	16.566	3889.232	48015344.29	1.158	2.511	14019.84	5.088
54	400-176914-b-...	0.384	590.01	34.085	0.667	11391.13	6.364	0.852	6281.48	3.047
55	500-171892-g-...	1.079	703.35	5.959	247.365	3768309.94	0.971	0.404	2837.05	4.775
56	500-171892-h-...	1.120	700.35	20.487	252.356	3780002.44	0.984	0.204	1443.47	14.766

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	1.255	699.02	7.081	607.876	8738188.41	1.497	1.121	7325.34	5.598
58	500-171892-h-...	0.633	566.34	26.029	553.983	7856288.84	5.425	2.519	16158.61	5.674
59	CCV	256.073	53044.14	0.381	260.490	3833037.86	0.723	253.060	1678585.13	0.725
60	CCB	<0.000	452.01	N/A	0.041	1193.42	19.578	0.059	470.03	13.625
61	500-171892-h-...	0.290	488.34	77.501	756.029	10509594.84	3.897	0.661	4207.37	2.053
62	500-171892-h-...	0.165	467.01	12.137	714.127	9978742.77	1.604	2.818	17807.02	1.933
63	500-171892-g-...	0.007	441.34	1450.160	520.853	7366353.22	2.128	3.632	23214.00	1.339
64	500-171892-h-...	0.097	455.34	45.671	527.769	7401388.85	1.337	3.941	24976.33	5.797
65	500-171892-g-...	4.620	1322.72	1.672	463.127	6407516.15	1.221	1.932	12108.27	2.272
66	500-171892-h-...	3.855	1185.05	3.595	471.480	6580668.24	1.110	4.110	25914.48	3.729
67	CCV	245.611	49245.95	1.194	253.962	3615913.59	1.002	252.223	1618842.63	0.666
68	CCB	<0.000	451.34	N/A	0.032	1040.08	8.533	0.046	370.02	41.321
69	CCVL	2.241	934.70	20.648	4.025	60916.65	3.290	3.959	26822.83	4.400
70	mb 500-51358...	<0.000	448.01	N/A	0.044	1253.67	61.232	0.015	166.68	41.331
71	lcs 500-513582...	105.990	20794.55	10.735	1093.609	15032711.86	12.878	1066.611	6613045.94	12.084
72	500-172264-e-...	0.090	448.01	251.349	888.725	12313696.90	1.297	15.301	95621.65	2.981
73	500-172264-e-...	0.219	484.01	67.716	926.375	13116563.97	6.902	15.603	99591.30	8.250
74	500-172264-e-...	104.167	21104.29	1.015	1970.662	28002144.58	1.852	1059.296	6785839.06	1.917
75	500-172264-e-...	101.857	20010.95	3.397	1930.067	26587770.44	2.466	1036.210	6435260.11	2.431
76	500-172264-e-...	<0.000	431.01	N/A	183.688	2620400.79	1.548	3.384	21818.64	1.303
77	500-172264-e-...	0.648	548.68	31.231	724.246	9899229.44	1.542	4.234	26144.87	1.178
78	500-172264-e-...	0.238	489.01	30.447	221.235	3142576.62	1.214	1.248	8052.39	5.375
79	500-172264-e-...	0.750	607.35	42.857	515.168	7527936.35	8.666	30.741	202349.03	10.189
80	CCV	245.656	48575.05	0.480	253.964	3565920.57	0.744	252.225	1596432.53	0.861
81	CCB	<0.000	413.68	N/A	0.057	1363.45	15.188	0.077	560.04	11.843
82	500-172264-e-...	0.160	458.68	66.628	676.556	9304019.86	2.557	27.775	172248.56	2.544
83	500-172264-e-...	<0.000	432.34	N/A	254.917	3615662.65	0.822	0.410	2680.32	2.092
84	500-172264-e-...	0.426	503.01	27.796	1069.743	14517722.70	1.382	2.872	17623.38	5.188
85	500-172264-e-...	0.022	414.68	1172.259	1455.778	19240444.29	1.004	53.717	320082.17	2.132
86	0-172264-e-9-a	0.153	434.68	83.756	1006.469	13156103.97	1.706	96.435	568338.08	0.967

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	0.096	437.84	200.263	907.855	12253603.57	1.035	3.449	21037.59	3.795
88	500-172264-e-...	0.046	445.01	97.805	480.882	6739601.98	0.465	2.311	14657.15	3.492
89	500-172264-e-...	0.027	434.34	1608.532	466.814	6413751.99	20.974	31.868	197117.84	22.177
90	500-172264-e-...	0.039	430.68	569.150	434.813	5918999.08	8.296	6.840	41984.94	10.504
91	500-172264-e-...	0.278	476.01	86.688	1095.076	14897544.78	0.868	8.115	49820.11	1.690
92	CCV	244.999	47864.36	0.112	254.371	3528580.05	1.551	253.390	1584413.41	1.912
93	CCB	<0.000	408.84	N/A	0.107	2094.93	81.868	0.074	543.37	21.353
94	500-172264-e-...	<0.000	414.68	N/A	758.937	10408090.26	21.384	2.908	17970.61	24.256
95	500-172264-e-...	0.102	446.01	232.139	700.030	9599336.11	1.621	2.273	14109.97	2.225
96	500-172264-e-...	<0.000	414.01	N/A	317.261	4450759.10	0.649	39.342	248842.30	0.557
97	mb 500-51365...	<0.000	418.34	N/A	0.043	1180.10	5.204	0.020	193.34	16.941
98	lcs 500-513652...	95.395	19567.44	0.447	994.817	14283678.54	1.884	956.218	6190108.03	0.787
99	lcsd 500-51365...	109.288	19868.12	16.994	1129.052	14393543.12	17.941	1095.966	6303392.20	17.180
100	500-171453-a-...	<0.000	444.68	N/A	12.479	186207.89	1.578	0.340	2343.61	10.835
101	500-171453-a-...	23.958	5651.31	1.737	<0.000	576.71	N/A	58.029	404559.89	0.863
102	CCV	243.373	47851.30	1.393	251.929	3516965.36	2.050	251.776	1584419.19	2.142
103	CCB	<0.000	419.68	N/A	0.058	1363.45	12.812	0.082	586.70	11.702

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.021	33.33	513.534	0.002	106.67	77.474	0.016	6.67	333.495
2	ICIS	0.000	26.67	N/A	0.000	73.33	N/A	0.000	3.33	N/A
3	Std1	9.952	3123.76	5.336	1.049	20303.42	3.466	9.642	2203.58	7.120
4	Std2	100.334	30506.22	3.458	10.718	201551.90	0.221	102.797	22883.51	0.901
5	Std3	499.934	148031.18	1.320	99.928	1830359.50	1.638	499.448	108320.47	1.980
6	S1	488.248	145756.95	1.766	99.399	1835616.95	0.959	496.018	108450.56	2.309
7	ICV	197.403	59462.81	2.818	41.480	772840.43	0.069	197.651	43606.55	2.434
8	ICB	<0.000	20.00	N/A	0.007	200.01	35.681	0.105	26.67	88.992
9	ICVL	0.499	170.01	12.546	0.542	9753.39	7.120	0.635	133.34	61.587
10	icsa	0.278	103.34	8.683	0.018	376.69	23.234	14.120	2943.73	2.782
11	icsab	21.879	6011.40	5.387	21.415	362718.03	3.885	37.594	7545.35	2.899
12	CRI	0.921	316.68	17.984	1.028	20059.81	8.162	1.054	246.68	3.672
13	CCV	252.250	76175.79	6.162	53.400	997180.27	6.708	261.443	57777.37	7.858
14	CCB	0.042	40.00	193.376	0.009	240.01	41.322	0.029	10.00	152.874
15	mb 500-51365...	0.044	36.67	274.500	<0.000	50.00	N/A	<0.000	0.00	0.000
16	lcs 500-513650...	47.918	15274.51	14.328	49.883	984113.79	11.720	55.799	13025.79	12.799
17	500-172222-g-...	<0.000	26.67	N/A	0.006	193.34	87.469	<0.000	0.00	0.000
18	500-172222-g-...	0.038	40.00	162.818	0.004	150.01	93.360	0.012	6.67	389.558
19	500-172222-g-...	0.074	53.33	48.494	0.001	103.34	68.821	0.056	16.67	113.522
20	500-172222-g-...	0.083	53.33	98.041	0.001	93.34	268.396	0.027	10.00	152.781
21	500-172222-g-...	0.072	50.00	189.159	0.000	76.67	727.455	<0.000	3.33	N/A
22	500-172222-g-...	<0.000	26.67	N/A	0.001	93.33	105.334	0.012	6.67	396.104
23	500-172222-g-...	0.037	40.00	250.030	<0.000	63.33	N/A	<0.000	0.00	0.000
24	500-172222-g-...	0.064	46.67	58.943	0.000	76.67	1153.762	0.014	6.67	355.198
25	CCV	257.986	75127.31	1.621	53.303	960124.73	1.242	259.276	55294.96	1.650
26	CCB	0.050	36.67	249.054	0.011	263.35	8.695	0.051	13.33	113.047

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	0.030	36.67	269.863	0.000	83.34	525.277	<0.000	3.33	N/A
28	500-172222-g-...	48.032	16262.10	12.483	46.762	975040.85	15.615	55.184	13629.69	15.956
29	500-172222-g-...	58.306	17907.13	5.647	56.783	1078124.10	0.555	68.402	15387.93	4.115
30	500-172222-g-...	0.001	26.67	6331.356	0.016	370.02	29.445	0.030	10.00	151.155
31	500-172222-g-...	0.059	46.67	66.330	0.003	143.34	53.205	<0.000	0.00	0.000
32	500-172222-g-...	0.110	60.00	104.658	0.003	133.34	28.499	0.029	10.00	148.292
33	500-172222-g-...	<0.000	13.33	N/A	<0.000	63.33	N/A	0.032	10.00	149.188
34	500-172222-g-...	0.025	33.33	179.575	0.001	93.34	123.623	0.001	3.33	3316.652
35	500-172222-g-...	0.024	33.33	279.082	<0.000	60.00	N/A	<0.000	3.33	N/A
36	500-172222-g-...	0.193	83.34	103.034	0.001	83.34	495.235	0.031	10.00	255.225
37	CCV	253.513	73737.98	0.768	52.713	948340.79	0.939	264.686	56385.39	0.811
38	CCB	0.084	50.00	79.444	0.006	186.68	25.039	0.016	6.67	166.148
39	CCVL	0.541	190.01	36.525	0.529	10003.43	3.584	0.675	153.34	60.134
40	mb 500-51356...	0.067	43.33	141.990	0.001	83.34	147.555	<0.000	0.00	0.000
41	lcs 500-513568...	49.590	14820.70	4.282	52.304	965730.24	0.544	60.078	13139.17	4.951
42	400-176914-b-...	0.113	53.33	99.908	0.010	226.68	24.800	<0.000	0.00	0.000
43	400-176914-b-...	0.152	66.67	36.972	0.007	193.34	28.953	0.067	16.67	153.498
44	400-176914-b-...	0.036	33.33	55.106	0.005	153.34	10.298	0.183	40.00	70.719
45	400-176914-b-2-...	53.243	14917.47	3.546	52.839	914782.39	0.835	60.958	12498.65	0.239
46	400-176914-b-2-...	51.145	14446.95	5.427	51.981	907128.40	1.503	60.190	12442.01	3.320
47	400-176914-b-...	<0.000	10.00	N/A	0.007	193.35	33.673	0.000	3.33	516826.024
48	CCV	248.868	72264.55	1.315	51.610	926825.98	1.705	257.154	54676.73	3.707
49	CCB	<0.000	23.33	N/A	0.011	266.68	38.973	0.031	10.00	3.549
50	400-176914-b-...	0.230	76.67	86.514	0.015	280.02	45.937	1.829	330.02	30.658
51	400-176914-b-...	0.242	66.67	74.526	0.022	326.68	19.457	3.208	476.70	34.481
52	400-176914-b-...	0.338	83.33	12.303	0.041	550.03	30.827	2.522	366.69	11.089
53	400-176914-b-...	0.155	56.67	81.806	0.020	353.35	17.082	0.158	30.00	61.691
54	400-176914-b-...	0.034	36.67	151.042	0.016	383.36	27.986	0.102	26.67	63.913
55	500-171892-g-...	0.362	130.01	25.336	0.021	446.69	11.123	0.173	40.00	71.439
56	500-171892-h-...	0.241	93.34	33.660	0.009	223.35	29.104	0.033	10.00	251.130

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	1.398	406.69	19.754	0.019	380.02	11.063	0.715	146.67	52.793
58	500-171892-h-...	0.062	40.00	57.799	0.007	190.01	52.378	0.034	10.00	247.898
59	CCV	253.766	71267.27	1.032	52.262	907819.99	0.640	260.076	53488.84	1.343
60	CCB	0.018	30.00	587.427	0.005	153.34	34.913	0.048	13.33	56.057
61	500-171892-h-...	0.780	230.01	9.456	0.009	213.34	26.482	0.498	100.00	52.822
62	500-171892-h-...	0.189	73.33	28.783	0.008	190.01	6.627	0.002	3.33	1278.599
63	500-171892-g-...	0.150	63.33	59.954	0.006	163.34	45.442	0.002	3.33	1273.781
64	500-171892-h-...	0.015	26.67	536.130	0.004	133.34	58.806	0.019	6.67	154.084
65	500-171892-g-...	0.407	130.01	40.283	0.009	213.34	32.529	0.174	36.67	111.931
66	500-171892-h-...	0.142	60.00	108.540	0.002	100.00	43.664	0.087	20.00	153.811
67	CCV	253.555	68896.63	1.068	52.519	882731.50	0.804	257.748	51298.83	1.564
68	CCB	0.020	30.00	180.275	0.003	113.34	34.922	<0.000	0.00	0.000
69	CCVL	0.488	163.34	37.901	0.533	9499.85	2.577	0.445	96.67	49.033
70	mb 500-51358...	0.007	26.67	1427.121	0.003	123.34	23.775	<0.000	0.00	0.000
71	lcs 500-513582...	55.291	14513.72	13.942	56.425	916494.42	11.578	63.784	12261.74	12.438
72	500-172264-e-...	0.217	80.00	45.915	0.005	140.01	20.217	0.226	46.67	34.500
73	500-172264-e-...	0.287	100.00	29.798	0.004	133.34	5.723	0.051	13.33	46.304
74	500-172264-e-...	50.334	13669.66	2.419	52.715	884477.64	1.056	62.685	12458.68	2.218
75	500-172264-e-...	49.950	13145.82	5.765	51.739	841523.09	2.208	59.146	11384.43	7.080
76	500-172264-e-...	0.050	36.67	155.455	0.006	166.67	64.482	0.118	26.67	128.391
77	500-172264-e-...	0.298	100.00	23.058	0.009	206.68	30.526	0.142	30.00	97.089
78	500-172264-e-...	0.124	56.67	46.979	0.000	66.67	893.260	0.120	26.67	25.033
79	500-172264-e-...	0.080	46.67	59.331	<0.000	50.00	N/A	0.442	93.34	48.491
80	CCV	247.247	66255.58	1.666	52.477	869829.57	0.886	260.461	51118.17	0.922
81	CCB	0.012	26.67	469.967	0.005	143.34	82.951	0.002	3.33	1560.382
82	500-172264-e-...	0.054	36.67	142.848	0.005	146.67	84.066	0.211	43.33	15.345
83	500-172264-e-...	0.174	70.00	77.849	0.003	110.00	21.870	0.069	16.67	152.448
84	500-172264-e-...	0.365	116.67	5.579	<0.000	60.00	N/A	0.231	46.67	14.181
85	500-172264-e-...	0.192	70.00	19.054	<0.000	36.67	N/A	0.615	116.67	59.127
86	0-172264-e-9-a	<0.000	13.33	N/A	<0.000	16.67	N/A	1.207	223.35	24.570

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	0.355	113.34	46.060	0.001	83.34	179.993	0.286	56.67	29.087
88	500-172264-e-...	0.476	150.01	7.145	<0.000	36.67	N/A	0.411	83.34	14.746
89	500-172264-e-...	0.026	30.00	118.487	0.000	70.00	523.693	0.241	46.67	87.706
90	500-172264-e-...	0.196	73.34	59.900	<0.000	50.00	N/A	0.105	23.33	69.832
91	500-172264-e-...	0.724	210.01	11.453	0.004	120.00	46.159	0.213	43.33	14.765
92	CCV	250.560	66339.81	1.897	52.836	865284.07	0.975	255.712	49580.32	2.265
93	CCB	0.023	30.00	270.012	0.009	223.35	22.877	0.068	16.67	151.197
94	500-172264-e-...	0.242	90.00	67.021	0.005	150.01	82.215	0.137	33.33	109.700
95	500-172264-e-...	0.208	76.67	28.183	0.000	63.33	1439.757	0.125	26.67	121.517
96	500-172264-e-...	<0.000	13.33	N/A	<0.000	53.33	N/A	0.155	33.33	68.432
97	mb 500-51365...	0.006	26.67	945.697	<0.000	30.00	N/A	<0.000	3.33	N/A
98	lcs 500-513652...	48.501	13309.32	3.466	51.104	866336.94	1.228	56.395	11324.48	1.635
99	lcsd 500-51365...	54.236	13215.94	17.845	57.736	869805.90	16.976	66.557	11881.54	16.684
100	500-171453-a-...	0.079	46.67	111.349	0.011	263.35	20.513	0.017	6.67	161.453
101	500-171453-a-...	47.098	13919.77	1.594	299.597	5468877.00	0.404	46.788	10113.59	9.348
102	CCV	251.894	67115.86	3.020	52.379	863238.71	1.779	254.195	49606.94	0.893
103	CCB	0.037	33.33	60.306	0.027	516.70	9.566	0.068	16.67	111.195

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.006	51.65	44.621	0.020	1363.45	65.251	0.173	3087.13	17.980
2	ICIS	0.000	33.46	N/A	0.000	1230.11	N/A	0.000	1040.08	N/A
3	Std1	10.184	35395.08	4.661	10.128	94315.66	2.969	10.006	125033.20	1.906
4	Std2	102.443	347159.23	1.118	101.773	913859.34	0.893	101.632	1229807.77	1.182
5	Std3	499.508	1649457.05	0.890	499.643	4367019.52	1.493	499.674	5887992.00	1.221
6	S1	498.907	1660859.11	0.770	497.629	4385154.42	0.603	498.809	5925628.25	1.111
7	ICV	202.485	680005.09	0.909	200.765	1785471.23	1.126	212.097	2542526.78	0.254
8	ICB	0.026	120.01	68.790	0.231	3283.80	14.660	0.213	3607.24	11.036
9	ICVL	0.616	2010.36	9.394	5.464	47631.46	9.673	3.376	39756.85	7.289
10	icsa	0.344	1121.04	16.398	0.009	1200.11	280.435	0.083	1893.53	16.472
11	icsab	21.982	67104.60	5.712	22.471	182635.74	3.397	11.146	122322.41	4.210
12	CRI	1.003	3534.49	14.765	9.997	93775.93	10.478	6.291	79594.02	10.047
13	CCV	259.820	874376.45	7.228	257.584	2295636.63	6.766	257.963	3098802.66	7.004
14	CCB	0.034	153.17	88.257	0.146	2570.31	10.960	0.114	2450.32	23.886
15	mb 500-51365...	0.014	78.01	33.590	0.028	1443.46	95.532	<0.000	940.07	N/A
16	lcs 500-513650...	49.386	175534.81	12.569	950.799	8941962.57	12.757	457.545	5803138.66	12.476
17	500-172222-g-...	0.007	60.37	145.192	0.181	3003.76	30.006	0.482	7238.59	13.293
18	500-172222-g-...	<0.000	26.74	N/A	<0.000	766.72	N/A	0.150	3047.10	36.916
19	500-172222-g-...	<0.000	29.53	N/A	<0.000	666.71	N/A	0.403	6418.23	13.445
20	500-172222-g-...	0.004	46.68	299.463	<0.000	460.03	N/A	0.350	5517.84	10.261
21	500-172222-g-...	0.004	47.96	292.672	<0.000	773.75	N/A	0.321	5097.70	2.568
22	500-172222-g-...	0.001	36.55	1157.700	<0.000	923.40	N/A	<0.000	883.40	N/A
23	500-172222-g-...	0.001	37.23	1507.936	<0.000	990.08	N/A	<0.000	380.02	N/A
24	500-172222-g-...	0.002	41.83	136.460	<0.000	453.36	N/A	0.324	5094.34	9.878
25	CCV	261.677	849596.36	1.744	261.075	2244433.72	0.929	261.250	3027439.33	1.502
26	CCB	0.054	203.72	23.377	0.159	2476.96	9.654	0.174	2953.74	2.472

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	0.005	51.10	97.421	<0.000	480.03	N/A	0.308	5001.01	7.066
28	500-172222-g-...	49.233	185420.14	13.577	922.558	9188936.11	14.290	419.112	5629420.75	14.139
29	500-172222-g-...	59.280	202868.36	2.577	1136.593	10293917.56	2.023	524.804	6409217.20	1.956
30	500-172222-g-...	0.010	66.31	121.984	1.518	15097.79	9.121	2.775	35246.95	14.163
31	500-172222-g-...	0.006	55.65	93.215	0.130	2526.97	4.013	0.633	9276.40	9.289
32	500-172222-g-...	0.013	78.44	32.346	<0.000	1146.75	N/A	0.338	5144.38	8.945
33	500-172222-g-...	<0.000	29.46	N/A	<0.000	786.72	N/A	0.337	4934.31	3.465
34	500-172222-g-...	0.011	68.56	121.313	<0.000	956.74	N/A	0.275	4254.10	14.656
35	500-172222-g-...	0.017	91.89	47.417	<0.000	816.72	N/A	0.155	2890.39	7.630
36	500-172222-g-...	0.032	139.61	65.686	<0.000	770.06	N/A	0.461	6428.25	5.884
37	CCV	256.568	832046.73	0.823	255.528	2194064.08	0.682	256.748	2971858.19	0.502
38	CCB	0.031	134.38	116.285	0.152	2496.97	11.431	0.247	3890.68	16.375
39	CCVL	0.513	1767.48	1.213	5.119	47052.90	2.142	3.313	41033.39	1.541
40	mb 500-51356...	0.012	69.77	69.700	<0.000	833.39	N/A	0.022	1220.12	106.548
41	lcs 500-513568...	51.845	172576.02	0.245	1004.511	8848583.20	0.710	530.848	6304933.24	0.345
42	400-176914-b-...	0.043	157.42	48.028	0.486	4914.28	9.397	0.191	2947.07	16.687
43	400-176914-b-...	0.061	219.73	17.085	0.158	2426.96	19.136	0.075	1776.84	12.164
44	400-176914-b-...	0.028	115.89	64.982	0.029	1320.11	36.773	0.053	1503.47	33.434
45	400-176914-b-2-...	52.559	164031.51	1.451	1047.528	8651777.16	1.623	552.309	6150254.70	1.453
46	400-176914-b-2-...	51.977	163517.31	2.936	1029.235	8568663.62	2.242	542.834	6093449.28	2.025
47	400-176914-b-...	0.007	54.06	81.612	0.449	5144.38	7.334	0.108	2286.94	14.109
48	CCV	252.644	817943.90	1.048	250.823	2149894.81	1.867	250.331	2892299.43	1.620
49	CCB	0.042	173.77	9.831	0.197	2940.40	16.838	0.148	2780.34	23.356
50	400-176914-b-...	0.075	231.16	25.967	0.182	2283.59	11.553	0.151	2290.26	12.802
51	400-176914-b-...	0.065	172.82	131.893	0.345	2870.39	2.768	0.108	1550.14	2.191
52	400-176914-b-...	0.087	210.25	64.457	0.127	1520.15	5.095	0.061	1136.75	22.919
53	400-176914-b-...	0.025	91.10	17.341	0.191	2263.60	23.294	0.034	1110.10	44.761
54	400-176914-b-...	0.000	32.73	50862.283	0.147	2553.66	15.641	<0.000	916.73	N/A
55	500-171892-g-...	0.101	359.76	37.570	0.087	1893.53	7.988	0.034	1366.78	12.409
56	500-171892-h-...	0.027	117.24	29.329	0.012	1233.44	43.852	0.017	1153.43	84.037

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	0.516	1606.79	6.119	0.050	1486.80	43.515	0.027	1210.10	36.009
58	500-171892-h-...	0.017	79.83	11.017	0.023	1253.44	105.306	<0.000	716.71	N/A
59	CCV	256.635	803604.71	0.977	257.799	2137374.97	1.526	256.437	2865974.23	0.737
60	CCB	0.029	125.29	45.757	0.148	2420.29	15.093	0.079	1893.53	16.441
61	500-171892-h-...	0.354	1078.50	8.862	0.162	2313.60	18.583	0.059	1520.15	22.019
62	500-171892-h-...	0.026	105.79	71.093	0.001	1060.08	2457.098	<0.000	710.05	N/A
63	500-171892-g-...	0.055	194.82	27.918	0.062	1560.15	20.609	<0.000	713.38	N/A
64	500-171892-h-...	0.008	53.22	138.109	0.057	1506.81	51.402	<0.000	700.05	N/A
65	500-171892-g-...	0.118	376.67	23.574	0.108	1883.53	16.060	0.006	953.40	210.485
66	500-171892-h-...	0.039	144.39	63.443	0.076	1653.49	36.462	<0.000	780.06	N/A
67	CCV	256.880	778271.59	0.758	256.164	2055026.17	0.930	257.583	2785507.35	0.982
68	CCB	0.039	156.26	33.824	0.098	1953.55	53.350	0.068	1733.52	30.605
69	CCVL	0.503	1631.23	22.665	5.016	43496.49	4.068	3.142	36753.00	1.448
70	mb 500-51358...	<0.000	30.37	N/A	0.084	1876.85	26.089	<0.000	576.70	N/A
71	lcs 500-513582...	55.695	163126.31	11.189	1113.838	8618660.29	13.707	576.532	6020849.91	12.242
72	500-172264-e-...	0.046	164.39	16.739	0.432	4420.81	7.457	0.614	7338.64	7.611
73	500-172264-e-...	0.052	182.10	53.158	0.216	2800.38	6.997	0.580	7131.89	11.263
74	500-172264-e-...	51.658	156245.31	1.586	1044.958	8364085.50	1.643	551.676	5953566.79	1.680
75	500-172264-e-...	51.242	150261.25	1.901	1035.305	8032529.88	3.071	543.520	5686301.58	2.440
76	500-172264-e-...	0.005	42.73	329.296	0.577	5711.25	3.861	0.185	2913.74	8.326
77	500-172264-e-...	0.068	224.22	35.067	0.340	3650.59	3.442	0.349	4494.15	11.803
78	500-172264-e-...	0.046	168.02	47.123	0.177	2487.00	16.319	0.285	3987.34	1.186
79	500-172264-e-...	0.026	112.18	140.492	0.118	2086.89	9.841	1.296	15297.83	10.698
80	CCV	256.724	767044.64	1.109	256.475	2028925.96	1.778	256.068	2730657.46	1.673
81	CCB	0.035	136.80	49.310	0.203	2737.02	4.732	0.081	1813.51	13.334
82	500-172264-e-...	0.044	158.19	45.912	0.226	2790.36	6.808	0.677	7952.36	5.566
83	500-172264-e-...	0.095	315.61	40.903	0.168	2410.28	5.743	0.723	8692.73	12.191
84	500-172264-e-...	0.052	179.07	7.578	0.144	2126.89	11.107	0.292	3873.98	16.913
85	500-172264-e-...	0.022	88.30	177.682	0.118	1873.53	27.488	3.785	38834.81	2.381
86	0-172264-e-9-a	0.031	113.89	128.189	0.095	1686.82	15.895	0.606	6851.77	8.340

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	0.215	645.83	16.771	0.118	1916.86	13.488	0.379	4750.94	7.042
88	500-172264-e-...	0.429	1308.63	5.800	0.177	2456.98	8.673	0.856	10010.25	6.587
89	500-172264-e-...	0.028	106.18	71.152	0.067	1563.49	49.275	1.178	13139.16	24.332
90	500-172264-e-...	0.019	84.33	42.203	0.235	2833.73	9.430	1.077	12021.65	7.332
91	500-172264-e-...	0.054	183.95	20.103	0.134	2050.22	13.592	0.551	6564.97	7.793
92	CCV	257.503	760132.94	0.904	255.882	1999791.27	1.745	257.062	2708204.33	1.380
93	CCB	0.039	148.38	26.728	0.136	2196.91	9.885	0.096	1980.21	11.696
94	500-172264-e-...	0.041	146.34	39.782	0.125	2010.22	38.682	0.251	3490.54	29.514
95	500-172264-e-...	0.100	319.98	14.007	0.160	2266.93	8.760	0.856	9786.74	4.136
96	500-172264-e-...	0.018	81.09	85.483	0.073	1633.49	31.987	0.591	7195.29	12.775
97	mb 500-51365...	0.003	40.13	203.170	0.007	1160.10	119.249	<0.000	293.35	N/A
98	lcs 500-513652...	50.149	153281.28	0.228	1004.010	8120505.50	0.679	465.193	5073046.80	1.179
99	lcsd 500-51365...	57.041	154802.16	17.780	1150.809	8267763.00	17.406	538.532	5218197.42	17.107
100	500-171453-a-...	0.019	91.83	54.880	0.236	3097.11	7.313	0.380	5247.73	11.112
101	500-171453-a-...	49.156	161784.89	1.712	<0.000	726.72	N/A	13.007	153707.34	1.062
102	CCV	256.803	762895.06	2.506	254.564	2002401.32	1.434	255.543	2709581.73	1.478
103	CCB	0.035	137.59	30.249	0.209	2773.70	15.818	0.364	4884.32	6.086

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
1	blk I.S /tune	0.012	180.01	54.972						
2	ICIS	0.000	136.68	N/A						
3	Std1	10.208	43971.90	2.573						
4	Std2	101.750	434083.59	0.923						
5	Std3	499.646	2114378.30	0.432						
6	S1	496.597	2120852.94	0.930						
7	ICV	195.768	848966.34	0.971						
8	ICB	0.828	3570.57	5.184						
9	ICVL	2.764	11111.00	9.553						
10	icsa	0.307	1436.79	4.736						
11	icsab	22.941	91134.36	2.203						
12	CRI	5.162	22613.70	8.355						
13	CCV	259.383	1116183.55	7.595						
14	CCB	0.931	4057.39	5.049						
15	mb 500-51365...	<0.000	106.67	N/A						
16	lcs 500-513650...	479.012	2188412.21	13.024						
17	500-172222-g-...	0.080	480.03	22.461						
18	500-172222-g-...	0.130	720.05	19.098						
19	500-172222-g-...	103.185	484169.39	9.675						
20	500-172222-g-...	110.367	484403.35	2.070						
21	500-172222-g-...	107.397	470300.55	3.102						
22	500-172222-g-...	1.567	6925.15	6.651						
23	500-172222-g-...	0.218	1066.75	22.603						
24	500-172222-g-...	111.763	490527.18	2.555						
25	CCV	256.526	1075184.25	1.354						
26	CCB	0.985	3967.32	11.434						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
27	500-172222-g-...	113.596	499724.02	0.356						
28	500-172222-g-...	565.013	2742850.27	16.035						
29	500-172222-g-...	689.868	3004688.08	0.536						
30	500-172222-g-...	20.660	88020.79	2.609						
31	500-172222-g-...	109.530	500088.90	7.059						
32	500-172222-g-...	102.299	443416.84	3.242						
33	500-172222-g-...	108.049	450829.35	2.740						
34	500-172222-g-...	92.116	394713.55	5.106						
35	500-172222-g-...	113.003	489472.02	1.389						
36	500-172222-g-...	169.136	702711.37	2.664						
37	CCV	252.573	1066346.00	1.010						
38	CCB	0.524	2190.26	8.121						
39	CCVL	2.623	10904.17	3.686						
40	mb 500-51356...	0.074	420.02	12.083						
41	lcs 500-513568...	505.713	2143296.43	0.841						
42	400-176914-b-...	35.325	141017.51	2.720						
43	400-176914-b-...	142.539	586171.31	0.982						
44	400-176914-b-...	137.133	563728.48	2.991						
45	400-176914-b-2-...	643.301	2649794.44	1.184						
46	400-176914-b-2-...	626.965	2617811.00	0.818						
47	400-176914-b-...	27.399	118375.95	3.260						
48	CCV	247.553	1040394.33	1.183						
49	CCB	0.460	2023.58	11.033						
50	400-176914-b-...	161.800	575200.04	0.255						
51	400-176914-b-...	61.436	183619.87	2.565						
52	400-176914-b-...	61.378	182221.74	0.972						
53	400-176914-b-...	34.408	118654.48	2.334						
54	400-176914-b-...	0.180	870.07	12.385						
55	500-171892-g-...	270.645	1144427.64	1.513						
56	500-171892-h-...	285.669	1190242.43	0.649						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
57	500-171892-g-...	242.687	1215479.64	0.599						
58	500-171892-h-...	254.956	1003359.02	8.061						
59	CCV	250.817	1032036.02	0.835						
60	CCB	0.415	1796.84	9.751						
61	500-171892-h-...	542.535	2178726.69	2.253						
62	500-171892-h-...	493.920	1997482.00	0.750						
63	500-171892-g-...	215.544	872092.15	1.167						
64	500-171892-h-...	211.809	853157.23	1.027						
65	500-171892-g-...	442.513	1822067.99	2.618						
66	500-171892-h-...	414.478	1683782.42	1.663						
67	CCV	245.773	1007833.63	0.968						
68	CCB	0.414	1800.18	11.123						
69	CCVL	2.472	10076.97	3.697						
70	mb 500-51358...	0.149	733.39	17.502						
71	lcs 500-513582...	528.109	2051297.26	11.668						
72	500-172264-e-...	110.663	441617.40	1.999						
73	500-172264-e-...	116.216	464184.55	8.281						
74	500-172264-e-...	611.789	2497887.57	1.046						
75	500-172264-e-...	587.763	2369303.14	2.575						
76	500-172264-e-...	24.085	95845.02	0.660						
77	500-172264-e-...	141.269	559309.89	0.791						
78	500-172264-e-...	68.481	276805.44	1.346						
79	500-172264-e-...	31.812	135695.06	10.253						
80	CCV	244.358	987713.34	0.210						
81	CCB	0.403	1720.15	10.999						
82	500-172264-e-...	49.152	194671.40	0.811						
83	500-172264-e-...	64.144	256991.22	1.194						
84	500-172264-e-...	57.247	225931.31	1.966						
85	500-172264-e-...	21.271	81777.10	0.776						
86	0-172264-e-9-a	15.825	60164.50	2.595						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
87	500-172264-e-...	319.797	1246902.38	0.985						
88	500-172264-e-...	142.075	566684.29	1.356						
89	500-172264-e-...	55.356	215809.10	21.546						
90	500-172264-e-...	177.005	685341.32	7.941						
91	500-172264-e-...	161.380	626000.68	0.972						
92	CCV	246.348	977063.11	1.294						
93	CCB	0.491	2030.23	17.449						
94	500-172264-e-...	108.369	421946.11	22.258						
95	500-172264-e-...	151.579	594668.48	0.371						
96	500-172264-e-...	35.105	139006.40	2.440						
97	mb 500-51365...	0.075	416.69	38.485						
98	lcs 500-513652...	478.508	1915899.61	0.911						
99	lcsd 500-51365...	532.981	1937378.15	16.427						
100	500-171453-a-...	0.285	1316.77	9.305						
101	500-171453-a-...	1408.234	5858141.99	0.967						
102	CCV	244.560	971876.81	0.564						
103	CCB	0.449	1873.53	15.562						

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.003	183.34	37.840	0.004	183.34	184.414	0.009	213.35	62.056
2	ICIS	0.000	103.34	N/A	0.000	153.34	N/A	0.000	143.34	N/A
3	Std1	10.422	315596.13	0.436	10.055	104565.01	1.147	10.096	91863.24	1.315
4	Std2	104.354	3105231.41	0.626	101.295	1034128.66	0.481	100.450	897165.25	0.407
5	Std3	499.121	14229098.96	0.283	499.740	4887403.26	0.383	499.908	4277184.94	0.148
6	S1	502.345	14481138.95	1.389	501.250	4956803.47	1.908	499.666	4322960.87	1.169
7	ICV	204.896	6026099.70	0.982	200.452	2022441.95	1.400	199.166	1757912.84	1.659
8	ICB	0.072	2280.29	2.162	0.057	753.39	23.673	0.060	693.38	22.416
9	ICVL	2.226	64371.50	8.564	0.564	5734.69	10.003	0.561	4987.70	12.449
10	icsa	0.027	853.39	18.680	0.193	1966.88	13.720	0.161	1466.81	16.349
11	icsab	10.840	286910.77	4.286	21.296	193444.86	4.417	21.448	170496.42	3.040
12	CRI	4.079	127230.23	9.687	1.161	12589.04	7.303	1.110	10537.45	8.511
13	CCV	265.812	7811502.80	6.698	258.169	2603850.22	5.529	257.199	2268483.46	6.608
14	CCB	0.052	1700.18	7.355	0.041	596.70	19.460	0.040	520.04	37.631
15	mb 500-51365...	0.012	476.70	27.438	0.021	366.69	72.979	0.017	303.35	58.125
16	lcs 500-513650...	102.526	3220104.43	10.151	100.394	1081809.07	10.148	99.772	940580.22	10.125
17	500-172222-g-...	0.027	913.40	38.380	0.036	533.37	6.080	0.035	456.69	4.712
18	500-172222-g-...	0.003	203.34	31.371	0.019	353.35	58.220	0.019	323.35	16.026
19	500-172222-g-...	0.003	190.01	82.806	0.092	1170.10	11.762	0.098	1090.09	16.695
20	500-172222-g-...	0.003	196.68	83.887	0.080	990.08	3.772	0.067	756.72	11.180
21	500-172222-g-...	0.003	206.68	21.636	0.092	1126.76	15.682	0.063	730.05	22.200
22	500-172222-g-...	0.001	123.34	130.214	0.031	466.70	43.515	0.023	346.68	33.955
23	500-172222-g-...	0.002	160.01	66.800	0.007	230.01	130.284	0.010	240.01	63.618
24	500-172222-g-...	0.001	140.01	193.292	0.072	893.40	21.094	0.060	680.05	21.704
25	CCV	261.918	7576598.22	0.468	255.976	2540305.85	0.504	255.361	2217045.33	0.068
26	CCB	0.071	2090.24	8.055	0.060	723.38	7.160	0.057	613.37	14.228

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	0.013	490.03	8.046	0.086	1040.09	12.840	0.081	873.40	20.246
28	500-172222-g-...	98.966	3254515.58	15.723	96.031	1083068.94	16.079	95.121	938835.51	15.811
29	500-172222-g-...	121.052	3584521.82	0.418	118.715	1206016.91	0.556	118.085	1049441.23	0.960
30	500-172222-g-...	0.026	883.40	6.991	0.047	636.71	10.679	0.049	576.70	10.875
31	500-172222-g-...	0.010	410.02	10.902	0.121	1440.13	7.421	0.116	1220.11	12.541
32	500-172222-g-...	0.002	176.67	77.378	0.037	530.04	3.395	0.045	536.70	33.069
33	500-172222-g-...	0.002	150.01	4.543	0.077	906.75	25.695	0.085	873.40	11.894
34	500-172222-g-...	0.002	150.01	147.834	0.096	1120.10	15.738	0.071	770.05	4.940
35	500-172222-g-...	0.001	140.01	102.228	0.060	770.06	17.499	0.049	576.70	52.935
36	500-172222-g-...	0.003	186.68	60.635	0.082	950.07	16.530	0.068	723.38	9.772
37	CCV	263.357	7609368.64	1.573	254.838	2526146.78	1.052	253.632	2199497.67	1.092
38	CCB	0.052	1576.82	6.238	0.041	550.04	22.310	0.042	496.70	39.187
39	CCVL	2.059	61104.69	0.917	0.519	5424.53	7.741	0.525	4811.01	1.589
40	mb 500-51356...	0.009	340.02	34.424	0.036	496.70	26.302	0.033	413.36	67.772
41	lcs 500-513568...	106.679	3148417.46	1.400	105.243	1065655.19	1.044	104.384	924655.53	1.282
42	400-176914-b-...	0.023	713.38	17.658	0.070	786.73	19.754	0.057	593.37	40.784
43	400-176914-b-...	0.011	416.69	45.267	0.051	630.04	24.192	0.050	553.37	23.768
44	400-176914-b-...	0.005	223.34	18.175	0.065	760.05	21.781	0.061	636.71	14.788
45	400-176914-b-2-...	108.685	3035380.37	1.025	106.193	1017514.36	0.152	105.874	887489.02	0.145
46	400-176914-b-2-...	107.295	3013441.41	1.059	105.094	1012566.60	1.687	104.587	881553.58	1.938
47	400-176914-b-...	0.024	850.06	6.379	0.041	580.04	15.454	0.037	486.70	15.798
48	CCV	263.883	7635476.56	2.611	254.269	2524059.34	2.432	252.122	2189633.20	1.914
49	CCB	0.083	2577.00	4.045	0.057	736.72	13.036	0.053	623.38	6.693
50	400-176914-b-...	0.043	1053.42	2.227	0.060	583.37	15.118	0.054	476.70	19.569
51	400-176914-b-...	0.004	136.67	72.668	0.070	540.03	17.651	0.074	503.37	21.070
52	400-176914-b-...	0.002	110.00	81.607	0.049	420.03	43.466	0.032	273.35	17.959
53	400-176914-b-...	0.001	90.00	315.029	0.065	596.71	8.028	0.052	446.69	21.487
54	400-176914-b-...	0.002	150.01	117.816	0.074	866.74	23.785	0.068	713.38	16.787
55	500-171892-g-...	0.022	740.06	23.694	0.580	5871.40	4.806	0.582	5161.12	2.715
56	500-171892-h-...	0.021	703.38	4.397	0.036	510.04	15.663	0.028	376.69	4.027

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	0.036	1100.10	8.921	7.598	73218.43	2.288	7.026	59250.49	3.036
58	500-171892-h-...	0.011	383.35	16.347	0.100	1073.42	31.038	0.099	940.08	22.825
59	CCV	265.349	7592512.18	0.478	254.638	2499557.77	0.853	253.531	2177238.77	1.202
60	CCB	0.049	1536.81	6.849	0.031	460.03	27.418	0.008	210.01	61.026
61	500-171892-h-...	0.210	5824.71	1.425	1.480	13997.08	3.185	1.363	11308.14	4.946
62	500-171892-h-...	0.042	1246.77	18.840	0.073	836.72	19.739	0.065	670.05	19.815
63	500-171892-g-...	0.007	300.02	26.566	0.109	1186.77	7.515	0.124	1173.44	3.751
64	500-171892-h-...	0.001	136.67	79.483	0.036	490.03	19.592	0.026	350.02	30.430
65	500-171892-g-...	0.032	1000.07	5.981	1.254	12285.69	2.236	1.190	10204.07	5.143
66	500-171892-h-...	0.012	446.70	9.901	0.020	346.69	12.823	0.034	426.70	39.718
67	CCV	268.777	7696220.93	1.879	254.733	2502295.01	1.918	253.660	2180078.04	0.819
68	CCB	0.035	1130.09	11.005	0.029	450.03	9.810	0.018	303.35	37.770
69	CCVL	2.053	60639.45	2.552	0.487	5074.42	3.212	0.488	4457.54	7.820
70	mb 500-51358...	0.003	200.01	43.625	0.073	910.07	30.473	0.071	783.39	5.871
71	lcs 500-513582...	111.384	3153559.64	8.281	110.272	1070618.29	9.260	110.054	934622.51	9.670
72	500-172264-e-...	0.022	696.71	13.377	0.040	516.70	8.105	0.042	483.36	23.343
73	500-172264-e-...	0.010	370.02	27.323	0.044	556.71	10.000	0.032	393.36	18.495
74	500-172264-e-...	108.817	2993328.08	0.961	107.336	1012958.71	1.003	106.096	875960.20	0.729
75	500-172264-e-...	104.550	2900463.81	0.974	102.215	972877.12	0.774	102.278	851606.97	1.085
76	500-172264-e-...	0.024	776.72	5.489	0.036	493.36	26.019	0.031	396.69	14.840
77	500-172264-e-...	0.012	420.03	11.802	0.056	660.04	13.489	0.063	643.38	15.275
78	500-172264-e-...	0.005	250.02	33.888	0.066	786.72	4.913	0.068	713.39	5.268
79	500-172264-e-...	0.013	476.69	24.447	0.030	443.36	21.093	0.033	423.36	18.879
80	CCV	270.670	7682141.14	2.001	254.583	2478644.81	2.768	253.872	2162521.64	1.924
81	CCB	0.055	1700.19	4.840	0.030	446.70	36.518	0.039	476.69	16.448
82	500-172264-e-...	0.011	393.36	24.991	0.096	1066.75	6.686	0.084	840.06	7.419
83	500-172264-e-...	0.006	276.68	43.671	0.062	746.72	5.075	0.062	666.71	7.296
84	500-172264-e-...	0.008	313.35	26.758	0.031	420.03	34.446	0.023	310.02	19.523
85	500-172264-e-...	0.006	240.01	23.079	0.018	293.35	16.449	0.020	286.68	74.441
86	0-172264-e-9-a	0.011	383.36	21.949	0.018	303.35	51.387	0.011	216.68	49.350

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	0.010	350.02	23.599	0.037	470.03	7.758	0.021	293.35	24.593
88	500-172264-e-...	0.004	206.68	64.361	11.621	110104.54	1.337	10.794	89488.29	0.784
89	500-172264-e-...	0.003	166.68	79.114	0.053	633.38	33.196	0.045	500.03	27.254
90	500-172264-e-...	0.004	190.01	36.564	0.065	740.05	19.592	0.052	543.37	24.340
91	500-172264-e-...	0.002	146.68	52.374	0.032	426.69	11.186	0.038	433.36	7.410
92	CCV	273.187	7619094.26	1.015	255.592	2445462.78	1.485	254.746	2132309.45	1.293
93	CCB	0.074	2246.95	9.971	0.034	480.03	49.039	0.038	466.69	28.873
94	500-172264-e-...	0.011	393.36	16.296	0.029	413.36	39.819	0.027	346.69	52.801
95	500-172264-e-...	0.005	226.68	26.959	0.034	450.02	37.702	0.029	360.02	27.073
96	500-172264-e-...	0.002	163.34	29.668	0.027	410.02	22.938	0.016	270.01	77.917
97	mb 500-51365...	0.003	173.34	96.648	0.000	153.34	583.723	0.002	146.68	187.668
98	lcs 500-513652...	103.183	2965862.04	1.574	100.767	993759.18	1.492	101.365	874568.22	1.377
99	lcsd 500-51365...	113.380	3022532.24	14.494	110.961	1013776.08	15.704	110.263	880760.56	16.414
100	500-171453-a-...	0.029	883.40	24.537	0.039	510.03	39.894	0.053	573.37	17.987
101	500-171453-a-...	2.304	70739.46	2.586	44.948	472961.29	0.177	42.569	391878.44	1.230
102	CCV	269.277	7586047.60	1.821	253.799	2452961.16	1.517	251.475	2126255.33	1.937
103	CCB	0.076	2300.28	14.740	0.052	666.72	21.567	0.039	480.03	41.491

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.004	776.71	109.688	0.001	70.00	200.115
2	ICIS	0.000	646.70	N/A	0.000	50.00	N/A
3	Std1	10.319	421291.21	0.472	9.802	404239.77	0.482
4	Std2	103.121	4132485.69	0.642	102.152	4140759.63	0.548
5	Std3	499.369	19170217.01	0.598	499.574	19401556.79	0.627
6	S1	499.544	19391109.19	1.675	495.337	19450679.29	2.108
7	ICV	203.573	8061993.16	1.688	199.278	7983904.26	1.109
8	ICB	0.059	3046.92	7.757	0.030	1293.46	1.576
9	ICVL	0.575	22974.64	8.054	1.013	39878.45	8.873
10	icsa	0.186	7494.43	7.383	0.021	820.06	14.916
11	icsab	21.810	777661.93	4.308	21.790	785388.04	4.687
12	CRI	1.159	49333.58	8.286	0.013	616.71	19.681
13	CCV	263.036	10408810.06	6.759	257.370	10304854.85	6.234
14	CCB	0.043	2466.87	12.808	0.020	876.73	20.846
15	mb 500-51365...	0.018	1383.42	49.099	0.002	153.34	42.140
16	lcs 500-513650...	101.424	4288966.97	10.538	98.375	4204038.48	11.923
17	500-172222-g-...	0.035	2093.49	5.517	0.019	816.74	19.558
18	500-172222-g-...	0.022	1566.78	12.510	0.002	143.34	57.350
19	500-172222-g-...	0.094	4740.52	9.483	0.718	31173.94	14.513
20	500-172222-g-...	0.082	4020.40	4.430	0.733	30526.23	2.428
21	500-172222-g-...	0.080	3970.40	0.904	0.766	31952.26	3.034
22	500-172222-g-...	0.030	1833.46	23.184	<0.000	23.33	N/A
23	500-172222-g-...	0.009	1036.73	32.319	<0.000	26.67	N/A
24	500-172222-g-...	0.067	3320.29	7.966	1.212	49223.25	1.783
25	CCV	260.176	10135182.14	0.168	255.978	10086751.51	1.820
26	CCB	0.059	2823.56	9.674	0.042	1623.50	20.995

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-172222-g-...	0.076	3733.68	7.334	1.241	50792.25	4.016
28	500-172222-g-...	97.411	4313389.93	15.908	96.581	4322614.21	16.678
29	500-172222-g-...	120.361	4799601.18	0.635	120.453	4858789.51	0.606
30	500-172222-g-...	0.053	2756.89	3.078	0.254	10357.43	3.958
31	500-172222-g-...	0.122	5704.02	4.495	1.140	47748.18	5.756
32	500-172222-g-...	0.043	2346.84	14.381	1.100	44384.37	3.717
33	500-172222-g-...	0.090	4107.11	4.201	1.125	44210.38	1.592
34	500-172222-g-...	0.088	4133.78	1.281	0.936	37672.63	3.379
35	500-172222-g-...	0.055	2843.58	6.495	0.663	27022.63	2.193
36	500-172222-g-...	0.073	3433.63	13.229	1.866	72840.63	2.688
37	CCV	259.322	10090528.33	0.782	258.618	10179223.18	1.723
38	CCB	0.039	2103.49	15.147	0.021	880.07	17.578
39	CCVL	0.525	21593.60	3.298	0.937	37856.18	1.096
40	mb 500-51356...	0.032	1830.13	27.364	0.001	90.00	30.299
41	lcs 500-513568...	106.915	4249506.52	1.283	105.277	4232614.63	1.288
42	400-176914-b-...	0.064	2930.25	15.537	0.322	11935.34	4.289
43	400-176914-b-...	0.054	2633.56	12.428	0.195	7508.91	5.745
44	400-176914-b-...	0.062	2913.58	3.270	0.191	7262.17	4.230
45	400-176914-b-2-...	108.108	4066026.79	0.275	109.861	4179583.79	0.833
46	400-176914-b-2-...	106.873	4042015.30	1.582	107.954	4130140.98	1.991
47	400-176914-b-...	0.038	2230.18	3.996	0.047	2006.91	5.324
48	CCV	257.990	10052914.33	2.309	259.453	10226763.18	2.740
49	CCB	0.057	2956.92	6.518	0.048	2010.23	19.099
50	400-176914-b-...	0.060	2336.85	5.943	4.463	137944.74	3.014
51	400-176914-b-...	0.077	2340.18	24.129	0.070	1806.86	4.070
52	400-176914-b-...	0.047	1633.45	21.439	0.071	1896.88	16.136
53	400-176914-b-...	0.059	2213.50	13.568	0.722	21483.14	4.303
54	400-176914-b-...	0.072	3370.31	13.057	0.002	136.68	16.513
55	500-171892-g-...	0.582	23147.87	1.925	0.091	3617.25	2.586
56	500-171892-h-...	0.032	1856.80	10.961	0.083	3307.17	9.396

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171892-g-...	7.377	279099.87	0.488	1.593	60873.67	2.860
58	500-171892-h-...	0.095	4070.39	21.499	1.433	53357.38	5.300
59	CCV	257.521	9922619.80	0.573	259.295	10107334.23	1.389
60	CCB	0.021	1476.76	26.660	0.030	1243.44	17.095
61	500-171892-h-...	1.447	53789.75	1.719	5.551	206402.18	2.291
62	500-171892-h-...	0.076	3433.64	10.909	4.014	150906.91	1.357
63	500-171892-g-...	0.120	5137.26	5.738	0.603	23022.30	1.859
64	500-171892-h-...	0.034	1880.13	14.482	0.579	21983.82	1.064
65	500-171892-g-...	1.221	46994.32	2.476	12.721	488920.53	2.120
66	500-171892-h-...	0.024	1563.44	16.987	13.040	509238.31	0.917
67	CCV	258.454	9966362.15	1.230	266.596	10400002.14	1.729
68	CCB	0.023	1583.44	11.680	0.025	1060.09	16.514
69	CCVL	0.502	20563.06	1.260	0.955	38404.65	3.060
70	mb 500-51358...	0.070	3490.32	10.982	0.001	86.67	86.983
71	lcs 500-513582...	112.151	4273423.68	9.646	111.142	4284530.46	9.254
72	500-172264-e-...	0.044	2213.51	4.828	71.342	2681334.34	1.012
73	500-172264-e-...	0.039	2046.82	9.992	74.491	2780935.17	5.485
74	500-172264-e-...	108.777	4029612.47	0.805	186.376	6983918.85	0.478
75	500-172264-e-...	104.151	3891133.85	0.527	178.903	6760935.52	1.301
76	500-172264-e-...	0.033	1853.46	10.273	15.064	576464.73	2.091
77	500-172264-e-...	0.055	2586.88	3.576	65.652	2422437.30	1.293
78	500-172264-e-...	0.068	3190.30	6.783	4.757	183377.21	1.740
79	500-172264-e-...	0.031	1826.79	19.635	61.862	2438193.97	8.299
80	CCV	259.119	9903483.24	1.892	267.901	10357810.47	1.843
81	CCB	0.035	2003.48	23.067	0.040	1623.50	7.033
82	500-172264-e-...	0.095	4190.43	3.279	57.459	2188249.66	1.622
83	500-172264-e-...	0.058	2856.91	4.829	2.067	80155.16	1.917
84	500-172264-e-...	0.025	1460.10	0.543	55.977	2037341.63	1.364
85	500-172264-e-...	0.020	1273.41	28.424	76.968	2759519.75	1.419
86	0-172264-e-9-a	0.016	1150.07	23.970	48.240	1740542.06	3.146

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172264-e-...	0.028	1560.11	5.837	18.069	644894.76	1.536
88	500-172264-e-...	11.450	425894.71	0.846	14.138	531309.05	0.871
89	500-172264-e-...	0.055	2610.21	25.420	34.975	1305283.05	17.498
90	500-172264-e-...	0.056	2626.88	4.515	10.217	374395.92	6.549
91	500-172264-e-...	0.034	1810.12	6.037	59.160	2147947.88	1.999
92	CCV	259.853	9759408.50	1.107	269.570	10242352.35	0.967
93	CCB	0.041	2213.51	24.487	0.051	2040.25	10.589
94	500-172264-e-...	0.024	1443.43	46.958	15.922	588372.43	19.700
95	500-172264-e-...	0.035	1850.12	15.904	22.028	801124.94	1.850
96	500-172264-e-...	0.018	1296.74	37.611	33.724	1295712.40	0.817
97	mb 500-51365...	<0.000	600.04	N/A	0.003	173.34	26.939
98	lcs 500-513652...	102.865	3982032.63	1.353	101.282	3965818.69	1.600
99	lcsd 500-51365...	112.712	4041703.59	15.828	112.507	4080905.25	15.809
100	500-171453-a-...	0.045	2273.51	17.067	0.014	563.37	12.615
101	500-171453-a-...	44.296	1829660.61	0.295	0.002	130.01	25.718
102	CCV	256.206	9719825.69	1.788	268.426	10300593.18	2.864
103	CCB	0.047	2470.20	12.711	0.045	1823.53	5.893

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	117001.13	100.0	100161.34	100.0	175043.27	100.0
2	ICIS	118489.08	100.0	102487.83	100.0	181175.78	100.0
3	Std1	120959.40	102.1	104437.22	101.9	181470.06	100.2
4	Std2	116706.94	98.5	102420.99	99.9	177020.13	97.7
5	Std3	116475.43	98.3	102636.06	100.1	172512.70	95.2
6	S1	118630.89	100.1	101370.67	98.9	173894.25	96.0
7	ICV	117892.38	99.5	103869.61	101.3	175424.77	96.8
8	ICB	115150.07	97.2	100291.38	97.9	177462.30	98.0
9	ICVL	109619.88	92.5	96948.62	94.6	168842.32	93.2
10	icsa	121421.56	102.5	104658.52	102.1	165650.96	91.4
11	icsab	117848.92	99.5	99201.68	96.8	159604.75	88.1
12	CRI	121513.16	102.6	105759.35	103.2	183664.23	101.4
13	CCV	117570.77	99.2	103635.25	101.1	176342.40	97.3
14	CCB	115739.37	97.7	101066.84	98.6	181397.88	100.1
15	mb 500-51365...	116846.74	98.6	101666.67	99.2	178909.03	98.7
16	lcs 500-513650...	123571.63	104.3	108583.62	105.9	187461.44	103.5
17	500-172222-g-...	124504.05	105.1	108996.02	106.4	188422.44	104.0
18	500-172222-g-...	131864.34	111.3	111247.47	108.5	192440.77	106.2
19	500-172222-g-...	134519.77	113.5	118305.85	115.4	193847.31	107.0
20	500-172222-g-...	127519.00	107.6	109571.02	106.9	186182.79	102.8
21	500-172222-g-...	127844.06	107.9	110607.04	107.9	184098.37	101.6
22	500-172222-g-...	131447.99	110.9	110473.60	107.8	188355.04	104.0
23	500-172222-g-...	131922.80	111.3	110070.20	107.4	189971.71	104.9
24	500-172222-g-...	130459.59	110.1	111462.69	108.8	182423.44	100.7
25	CCV	115002.34	97.1	100807.12	98.4	169621.23	93.6
26	CCB	108651.74	91.7	95069.87	92.8	167350.86	92.4

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
27	500-172222-g-...	131973.37	111.4	112200.42	109.5	186785.08	103.1
28	500-172222-g-...	142521.76	120.3	124274.60	121.3	199165.69	109.9
29	500-172222-g-...	127348.82	107.5	107882.16	105.3	178786.60	98.7
30	500-172222-g-...	123028.12	103.8	105190.85	102.6	180292.47	99.5
31	500-172222-g-...	137121.78	115.7	116359.84	113.5	189244.29	104.5
32	500-172222-g-...	124992.34	105.5	107684.58	105.1	178565.77	98.6
33	500-172222-g-...	119989.39	101.3	103866.66	101.3	171524.52	94.7
34	500-172222-g-...	123908.38	104.6	108453.44	105.8	174146.41	96.1
35	500-172222-g-...	123903.86	104.6	106074.49	103.5	176871.87	97.6
36	500-172222-g-...	121336.49	102.4	105486.80	102.9	172726.70	95.3
37	CCV	116518.95	98.3	100395.92	98.0	169398.35	93.5
38	CCB	111618.10	94.2	96019.35	93.7	172000.31	94.9
39	CCVL	115073.02	97.1	100106.80	97.7	176811.12	97.6
40	mb 500-51356...	111765.86	94.3	96069.32	93.7	169014.85	93.3
41	lcs 500-513568...	112741.65	95.1	99753.84	97.3	173850.08	96.0
42	400-176914-b-...	112939.00	95.3	97450.71	95.1	156507.54	86.4
43	400-176914-b-...	116891.64	98.7	103648.19	101.1	163746.20	90.4
44	400-176914-b-...	113597.02	95.9	100093.72	97.7	160287.18	88.5
45	400-176914-b-2-...	112050.37	94.6	101193.35	98.7	163017.78	90.0
46	400-176914-b-2-...	113773.98	96.0	102021.27	99.5	164326.66	90.7
47	400-176914-b-...	117768.12	99.4	102722.97	100.2	174472.89	96.3
48	CCV	111865.39	94.4	97406.93	95.0	169114.53	93.3
49	CCB	111556.98	94.1	99097.01	96.7	175424.66	96.8
50	400-176914-b-...	112351.95	94.8	94716.05	92.4	142746.70	78.8
51	400-176914-b-...	103033.88	87.0	80316.46	78.4	118293.58	65.3
52	400-176914-b-...	102161.89	86.2	81602.39	79.6	114809.19	63.4
53	400-176914-b-...	118533.08	100.0	105647.90	103.1	137271.37	75.8
54	400-176914-b-...	133482.45	112.7	110019.60	107.3	179824.59	99.3
55	500-171892-g-...	123953.80	104.6	184894.81	180.4	169329.42	93.5
56	500-171892-h-...	117263.65	99.0	150228.67	146.6	166504.76	91.9

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
57	500-171892-g-...	121822.48	102.8	611654.18	596.8	159795.51	88.2
58	500-171892-h-...	110111.36	92.9	95235.76	92.9	157905.53	87.2
59	CCV	108889.64	91.9	95790.48	93.5	163558.75	90.3
60	CCB	109329.51	92.3	96994.26	94.6	169620.63	93.6
61	500-171892-h-...	107823.28	91.0	161480.42	157.6	154657.75	85.4
62	500-171892-h-...	109946.47	92.8	97243.36	94.9	155346.95	85.7
63	500-171892-g-...	108550.94	91.6	98027.68	95.6	157244.60	86.8
64	500-171892-h-...	105229.96	88.8	93780.13	91.5	155898.00	86.0
65	500-171892-g-...	106695.46	90.0	136258.60	133.0	153806.07	84.9
66	500-171892-h-...	104790.49	88.4	95533.03	93.2	155168.65	85.6
67	CCV	101565.00	85.7	94685.21	92.4	158262.57	87.4
68	CCB	105377.68	88.9	93849.80	91.6	166633.04	92.0
69	CCVL	107088.70	90.4	94746.04	92.4	166775.04	92.1
70	mb 500-51358...	106253.34	89.7	95060.86	92.8	169956.82	93.8
71	lcs 500-513582...	96388.20	81.3	87805.62	85.7	154098.43	85.1
72	500-172264-e-...	106273.34	89.7	96103.99	93.8	154041.23	85.0
73	500-172264-e-...	107968.79	91.1	96191.30	93.9	157901.94	87.2
74	500-172264-e-...	108550.65	91.6	95857.89	93.5	157992.56	87.2
75	500-172264-e-...	105769.81	89.3	93568.76	91.3	153192.57	84.6
76	500-172264-e-...	106854.71	90.2	94624.63	92.3	158566.11	87.5
77	500-172264-e-...	105720.29	89.2	94376.34	92.1	151949.19	83.9
78	500-172264-e-...	106326.77	89.7	98362.82	96.0	157895.31	87.2
79	500-172264-e-...	109633.00	92.5	99022.31	96.6	163386.09	90.2
80	CCV	101889.95	86.0	90823.83	88.6	156073.51	86.1
81	CCB	101062.20	85.3	89626.49	87.5	160465.30	88.6
82	500-172264-e-...	103683.90	87.5	90746.21	88.5	152910.70	84.4
83	500-172264-e-...	104905.77	88.5	94205.90	91.9	157665.12	87.0
84	500-172264-e-...	101994.21	86.1	95094.18	92.8	150874.83	83.3
85	500-172264-e-...	101192.95	85.4	88447.48	86.3	146940.21	81.1
86	0-172264-e-9-a	97068.75	81.9	85147.28	83.1	145312.60	80.2

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
87	500-172264-e-...	103750.82	87.6	92955.24	90.7	150050.14	82.8
88	500-172264-e-...	103627.25	87.5	93364.35	91.1	155790.57	86.0
89	500-172264-e-...	104704.66	88.4	92597.10	90.3	157204.63	86.8
90	500-172264-e-...	100990.42	85.2	90504.31	88.3	151884.32	83.8
91	500-172264-e-...	106286.83	89.7	97750.05	95.4	151231.91	83.5
92	CCV	100868.08	85.1	90954.72	88.7	154195.25	85.1
93	CCB	99741.86	84.2	88332.81	86.2	160704.05	88.7
94	500-172264-e-...	104033.66	87.8	93634.95	91.4	156466.90	86.4
95	500-172264-e-...	103321.92	87.2	91205.39	89.0	152440.11	84.1
96	500-172264-e-...	101561.79	85.7	91681.44	89.5	155935.48	86.1
97	mb 500-51365...	106389.39	89.8	92706.43	90.5	163606.81	90.3
98	lcs 500-513652...	102195.30	86.2	90907.63	88.7	159634.30	88.1
99	lcsd 500-51365...	91573.81	77.3	84393.91	82.3	144214.10	79.6
100	500-171453-a-...	113251.05	95.6	99281.94	96.9	165391.51	91.3
101	500-171453-a-...	109953.33	92.8	96736.71	94.4	171884.93	94.9
102	CCV	99000.42	83.6	89516.29	87.3	155199.69	85.7
103	CCB	99009.73	83.6	89523.05	87.3	159452.11	88.0

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	202280.84	100.0	116809.62	100.0
2	ICIS	209424.07	100.0	122347.01	100.0
3	Std1	217456.00	103.8	124010.20	101.4
4	Std2	215908.00	103.1	121896.66	99.6
5	Std3	214214.28	102.3	116786.90	95.5
6	S1	216192.14	103.2	118104.97	96.5
7	ICV	219501.01	104.8	120492.88	98.5
8	ICB	210019.43	100.3	124012.00	101.4
9	ICVL	202067.89	96.5	118764.97	97.1
10	icsa	214168.58	102.3	113097.02	92.4
11	icsab	200920.34	95.9	108486.67	88.7
12	CRI	221320.69	105.7	128222.63	104.8
13	CCV	218592.31	104.4	120684.09	98.6
14	CCB	213046.92	101.7	126413.91	103.3
15	mb 500-51365...	214678.88	102.5	126843.17	103.7
16	lcs 500-513650...	233853.78	111.7	129516.54	105.9
17	500-172222-g-...	216181.59	103.2	123651.87	101.1
18	500-172222-g-...	226373.13	108.1	126930.71	103.7
19	500-172222-g-...	239015.41	114.1	131590.84	107.6
20	500-172222-g-...	222183.72	106.1	124969.04	102.1
21	500-172222-g-...	221755.86	105.9	125342.85	102.4
22	500-172222-g-...	219811.04	105.0	122648.28	100.2
23	500-172222-g-...	216653.40	103.5	124247.84	101.6
24	500-172222-g-...	222223.81	106.1	122017.88	99.7
25	CCV	212185.66	101.3	118503.65	96.9
26	CCB	198269.43	94.7	115181.83	94.1

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
27	500-172222-g-...	222641.03	106.3	123016.64	100.5
28	500-172222-g-...	250230.21	119.5	136969.77	112.0
29	500-172222-g-...	220487.21	105.3	121305.47	99.1
30	500-172222-g-...	215334.72	102.8	121986.00	99.7
31	500-172222-g-...	231879.35	110.7	126043.55	103.0
32	500-172222-g-...	219515.60	104.8	121306.25	99.1
33	500-172222-g-...	211248.97	100.9	118029.71	96.5
34	500-172222-g-...	217330.82	103.8	120957.00	98.9
35	500-172222-g-...	219226.49	104.7	122354.29	100.0
36	500-172222-g-...	210385.14	100.5	117352.36	95.9
37	CCV	213719.40	102.1	118375.72	96.8
38	CCB	199037.44	95.0	117008.12	95.6
39	CCVL	207861.89	99.3	121396.47	99.2
40	mb 500-51356...	197826.69	94.5	115850.60	94.7
41	lcs 500-513568...	214538.12	102.4	120906.39	98.8
42	400-176914-b-...	201924.09	96.4	110967.64	90.7
43	400-176914-b-...	208149.23	99.4	114778.08	93.8
44	400-176914-b-...	208163.05	99.4	113492.09	92.8
45	400-176914-b-2-...	208524.97	99.6	114405.04	93.5
46	400-176914-b-2-...	211356.73	100.9	115066.77	94.0
47	400-176914-b-...	218608.34	104.4	124724.76	101.9
48	CCV	212729.60	101.6	118566.67	96.9
49	CCB	207780.36	99.2	122555.07	100.2
50	400-176914-b-...	179934.71	85.9	92983.88	76.0
51	400-176914-b-...	151269.60	72.2	76082.78	62.2
52	400-176914-b-...	150226.59	71.7	78668.38	64.3
53	400-176914-b-...	174493.75	83.3	89280.51	73.0
54	400-176914-b-...	206802.32	98.7	116239.86	95.0
55	500-171892-g-...	214080.57	102.2	117771.12	96.3
56	500-171892-h-...	210899.76	100.7	118255.52	96.7

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
57	500-171892-g-...	253514.27	121.1	114858.52	93.9
58	500-171892-h-...	199873.58	95.4	111941.63	91.5
59	CCV	208272.80	99.5	117213.08	95.8
60	CCB	203009.08	96.9	120465.40	98.5
61	500-171892-h-...	203333.83	97.1	111829.37	91.4
62	500-171892-h-...	204724.98	97.8	113031.63	92.4
63	500-171892-g-...	204805.50	97.8	114660.48	93.7
64	500-171892-h-...	203901.97	97.4	113938.79	93.1
65	500-171892-g-...	208530.45	99.6	115584.26	94.5
66	500-171892-h-...	205668.76	98.2	117428.24	96.0
67	CCV	207572.44	99.1	117317.57	95.9
68	CCB	204020.72	97.4	121708.94	99.5
69	CCVL	203626.72	97.2	120817.14	98.7
70	mb 500-51358...	204135.70	97.5	122767.04	100.3
71	lcs 500-513582...	198067.40	94.6	116454.31	95.2
72	500-172264-e-...	201994.09	96.5	113025.02	92.4
73	500-172264-e-...	202996.21	96.9	112467.13	91.9
74	500-172264-e-...	206703.84	98.7	112683.69	92.1
75	500-172264-e-...	204122.26	97.5	113642.55	92.9
76	500-172264-e-...	201179.27	96.1	115073.06	94.1
77	500-172264-e-...	200385.95	95.7	110960.85	90.7
78	500-172264-e-...	204535.81	97.7	115880.20	94.7
79	500-172264-e-...	217343.42	103.8	119083.63	97.3
80	CCV	204598.11	97.7	116282.66	95.0
81	CCB	199879.47	95.4	118543.78	96.9
82	500-172264-e-...	200364.52	95.7	114532.74	93.6
83	500-172264-e-...	202748.43	96.8	116518.49	95.2
84	500-172264-e-...	199729.04	95.4	109448.81	89.5
85	500-172264-e-...	194323.71	92.8	107814.12	88.1
86	0-172264-e-9-a	192103.54	91.7	108539.54	88.7

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
87	500-172264-e-...	197368.33	94.2	107320.66	87.7
88	500-172264-e-...	201877.04	96.4	113001.56	92.4
89	500-172264-e-...	203495.43	97.2	114316.11	93.4
90	500-172264-e-...	196698.19	93.9	110409.47	90.2
91	500-172264-e-...	196354.50	93.8	109207.06	89.3
92	CCV	200784.98	95.9	114257.59	93.4
93	CCB	196404.38	93.8	118093.13	96.5
94	500-172264-e-...	203136.65	97.0	113538.93	92.8
95	500-172264-e-...	198565.62	94.8	109368.75	89.4
96	500-172264-e-...	200294.44	95.6	115541.93	94.4
97	mb 500-51365...	200937.39	95.9	116235.14	95.0
98	lcs 500-513652...	202699.70	96.8	117760.84	96.3
99	lcsd 500-51365...	186867.82	89.2	110614.44	90.4
100	500-171453-a-...	209682.34	100.1	113219.46	92.5
101	500-171453-a-...	210605.75	100.6	125614.09	102.7
102	CCV	201159.01	96.1	115422.82	94.3
103	CCB	196659.68	93.9	118876.04	97.2

Tune Report

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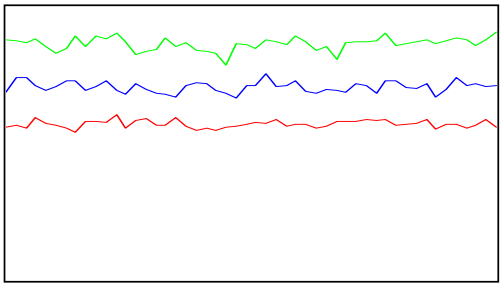
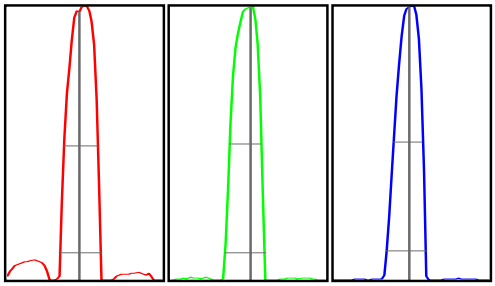
Acq. Date-Time 11/5/2019 9:50
Report Comment 072015Atune
Instrument Name G3281A JP11040848

[He]



Mass	Range	Count	RSD%	Background
59	5000	2850	2.476	
89	5000	4309	2.775	
205	5000	3525	2.814	

Ratio 156/140 1.277 %
Integration Time [sec] 0.1 **Sampling Period [sec]** 0.31



Mass	Peak Height	Axis	W-50%	W-10%
59	2732.55	58.95	0.63	0.769
89	4257.63	89.05	0.59	0.748
205	3492.39	205.00	0.54	0.736

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.54 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1500 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-50 V
Extract 2	-200.0 V	Cell Exit	-80 V
Omega Bias	-100 V	Deflect	3.0 V
Omega Lens	8.0 V	Plate Bias	-60 V

Cell Parameters

Use Gas	true	OctP Bias	-18.0 V

Tune Report

He Flow	3.5 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	3.0 V
3rd Gas Flow	0 %		

[no gas]

Mass	Range	Count	RSD%	Background
7	5000	3560	2.116	6.100
89	10000	8275	1.860	2.100
205	5000	4675	2.256	9.200

Ratio 156/140 1.598 % **Ratio** 70/140 17.428 %

Integration Time [sec] 0.1 **Sampling Period [sec]** 0.311

Mass	Peak Height	Axis	W-50%	W-10%
7	3485.02	7.00	0.67	0.806
89	8181.67	89.05	0.59	0.757
205	4628.96	205.00	0.56	0.748

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.74 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1550 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-34 V
Extract 2	-200.0 V	Cell Exit	-60 V
Omega Bias	-80 V	Deflect	14.2 V
Omega Lens	10.1 V	Plate Bias	-50 V

Cell Parameters

Use Gas	false	OctP Bias	-8.0 V
He Flow	0.0 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	5.0 V
3rd Gas Flow	0 %		

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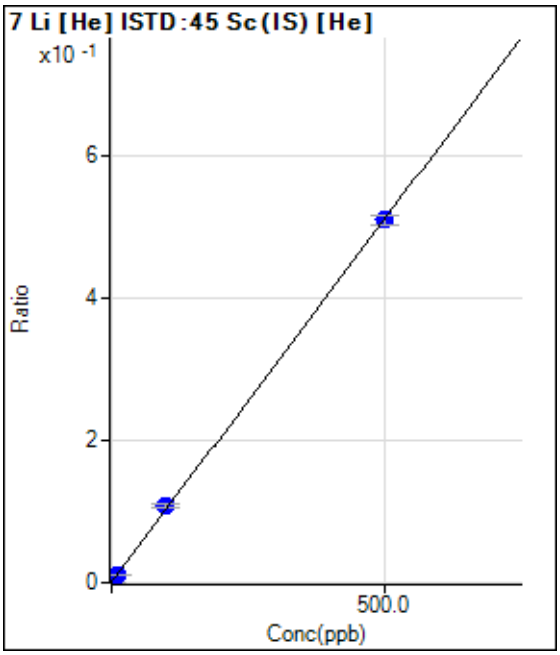
Analysis File: MS4110619He-1.batch.bin
DA Date-Time: 11/6/2019 3:54:07 PM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

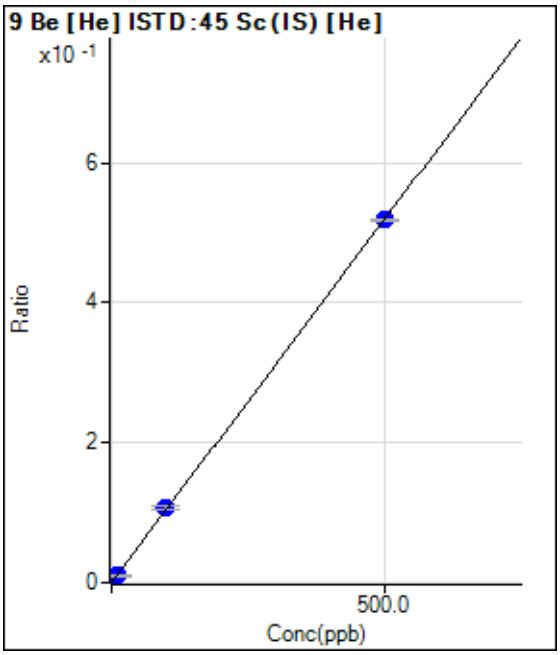
Level	Standard Data File	Sample Name	Acq. Date-Time
1	002CALB.d	ICIS	11/6/2019 9:53:44 AM
2	003CALS.d	Std1	11/6/2019 9:57:29 AM
3	004CALS.d	Std2	11/6/2019 10:01:26 AM
4	005CALS.d	Std3	11/6/2019 10:05:12 AM



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	93.34	0.0008	P	69.9
2	☐	10.000	9.891	1263.43	0.0109	P	8.8
3	☐	100.000	104.369	11834.39	0.1071	P	5.8
4	☐	500.000	499.128	55355.14	0.5093	P	2.5

y = 0.0010 * x + 8.0656E-004
R = 1.0000
DL = 1.661
BEC = 0.7917

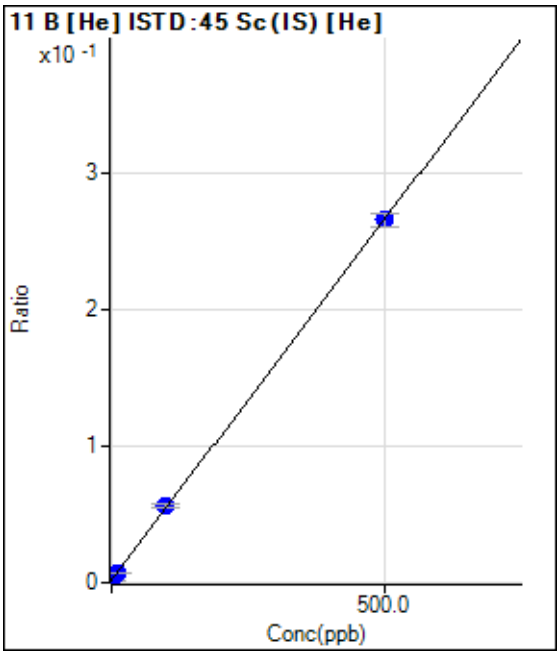
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	0.00	0.0000	P	
2	☐	10.000	9.823	1183.42	0.0102	P	13.8
3	☐	100.000	103.514	11874.47	0.1075	P	5.3
4	☐	500.000	499.301	56361.69	0.5185	P	0.3

y = 0.0010 * x + 0.0000E+000
R = 1.0000
DL = 0
BEC = 0

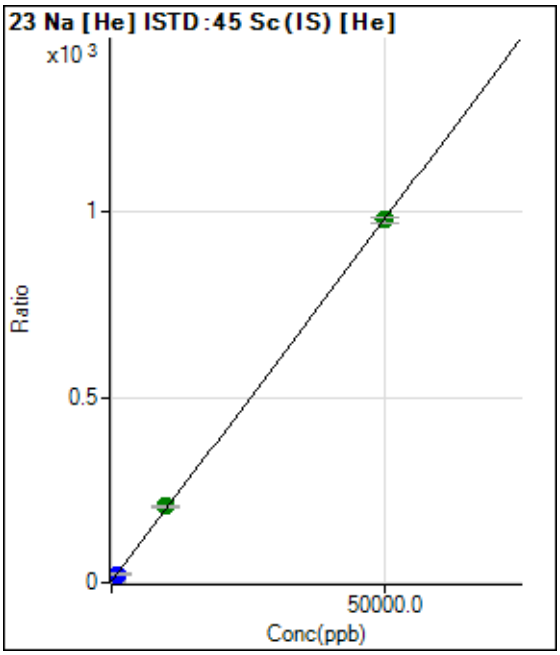
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	220.01	0.0019	P	12.9
2	☐	10.000	9.235	786.72	0.0068	P	5.7
3	☐	100.000	103.090	6221.36	0.0563	P	6.6
4	☐	500.000	499.397	28828.00	0.2653	P	3.4

y = 5.2732E-004 * x + 0.0019
R = 1.0000
DL = 1.405
BEC = 3.627

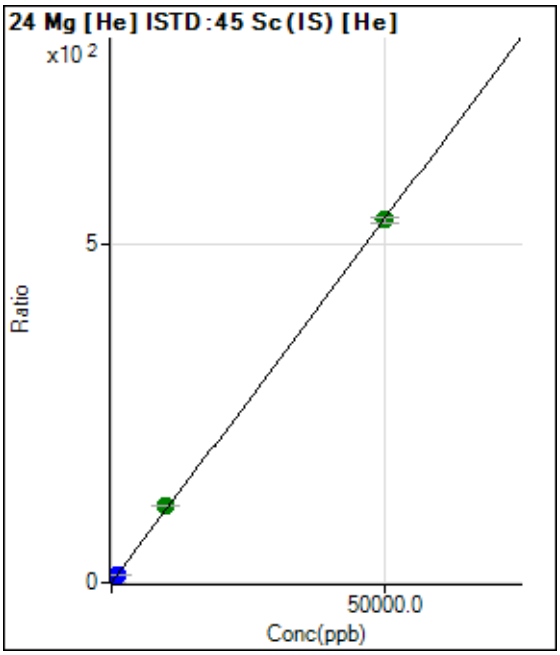
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	299668.47	2.6072	P	2.0
2	☐	1000.000	1050.986	2687883.19	23.1647	P	1.8
3	☐	10000.00	10400.74	22765795.49	206.0485	A	1.6
4	☐	50000.00	49918.83	106419235.0	979.0329	A	1.4

y = 0.0196 * x + 2.6072
R = 1.0000
DL = 8.163
BEC = 133.3

Weight: <None>
Min Conc: 0



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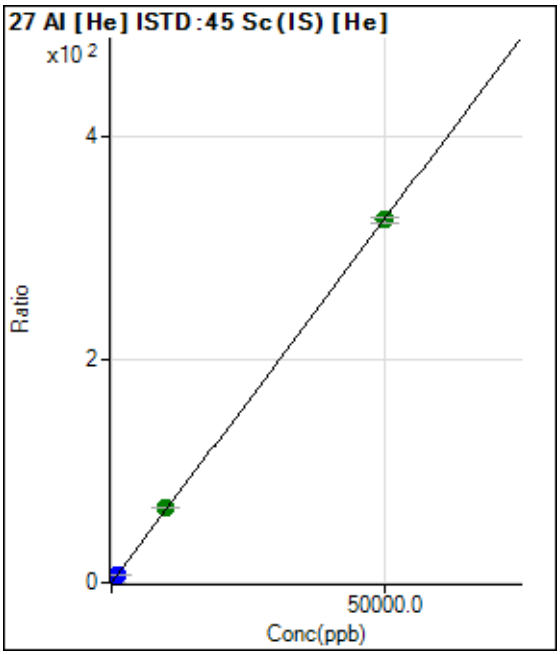
1	☐	0.000	0.000	12745.17	0.1109	P	4.1
2	☐	1000.000	1068.206	1342201.49	11.5685	P	2.6
3	☐	10000.00	10509.98	12469278.56	112.8413	A	0.1
4	☐	50000.00	49896.63	58185802.47	535.3033	A	1.5

y = 0.0107 * x + 0.1109
R = 0.9999
DL = 1.264
BEC = 10.34

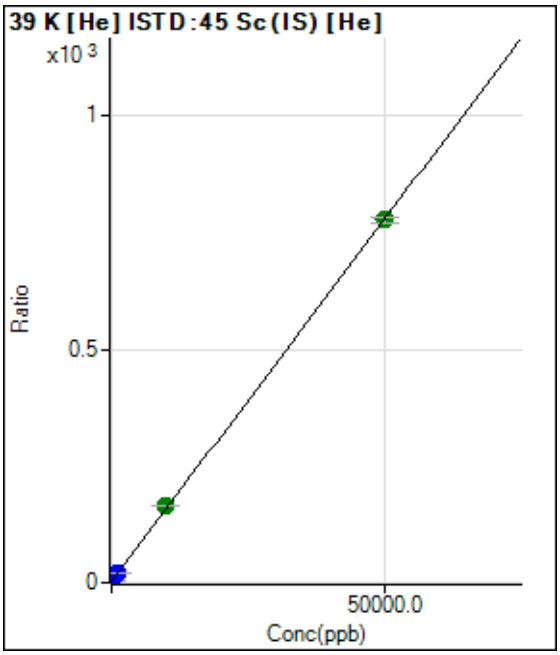
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1203.43	0.0105	P	7.8
2	☐	1000.000	1032.626	782739.75	6.7460	P	2.3
3	☐	10000.00	10377.68	7480806.76	67.7008	A	1.0
4	☐	50000.00	49923.81	35397401.97	325.6476	A	1.3

y = 0.0065 * x + 0.0105
R = 1.0000
DL = 0.3752
BEC = 1.605

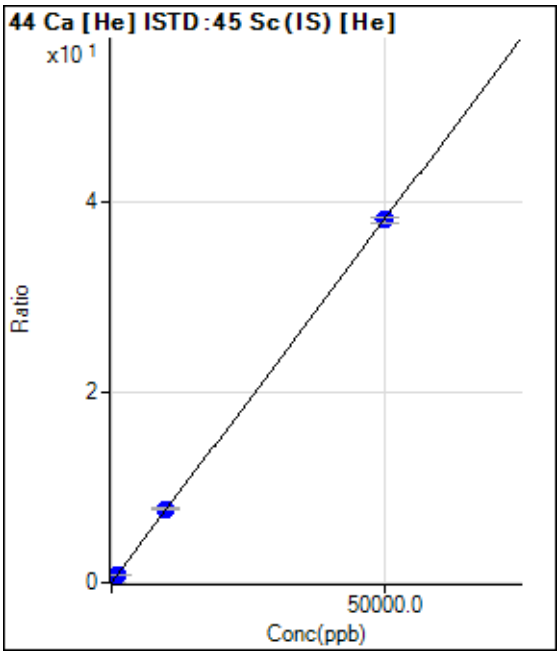
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	280926.78	2.4439	P	1.5
2	☐	1000.000	1048.093	2171950.02	18.7174	P	1.5
3	☐	10000.00	10418.46	18144525.98	164.2080	A	0.8
4	☐	50000.00	49915.34	84507872.07	777.4630	A	1.4

y = 0.0155 * x + 2.4439
R = 1.0000
DL = 7.019
BEC = 157.4

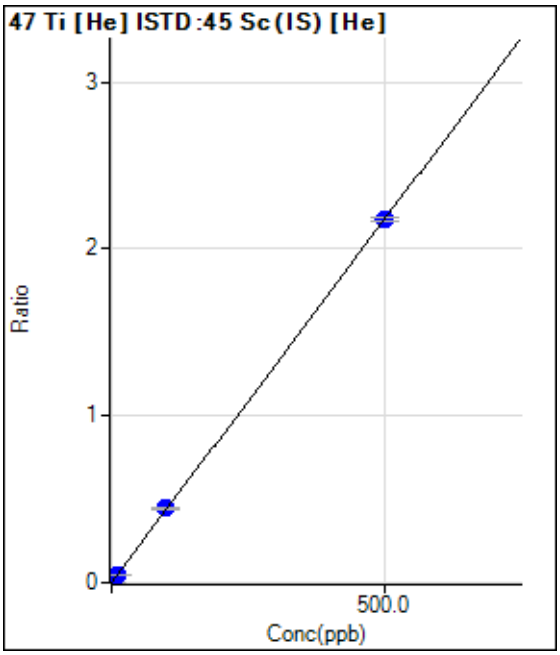
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	910.79	0.0079	P	23.1
2	☐	1000.000	1021.309	91082.18	0.7850	P	1.8
3	☐	10000.00	10177.84	856539.70	7.7516	P	0.9
4	☐	50000.00	49964.00	4132828.49	38.0226	P	1.7

y = 7.6084E-004 * x + 0.0079
R = 1.0000
DL = 7.212
BEC = 10.39

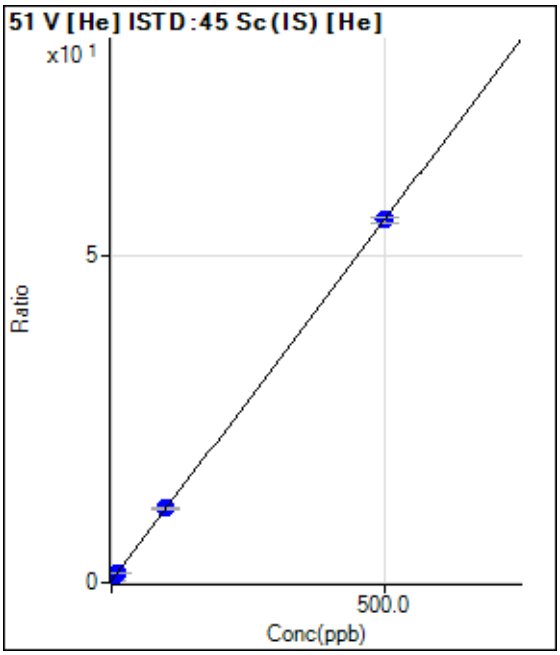
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16.67	0.0001	P	173.
2	☐	10.000	10.042	5090.97	0.0439	P	1.3
3	☐	100.000	102.588	49376.10	0.4467	P	3.7
4	☐	500.000	499.482	236375.96	2.1746	P	1.0

y = 0.0044 * x + 1.4745E-004
R = 1.0000
DL = 0.176
BEC = 0.03387

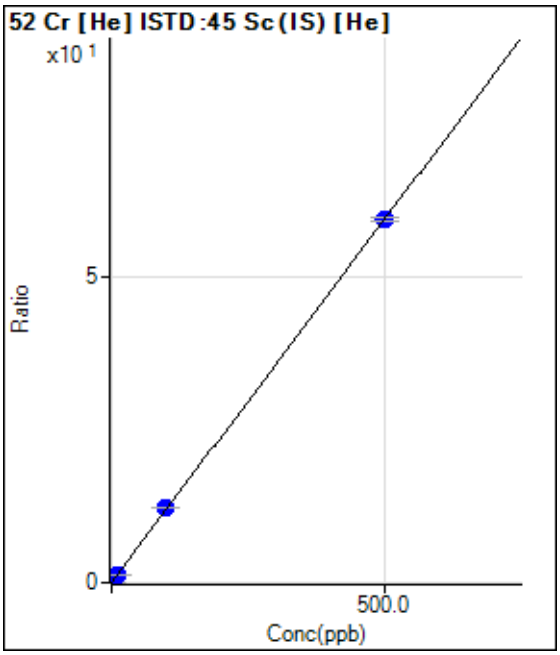
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	32495.44	0.2827	P	2.3
2	☐	10.000	9.703	157339.66	1.3562	P	3.2
3	☐	100.000	100.538	1260415.40	11.4064	P	1.3
4	☐	500.000	499.898	6042826.16	55.5922	P	1.3

y = 0.1106 * x + 0.2827
R = 1.0000
DL = 0.1772
BEC = 2.555

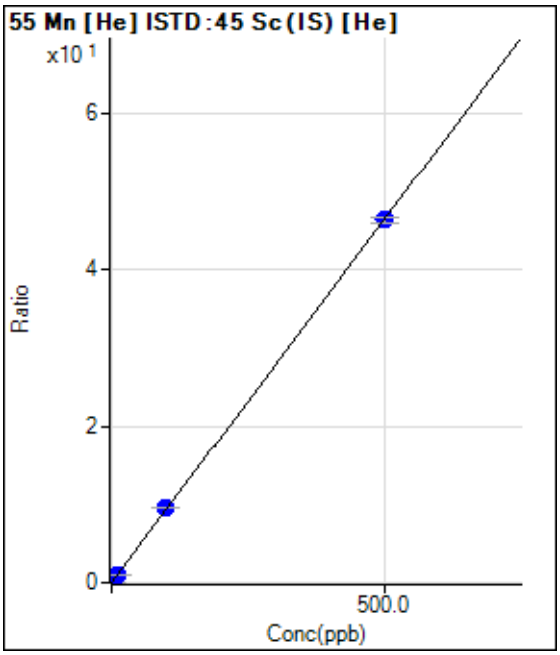
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2793.69	0.0243	P	3.8
2	☐	10.000	10.258	144334.84	1.2441	P	3.0
3	☐	100.000	102.898	1354722.22	12.2600	P	0.7
4	☐	500.000	499.415	6457922.40	59.4107	P	1.2

y = 0.1189 * x + 0.0243
R = 1.0000
DL = 0.02359
BEC = 0.2044

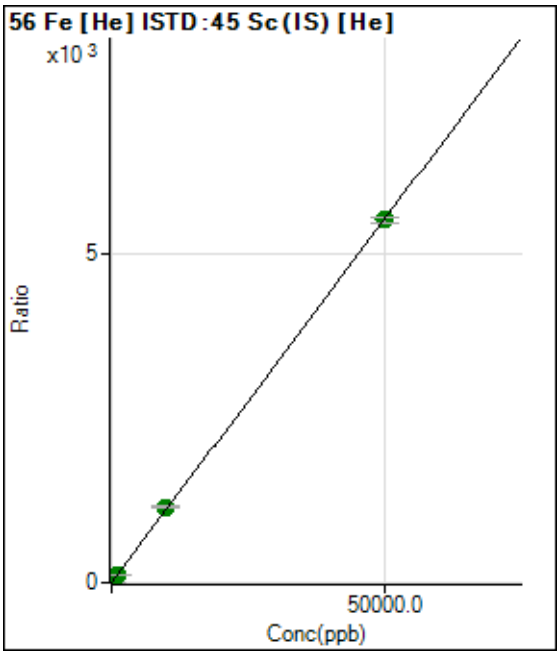
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	700.04	0.0061	P	10.3
2	☐	10.000	10.405	112845.50	0.9725	P	1.8
3	☐	100.000	103.268	1060512.69	9.5977	P	0.9
4	☐	500.000	499.338	5042008.36	46.3850	P	1.6

y = 0.0929 * x + 0.0061
R = 1.0000
DL = 0.02026
BEC = 0.06555

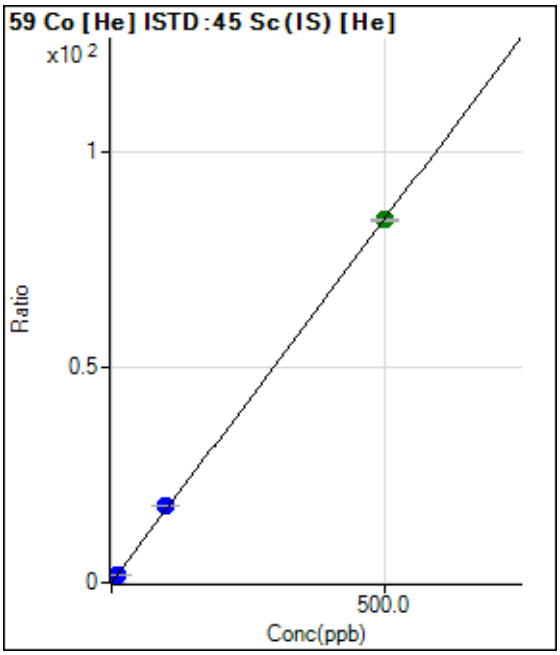
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	64999.71	0.5654	P	0.5
2	☐	1000.000	1058.140	13666003.55	117.7847	A	2.4
3	☐	10000.00	10405.79	127432241.4	1,153.305	A	1.1
4	☐	50000.00	49917.67	601152871.0	5,530.377	A	1.6

y = 0.1108 * x + 0.5654
R = 1.0000
DL = 0.07387
BEC = 5.104

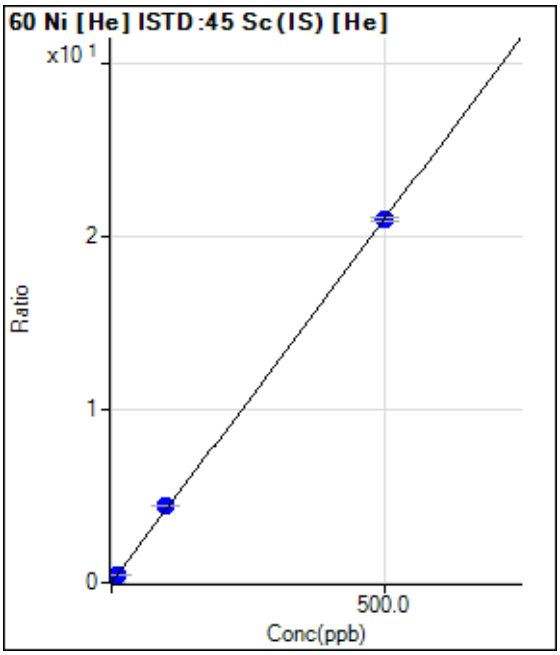
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	490.03	0.0043	P	12.5
2	☐	10.000	10.561	206956.97	1.7839	P	3.8
3	☐	100.000	104.917	1954203.15	17.6845	P	0.1
4	☐	500.000	499.005	9141325.07	84.0953	A	0.8

y = 0.1685 * x + 0.0043
R = 0.9999
DL = 0.009444
BEC = 0.02528

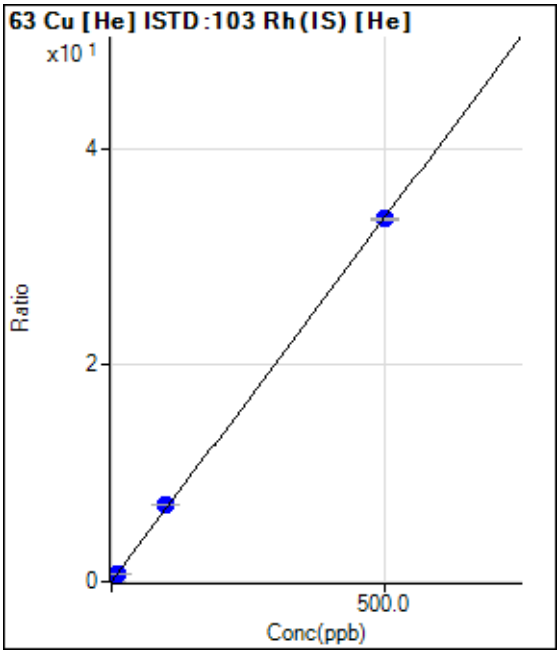
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	216.68	0.0019	P	14.9
2	☐	10.000	10.483	51228.90	0.4417	P	5.0
3	☐	100.000	104.827	486138.96	4.3995	P	0.6
4	☐	500.000	499.025	2275872.15	20.9367	P	1.0

y = 0.0420 * x + 0.0019
R = 0.9999
DL = 0.02011
BEC = 0.04499

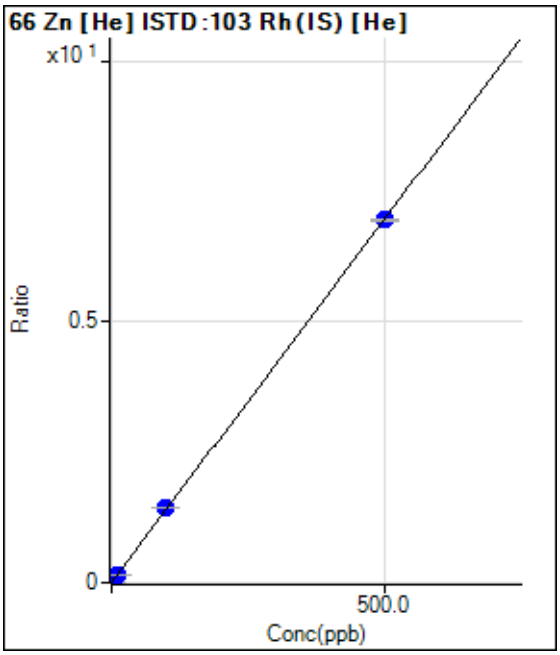
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2923.63	0.0157	P	1.7
2	☐	10.000	10.658	136376.29	0.7317	P	1.7
3	☐	100.000	105.909	1261964.22	7.1309	P	0.5
4	☐	500.000	498.805	5844606.16	33.5266	P	0.3

y = 0.0672 * x + 0.0157
R = 0.9999
DL = 0.01215
BEC = 0.2335

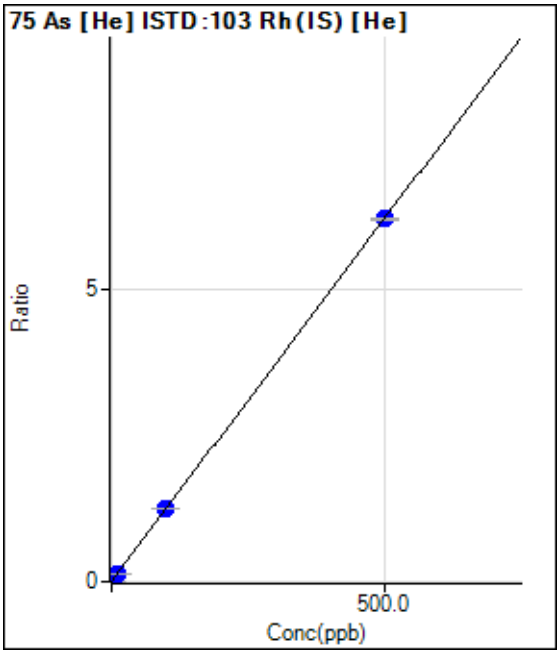
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	240.01	0.0013	P	20.0
2	☐	10.000	10.526	27573.40	0.1479	P	1.8
3	☐	100.000	103.824	256208.02	1.4478	P	0.8
4	☐	500.000	499.225	1212745.82	6.9567	P	0.2

y = 0.0139 * x + 0.0013
R = 1.0000
DL = 0.05555
BEC = 0.09252

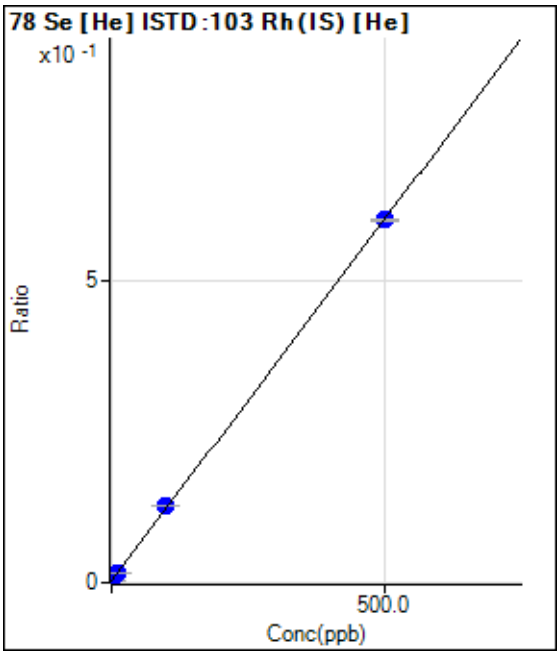
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	939.36	0.0050	P	4.6
2	☐	10.000	9.989	24094.27	0.1293	P	1.2
3	☐	100.000	101.517	224314.53	1.2675	P	0.2
4	☐	500.000	499.697	1084209.50	6.2194	P	0.3

y = 0.0124 * x + 0.0050
R = 1.0000
DL = 0.05561
BEC = 0.4053

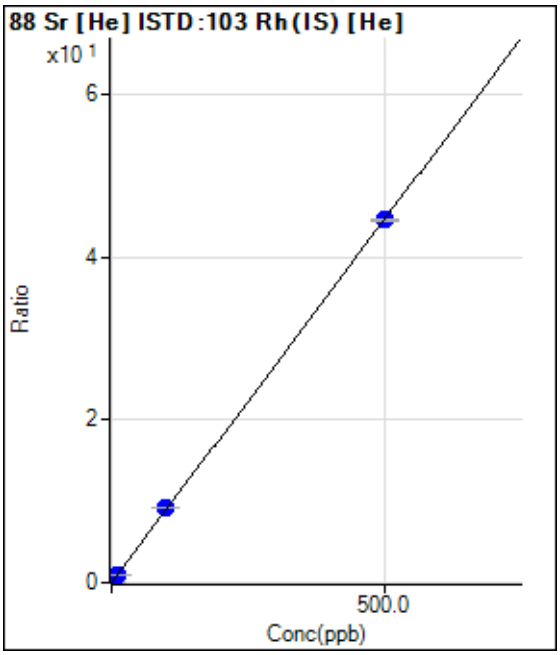
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	515.01	0.0028	P	9.3
2	☐	10.000	9.861	2713.23	0.0146	P	2.0
3	☐	100.000	103.814	22464.02	0.1269	P	1.2
4	☐	500.000	499.240	104581.76	0.5999	P	0.2

y = 0.0012 * x + 0.0028
R = 1.0000
DL = 0.642
BEC = 2.31

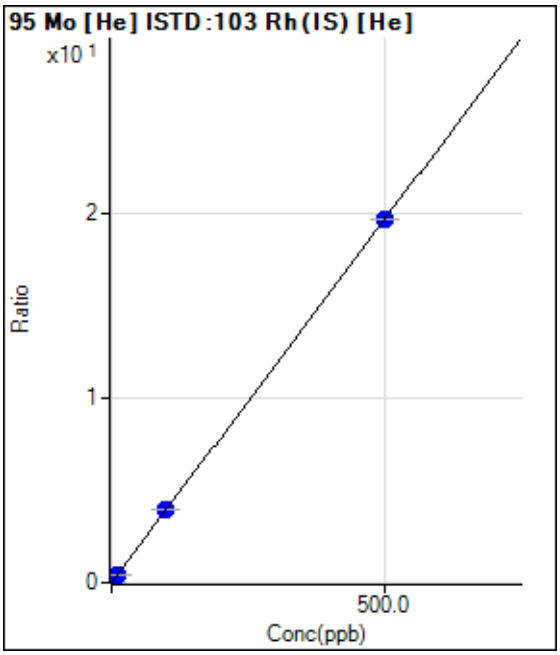
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	390.02	0.0021	P	20.7
2	☐	10.000	10.083	168147.92	0.9020	P	0.3
3	☐	100.000	102.571	1620396.28	9.1562	P	0.4
4	☐	500.000	499.484	7771454.47	44.5793	P	0.3

y = 0.0892 * x + 0.0021
R = 1.0000
DL = 0.01454
BEC = 0.02347

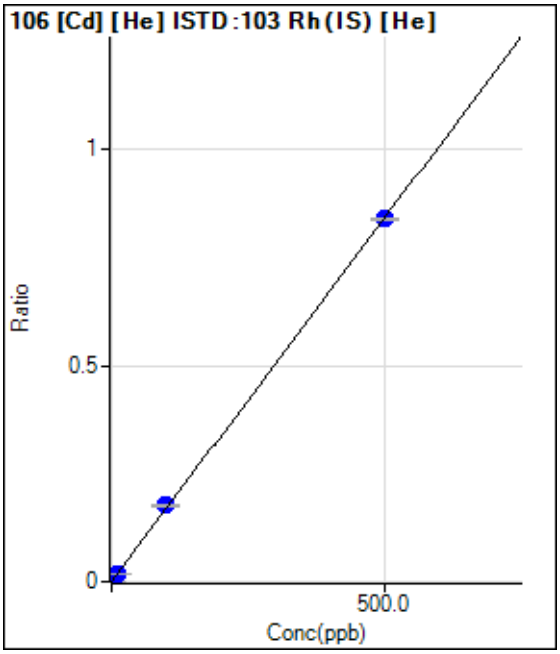
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	60.00	0.0003	P	59.2
2	☐	10.000	9.958	73016.89	0.3917	P	1.9
3	☐	100.000	101.354	705090.95	3.9842	P	0.4
4	☐	500.000	499.730	3424299.63	19.6429	P	0.2

y = 0.0393 * x + 3.2349E-004
R = 1.0000
DL = 0.01461
BEC = 0.00823

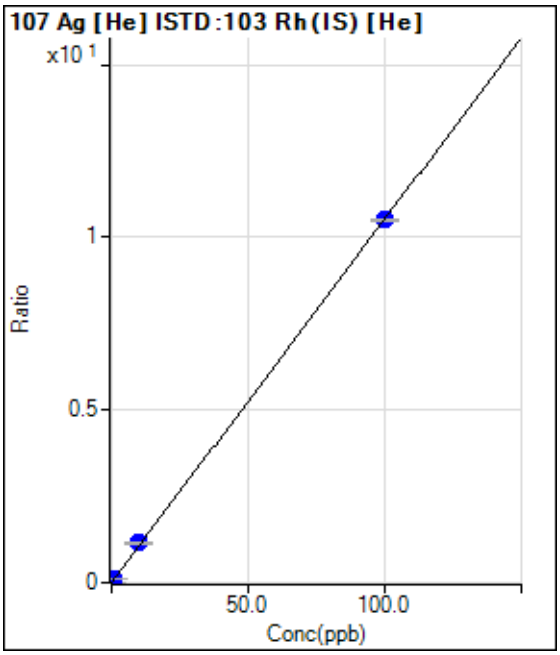
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	50.00	0.0003	P	71.3
2	☐	10.000	10.994	3490.53	0.0187	P	12.1
3	☐	100.000	104.664	31167.36	0.1761	P	1.0
4	☐	500.000	499.047	146215.06	0.8388	P	0.7

y = 0.0017 * x + 2.6763E-004
R = 1.0000
DL = 0.3407
BEC = 0.1593

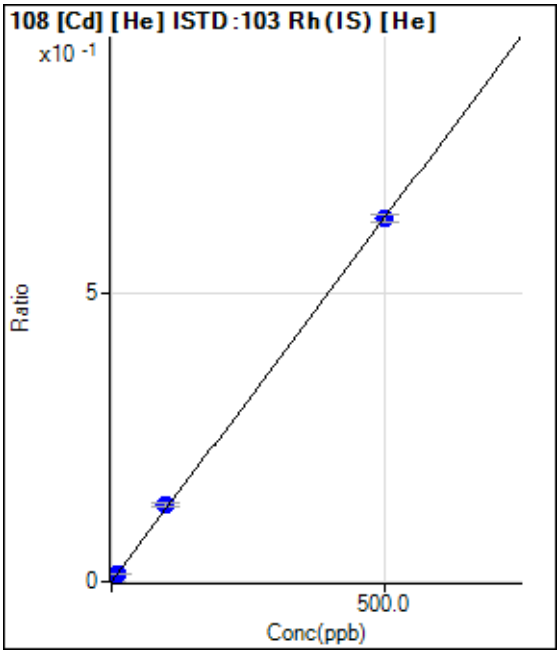
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	43.33	0.0002	P	70.2
2	☐	1.000	1.070	21004.59	0.1127	P	1.6
3	☐	10.000	10.857	202004.58	1.1414	P	0.3
4	☐	100.000	99.914	1830860.81	10.5025	P	0.5

y = 0.1051 * x + 2.3118E-004
R = 1.0000
DL = 0.00463
BEC = 0.002199

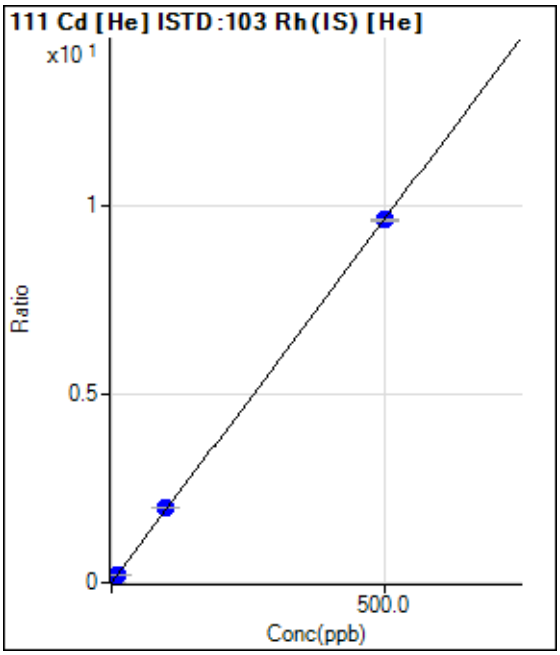
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6.67	0.0000	P	173.
2	☐	10.000	10.007	2356.95	0.0126	P	12.3
3	☐	100.000	105.665	23567.97	0.1332	P	2.9
4	☐	500.000	498.867	109592.21	0.6287	P	2.1

y = 0.0013 * x + 3.5440E-005
R = 0.9999
DL = 0.1461
BEC = 0.02812

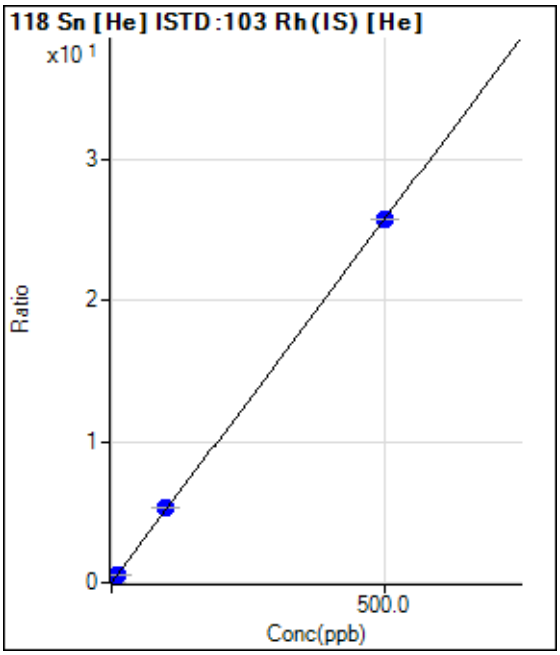
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	34.38	0.0002	P	49.1
2	☐	10.000	10.191	36566.38	0.1962	P	2.4
3	☐	100.000	103.887	353690.00	1.9985	P	1.0
4	☐	500.000	499.219	1674107.50	9.6030	P	0.8

y = 0.0192 * x + 1.8459E-004
R = 1.0000
DL = 0.01413
BEC = 0.009596

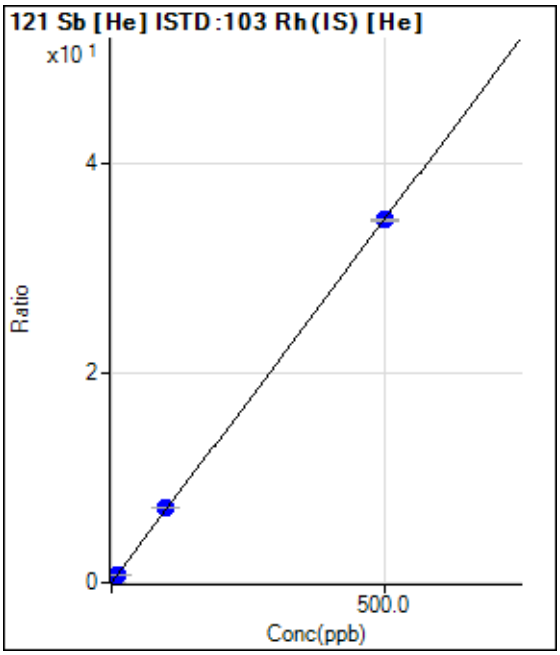
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	903.40	0.0048	P	4.9
2	☐	10.000	9.998	96827.05	0.5194	P	1.5
3	☐	100.000	103.396	942591.65	5.3263	P	0.5
4	☐	500.000	499.321	4480765.56	25.7030	P	0.2

y = 0.0515 * x + 0.0048
R = 1.0000
DL = 0.01397
BEC = 0.09417

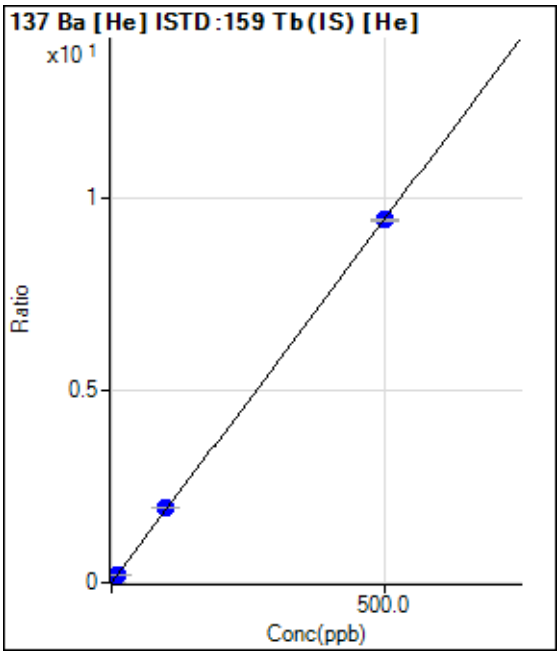
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	810.05	0.0043	P	10.2
2	☐	10.000	9.895	128684.83	0.6904	P	1.4
3	☐	100.000	102.792	1261985.63	7.1310	P	0.3
4	☐	500.000	499.444	6037132.82	34.6312	P	0.6

y = 0.0693 * x + 0.0043
R = 1.0000
DL = 0.01908
BEC = 0.06263

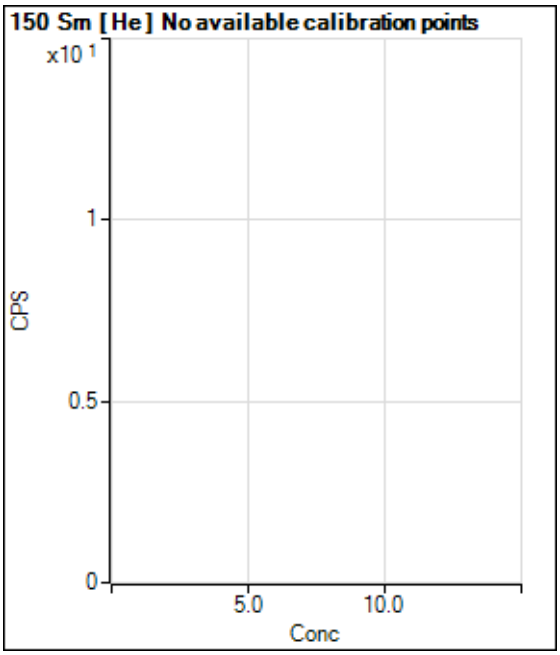
Weight: <None>
Min Conc: 0



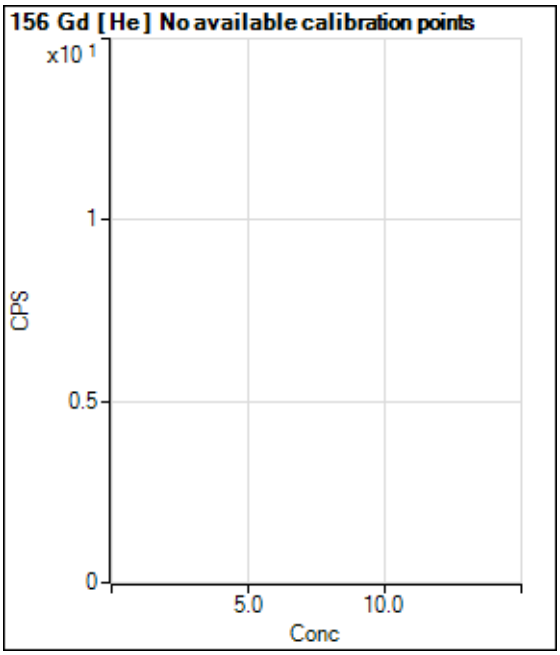
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16.67	0.0001	P	34.5
2	☐	10.000	10.537	46563.13	0.1992	P	0.7
3	☐	100.000	103.634	453926.51	1.9588	P	0.6
4	☐	500.000	499.262	2180921.95	9.4362	P	0.4

y = 0.0189 * x + 7.3457E-005
R = 1.0000
DL = 0.004023
BEC = 0.003887

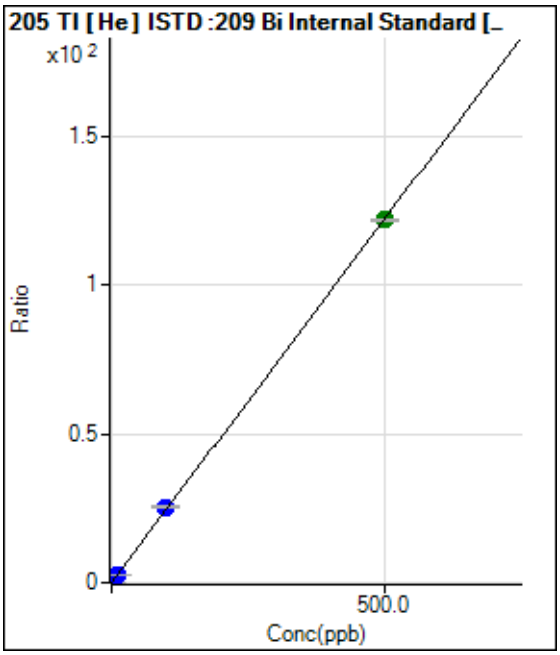
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



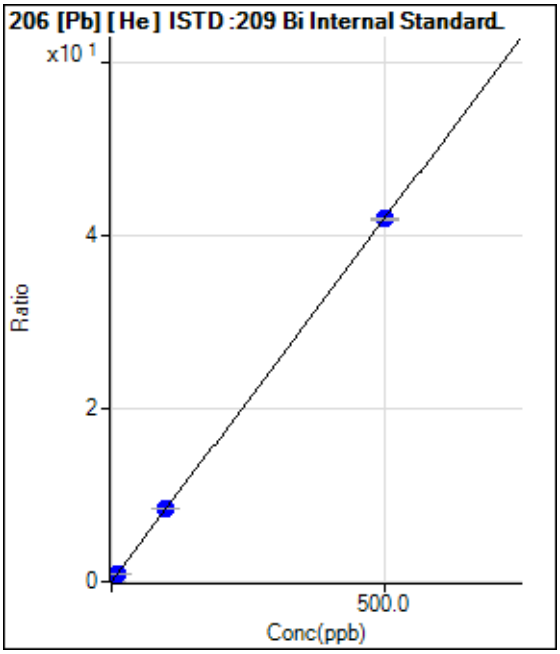
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	216.68	0.0016	P	11.0
2	☐	10.000	10.114	341898.54	2.4744	P	0.6
3	☐	100.000	104.304	3386905.99	25.5033	P	0.6
4	☐	500.000	499.137	15659113.10	122.0375	A	0.7

y = 0.2445 * x + 0.0016
R = 1.0000
DL = 0.002173
BEC = 0.006605

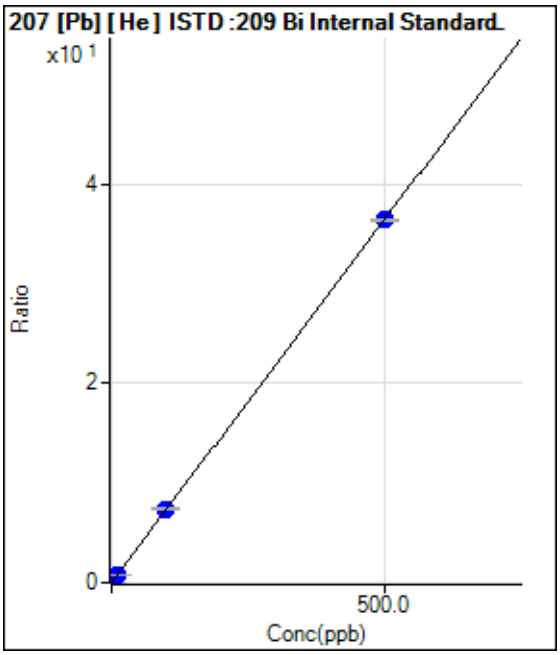
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	86.67	0.0006	P	38.4
2	☐	10.000	10.049	116785.98	0.8453	P	1.1
3	☐	100.000	101.538	1133463.55	8.5350	P	0.2
4	☐	500.000	499.691	5389183.04	42.0002	P	0.8

y = 0.0841 * x + 6.4913E-004
R = 1.0000
DL = 0.008905
BEC = 0.007723

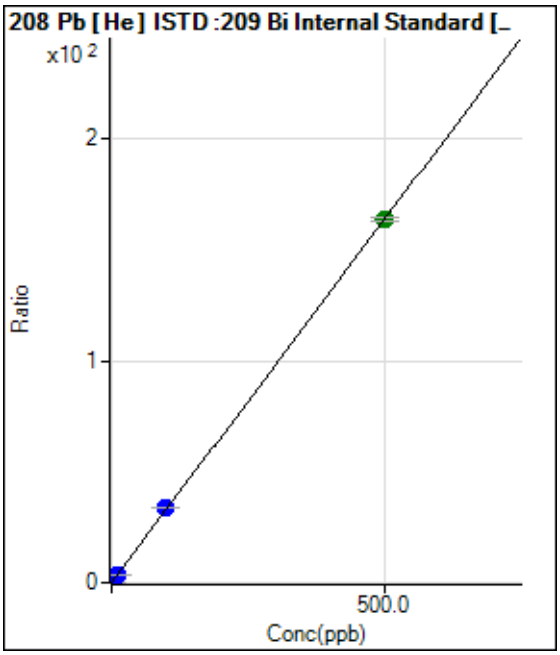
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	60.00	0.0004	P	60.4
2	☐	10.000	9.913	99815.18	0.7224	P	0.2
3	☐	100.000	101.405	980789.59	7.3854	P	1.1
4	☐	500.000	499.721	4669776.49	36.3934	P	0.7

y = 0.0728 * x + 4.4974E-004
R = 1.0000
DL = 0.01119
BEC = 0.006176

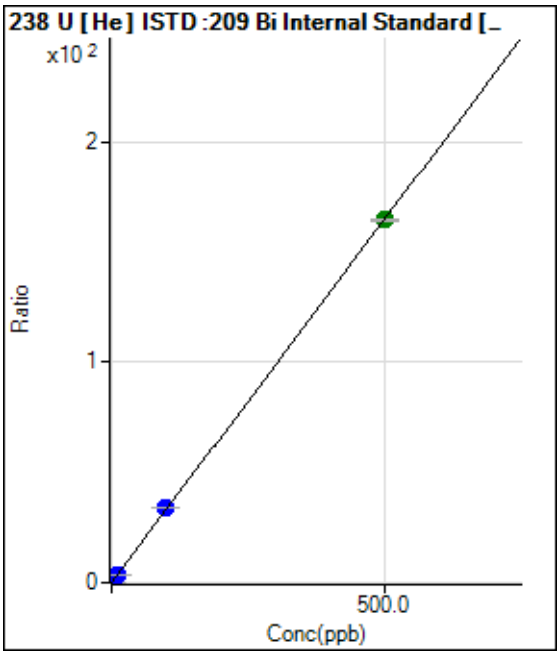
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	330.01	0.0025	P	17.7
2	☐	10.000	10.116	458566.92	3.3187	P	0.1
3	☐	100.000	103.314	4498246.65	33.8719	P	0.6
4	☐	500.000	499.335	21003931.04	163.6985	A	1.1

y = 0.3278 * x + 0.0025
R = 1.0000
DL = 0.003993
BEC = 0.007521

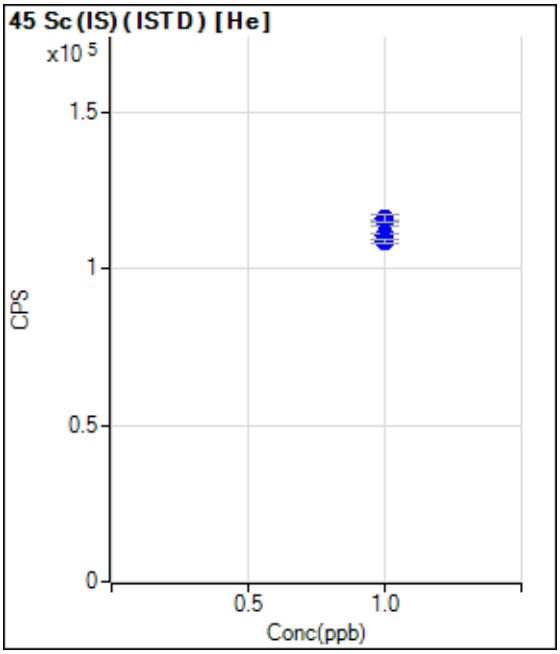
Weight: <None>
Min Conc: 0



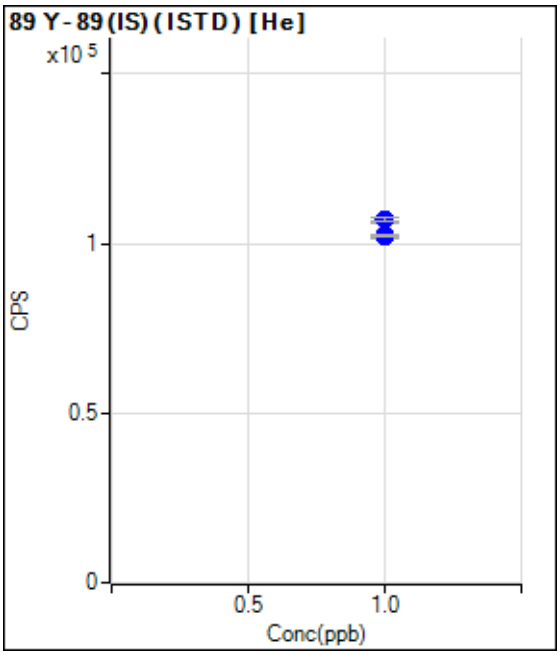
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	46.67	0.0003	P	26.6
2	☐	10.000	9.699	441665.98	3.1966	P	1.0
3	☐	100.000	102.959	4505826.18	33.9291	P	0.9
4	☐	500.000	499.414	21118006.35	164.5766	A	0.5

y = 0.3295 * x + 3.4896E-004
R = 1.0000
DL = 0.0008447
BEC = 0.001059

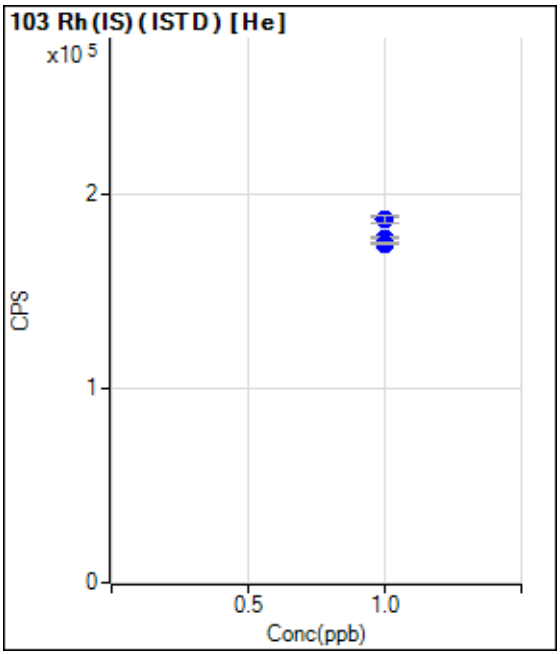
Weight: <None>
Min Conc: 0



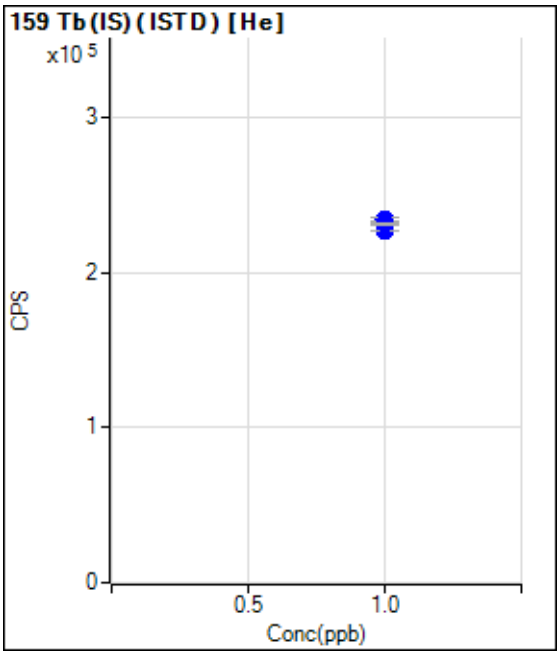
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		114965.82		P	1.6
2	☐	1.000		116059.11		P	2.0
3	☐	1.000		110502.40		P	1.3
4	☐	1.000		108708.33		P	1.2



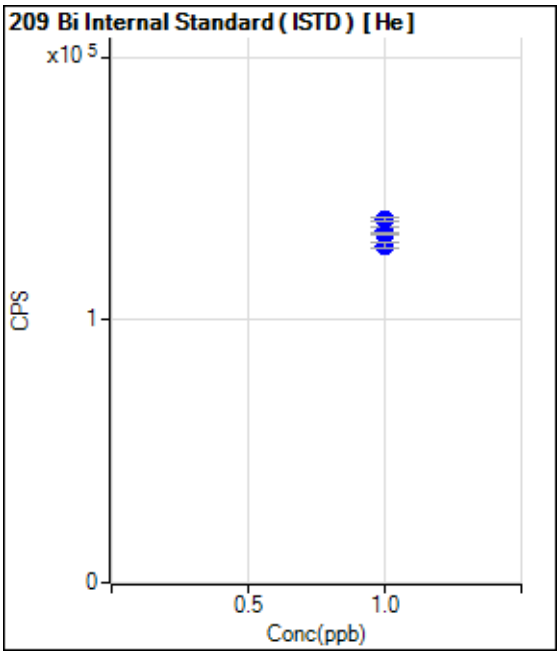
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		106895.35		P	1.3
2	☐	1.000		106908.35		P	1.1
3	☐	1.000		101981.58		P	1.0
4	☐	1.000		102286.75		P	0.5



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		186431.23		P	1.3
2	☐	1.000		186424.22		P	2.0
3	☐	1.000		176969.49		P	0.6
4	☐	1.000		174327.45		P	0.5



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		226789.11		P	0.2
2	☐	1.000		233732.83		P	1.1
3	☐	1.000		231746.80		P	0.7
4	☐	1.000		231124.52		P	0.7



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		134130.74		P	1.9
2	☐	1.000		138175.39		P	1.0
3	☐	1.000		132801.10		P	0.3
4	☐	1.000		128323.51		P	1.6

Batch Summary Report

Batch Folder: C:\Agilent\ICPMH\1\DATA\MS4110619He-1.b\
Analysis File: MS4110619He-1.batch.bin
Tune Step: #1 He

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
1		11/6/2019 9:49:58 AM	001CALB.d	blk I.S /tune	CalBlk	1	1.0000
2		11/6/2019 9:53:44 AM	002CALB.d	ICIS	CalBlk	1	1.0000
3		11/6/2019 9:57:29 AM	003CALS.d	Std1	CalStd	2	1.0000
4		11/6/2019 10:01:26 AM	004CALS.d	Std2	CalStd	3	1.0000
5		11/6/2019 10:05:12 AM	005CALS.d	Std3	CalStd	4	1.0000
6		11/6/2019 10:08:58 AM	006_QCS.d	S1	QCS		1.0000
7		11/6/2019 10:12:44 AM	007_ICV.d	ICV	ICV		1.0000
8		11/6/2019 10:17:18 AM	008_ICB.d	ICB	ICB		1.0000
9		11/6/2019 10:21:08 AM	009LICV.d	ICVL	LLICV		1.0000
10		11/6/2019 10:24:58 AM	010ICSA.d	icsa	ICSA		1.0000
11		11/6/2019 10:28:46 AM	011ICSB.d	icsab	ICSB		1.0000
12		11/6/2019 10:32:35 AM	012SMPL.d	CRI	Sample		1.0000
13		11/6/2019 10:36:26 AM	013_CCV.d	CCV	CCV		1.0000
14		11/6/2019 10:40:16 AM	014_CCB.d	CCB	CCB		1.0000
15		11/6/2019 10:44:07 AM	015_PB.d	mb 500-513568/1-a	PB		1.0000
16		11/6/2019 10:48:13 AM	016_LCS.d	lcs 500-513568/2-a	LCS		1.0000
17		11/6/2019 10:52:04 AM	017SMPL.d	500-171892-g-1-a	Sample		1.0000
18		11/6/2019 10:55:55 AM	018SMPL.d	500-171892-h-1-b @10	Sample		1.0000
19		11/6/2019 10:59:42 AM	019SMPL.d	500-171892-g-2-a	Sample		1.0000
20		11/6/2019 11:03:32 AM	020SMPL.d	500-171892-g-3-a	Sample		1.0000
21		11/6/2019 11:07:23 AM	021SMPL.d	500-171892-g-4-a	Sample		1.0000
22		11/6/2019 11:11:14 AM	022SMPL.d	500-171892-g-5-a	Sample		1.0000
23		11/6/2019 11:15:06 AM	023_CCV.d	CCV	CCV		1.0000
24		11/6/2019 11:18:51 AM	024_CCB.d	CCB	CCB		1.0000
25		11/6/2019 11:22:42 AM	025LCCV.d	CCVL	LLCCV		1.0000
26		11/6/2019 11:26:34 AM	026SMPL.d	400-176914-b-3-c @5	Sample		1.0000
27		11/6/2019 11:31:58 AM	027SMPL.d	400-176914-b-4-c @5	Sample		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
28		11/6/2019 11:35:44 AM	028SMPL.d	400-176914-b-5-c @5	Sample		1.0000
29		11/6/2019 11:39:30 AM	029SMPL.d	400-176914-b-6-c @5	Sample		1.0000
30		11/6/2019 11:43:16 AM	030_CCV.d	CCV	CCV		1.0000
31		11/6/2019 11:47:02 AM	031_CCB.d	CCB	CCB		1.0000
32		11/6/2019 11:50:47 AM	032_PB.d	mb 500-513882/1-a	PB		1.0000
33		11/6/2019 11:54:32 AM	033_LCS.d	lcs 500-513882/2-a	LCS		1.0000
34		11/6/2019 11:58:16 AM	034SMPL.d	500-171924-d-1-b	Sample		1.0000
35		11/6/2019 12:02:02 PM	035SMPL.d	500-171924-d-2-b	Sample		1.0000
36		11/6/2019 12:05:48 PM	036SMPL.d	500-171924-d-3-b	Sample		1.0000
37		11/6/2019 12:09:35 PM	037SMPL.d	500-171924-d-4-b	Sample		1.0000
38		11/6/2019 12:13:20 PM	038SMPL.d	500-171924-d-5-e	Sample		1.0000
39		11/6/2019 12:17:06 PM	039SMPL.d	500-171924-d-6-b	Sample		1.0000
40		11/6/2019 12:20:51 PM	040_CCV.d	CCV	CCV		1.0000
41		11/6/2019 12:24:44 PM	041_CCB.d	CCB	CCB		1.0000
42		11/6/2019 12:28:29 PM	042SMPL.d	500-171924-d-7-b	Sample		1.0000
43		11/6/2019 12:32:15 PM	043SMPL.d	500-171924-d-8-b	Sample		1.0000
44		11/6/2019 12:36:00 PM	044SMPL.d	500-171924-d-9-b	Sample		1.0000
45		11/6/2019 12:39:46 PM	045SMPL.d	500-171924-d-10-b	Sample		1.0000
46		11/6/2019 12:43:31 PM	046SMPL.d	500-171924-d-10-c du	Sample		1.0000
47		11/6/2019 12:47:17 PM	047SMPL.d	500-171924-d-10-d ms	Sample		1.0000
48		11/6/2019 12:51:04 PM	048SMPL.d	500-171924-d-10-e msd	Sample		1.0000
49		11/6/2019 12:54:54 PM	049SMPL.d	500-171924-d-10-b SD@5	Sample		1.0000
50		11/6/2019 12:59:29 PM	050_CCV.d	CCV	CCV		1.0000
51		11/6/2019 1:03:15 PM	051_CCB.d	CCB	CCB		1.0000
52		11/6/2019 1:07:00 PM	052LCCV.d	CCVL	LLCCV		1.0000
53		11/6/2019 1:10:45 PM	053_PB.d	mb 500-513886/1-a	PB		1.0000
54		11/6/2019 1:14:31 PM	054_LCS.d	lcs 500-513886/2-a	LCS		1.0000
55		11/6/2019 1:18:16 PM	055SMPL.d	500-171453-a-1-c	Sample		1.0000
56		11/6/2019 1:22:01 PM	056SMPL.d	500-171453-a-2-c	Sample		1.0000
57		11/6/2019 1:25:47 PM	057SMPL.d	500-171453-a-3-c	Sample		1.0000
58		11/6/2019 1:29:33 PM	058_CCV.d	CCV	CCV		1.0000
59		11/6/2019 1:33:19 PM	059_CCB.d	CCB	CCB		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
60		11/6/2019 1:37:05 PM	060_PB.d	mb 500-513883/1-a	PB		1.0000
61		11/6/2019 1:40:51 PM	061_LCS.d	lcs 500-513883/2-a	LCS		1.0000
62		11/6/2019 1:44:36 PM	062SMPL.d	500-172276-e-1-b	Sample		1.0000
63		11/6/2019 1:48:20 PM	063SMPL.d	500-172276-e-2-b	Sample		1.0000
64		11/6/2019 1:52:05 PM	064SMPL.d	500-172276-e-3-b	Sample		1.0000
65		11/6/2019 1:55:50 PM	065SMPL.d	500-172276-e-4-b	Sample		1.0000
66		11/6/2019 2:02:20 PM	066SMPL.d	500-172276-g-9-b	Sample		1.0000
67		11/6/2019 2:06:09 PM	067SMPL.d	500-172276-d-11-b	Sample		1.0000
68		11/6/2019 2:09:55 PM	068SMPL.d	500-172276-d-12-b	Sample		1.0000
69		11/6/2019 2:13:45 PM	069SMPL.d	500-172276-d-13-b	Sample		1.0000
70		11/6/2019 2:17:34 PM	070_CCV.d	CCV	CCV		1.0000
71		11/6/2019 2:21:24 PM	071_CCB.d	CCB	CCB		1.0000
72		11/6/2019 2:25:15 PM	072SMPL.d	500-172276-c-14-b	Sample		1.0000
73		11/6/2019 2:29:06 PM	073SMPL.d	500-172276-e-15-b	Sample		1.0000
74		11/6/2019 2:32:58 PM	074SMPL.d	500-172276-g-16-b	Sample		1.0000
75		11/6/2019 2:36:47 PM	075SMPL.d	500-172276-e-18-b	Sample		1.0000
76		11/6/2019 2:40:39 PM	076SMPL.d	500-172276-g-19-e	Sample		1.0000
77		11/6/2019 2:44:31 PM	077SMPL.d	500-172276-g-19-f du	Sample		1.0000
78		11/6/2019 2:48:21 PM	078SMPL.d	500-172276-g-19-g ms	Sample		1.0000
79		11/6/2019 2:52:12 PM	079SMPL.d	500-172276-g-19-h msd	Sample		1.0000
80		11/6/2019 2:56:01 PM	080SMPL.d	500-172276-g-19-f SD@5	Sample		1.0000
81		11/6/2019 2:59:55 PM	081_CCV.d	CCV	CCV		1.0000
82		11/6/2019 3:03:44 PM	082_CCB.d	CCB	CCB		1.0000
83		11/6/2019 3:07:36 PM	083LCCV.d	CCVL	LLCCV		1.0000
84		11/6/2019 3:11:26 PM	084_PB.d	mb 500-513710/1-a	PB		1.0000
85		11/6/2019 3:15:16 PM	085_LCS.d	lcs 500-513710/2-a	LCS		1.0000
86		11/6/2019 3:19:08 PM	086SMPL.d	500-172276-d-1-b	Sample		1.0000
87		11/6/2019 3:22:59 PM	087SMPL.d	500-172276-d-2-b	Sample		1.0000
88		11/6/2019 3:26:51 PM	088SMPL.d	500-172276-d-3-b	Sample		1.0000
89		11/6/2019 3:30:41 PM	089SMPL.d	500-172276-d-4-b	Sample		1.0000
90		11/6/2019 3:34:32 PM	090SMPL.d	500-172276-f-6-b	Sample		1.0000
91		11/6/2019 3:38:22 PM	091SMPL.d	500-172276-f-7-b	Sample		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
92		11/6/2019 3:42:13 PM	092SMPL.d	500-172276-f-9-b	Sample		1.0000
93		11/6/2019 3:46:02 PM	093SMPL.d	500-172276-c-11-b	Sample		1.0000
94		11/6/2019 3:49:52 PM	094_CCV.d	CCV	CCV		1.0000
95		11/6/2019 3:53:41 PM	095_CCB.d	CCB	CCB		1.0000
96		11/6/2019 3:57:31 PM	096SMPL.d	500-172276-c-12-b	Sample		1.0000
97		11/6/2019 4:01:21 PM	097SMPL.d	500-172276-c-13-b	Sample		1.0000
98		11/6/2019 4:05:12 PM	098SMPL.d	500-172276-d-14-b	Sample		1.0000
99		11/6/2019 4:09:01 PM	099SMPL.d	500-172276-d-15-b	Sample		1.0000
100		11/6/2019 4:12:49 PM	100SMPL.d	500-172276-f-16-b	Sample		1.0000
101		11/6/2019 4:16:39 PM	101SMPL.d	500-172276-d-18-b	Sample		1.0000
102		11/6/2019 4:20:28 PM	102_CCV.d	CCV	CCV		1.0000
103		11/6/2019 4:24:19 PM	103_CCB.d	CCB	CCB		1.0000
104		11/6/2019 4:28:09 PM	104SMPL.d	500-172276-f-19-e	Sample		1.0000
105		11/6/2019 4:31:58 PM	105SMPL.d	500-172276-f-19-f du	Sample		1.0000
106		11/6/2019 4:35:50 PM	106SMPL.d	500-172276-f-19-g ms	Sample		1.0000
107		11/6/2019 4:39:41 PM	107SMPL.d	500-172276-f-19-h msd	Sample		1.0000
108		11/6/2019 4:43:31 PM	108SMPL.d	500-172276-f-19-e SD@5	Sample		1.0000
109		11/6/2019 4:47:20 PM	109SMPL.d	500-172715-d-1-b	Sample		1.0000
110		11/6/2019 4:51:11 PM	110SMPL.d	500-172885-a-1-a	Sample		1.0000
111		11/6/2019 4:55:02 PM	111SMPL.d	500-172885-a-2-a	Sample		1.0000
112		11/6/2019 4:58:53 PM	112SMPL.d	500-171541-d-1-a	Sample		1.0000
113		11/6/2019 5:02:44 PM	113SMPL.d	500-171541-d-2-a	Sample		1.0000
114		11/6/2019 5:06:39 PM	114_CCV.d	CCV	CCV		1.0000
115		11/6/2019 5:10:29 PM	115_CCB.d	CCB	CCB		1.0000
116		11/6/2019 5:14:19 PM	116LCCV.d	CCVL	LLCCV		1.0000
117		11/6/2019 5:18:09 PM	117_PB.d	mb 500-513712/1-a	PB		1.0000
118		11/6/2019 5:21:58 PM	118_LCS.d	lcs 500-513712/2-a	LCS		1.0000
119		11/6/2019 5:25:49 PM	119SMPL.d	500-172425-f-18-b	Sample		1.0000
120		11/6/2019 5:29:38 PM	120SMPL.d	500-172425-g-18-b	Sample		1.0000
121		11/6/2019 5:33:29 PM	121SMPL.d	500-172425-f-22-d	Sample		1.0000
122		11/6/2019 5:37:20 PM	122SMPL.d	500-172425-f-22-e du	Sample		1.0000
123		11/6/2019 5:41:11 PM	123SMPL.d	500-172425-f-22-f ms	Sample		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
124		11/6/2019 5:45:01 PM	124SMPL.d	500-172425-f-22-g msd	Sample		1.0000
125		11/6/2019 5:48:52 PM	125SMPL.d	500-172425-f-22-d SD@5	Sample		1.0000
126		11/6/2019 5:52:43 PM	126SMPL.d	500-172425-g-22-d	Sample		1.0000
127		11/6/2019 5:56:35 PM	127_CCV.d	CCV	CCV		1.0000
128		11/6/2019 6:00:24 PM	128_CCB.d	CCB	CCB		1.0000
129		11/6/2019 6:04:15 PM	129SMPL.d	500-172425-g-22-e du	Sample		1.0000
130		11/6/2019 6:08:10 PM	130SMPL.d	500-172425-g-22-f ms	Sample		1.0000
131		11/6/2019 6:12:01 PM	131SMPL.d	500-172425-g-22-g msd	Sample		1.0000
132		11/6/2019 6:15:50 PM	132SMPL.d	500-172425-g-22-d SD@5	Sample		1.0000
133		11/6/2019 6:19:41 PM	133SMPL.d	500-172425-f-23-b	Sample		1.0000
134		11/6/2019 6:23:32 PM	134SMPL.d	500-172425-g-23-b	Sample		1.0000
135		11/6/2019 6:27:22 PM	135SMPL.d	500-172425-f-25-b	Sample		1.0000
136		11/6/2019 6:31:13 PM	136SMPL.d	500-172425-g-25-b	Sample		1.0000
137		11/6/2019 6:34:59 PM	137SMPL.d	500-172425-f-27-b	Sample		1.0000
138		11/6/2019 6:38:50 PM	138SMPL.d	500-172425-g-27-a	Sample		1.0000
139		11/6/2019 6:42:40 PM	139_CCV.d	CCV	CCV		1.0000
140		11/6/2019 6:46:30 PM	140_CCB.d	CCB	CCB		1.0000
141		11/6/2019 6:50:21 PM	141SMPL.d	500-172384-d-1-b	Sample		1.0000
142		11/6/2019 6:54:11 PM	142SMPL.d	500-172384-d-2-b	Sample		1.0000
143		11/6/2019 6:58:03 PM	143SMPL.d	500-172384-d-3-b	Sample		1.0000
144		11/6/2019 7:01:53 PM	144SMPL.d	500-172384-d-4-b	Sample		1.0000
145		11/6/2019 7:05:43 PM	145SMPL.d	500-172384-d-5-b	Sample		1.0000
146		11/6/2019 7:09:33 PM	146SMPL.d	500-172384-d-6-b	Sample		1.0000
147		11/6/2019 7:13:24 PM	147SMPL.d	500-172384-d-7-b	Sample		1.0000
148		11/6/2019 7:17:13 PM	148SMPL.d	500-172384-d-8-b	Sample		1.0000
149		11/6/2019 7:21:04 PM	149SMPL.d	500-172384-d-9-b	Sample		1.0000
150		11/6/2019 7:24:54 PM	150SMPL.d	500-172494-a-1-a	Sample		1.0000
151		11/6/2019 7:28:45 PM	151_CCV.d	CCV	CCV		1.0000
152		11/6/2019 7:32:34 PM	152_CCB.d	CCB	CCB		1.0000
153		11/6/2019 7:36:23 PM	153LCCV.d	CCVL	LLCCV		1.0000
154		11/6/2019 7:40:10 PM	154_PB.d	mb 500-513820/1-a	PB		1.0000
155		11/6/2019 7:44:00 PM	155_LCS.d	lcs 500-513820/2-a	LCS		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
156		11/6/2019 7:47:51 PM	156SMPL.d	500-172924-c-1-a	Sample		1.0000
157		11/6/2019 7:51:41 PM	157SMPL.d	500-172924-c-1-b du	Sample		1.0000
158		11/6/2019 7:55:31 PM	158SMPL.d	500-172924-c-1-c ms	Sample		1.0000
159		11/6/2019 7:59:22 PM	159SMPL.d	500-172924-c-1-d msd	Sample		1.0000
160		11/6/2019 8:03:13 PM	160SMPL.d	500-172924-c-1-a	Sample		1.0000
161		11/6/2019 8:07:03 PM	161SMPL.d	500-172927-c-1-a	Sample		1.0000
162		11/6/2019 8:10:52 PM	162SMPL.d	500-172430-g-1-b	Sample		1.0000
163		11/6/2019 8:14:43 PM	163SMPL.d	500-172430-g-2-b	Sample		1.0000
164		11/6/2019 8:18:32 PM	164_CCV.d	CCV	CCV		1.0000
165		11/6/2019 8:22:22 PM	165_CCB.d	CCB	CCB		1.0000
166		11/6/2019 8:26:08 PM	166SMPL.d	500-172430-g-3-b	Sample		1.0000
167		11/6/2019 8:29:58 PM	167SMPL.d	500-172430-g-4-b	Sample		1.0000
168		11/6/2019 8:33:49 PM	168SMPL.d	500-172430-g-5-b	Sample		1.0000
169		11/6/2019 8:37:39 PM	169SMPL.d	500-172430-g-6-b	Sample		1.0000
170		11/6/2019 8:41:29 PM	170SMPL.d	500-172430-g-7-b	Sample		1.0000
171		11/6/2019 8:45:21 PM	171SMPL.d	500-172430-g-8-b	Sample		1.0000
172		11/6/2019 8:49:13 PM	172SMPL.d	500-172430-g-9-e	Sample		1.0000
173		11/6/2019 8:53:04 PM	173SMPL.d	500-172430-g-10-b	Sample		1.0000
174		11/6/2019 8:56:56 PM	174SMPL.d	500-172430-g-11-b	Sample		1.0000
175		11/6/2019 9:00:47 PM	175SMPL.d	500-172430-g-12-b	Sample		1.0000
176		11/6/2019 9:04:38 PM	176_CCV.d	CCV	CCV		1.0000
177		11/6/2019 9:08:28 PM	177_CCB.d	CCB	CCB		1.0000

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.280	126.68	85.876	0.000	0.00	N/A	0.735	266.68	240.142
2	ICIS	0.000	93.34	N/A	0.000	0.00	N/A	0.000	220.01	N/A
3	Std1	9.891	1263.43	9.490	9.823	1183.42	13.819	9.235	786.72	8.002
4	Std2	104.369	11834.39	5.835	103.514	11874.47	5.307	103.090	6221.36	6.797
5	Std3	499.128	55355.14	2.540	499.301	56361.69	0.332	499.397	28828.00	3.404
6	S1	490.468	55414.55	3.376	490.446	56398.39	0.562	495.355	29141.77	2.249
7	ICV	204.395	22702.03	6.297	204.058	22965.68	11.051	211.632	12298.12	12.086
8	ICB	0.583	150.01	43.489	0.029	3.33	173.205	3.925	426.69	34.615
9	ICVL	11.826	1430.12	6.266	1.070	123.34	41.166	50.529	3177.08	10.502
10	icsa	0.217	116.67	42.943	0.142	16.67	35.205	2.825	386.68	23.725
11	icsab	19.962	2370.26	2.223	18.974	2206.91	4.785	46.426	2957.04	4.656
12	CRI	21.051	2500.27	8.777	2.167	253.35	31.000	97.514	5994.64	2.447
13	CCV	259.522	29532.20	1.580	258.323	29869.61	2.258	256.524	15263.83	8.067
14	CCB	0.374	130.01	87.176	0.295	33.33	70.505	3.023	383.36	51.675
15	mb 500-51356...	<0.000	76.67	N/A	0.161	16.67	96.189	1.685	283.35	154.683
16	lcs 500-513568...	100.763	11504.16	2.159	52.603	6074.62	2.626	1014.907	59722.41	1.982
17	500-171892-g-...	1.869	293.35	5.629	0.357	40.00	25.962	17.886	1226.76	23.297
18	500-171892-h-...	0.458	140.01	122.086	0.000	0.00	N/A	3.779	430.02	23.073
19	500-171892-g-...	3.835	543.36	8.725	0.140	16.67	71.043	56.459	3650.55	4.741
20	500-171892-g-...	19.345	2296.91	9.683	0.315	36.67	41.069	45.939	2927.03	5.236
21	500-171892-g-...	9.139	1120.08	14.822	0.058	6.67	173.205	44.705	2823.67	6.041
22	500-171892-g-...	29.927	3487.15	2.217	0.116	13.33	114.454	40.707	2603.64	12.547
23	CCV	265.687	29101.63	2.608	268.872	29926.29	2.403	253.532	14533.21	3.683
24	CCB	0.218	110.01	184.993	0.209	23.33	98.548	1.208	273.35	184.535
25	CCVL	11.876	1403.46	5.778	0.857	96.67	59.791	53.626	3280.43	8.291
26	400-176914-b-...	0.670	166.67	79.793	0.203	23.33	108.951	194.517	11701.16	0.824

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	118.755	13559.04	1.989	0.118	13.33	173.205	419.244	24811.57	4.165
28	400-176914-b-...	121.727	14166.19	5.807	0.000	0.00	N/A	409.861	24751.49	4.553
29	400-176914-b-...	1.496	270.02	28.243	0.080	10.00	100.023	105.926	6618.19	7.577
30	CCV	250.030	29692.53	2.999	256.993	31014.92	1.406	251.692	15647.56	1.361
31	CCB	<0.000	83.34	N/A	0.141	16.67	92.315	2.867	390.03	72.105
32	mb 500-51388...	0.325	126.67	217.751	0.031	3.33	173.205	0.586	256.68	265.577
33	lcs 500-513882...	104.925	12007.90	3.915	49.299	5707.81	4.219	1032.268	60903.69	1.435
34	500-171924-d-...	10.945	1370.11	17.538	0.028	3.33	173.205	211.123	12985.28	4.659
35	500-171924-d-...	10.983	1366.78	10.865	0.000	0.00	N/A	332.863	20235.65	2.869
36	500-171924-d-...	9.577	1210.09	2.220	0.000	0.00	N/A	275.770	16875.44	4.495
37	500-171924-d-...	9.119	1156.75	5.648	0.000	0.00	N/A	409.668	24972.00	4.577
38	500-171924-d-...	8.858	1130.08	6.875	0.028	3.33	173.205	327.297	20052.13	3.997
39	500-171924-d-...	13.250	1623.47	14.108	0.085	10.00	173.205	295.988	17923.05	2.152
40	CCV	271.253	28367.15	4.104	274.116	29141.60	2.421	273.239	14946.94	2.799
41	CCB	0.384	130.00	117.512	0.148	16.67	34.753	4.974	490.03	25.331
42	500-171924-d-...	8.966	1133.42	14.428	0.000	0.00	N/A	204.836	12548.35	2.120
43	500-171924-d-...	18.232	1956.87	5.674	0.095	10.00	99.746	114.323	6281.40	2.245
44	500-171924-d-...	12.301	1513.47	5.666	0.114	13.33	44.627	526.207	31692.85	4.012
45	500-171924-d-...	10.945	1370.11	4.943	0.085	10.00	173.205	379.392	23132.60	0.974
46	500-171924-d-...	10.663	1313.44	4.336	0.030	3.33	173.205	410.491	24557.92	6.933
47	500-171924-d-...	115.778	12928.57	1.235	53.649	6061.30	6.801	1460.611	84001.45	3.207
48	500-171924-d-...	117.482	13312.18	3.763	52.970	6077.98	4.364	1457.482	85136.72	0.798
49	500-171924-d-...	2.650	386.69	7.643	0.000	0.00	N/A	97.742	5894.58	5.458
50	CCV	269.980	29011.59	3.418	271.690	29669.35	3.580	281.639	15817.71	5.270
51	CCB	0.061	93.34	597.338	0.150	16.67	91.217	8.872	706.71	17.567
52	CCVL	11.765	1400.12	12.452	1.261	143.34	15.141	58.260	3577.19	6.027
53	mb 500-51388...	<0.000	86.67	N/A	0.000	0.00	N/A	5.047	493.36	50.530
54	lcs 500-513886...	109.954	12081.24	2.063	50.960	5667.81	7.828	1057.876	59929.73	1.288
55	500-171453-a-...	0.530	160.01	62.067	0.000	0.00	N/A	77006.309	4842106.49	0.738
56	500-171453-a-...	<0.000	66.67	N/A	0.105	13.33	44.516	511.516	33335.91	8.352

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	<0.000	70.00	N/A	7.856	946.73	5.444	1790.146	109828.83	1.356
58	CCV	267.615	29819.43	4.832	269.569	30524.35	2.535	452.473	26230.20	1.351
59	CCB	0.252	113.34	170.913	0.270	30.00	66.064	147.874	8529.07	5.051
60	mb 500-51388...	0.296	120.00	106.648	0.148	16.67	34.682	108.710	6418.11	5.921
61	lcs 500-513883...	109.548	12011.19	0.426	53.814	5971.27	6.041	1175.977	66465.99	0.761
62	500-172276-e-...	13.425	1636.81	16.955	0.142	16.67	124.068	157.129	9589.69	2.142
63	500-172276-e-...	11.473	1446.78	12.657	0.084	10.00	173.205	262.236	16244.72	3.939
64	500-172276-e-...	13.024	1660.15	7.283	0.027	3.33	173.205	210.087	13288.89	4.686
65	500-172276-e-...	15.888	1963.52	5.038	0.028	3.33	173.205	203.298	12608.39	7.149
66	500-172276-g-...	12.565	1543.47	0.778	0.085	10.00	100.652	201.500	12271.43	2.393
67	500-172276-d-...	13.475	1633.48	17.376	0.086	10.00	99.550	116.173	7105.09	2.978
68	500-172276-d-...	12.267	1500.13	13.671	0.057	6.67	86.610	181.938	11027.20	4.669
69	500-172276-d-...	12.910	1543.47	8.735	0.029	3.33	173.205	159.959	9539.64	5.562
70	CCV	271.951	29024.90	0.691	274.005	29722.70	0.271	301.141	16785.32	3.107
71	CCB	0.429	133.34	24.365	0.210	23.33	24.765	30.396	1923.53	4.240
72	500-172276-c-...	16.599	2003.52	9.023	0.170	20.00	86.610	176.740	10756.99	5.501
73	500-172276-e-...	10.508	1303.43	9.331	0.085	10.00	173.205	399.698	24070.54	3.946
74	500-172276-g-...	11.137	1410.11	12.510	0.109	13.33	86.618	551.318	33964.14	1.549
75	500-172276-e-...	16.099	1973.53	11.739	0.028	3.33	173.205	753.152	45760.61	2.972
76	500-172276-g-...	12.360	1520.13	7.810	0.057	6.67	173.205	188.303	11474.16	2.295
77	500-172276-g-...	12.809	1566.80	6.376	0.029	3.33	173.205	176.307	10737.04	6.769
78	500-172276-g-...	118.850	13545.71	4.427	54.796	6324.74	4.228	1276.980	75074.52	0.944
79	500-172276-g-...	119.796	13308.93	7.445	59.689	6714.90	3.603	1284.445	73588.14	2.557
80	500-172276-g-...	3.165	430.02	9.857	0.030	3.33	173.205	64.335	3820.58	8.036
81	CCV	271.444	28794.50	2.222	271.376	29251.96	2.702	285.926	15851.07	2.593
82	CCB	<0.000	83.34	N/A	0.332	36.67	82.874	19.902	1303.43	21.784
83	CCVL	10.245	1196.77	12.214	1.120	123.34	48.849	66.180	3920.60	3.832
84	mb 500-51371...	0.103	96.67	59.508	0.121	13.33	86.614	16.514	1126.75	6.368
85	lcs 500-513710...	111.975	11721.01	5.006	55.850	5917.89	0.882	1091.725	58940.08	1.705
86	500-172276-d-...	15.259	1683.49	9.373	0.031	3.33	173.205	132.926	7411.90	5.274

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	14.801	1656.81	8.396	0.125	13.33	115.410	305.882	17018.88	2.616
88	500-172276-d-...	13.233	1460.13	8.745	0.126	13.33	86.606	192.930	10586.93	5.756
89	500-172276-d-...	18.145	2163.55	6.150	0.688	80.00	54.769	192.135	11580.97	3.019
90	500-172276-f-...	0.208	110.01	77.387	0.030	3.33	173.205	12.400	913.40	12.677
91	500-172276-f-...	0.883	180.01	89.649	0.000	0.00	N/A	8.236	660.04	19.313
92	500-172276-f-...	15.793	1686.82	3.405	0.063	6.67	173.205	185.968	9976.55	3.085
93	500-172276-c-...	17.571	2033.54	6.815	0.326	36.67	69.363	129.247	7618.62	4.921
94	CCV	280.366	28691.06	1.858	281.432	29271.89	3.206	287.178	15357.42	5.518
95	CCB	0.186	100.01	229.255	0.289	30.00	67.565	8.984	666.71	13.941
96	500-172276-c-...	12.753	1393.44	6.188	0.065	6.67	173.205	176.194	9583.00	7.592
97	500-172276-c-...	13.301	1463.46	3.943	0.093	10.00	173.205	141.673	7808.71	6.027
98	500-172276-d-...	15.707	1690.15	12.290	0.096	10.00	101.167	179.565	9706.42	4.084
99	500-172276-d-...	11.441	1273.43	16.876	0.407	43.34	70.155	429.114	23312.92	2.673
100	500-172276-f-...	11.856	1296.77	25.314	0.160	16.67	92.445	567.664	30303.88	1.844
101	500-172276-d-...	24.223	2850.35	10.303	1.320	153.34	16.690	1092.182	64663.34	2.875
102	CCV	290.538	29044.81	1.184	283.164	28767.93	5.407	307.028	16017.91	7.364
103	CCB	0.172	96.67	79.680	0.099	10.00	99.544	13.040	863.39	7.600
104	500-172276-f-...	12.742	1373.44	11.118	0.129	13.33	42.769	173.266	9302.82	10.465
105	500-172276-f-...	12.818	1423.44	18.396	0.000	0.00	N/A	165.481	9149.43	1.306
106	500-172276-f-...	121.777	12511.61	3.114	57.346	5967.88	5.167	1232.394	65326.07	2.692
107	500-172276-f-...	123.670	12648.32	1.091	53.105	5497.73	7.791	1219.238	64315.78	3.128
108	500-172276-f-...	3.385	423.36	4.320	0.162	16.67	125.207	59.094	3290.46	7.607
109	500-172715-d-...	3.297	423.35	26.810	0.158	16.67	125.613	37.867	2220.24	7.366
110	500-172885-a-...	26.754	2787.02	5.189	0.064	6.67	173.205	183.680	9809.82	0.566
111	500-172885-a-...	27.886	3000.37	7.070	0.031	3.33	173.205	176.999	9783.09	3.012
112	500-171541-d-...	0.561	143.34	42.536	0.062	6.67	173.205	7.555	613.37	33.898
113	500-171541-d-...	0.089	93.34	495.885	0.031	3.33	173.205	5.340	493.36	30.839
114	CCV	275.583	27629.29	3.240	282.255	28754.37	2.101	264.921	13889.42	6.092
115	CCB	0.624	143.34	116.419	0.318	33.34	92.178	7.425	583.37	5.913
116	CCVL	10.063	1106.75	6.571	1.383	143.34	49.953	57.806	3240.43	8.292

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	0.211	103.34	104.711	0.032	3.33	173.205	5.749	500.03	27.942
118	lcs 500-513712...	111.954	11160.61	6.490	54.281	5477.74	5.852	1118.224	57492.09	5.706
119	500-172425-f-...	60.687	5951.22	4.460	0.067	6.67	173.205	743.632	37450.95	0.774
120	500-172425-g-...	66.549	6464.79	0.880	0.034	3.33	173.205	746.280	37267.03	1.590
121	500-172425-f-...	1.288	206.68	11.520	0.000	0.00	N/A	57.890	3163.75	0.854
122	500-172425-f-...	0.644	140.01	33.208	0.034	3.33	173.205	54.624	2943.70	3.943
123	500-172425-f-...	114.611	11080.51	4.400	57.691	5647.78	2.980	1202.368	59920.17	4.998
124	500-172425-f-...	113.452	10797.08	1.038	55.901	5384.39	3.951	1202.290	58996.95	0.365
125	500-172425-f-...	0.103	86.67	379.034	0.101	10.00	0.867	26.510	1510.13	15.296
126	500-172425-g-...	1.132	180.01	57.010	0.035	3.33	173.205	55.218	2843.69	1.556
127	CCV	296.046	27101.66	1.711	296.723	27612.35	2.581	289.535	13852.71	6.859
128	CCB	<0.000	63.34	N/A	0.103	10.00	98.489	10.276	670.04	5.402
129	500-172425-g-...	0.562	126.67	31.446	0.035	3.33	173.205	57.291	2953.70	3.454
130	500-172425-g-...	112.931	10473.48	3.357	56.302	5287.67	4.114	1161.589	55562.40	1.723
131	500-172425-g-...	116.665	10890.45	5.622	56.958	5384.38	3.283	1198.923	57742.75	1.521
132	500-172425-g-...	0.563	130.01	14.379	0.034	3.33	173.205	30.263	1683.48	13.843
133	500-172425-f-...	0.064	80.00	429.682	0.070	6.67	173.205	115.042	5731.17	8.636
134	500-172425-g-...	0.376	106.67	119.966	0.216	20.00	100.543	114.871	5617.78	5.233
135	500-172425-f-...	66.442	5967.89	2.132	0.000	0.00	N/A	762.312	35206.28	2.725
136	500-172425-g-...	63.754	5807.87	3.349	0.036	3.33	173.205	754.395	35306.69	1.062
137	500-172425-f-...	4.553	480.02	23.850	0.000	0.00	N/A	240.875	11370.78	3.363
138	500-172425-g-...	4.262	456.69	21.927	0.144	13.33	86.603	223.884	10653.67	0.996
139	CCV	294.242	26340.68	3.212	291.925	26554.26	2.564	284.484	13315.52	4.288
140	CCB	0.532	123.34	135.655	0.245	23.33	89.185	10.597	686.71	25.610
141	500-172384-d-...	9.635	953.40	18.499	0.072	6.67	86.615	899.147	42683.06	5.133
142	500-172384-d-...	9.502	936.73	15.430	0.108	10.00	100.838	871.729	41192.65	2.316
143	500-172384-d-...	22.121	2150.21	7.685	0.070	6.67	86.707	1295.081	63033.84	4.131
144	500-172384-d-...	25.431	2466.95	8.104	0.070	6.67	173.205	645.877	31646.16	1.021
145	500-172384-d-...	10.554	1046.75	16.355	0.000	0.00	N/A	440.724	21220.25	1.921
146	500-172384-d-...	10.144	976.74	10.464	0.075	6.67	86.611	504.484	23459.99	5.287

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	8.720	870.06	14.648	0.070	6.67	173.205	1070.437	50891.57	2.707
148	500-172384-d-...	17.451	1670.15	9.197	0.000	0.00	N/A	560.226	26757.82	4.304
149	500-172384-d-...	2.014	260.01	27.306	0.000	0.00	N/A	747.219	35981.28	1.511
150	500-172494-a-...	2.101	263.35	31.840	0.072	6.67	86.603	159.161	7671.94	3.476
151	CCV	276.046	25155.38	1.957	270.816	25085.32	2.183	280.547	13362.35	9.022
152	CCB	0.327	100.01	68.741	0.366	33.33	62.733	7.603	520.03	39.246
153	CCVL	11.071	1066.74	8.930	1.051	96.67	47.832	62.306	3070.40	1.916
154	mb 500-51382...	0.163	86.67	215.966	0.145	13.33	173.205	6.875	493.36	48.861
155	lcs 500-513820...	<0.000	63.33	N/A	55.730	4904.20	2.708	1155.170	51784.05	2.658
156	500-172924-c-...	50.278	4620.83	3.994	0.181	16.67	173.205	83.591	4084.01	7.828
157	500-172924-c-...	47.107	4304.05	2.793	0.036	3.33	173.205	84.650	4104.00	5.565
158	500-172924-c-...	48.593	4354.05	5.982	54.060	4857.50	4.017	1235.550	56542.41	3.986
159	500-172924-c-...	45.599	4127.34	11.538	52.966	4804.19	5.118	1217.520	56241.45	1.402
160	500-172924-c-...	10.112	1003.40	1.746	0.107	10.00	100.268	33.803	1783.49	11.849
161	500-172927-c-...	74.889	6621.49	3.400	0.188	16.67	35.775	426.187	19458.20	2.182
162	500-172430-g-...	97.507	9309.48	3.561	0.035	3.33	173.205	44.512	2356.92	10.177
163	500-172430-g-...	15.019	1440.12	3.749	0.036	3.33	173.205	116.081	5644.47	0.917
164	CCV	280.598	24307.64	1.915	277.849	24457.84	7.657	292.475	13242.12	2.581
165	CCB	<0.000	66.67	N/A	0.188	16.67	91.129	8.245	536.69	11.236
166	500-172430-g-...	39.392	3447.15	4.356	0.077	6.67	173.205	40.733	1970.20	13.300
167	500-172430-g-...	11.983	1110.09	5.034	0.076	6.67	86.620	2070.730	93344.85	2.158
168	500-172430-g-...	0.116	76.67	487.712	0.077	6.67	86.617	2029.104	89173.57	1.129
169	500-172430-g-...	4.465	450.02	15.633	0.154	13.33	173.205	141.428	6424.76	12.925
170	500-172430-g-...	6.671	633.37	32.219	0.039	3.33	173.205	60.990	2837.00	4.031
171	500-172430-g-...	12.005	1083.41	17.648	0.114	10.00	173.205	143.847	6471.46	1.929
172	500-172430-g-...	40.216	3590.52	0.904	0.109	10.00	173.205	252.932	11621.01	3.361
173	500-172430-g-...	71.304	6508.16	3.246	0.036	3.33	173.205	113.668	5481.07	5.273
174	500-172430-g-...	5.576	553.36	6.825	0.038	3.33	173.205	75.444	3557.18	10.376
175	500-172430-g-...	56.431	5110.99	3.336	0.000	0.00	N/A	38.963	1963.53	14.621
176	CCV	291.699	25372.61	0.542	284.239	25128.65	2.941	283.484	12888.65	5.533

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	0.356	100.00	145.465	0.226	20.00	99.748	7.407	496.69	16.837

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	287168.56	N/A	<0.000	12414.92	N/A	7.257	6701.61	3.345
2	ICIS	0.000	299668.47	N/A	0.000	12745.17	N/A	0.000	1203.43	N/A
3	Std1	1050.986	2687883.19	2.054	1068.206	1342201.49	2.626	1032.626	782739.75	2.300
4	Std2	10400.746	22765795.49	1.645	10509.988	12469278.56	0.054	10377.683	7480806.76	0.958
5	Std3	49918.831	1.06419E+08	1.405	49896.638	58185802.47	1.491	49923.811	35397401.97	1.310
6	S1	50130.763	1.08860E+08	0.965	49964.788	59346722.45	2.284	49647.110	35856277.80	1.815
7	ICV	20511.063	43835454.34	7.403	20742.654	24154092.14	8.313	20420.252	14454132.70	8.326
8	ICB	<0.000	260837.29	N/A	<0.000	11117.34	N/A	4.178	4037.38	18.919
9	ICVL	191.365	706852.46	5.192	208.448	261222.74	3.243	103.243	76103.93	4.871
10	icsa	99247.859	2.20710E+08	0.813	100126.874	1.21958E+08	0.390	98168.845	72709490.58	0.515
11	icsab	99711.684	2.18884E+08	1.990	99811.247	1.20018E+08	1.265	98379.279	71931757.26	1.246
12	CRI	402.079	1177009.05	1.374	433.145	534611.98	1.890	217.787	160833.74	1.671
13	CCV	25743.692	56362449.16	2.059	25733.601	30751112.88	1.300	25628.926	18616513.89	2.063
14	CCB	<0.000	246080.91	N/A	5.869	19037.87	9.718	7.690	6631.55	20.570
15	mb 500-51356...	13.747	297281.84	113.632	7.533	19845.36	23.252	8.107	6544.85	16.539
16	lcs 500-513568...	10309.151	22713222.16	1.018	10439.242	12463718.56	0.891	2049.931	1488036.69	0.980
17	500-171892-g-...	21520.788	45820774.32	1.462	19490.687	22624468.00	2.890	151.181	107798.27	3.078
18	500-171892-h-...	2292.077	5222830.86	0.435	2185.245	2592652.98	0.297	1.597	2300.27	18.924
19	500-171892-g-...	57839.424	1.30562E+08	2.412	38077.650	47039729.30	2.611	1932.952	1452921.39	2.404
20	500-171892-g-...	51150.407	1.12353E+08	0.645	72990.571	87699365.36	1.040	792.456	580102.50	1.414
21	500-171892-g-...	41477.272	90145131.99	1.124	43237.901	51373872.57	2.461	22.084	17112.56	3.904
22	500-171892-g-...	38806.558	84871205.40	0.321	38774.970	46354784.31	0.568	1101.884	802041.45	0.282
23	CCV	26035.277	54867774.18	1.485	26052.915	29963826.22	2.384	25798.995	18037536.81	2.586
24	CCB	<0.000	224017.03	N/A	4.279	16788.77	15.606	4.396	4190.69	10.868
25	CCVL	174.755	654977.42	2.273	216.049	263966.83	1.665	103.486	74524.30	2.014
26	400-176914-b-...	492283.111	1.07865E+09	0.515	85725.267	1.03012E+08	3.143	2.150	2740.35	12.534

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	1561715.537	3.40153E+09	1.186	31855.679	38055280.26	1.309	3.397	3633.89	7.982
28	400-176914-b-...	1548962.392	3.43928E+09	2.029	30530.212	37182340.28	2.468	2.285	2880.36	16.298
29	400-176914-b-...	553465.588	1.24052E+09	7.190	97873.593	1.20265E+08	7.411	6.068	5741.24	6.588
30	CCV	26094.837	59623174.11	1.665	26201.106	32676946.18	1.017	26112.903	19797258.46	1.210
31	CCB	101.889	522174.48	2.476	2.612	15774.45	27.713	4.314	4380.72	9.014
32	mb 500-51388...	53.792	434126.10	54.026	<0.000	9869.92	N/A	0.383	1576.87	23.215
33	lcs 500-513882...	10234.952	22612022.16	0.248	10444.728	12503308.15	1.045	2048.491	1490935.76	0.976
34	500-171924-d-...	40458.044	91055468.64	0.743	51778.409	63709675.72	0.930	0.974	1926.91	33.439
35	500-171924-d-...	30104.693	67451945.66	1.753	36970.233	45237082.66	1.303	0.594	1636.82	38.295
36	500-171924-d-...	43832.942	98516895.20	0.484	33171.227	40770837.73	0.816	0.319	1436.80	57.153
37	500-171924-d-...	44198.844	99392005.19	1.671	24687.147	30364843.71	1.799	<0.000	1176.76	N/A
38	500-171924-d-...	36721.466	82846800.43	0.408	33844.171	41730019.38	0.528	1.520	2347.18	101.153
39	500-171924-d-...	22140.474	49427690.93	0.693	54322.849	66114779.01	0.703	2.081	2727.08	1.411
40	CCV	27163.710	54653050.86	1.779	27378.105	30071097.88	1.465	27310.929	18235665.15	1.641
41	CCB	<0.000	268697.35	N/A	<0.000	11584.39	N/A	2.214	2693.67	15.965
42	500-171924-d-...	61643.019	1.37896E+08	1.522	40901.468	50079844.26	1.190	1.388	2226.91	10.737
43	500-171924-d-...	8695.775	17441847.24	1.454	88663.173	96056461.90	1.926	0.764	1560.16	12.437
44	500-171924-d-...	53117.439	1.18188E+08	1.924	24206.760	29475887.89	1.288	3.359	3673.91	23.141
45	500-171924-d-...	37774.566	84892068.73	1.852	33833.730	41556268.55	2.394	5.355	5188.03	13.402
46	500-171924-d-...	38617.690	85341277.06	2.643	34199.961	41308841.05	3.051	6.731	6124.77	35.042
47	500-171924-d-...	48796.516	1.04144E+08	2.034	44747.319	52233970.89	2.462	2103.781	1494130.86	2.677
48	500-171924-d-...	48117.122	1.04288E+08	0.324	44223.050	52424507.55	1.189	2107.176	1519869.46	1.159
49	500-171924-d-...	7729.087	16956009.33	0.733	6932.905	8211165.50	0.389	1.477	2213.97	50.287
50	CCV	26751.578	55308582.51	1.593	26730.864	30165882.88	1.819	26520.521	18192305.98	2.826
51	CCB	<0.000	223679.10	N/A	<0.000	9422.97	N/A	1.901	2453.62	25.045
52	CCVL	182.066	675615.67	3.410	214.178	263787.80	1.119	104.622	75913.89	1.427
53	mb 500-51388...	<0.000	222666.71	N/A	<0.000	7091.78	N/A	0.697	1623.48	27.496
54	lcs 500-513886...	10383.817	22025942.17	1.040	10504.241	12075571.07	0.241	2024.363	1414925.09	0.429
55	500-171453-a-...	182966.145	4.26948E+08	0.964	9.075	24906.07	32.383	142.409	112608.32	26.802
56	500-171453-a-...	50162.884	1.20766E+08	1.741	8349.437	11005976.92	2.711	<0.000	1106.75	N/A

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	18.984	345884.50	2.380	<0.000	9646.39	N/A	300.895	229060.25	2.929
58	CCV	26042.588	55837267.50	0.668	26040.407	30472933.71	0.268	25810.722	18361043.06	1.180
59	CCB	<0.000	256345.18	N/A	0.266	12141.39	320.904	4.551	4284.06	16.285
60	mb 500-51388...	<0.000	239975.14	N/A	<0.000	7965.48	N/A	1.037	1866.84	25.393
61	lcs 500-513883...	10494.513	22213160.50	0.469	10623.305	12187486.49	1.106	2038.051	1421607.74	1.672
62	500-172276-e-...	24617.729	54774710.85	0.812	17894.694	21727354.68	1.401	1.639	2390.35	41.906
63	500-172276-e-...	49427.985	1.12356E+08	1.230	11880.838	14781646.45	1.978	2.352	2993.94	42.240
64	500-172276-e-...	53930.670	1.24684E+08	0.849	12683.749	16053188.93	1.172	1.634	2490.29	6.972
65	500-172276-e-...	51981.309	1.17821E+08	2.476	12757.000	15827021.01	2.919	1.311	2200.24	23.066
66	500-172276-g-...	53152.110	1.18216E+08	1.049	13830.155	16837001.00	1.431	6.498	5997.94	7.550
67	500-172276-d-...	17750.827	39340581.08	0.429	23100.017	27877350.42	0.469	5.314	5074.29	9.967
68	500-172276-d-...	24213.100	53679237.53	0.725	15414.181	18649385.97	0.421	0.972	1893.56	20.969
69	500-172276-d-...	20609.873	44865042.67	1.441	19190.618	22773397.16	1.374	1.759	2421.85	71.210
70	CCV	26659.591	54741709.19	0.945	26593.618	29807692.89	0.660	26315.214	17932042.23	1.064
71	CCB	<0.000	215976.40	N/A	6.374	19221.29	26.326	9.123	7501.96	12.222
72	500-172276-c-...	25498.655	56712012.49	0.585	18116.996	21993629.67	0.292	2.254	2847.07	14.018
73	500-172276-e-...	34834.817	77423568.85	0.856	8291.736	10080090.27	1.163	2.594	3100.96	27.813
74	500-172276-g-...	41508.774	94494571.92	2.524	10165.470	12663139.81	2.158	1.625	2443.61	9.732
75	500-172276-e-...	47579.386	1.07010E+08	0.778	13290.789	16358217.26	1.190	7.620	6900.48	9.483
76	500-172276-g-...	50079.096	1.11356E+08	1.462	12488.628	15200376.44	1.187	1.854	2556.96	6.997
77	500-172276-g-...	49803.907	1.10500E+08	3.387	12500.034	15182319.77	2.488	1.627	2386.93	12.353
78	500-172276-g-...	58395.893	1.27271E+08	1.031	22885.399	27299414.59	1.615	2106.327	1528428.21	1.517
79	500-172276-g-...	59627.789	1.26647E+08	0.241	23035.998	26781930.43	0.581	2082.675	1472927.69	0.538
80	500-172276-g-...	10032.058	21204742.19	0.599	2463.805	2830171.83	0.169	1.220	1963.54	16.400
81	CCV	26744.626	54581642.52	0.816	26823.539	29882000.39	0.887	26452.781	17916150.57	0.790
82	CCB	<0.000	208456.11	N/A	2.334	14309.86	39.221	3.920	3793.91	8.904
83	CCVL	179.270	651066.66	2.414	216.267	258872.43	0.225	104.618	73781.41	1.838
84	mb 500-51371...	<0.000	233904.50	N/A	1.343	13295.65	24.605	4.792	4427.41	4.852
85	lcs 500-513710...	10613.916	21451720.51	0.955	10827.074	11861761.07	1.251	2037.669	1357331.34	2.288
86	500-172276-d-...	25211.294	51036230.91	0.981	18110.693	20010447.62	0.557	315.039	212665.34	2.980

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	47634.131	97394345.22	1.706	12453.092	13937865.63	1.245	3866.536	2630493.29	0.406
88	500-172276-d-...	56253.076	1.12687E+08	1.547	13241.144	14520662.70	3.013	205.903	138281.38	2.522
89	500-172276-d-...	47126.481	1.03701E+08	1.383	13845.485	16673496.42	0.817	10220.518	7479790.10	0.953
90	500-172276-f-...	<0.000	278258.02	N/A	12.349	26283.88	3.545	16.653	12862.20	4.418
91	500-172276-f-...	<0.000	258521.51	N/A	4.097	16354.90	9.819	7.672	6391.50	7.674
92	500-172276-f-...	54023.880	1.05735E+08	0.632	14051.666	15054365.19	0.993	330.155	216024.44	1.816
93	500-172276-c-...	16651.385	35700719.47	1.373	22929.188	26753957.10	2.250	7413.744	5259442.01	1.336
94	CCV	26671.814	52522475.89	1.211	26776.117	28780162.90	1.743	26264.711	17161534.74	2.167
95	CCB	<0.000	202218.58	N/A	4.622	16098.05	20.795	4.680	4110.69	15.610
96	500-172276-c-...	24213.186	48097222.61	1.421	15331.200	16618141.84	2.617	783.145	516888.48	3.563
97	500-172276-c-...	20183.712	40515188.56	1.800	18899.800	20677911.36	2.079	1714.175	1140818.19	3.395
98	500-172276-d-...	26376.358	52099527.56	2.507	18524.831	19974407.20	2.814	1164.540	764027.28	4.949
99	500-172276-d-...	34300.569	68815835.64	0.729	8746.465	9596509.03	0.542	3114.496	2076723.67	1.146
100	500-172276-f-...	41518.520	81954637.11	0.508	10239.381	11058796.50	1.494	685.737	450999.29	0.652
101	500-172276-d-...	43723.189	95995275.24	0.398	16293.655	19569491.37	0.924	15052.959	10988513.17	2.051
102	CCV	27432.597	52754865.88	2.957	27210.956	28564753.74	3.639	26915.664	17176596.83	3.630
103	CCB	<0.000	196447.59	N/A	4.330	15454.06	16.479	6.420	5144.34	8.479
104	500-172276-f-...	50011.211	97761745.21	1.109	12776.243	13670947.71	1.052	594.651	387732.77	2.381
105	500-172276-f-...	48765.360	98104421.87	1.557	12417.860	13674594.79	1.038	622.860	417748.63	2.591
106	500-172276-f-...	58002.743	1.13939E+08	1.330	22323.064	24005162.14	1.313	3641.544	2381363.09	1.292
107	500-172276-f-...	58685.085	1.14753E+08	1.539	22761.208	24359053.80	2.806	2902.601	1889392.16	2.752
108	500-172276-f-...	10439.943	20577584.69	1.187	2612.062	2798596.52	1.405	124.974	82142.87	2.538
109	500-172715-d-...	375215.525	7.44887E+08	0.970	29543.069	32163315.35	1.538	180.061	120211.72	1.253
110	500-172885-a-...	375822.947	7.30322E+08	2.472	44455.172	47364004.29	3.925	20.674	14430.00	7.530
111	500-172885-a-...	360233.397	7.24000E+08	1.746	44256.979	48769724.27	1.301	3575.633	2396545.90	2.861
112	500-171541-d-...	209.716	697955.56	2.586	6828.013	7630013.84	1.852	7.294	6038.06	5.513
113	500-171541-d-...	96.802	470286.75	2.950	6720.211	7543591.14	2.743	8.823	7108.43	1.986
114	CCV	26880.563	51843067.56	1.039	26950.199	28372222.08	1.242	26531.189	16977651.83	3.000
115	CCB	<0.000	242230.57	N/A	6.069	17609.66	17.810	6.544	5317.74	19.576
116	CCVL	191.200	635031.87	1.309	218.791	245871.38	2.052	104.832	69450.05	2.829

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	<0.000	249048.53	N/A	3.464	14967.02	14.239	5.024	4370.74	8.095
118	lcs 500-513712...	10591.393	20395945.95	2.938	10774.697	11245309.83	4.141	2041.076	1295303.58	3.442
119	500-172425-f-...	24394.740	45587262.65	1.892	120600.148	1.22941E+08	0.714	10.998	7808.83	4.401
120	500-172425-g-...	24282.588	44993154.33	1.733	121391.323	1.22679E+08	1.489	8.208	6024.62	10.700
121	500-172425-f-...	73690.894	1.40837E+08	0.098	16535.311	17309124.74	0.753	35.743	23758.57	3.238
122	500-172425-f-...	74068.541	1.39049E+08	1.285	16617.638	17087742.24	0.732	35.623	23266.75	8.387
123	500-172425-f-...	85300.029	1.57499E+08	1.807	27170.561	27476573.76	2.227	2082.619	1281164.72	2.982
124	500-172425-f-...	82584.636	1.50102E+08	0.713	26904.435	26784234.60	0.817	2068.884	1252938.37	0.354
125	500-172425-f-...	15302.019	28698794.57	1.156	3324.603	3400363.70	0.427	9.334	6780.24	9.973
126	500-172425-g-...	87743.116	1.57504E+08	1.622	16308.534	16039734.76	1.579	3.928	3307.11	2.274
127	CCV	27230.629	47968815.95	0.732	27195.171	26151047.11	1.835	26684.798	15599543.94	1.810
128	CCB	<0.000	191612.80	N/A	7.231	17209.09	8.654	7.151	5221.08	8.523
129	500-172425-g-...	88781.446	1.59902E+08	0.447	16404.640	16188252.26	0.332	10.922	7511.98	0.992
130	500-172425-g-...	95724.228	1.69539E+08	0.401	26322.942	25538622.12	0.958	1990.954	1175157.25	0.766
131	500-172425-g-...	94261.532	1.68116E+08	0.193	26856.598	26240366.28	0.620	2012.976	1196481.57	0.220
132	500-172425-g-...	17705.844	32830188.68	1.783	3227.470	3267363.81	2.364	3.174	2930.37	14.623
133	500-172425-f-...	5062.585	9308509.86	1.047	12348.935	12141481.49	1.519	10.821	7421.97	3.164
134	500-172425-g-...	5177.202	9338201.32	1.935	12804.764	12356741.90	2.647	9.518	6524.88	7.748
135	500-172425-f-...	24528.197	42032769.37	1.251	122618.136	1.14621E+08	0.338	10.593	6931.68	7.235
136	500-172425-g-...	24302.798	42215487.70	1.172	121175.531	1.14805E+08	0.726	11.296	7431.92	1.338
137	500-172425-f-...	18581.489	32287522.02	2.204	21287.246	20152361.37	1.331	6.359	4580.83	9.564
138	500-172425-g-...	18419.757	32224736.19	0.641	20986.675	19997855.95	1.527	10.754	7155.09	8.013
139	CCV	27350.335	47092974.30	0.851	27410.404	25766725.45	0.482	26876.805	15359626.86	0.433
140	CCB	<0.000	163246.96	N/A	10.065	20049.08	12.814	6.430	4800.88	9.541
141	500-172384-d-...	147817.771	2.59502E+08	1.706	65726.886	63225045.73	2.412	63.875	38300.94	5.318
142	500-172384-d-...	145080.226	2.53434E+08	0.978	64106.941	61366130.75	1.165	71.229	42396.25	2.059
143	500-172384-d-...	580328.854	1.04519E+09	3.445	11677.176	11539581.08	4.176	65.129	40111.87	2.394
144	500-172384-d-...	58088.242	1.05213E+08	0.956	28397.976	28151121.25	1.092	12.631	8575.77	10.365
145	500-172384-d-...	107843.156	1.91271E+08	1.748	26041.896	25305631.29	2.222	14.755	9663.19	3.319
146	500-172384-d-...	87890.107	1.50846E+08	2.525	105104.034	98787828.53	2.418	4.479	3477.15	3.338

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	255012.165	4.48401E+08	2.277	56942.925	54880867.52	3.455	55.732	33595.43	8.099
148	500-172384-d-...	70972.043	1.25079E+08	1.821	34246.600	33042686.17	2.308	17.511	11214.28	4.071
149	500-172384-d-...	124267.542	2.21144E+08	1.277	41542.248	40507685.23	1.497	11.559	7805.42	6.741
150	500-172494-a-...	125716.360	2.20011E+08	1.873	927.745	899265.87	2.516	1843.005	1075238.76	3.863
151	CCV	26725.578	46857017.63	1.555	26947.706	25790063.78	1.351	26430.331	15377835.19	1.515
152	CCB	<0.000	212893.06	N/A	9.927	19074.51	12.143	6.978	4914.22	16.443
153	CCVL	190.107	558485.15	2.949	222.314	220332.13	1.063	106.849	62470.39	1.616
154	mb 500-51382...	<0.000	207977.63	N/A	6.495	16074.77	2.744	7.129	5070.95	4.947
155	lcs 500-513820...	11070.042	18568947.22	0.466	11225.231	10211921.10	1.017	2104.504	1164098.03	1.048
156	500-172924-c-...	47995.446	83625210.42	1.786	2677.280	2560734.75	2.160	750.200	435580.54	2.561
157	500-172924-c-...	49668.687	85903505.39	1.969	2760.968	2621689.13	1.111	769.727	443746.04	0.479
158	500-172924-c-...	59326.794	1.00656E+08	2.650	13693.462	12720120.64	3.094	2797.507	1579979.25	3.288
159	500-172924-c-...	58527.363	1.00216E+08	1.333	13544.400	12698347.31	2.007	2775.218	1581906.48	2.544
160	500-172924-c-...	9968.962	17849300.98	0.494	549.048	541950.12	1.407	152.709	90915.60	1.577
161	500-172927-c-...	352437.724	5.92057E+08	0.596	30746.362	28321155.41	1.927	315.544	177613.17	3.083
162	500-172430-g-...	759490.574	1.38109E+09	0.948	364568.386	3.63518E+08	0.800	7.552	5554.53	5.949
163	500-172430-g-...	102003.881	1.78645E+08	0.648	41462.781	39777643.57	0.832	36.708	22348.63	5.019
164	CCV	27277.717	45462880.99	1.795	27478.576	25001464.63	1.615	27037.958	14955053.53	2.079
165	CCB	23.065	261937.27	12.639	23.531	31105.74	9.315	5.994	4244.06	8.311
166	500-172430-g-...	378785.056	6.24129E+08	1.532	41700.163	37673476.11	2.191	296.097	163530.90	3.378
167	500-172430-g-...	132140.155	2.20759E+08	2.690	19073.381	17466115.99	2.534	106.364	60112.91	1.057
168	500-172430-g-...	77113.129	1.25698E+08	1.378	9873.266	8818823.83	2.063	20.758	12134.71	4.527
169	500-172430-g-...	32306.267	53383764.20	1.366	12119.162	10946794.42	1.116	158.219	87706.11	1.516
170	500-172430-g-...	42349.625	69180037.30	0.940	20242.758	18086113.48	1.523	16.406	9780.60	9.301
171	500-172430-g-...	109578.063	1.78565E+08	0.753	29578.477	26408422.94	1.014	11.653	7195.12	1.398
172	500-172430-g-...	496754.903	8.35187E+08	0.990	76395.737	70434513.95	0.392	79.147	45254.59	2.794
173	500-172430-g-...	566119.833	9.81501E+08	1.278	163898.276	1.55794E+08	2.289	6.211	4517.49	4.919
174	500-172430-g-...	261447.130	4.36385E+08	0.683	54309.714	49691829.26	1.377	15.635	9589.74	2.988
175	500-172430-g-...	547380.785	9.38431E+08	1.037	145867.361	1.37094E+08	1.285	23.709	14432.69	51.239
176	CCV	27626.937	46232795.98	1.388	27724.323	25328808.79	1.330	27307.076	15168034.36	0.947

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	72.403	343401.46	3.361	23.367	30861.74	2.938	5.872	4164.04	12.789

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	7.059	296061.96	23.235	2.021	1094.52	69.284	0.864	453.35	6.636
2	ICIS	0.000	280926.78	N/A	0.000	910.79	N/A	0.000	16.67	N/A
3	Std1	1048.093	2171950.02	1.678	1021.309	91082.18	1.862	10.042	5090.97	1.330
4	Std2	10418.466	18144525.98	0.844	10177.849	856539.70	0.932	102.588	49376.10	3.708
5	Std3	49915.345	84507872.07	1.438	49964.004	4132828.49	1.679	499.482	236375.96	0.992
6	S1	50155.928	86496422.04	1.071	49829.494	4198668.85	1.565	499.232	240682.96	2.913
7	ICV	20511.758	34846655.31	6.887	20191.839	1667856.96	8.390	203.669	96118.03	10.918
8	ICB	1.100	263796.62	229.793	3.666	1144.11	86.129	0.031	30.00	122.261
9	ICVL	515.134	1162527.87	2.928	198.359	17670.52	5.686	4.961	2423.65	7.968
10	icsa	99523.483	1.75734E+08	0.188	100051.606	8644473.46	0.447	1983.426	980508.94	0.817
11	icsab	99708.707	1.73776E+08	2.129	100626.007	8582134.28	1.805	2013.827	982661.08	1.709
12	CRI	1052.085	2110654.76	1.210	407.356	35723.93	0.700	10.721	5261.04	7.776
13	CCV	26001.135	45224325.99	2.462	25369.280	2150301.92	1.797	256.283	124277.67	1.594
14	CCB	6.933	279467.49	18.460	6.771	1431.20	31.873	0.163	93.34	46.956
15	mb 500-51356...	26.769	295824.75	63.746	40.312	3975.09	19.967	0.129	70.00	110.062
16	lcs 500-513568...	10295.316	18047476.40	1.093	8757.453	741794.38	1.451	1009.743	488821.91	1.132
17	500-171892-g-...	638.629	1337005.76	2.209	45174.964	3718718.88	2.329	2.430	1160.14	15.023
18	500-171892-h-...	58.447	368974.96	2.376	4909.923	412144.26	1.228	0.071	50.00	30.777
19	500-171892-g-...	1599.849	3141710.06	1.977	112652.069	9869505.06	2.307	22.897	11489.41	7.790
20	500-171892-g-...	1563.235	2992287.77	0.572	172745.706	14722087.30	1.050	20.171	9875.30	58.705
21	500-171892-g-...	1595.317	3014092.87	1.126	114636.729	9660656.61	1.778	0.664	336.70	13.960
22	500-171892-g-...	1251.139	2436835.07	1.219	109163.742	9255683.12	0.210	33.363	16181.00	50.032
23	CCV	25963.083	43473056.02	1.592	25334.107	2066891.63	2.090	254.735	118879.81	2.080
24	CCB	8.360	275515.11	32.210	10.558	1706.72	21.852	0.030	30.00	185.937
25	CCVL	526.957	1155003.94	2.041	210.969	18309.78	2.509	4.856	2313.59	5.693
26	400-176914-b-...	3738.508	6774104.07	0.606	54857.754	4675533.53	1.536	0.055	43.33	76.228

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	274730.839	4.75233E+08	0.997	129202.484	10943609.95	2.198	0.167	96.67	59.844
28	400-176914-b-...	272346.295	4.80253E+08	2.077	125069.332	10802230.61	3.096	0.128	80.00	63.499
29	400-176914-b-...	1788.292	3461554.85	7.364	168166.351	14663104.52	6.554	0.085	56.67	144.989
30	CCV	26358.439	47845832.62	1.940	25417.085	2248351.41	1.921	252.995	128018.90	1.555
31	CCB	20.153	312912.65	17.205	12.449	1969.42	28.130	0.013	23.33	174.824
32	mb 500-51388...	8.466	304634.76	349.683	3.885	1282.06	72.924	<0.000	6.67	N/A
33	lcs 500-513882...	10426.261	18322064.31	0.575	8717.475	740390.72	0.684	999.369	485088.05	0.680
34	500-171924-d-...	1579.808	3093498.29	0.349	83696.976	7304380.53	0.299	0.346	190.01	29.791
35	500-171924-d-...	1244.757	2482755.23	2.176	53914.943	4679161.04	1.762	0.127	80.00	40.368
36	500-171924-d-...	1391.102	2754278.29	1.175	46444.820	4049009.02	1.216	0.113	73.34	97.574
37	500-171924-d-...	1218.451	2448645.95	1.480	35420.450	3090019.90	1.179	0.079	56.67	86.821
38	500-171924-d-...	1158.856	2348630.80	0.522	50325.961	4401334.87	0.227	0.119	76.67	19.537
39	500-171924-d-...	1384.513	2716030.17	0.569	69892.671	6033817.85	0.859	0.162	96.67	46.828
40	CCV	27091.029	43308397.69	1.237	26356.358	2053435.89	1.694	265.849	118482.66	1.410
41	CCB	11.043	282849.94	33.216	5.699	1324.25	27.226	0.022	26.67	192.317
42	500-171924-d-...	1670.892	3239779.54	1.051	58012.655	5038388.83	0.777	0.128	80.00	55.920
43	500-171924-d-...	935.288	1713471.07	1.923	110078.406	8459237.00	2.072	0.125	70.00	36.612
44	500-171924-d-...	1411.573	2764386.31	1.480	39591.907	3419398.07	0.788	0.134	83.34	45.618
45	500-171924-d-...	1589.073	3104060.06	2.942	55903.331	4870048.75	2.310	0.139	86.67	44.455
46	500-171924-d-...	1600.707	3073266.31	3.169	56678.372	4855868.63	2.884	0.396	206.75	74.584
47	500-171924-d-...	12158.261	20808653.86	1.703	65529.564	5425757.03	2.293	1031.107	488364.47	2.996
48	500-171924-d-...	12217.220	21231036.35	0.862	64473.590	5421195.92	0.443	1028.006	494510.18	0.978
49	500-171924-d-...	332.549	838767.12	1.377	11340.605	952192.97	0.832	0.389	203.35	61.385
50	CCV	26665.309	43802141.01	1.571	25662.125	2054280.67	1.835	258.140	118208.73	1.356
51	CCB	10.050	278991.96	9.861	4.812	1241.90	44.934	0.109	66.67	22.300
52	CCVL	541.357	1188382.85	1.816	205.873	18025.52	0.836	5.718	2743.68	3.315
53	mb 500-51388...	11.261	283284.34	22.690	2.619	1069.30	72.614	0.066	46.67	104.776
54	lcs 500-513886...	10345.254	17459502.24	1.301	8568.722	698847.27	1.436	994.641	463662.93	1.135
55	500-171453-a-...	21369.096	39844376.07	1.159	44.351	4983.02	20.664	16.722	8723.66	14.949
56	500-171453-a-...	17.375	333136.22	12.641	34050.683	3180971.74	2.359	0.028	33.33	100.842

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	15.193	311156.12	21.234	6.385	1480.20	32.200	0.105	70.00	52.232
58	CCV	26203.865	44636194.34	0.988	24932.750	2069617.39	0.577	247.824	117664.14	2.821
59	CCB	13.952	284145.18	14.762	5.606	1297.61	59.412	0.103	63.34	75.389
60	mb 500-51388...	9.323	280467.90	9.578	1.730	998.94	35.552	0.009	20.00	655.030
61	lcs 500-513883...	10472.667	17636296.40	0.702	8634.601	702836.89	1.135	1005.425	467711.91	0.671
62	500-172276-e-...	3868.024	7070676.35	2.450	72145.973	6210993.43	1.301	0.250	140.01	6.851
63	500-172276-e-...	6128.263	11310879.83	1.705	49436.603	4360144.61	1.667	0.230	133.34	18.803
64	500-172276-e-...	6265.400	11757427.74	1.575	53475.949	4797951.58	1.186	0.285	163.35	22.823
65	500-172276-e-...	6245.224	11490815.66	2.228	53833.694	4734883.52	2.704	0.111	73.34	70.297
66	500-172276-g-...	5342.747	9685178.61	2.044	57635.563	4974381.49	1.241	0.081	56.67	14.112
67	500-172276-d-...	3740.143	6805576.77	0.974	81382.158	6964133.46	0.807	0.123	76.67	51.872
68	500-172276-d-...	6649.536	11913549.82	0.492	55601.927	4769356.33	0.921	0.102	66.67	29.595
69	500-172276-d-...	5017.673	8884920.70	1.335	69379.766	5837705.49	1.525	0.084	56.67	80.160
70	CCV	26473.631	43192217.69	0.515	25200.652	2003698.98	1.235	256.795	116782.09	3.471
71	CCB	18.226	292377.54	6.198	14.182	2004.18	19.746	0.030	30.00	70.615
72	500-172276-c-...	5052.689	9150431.11	0.556	61244.320	5271780.74	0.250	0.142	86.67	35.114
73	500-172276-e-...	6461.664	11632869.41	1.436	35317.369	3042544.71	0.827	0.224	126.67	28.912
74	500-172276-g-...	7177.432	13211230.64	3.049	41991.001	3707162.03	2.761	0.138	86.67	51.256
75	500-172276-e-...	8878.432	16086282.68	1.266	48431.353	4225959.64	1.050	0.413	223.34	21.435
76	500-172276-g-...	5690.586	10294958.60	1.407	52124.766	4497190.59	1.895	0.222	126.67	36.022
77	500-172276-g-...	5607.415	10126795.68	2.860	51598.014	4442424.54	2.804	0.129	80.01	69.754
78	500-172276-g-...	15863.966	27652483.76	1.693	58940.999	4986096.15	1.254	1022.834	494989.31	1.832
79	500-172276-g-...	15933.834	27068707.10	0.079	59730.264	4924528.89	0.427	1017.867	480095.03	0.223
80	500-172276-g-...	1115.924	2108334.55	1.239	10205.849	828975.65	0.140	0.360	183.34	28.081
81	CCV	26391.918	42792976.03	1.506	25343.460	2002869.40	0.213	257.073	116221.78	0.721
82	CCB	16.473	284320.53	33.365	10.653	1682.08	38.750	0.119	70.00	36.894
83	CCVL	535.352	1145456.96	1.910	205.939	17528.10	1.510	5.052	2356.94	8.739
84	mb 500-51371...	15.443	284688.14	8.820	35.483	3700.56	10.751	0.125	73.34	27.251
85	lcs 500-513710...	10507.457	16897211.00	0.690	8638.336	671467.48	1.352	1004.305	446154.34	1.463
86	500-172276-d-...	3886.049	6463180.32	1.272	72610.257	5688238.21	0.753	8.646	3896.81	36.275

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	7390.861	12216476.90	1.864	51942.521	4120942.76	1.001	98.256	44501.66	19.875
88	500-172276-d-...	6620.245	10752319.01	1.073	55058.931	4280755.26	1.920	4.368	1960.37	18.876
89	500-172276-d-...	7985.643	14183741.46	0.629	52331.925	4467753.04	0.602	165.915	81071.49	5.923
90	500-172276-f-...	56.216	358229.55	7.104	57.146	5549.24	3.363	0.144	83.33	23.878
91	500-172276-f-...	17.283	286424.87	33.780	47.119	4619.11	6.965	0.132	76.67	32.389
92	500-172276-f-...	5507.153	8777981.95	1.175	57802.941	4390448.62	0.737	6.375	2780.64	14.190
93	500-172276-c-...	5111.758	8896362.99	1.000	77255.212	6392372.69	1.345	143.545	67946.94	5.155
94	CCV	26300.659	41151258.55	1.527	25080.681	1912309.59	1.677	255.135	111264.96	2.809
95	CCB	16.160	270374.21	19.836	14.879	1930.07	17.816	0.065	43.33	71.592
96	500-172276-c-...	6775.994	10872505.67	1.575	54255.440	4169793.67	1.935	17.793	7836.15	5.443
97	500-172276-c-...	5230.475	8528764.66	1.660	66577.417	5164837.27	2.244	43.944	19497.36	16.730
98	500-172276-d-...	5394.595	8662525.29	1.512	61359.392	4691078.26	3.092	29.664	13035.65	27.450
99	500-172276-d-...	7069.476	11464288.58	1.013	34891.754	2713093.44	0.211	64.179	28568.06	6.479
100	500-172276-f-...	7310.050	11661188.58	2.011	41520.567	3178369.08	0.969	11.177	4914.46	10.084
101	500-172276-d-...	17321.212	30367674.55	0.956	54165.991	4612567.60	1.602	227.385	110770.09	5.195
102	CCV	26696.696	40797438.56	2.492	25402.264	1891574.24	3.562	257.037	109490.51	3.156
103	CCB	18.027	267597.96	19.146	15.789	1956.06	11.119	0.067	43.33	85.317
104	500-172276-f-...	5687.698	9045402.37	1.542	51259.819	3888213.26	0.525	10.349	4508.00	11.086
105	500-172276-f-...	5556.143	9097542.78	2.500	49956.040	3899126.21	1.926	14.478	6486.23	3.411
106	500-172276-f-...	15607.005	24526382.13	0.792	57674.431	4398076.96	1.144	989.828	431845.23	1.551
107	500-172276-f-...	15549.157	24324238.81	1.364	58752.974	4459195.98	2.385	981.418	426165.17	2.019
108	500-172276-f-...	1156.851	2030386.01	0.836	10631.872	805626.84	1.103	2.084	916.73	13.565
109	500-172715-d-...	3463.209	5703465.96	0.692	32887.952	2539653.17	1.291	3.094	1380.16	16.302
110	500-172885-a-...	5991.434	9481449.24	2.444	133250.277	10069055.71	3.374	0.429	200.02	5.328
111	500-172885-a-...	6753.222	11020990.67	0.893	129098.621	10089638.48	1.380	74.941	33523.58	3.084
112	500-171541-d-...	27191.787	44173907.67	0.186	11706.711	927366.16	1.111	0.143	80.00	40.839
113	500-171541-d-...	26656.780	43503606.02	2.012	11274.923	897182.73	2.768	0.113	66.67	13.074
114	CCV	26323.286	40339156.90	1.386	24976.125	1865034.43	2.311	250.294	106907.55	2.611
115	CCB	23.410	280781.95	16.878	15.685	1984.62	8.860	0.073	46.67	126.715
116	CCVL	538.983	1081787.12	1.179	205.590	16442.28	1.210	5.400	2366.94	7.271

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	19.036	276962.56	6.930	29.100	3037.05	6.733	0.049	36.67	115.465
118	lcs 500-513712...	10405.992	15946232.68	3.099	8460.635	626619.37	3.241	994.955	421038.91	4.325
119	500-172425-f-...	13013.363	19430098.88	2.353	238929.901	17276137.09	1.067	0.708	306.69	24.048
120	500-172425-g-...	13016.313	19269260.13	2.014	238221.857	17076996.76	1.407	0.495	216.68	24.270
121	500-172425-f-...	600.117	1147101.13	1.424	100800.318	7480719.49	0.165	1.120	490.03	6.009
122	500-172425-f-...	595.289	1119603.68	1.515	101819.573	7422533.08	1.124	0.983	423.36	27.992
123	500-172425-f-...	10882.206	16154360.59	2.307	110329.252	7912329.01	1.733	1002.711	411388.99	2.763
124	500-172425-f-...	10903.907	15932514.34	1.263	109070.768	7699995.94	0.701	994.242	401567.16	1.818
125	500-172425-f-...	136.990	434485.17	3.078	19853.210	1436654.35	0.601	0.513	226.68	18.248
126	500-172425-g-...	501.647	937642.44	2.168	99194.483	6915150.69	4.530	0.325	143.34	32.092
127	CCV	26429.090	36995828.62	0.320	25011.723	1706121.92	1.999	249.691	97424.62	3.355
128	CCB	24.436	257575.78	27.335	22.957	2323.41	18.821	0.167	80.00	38.525
129	500-172425-g-...	507.970	949755.64	1.142	100181.780	7010761.19	2.767	0.166	80.00	2.120
130	500-172425-g-...	10495.301	14955256.03	0.405	107756.249	7414052.28	0.985	967.150	380705.55	0.342
131	500-172425-g-...	10693.127	15338793.94	0.952	109988.663	7620763.84	0.882	975.475	386709.88	1.311
132	500-172425-g-...	112.516	394361.40	1.700	19483.877	1395543.59	1.424	0.195	93.33	33.806
133	500-172425-f-...	6389.723	9310076.53	0.823	61382.434	4278057.81	1.125	0.334	146.67	3.709
134	500-172425-g-...	6515.429	9314124.03	1.915	63286.212	4329534.67	1.877	0.222	100.01	13.065
135	500-172425-f-...	13040.951	17856177.65	1.383	238945.311	15842355.38	0.915	0.502	203.34	16.680
136	500-172425-g-...	12959.128	17986707.65	1.365	237629.570	15969342.60	1.143	0.426	176.68	19.621
137	500-172425-f-...	20041.766	27665462.09	0.784	129339.348	8680896.15	2.105	0.183	83.34	46.359
138	500-172425-g-...	19664.725	27328469.59	1.141	128580.578	8687269.40	1.899	0.207	93.34	43.282
139	CCV	26493.589	36247123.63	1.477	25209.857	1681080.77	0.120	252.173	96183.95	1.316
140	CCB	24.046	258054.31	7.319	37.874	3363.20	15.758	0.083	46.67	17.833
141	500-172384-d-...	14918.637	20988597.60	2.266	159441.503	10878110.48	2.450	1.599	636.72	19.699
142	500-172384-d-...	14667.300	20535960.53	1.222	156548.582	10628153.10	0.901	1.124	450.03	15.122
143	500-172384-d-...	18727.628	26994641.26	3.087	57327.550	4016398.76	3.356	7.447	2993.75	10.595
144	500-172384-d-...	7278.837	10666699.01	1.386	142216.108	9997364.56	1.074	0.181	86.67	43.744
145	500-172384-d-...	5624.357	8129893.00	1.730	109173.098	7522790.47	2.500	0.229	103.34	66.000
146	500-172384-d-...	16040.954	22036373.01	2.266	250173.970	16679460.11	2.327	0.195	86.67	36.397

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	20168.060	28355657.08	1.719	141697.393	9685943.27	3.639	1.321	530.04	23.894
148	500-172384-d-...	9228.035	13103787.31	2.788	144024.587	9855304.26	2.311	0.564	233.40	62.556
149	500-172384-d-...	10373.521	14860435.61	0.185	85841.745	5936556.52	1.035	0.219	100.00	81.205
150	500-172494-a-...	683.504	1166962.69	2.025	4546.383	309847.87	2.918	91.769	35739.44	9.217
151	CCV	26042.105	36279973.63	1.939	24712.555	1677658.80	1.776	249.515	96878.35	3.700
152	CCB	26.269	250220.82	9.953	27.414	2523.02	16.585	0.106	53.34	62.013
153	CCVL	538.002	953320.48	0.925	217.637	15318.80	0.714	5.022	1943.54	11.242
154	mb 500-51382...	22.644	248864.00	11.999	54.820	4416.20	4.124	0.070	40.00	75.377
155	lcs 500-513820...	10722.514	14314073.12	0.562	8609.984	555780.00	0.639	1019.797	376222.87	1.382
156	500-172924-c-...	6520.929	9210929.66	1.910	13923.485	941745.45	1.884	0.844	340.02	30.046
157	500-172924-c-...	6725.363	9423826.11	2.190	14366.086	964781.42	0.543	1.034	410.02	17.900
158	500-172924-c-...	16803.655	22792602.99	2.098	22375.227	1473934.10	3.022	999.160	376422.83	3.271
159	500-172924-c-...	16636.766	22774982.16	1.474	22258.965	1479780.26	2.430	992.544	377411.28	1.204
160	500-172924-c-...	1280.558	2016719.19	0.638	2845.914	196297.61	2.076	0.390	166.68	33.322
161	500-172927-c-...	30984.601	41512265.21	0.927	113907.729	7441621.20	1.284	9.611	3603.89	3.500
162	500-172430-g-...	7353.851	10839783.17	1.289	499500.331	35328777.24	0.285	0.371	163.34	28.584
163	500-172430-g-...	1413.632	2181154.60	1.090	107920.957	7342887.38	0.724	0.462	193.34	49.559
164	CCV	26347.897	34894451.98	2.061	25020.704	1614879.52	1.874	250.507	92490.52	1.398
165	CCB	22.704	239514.00	8.228	45.473	3644.28	21.062	0.082	43.33	73.381
166	500-172430-g-...	910.822	1396720.24	1.242	163253.163	10460279.64	1.330	7.942	2924.44	19.694
167	500-172430-g-...	2655.751	3727269.63	2.108	51248.228	3327846.83	2.302	2.137	810.18	32.385
168	500-172430-g-...	497.466	845905.43	1.272	40063.271	2536354.61	1.967	0.169	73.33	41.922
169	500-172430-g-...	1351.094	1970439.81	1.736	29669.215	1899896.52	1.382	2.749	1016.79	18.885
170	500-172430-g-...	2082.356	2895178.60	0.945	115465.041	7314421.32	0.762	0.583	223.35	31.698
171	500-172430-g-...	1937.464	2706462.25	0.587	61821.354	3914578.13	0.392	0.279	113.34	21.708
172	500-172430-g-...	1436.485	2126511.53	1.386	105350.383	6892775.57	2.627	24.572	8951.63	154.795
173	500-172430-g-...	9287.873	12995789.39	2.059	459548.336	30984362.00	1.555	0.294	126.68	30.839
174	500-172430-g-...	2405.742	3394264.64	0.423	88919.321	5770626.97	1.366	0.335	136.68	31.089
175	500-172430-g-...	3716.123	5269126.07	1.724	241563.535	16103256.79	1.544	0.300	126.67	45.503
176	CCV	26627.808	35410544.47	1.178	24995.058	1619997.77	0.941	253.376	93942.26	1.368

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	25.724	242675.85	10.142	49.635	3897.35	9.021	0.029	23.33	143.158

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.122	34342.40	47.778	0.149	4867.57	2.440	0.019	910.07	42.469
2	ICIS	0.000	32495.44	N/A	0.000	2793.69	N/A	0.000	700.04	N/A
3	Std1	9.703	157339.66	4.103	10.258	144334.84	3.067	10.405	112845.50	1.856
4	Std2	100.538	1260415.40	1.314	102.898	1354722.22	0.726	103.268	1060512.69	0.905
5	Std3	499.898	6042826.16	1.289	499.415	6457922.40	1.214	499.338	5042008.36	1.618
6	S1	496.981	6119583.66	1.684	497.522	6553494.28	1.863	499.235	5134516.07	1.919
7	ICV	199.883	2430308.71	8.584	203.303	2625152.41	9.075	205.788	2074881.17	8.133
8	ICB	<0.000	21100.48	N/A	0.043	3157.12	48.030	0.044	1090.08	16.247
9	ICVL	4.290	84293.65	5.064	5.127	70560.89	4.203	2.600	27556.74	4.096
10	icsa	<0.000	10913.94	N/A	0.609	10984.00	5.523	0.454	5481.09	3.080
11	icsab	18.245	258008.49	0.622	20.235	272448.65	1.113	20.010	208915.58	3.414
12	CRI	9.660	151889.66	2.253	10.347	141002.45	2.560	5.289	55896.57	2.117
13	CCV	253.855	3159323.19	1.471	255.279	3383443.39	1.291	256.398	2652544.23	1.933
14	CCB	<0.000	23974.52	N/A	0.035	3117.09	39.674	0.044	1116.75	32.382
15	mb 500-51356...	<0.000	9763.21	N/A	0.124	4030.67	30.891	0.176	2316.94	16.934
16	lcs 500-513568...	505.746	6253736.78	1.240	206.639	2735085.37	1.498	519.750	5368819.09	1.281
17	500-171892-g-...	0.698	38942.22	7.160	5.408	72167.86	6.970	8228.926	82670505.43	2.914
18	500-171892-h-...	<0.000	21874.90	N/A	0.121	4264.04	14.641	943.886	9652149.02	0.944
19	500-171892-g-...	5.403	101362.06	4.609	5.589	79331.25	1.556	469.411	5020544.09	2.651
20	500-171892-g-...	1.971	56093.91	1.012	3.099	43995.49	4.071	2840.546	29551095.39	1.222
21	500-171892-g-...	0.736	40322.23	26.683	1.136	17646.53	7.746	424.845	4370912.43	1.818
22	500-171892-g-...	4.489	86838.87	2.845	7.748	105363.34	0.297	38.196	395981.92	1.681
23	CCV	255.215	3056958.81	2.171	256.518	3271968.18	2.599	257.325	2562508.09	1.912
24	CCB	<0.000	24164.90	N/A	0.052	3263.78	17.881	0.153	2176.91	12.955
25	CCVL	4.633	86467.72	1.905	5.171	69479.80	2.469	2.730	28231.15	0.740
26	400-176914-b-...	1.185	46357.83	20.275	0.062	3543.86	27.798	220.593	2295241.17	1.143

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	0.866	42136.63	10.306	0.108	4133.99	27.260	734.860	7600176.14	1.324
28	400-176914-b-...	0.332	36252.86	2.720	0.052	3463.84	30.256	718.391	7573999.26	2.750
29	400-176914-b-...	1.760	54722.78	15.285	0.384	8018.93	8.583	2612.494	27789016.25	7.904
30	CCV	250.806	3258021.41	1.181	250.409	3463357.76	2.021	254.308	2745788.29	1.727
31	CCB	<0.000	29316.25	N/A	0.016	2977.04	95.005	0.196	2760.32	7.418
32	mb 500-51388...	<0.000	30665.58	N/A	<0.000	2823.70	N/A	0.096	1780.17	26.895
33	lcs 500-513882...	498.109	6176224.49	0.890	201.039	2668120.17	0.912	511.868	5301487.84	0.426
34	500-171924-d-...	<0.000	11827.92	N/A	0.405	8305.74	4.004	17.041	182227.39	1.825
35	500-171924-d-...	<0.000	13075.64	N/A	0.176	5161.01	29.542	8.930	95301.25	2.413
36	500-171924-d-...	<0.000	14003.08	N/A	0.180	5231.06	5.670	5.643	60736.80	1.155
37	500-171924-d-...	<0.000	14883.78	N/A	0.293	6784.99	6.007	3.455	37482.59	1.380
38	500-171924-d-...	<0.000	13576.03	N/A	0.281	6631.59	1.804	14.674	157325.63	0.976
39	500-171924-d-...	<0.000	12561.91	N/A	0.255	6191.43	12.085	17.565	185776.63	0.493
40	CCV	266.634	3048761.83	1.330	267.609	3259899.22	1.528	268.162	2550085.48	1.731
41	CCB	<0.000	30304.73	N/A	0.020	2880.37	34.434	0.062	1283.45	12.008
42	500-171924-d-...	<0.000	11214.19	N/A	0.309	6971.86	18.028	14.924	158881.70	1.303
43	500-171924-d-...	<0.000	11717.83	N/A	0.450	7858.86	3.920	18.874	177661.89	2.195
44	500-171924-d-...	<0.000	15294.19	N/A	1.183	18704.40	7.628	3.299	35451.68	2.504
45	500-171924-d-...	<0.000	15814.67	N/A	0.327	7238.52	5.130	104.870	1115680.30	2.662
46	500-171924-d-...	<0.000	15481.02	N/A	0.357	7515.31	10.664	106.865	1118156.10	2.831
47	500-171924-d-...	512.946	6206012.62	2.261	208.343	2698286.52	2.352	628.525	6352466.16	2.434
48	500-171924-d-...	511.646	6286404.70	0.662	207.702	2731777.15	0.410	624.535	6410284.49	0.550
49	500-171924-d-...	0.533	37679.66	11.738	0.125	4317.38	13.114	21.344	219243.12	0.573
50	CCV	259.804	3052796.52	2.334	260.551	3260724.43	2.809	260.291	2543217.31	2.025
51	CCB	<0.000	28465.00	N/A	0.029	2973.73	36.488	0.097	1623.49	7.821
52	CCVL	5.093	92672.91	4.085	5.240	70905.68	1.880	2.686	27994.05	3.322
53	mb 500-51388...	0.086	31607.27	83.035	0.007	2717.02	434.610	0.164	2303.59	14.135
54	lcs 500-513886...	497.834	5928001.58	0.391	203.552	2594321.21	0.577	512.224	5094644.40	0.223
55	500-171453-a-...	<0.000	22248.72	N/A	0.606	11509.83	53.682	0.198	2923.74	5.451
56	500-171453-a-...	<0.000	15110.63	N/A	<0.000	1656.83	N/A	0.076	1616.82	30.455

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	813.150	10479327.97	1.732	189.580	2620343.71	1.523	583.852	6297336.78	1.362
58	CCV	252.175	3073592.66	1.213	251.925	3269592.66	1.043	252.883	2562101.63	1.060
59	CCB	0.001	30201.01	7568.702	0.044	3157.10	6.792	0.113	1766.84	15.397
60	mb 500-51388...	0.021	30882.47	305.066	0.028	2990.41	27.924	0.090	1560.14	22.027
61	lcs 500-513883...	502.675	5973105.75	0.616	205.013	2607544.54	1.375	513.777	5099771.28	1.274
62	500-172276-e-...	<0.000	16018.22	N/A	0.031	3160.43	34.523	397.405	4176564.73	1.239
63	500-172276-e-...	<0.000	21818.18	N/A	0.011	2963.72	185.619	302.588	3257922.56	1.548
64	500-172276-e-...	<0.000	21571.23	N/A	0.028	3250.46	72.543	193.238	2116871.48	1.108
65	500-172276-e-...	<0.000	23540.50	N/A	0.047	3453.83	34.757	477.622	5128397.22	2.087
66	500-172276-g-...	<0.000	20753.44	N/A	0.077	3797.24	14.695	289.331	3048575.89	1.217
67	500-172276-d-...	<0.000	20219.46	N/A	0.043	3307.14	30.861	517.449	5405530.96	0.839
68	500-172276-d-...	<0.000	21694.70	N/A	0.029	3133.77	24.258	303.256	3175624.22	0.700
69	500-172276-d-...	<0.000	27072.34	N/A	0.001	2703.68	2579.627	197.737	2031513.77	1.158
70	CCV	256.019	2988450.58	1.244	256.611	3190108.70	1.941	255.228	2476921.78	0.929
71	CCB	<0.000	28731.93	N/A	0.098	3860.63	9.357	0.187	2510.29	1.556
72	500-172276-c-...	<0.000	16969.02	N/A	<0.000	2593.64	N/A	476.752	5009586.70	0.649
73	500-172276-e-...	<0.000	18580.91	N/A	0.017	2983.72	46.787	164.959	1735041.75	0.566
74	500-172276-g-...	<0.000	16395.31	N/A	0.038	3337.15	31.224	302.758	3263017.35	2.417
75	500-172276-e-...	0.632	40432.77	12.830	0.078	3843.96	9.525	1003.297	10685257.76	1.704
76	500-172276-g-...	<0.000	22108.57	N/A	0.061	3577.22	26.487	149.601	1576088.62	1.426
77	500-172276-g-...	<0.000	22829.57	N/A	0.089	3943.97	41.018	148.823	1564657.32	2.451
78	500-172276-g-...	509.790	6301386.16	1.890	207.257	2742392.98	1.465	662.117	6836996.15	1.557
79	500-172276-g-...	503.767	6069396.78	0.395	204.968	2643290.17	0.383	657.913	6621218.65	0.338
80	500-172276-g-...	0.058	30842.50	116.325	0.081	3620.53	38.976	29.558	293441.25	0.183
81	CCV	253.401	2940292.98	0.577	255.846	3161210.68	0.931	255.010	2459936.26	0.633
82	CCB	<0.000	27329.58	N/A	0.040	3063.73	63.801	0.168	2276.92	17.713
83	CCVL	4.883	87640.01	1.691	5.140	67682.65	2.194	2.668	27035.65	1.393
84	mb 500-51371...	<0.000	27640.28	N/A	0.093	3753.91	13.683	0.316	3763.91	1.238
85	lcs 500-513710...	503.021	5708009.29	1.587	205.508	2496130.64	1.949	514.326	4875329.10	1.322
86	500-172276-d-...	1.281	43690.64	10.090	0.634	10263.57	1.171	417.755	3995253.27	0.551

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	10.634	152122.61	1.896	4.476	58028.92	2.537	797.190	7720037.38	0.632
88	500-172276-d-...	1.374	44412.44	4.735	0.466	8145.61	8.634	259.464	2462751.89	2.190
89	500-172276-d-...	20.370	284569.11	0.471	11.403	154844.18	0.312	590.300	6151656.78	0.712
90	500-172276-f-...	<0.000	29185.95	N/A	0.914	14359.96	4.024	0.454	5217.69	5.804
91	500-172276-f-...	<0.000	29119.31	N/A	0.567	9689.82	8.209	0.820	8685.88	5.287
92	500-172276-f-...	1.391	43573.49	9.280	0.614	9706.56	2.717	348.446	3230971.41	0.914
93	500-172276-c-...	15.491	217102.80	2.196	8.176	108354.88	1.780	636.060	6424657.19	1.305
94	CCV	254.533	2849296.63	1.941	256.351	3055874.85	2.287	254.901	2372193.82	1.773
95	CCB	<0.000	25172.87	N/A	0.045	2970.40	47.928	0.221	2667.01	10.635
96	500-172276-c-...	2.274	53967.28	6.986	1.018	14676.95	2.497	319.951	3001752.66	2.462
97	500-172276-c-...	4.861	83644.61	3.560	1.916	25704.76	5.873	277.114	2624493.61	2.546
98	500-172276-d-...	3.285	64925.38	4.677	1.509	20458.66	7.229	502.824	4692648.47	3.159
99	500-172276-d-...	6.558	103018.16	1.227	3.601	46238.46	2.997	302.368	2869988.40	0.511
100	500-172276-f-...	1.587	46086.96	4.958	0.887	13055.46	6.075	359.436	3358675.78	0.916
101	500-172276-d-...	33.303	443961.61	1.242	16.119	217211.65	4.505	4583.041	47636412.62	1.215
102	CCV	258.859	2829544.96	3.863	259.567	3021773.81	4.122	259.066	2354715.90	3.336
103	CCB	<0.000	24224.99	N/A	0.030	2733.66	100.088	0.413	4367.44	9.386
104	500-172276-f-...	1.595	45772.88	4.630	0.896	13045.65	4.535	169.812	1572695.65	0.722
105	500-172276-f-...	1.798	49396.70	5.936	0.966	14283.30	4.211	165.595	1578083.98	2.013
106	500-172276-f-...	490.121	5462679.50	0.849	198.455	2367317.21	0.980	695.276	6472317.40	1.140
107	500-172276-f-...	487.662	5409854.71	2.160	199.153	2364416.37	2.540	673.551	6240419.91	2.125
108	500-172276-f-...	0.461	33203.44	13.089	0.256	5444.47	12.550	35.873	332110.79	1.664
109	500-172715-d-...	0.550	34876.98	34.213	0.576	9419.67	4.532	20.983	198381.90	2.192
110	500-172885-a-...	5.625	89880.62	4.125	1.560	20840.45	3.697	6.260	58344.92	2.932
111	500-172885-a-...	10.226	145240.77	1.855	3.751	48307.24	3.098	158.618	1513824.56	1.833
112	500-171541-d-...	0.547	35698.49	3.972	0.356	6931.68	4.690	0.278	3317.14	2.217
113	500-171541-d-...	0.503	35347.84	27.846	0.181	4784.21	12.178	0.192	2500.31	1.952
114	CCV	252.677	2770500.79	1.935	254.590	2972354.64	2.396	252.887	2305024.50	2.001
115	CCB	<0.000	26728.58	N/A	0.063	3180.43	34.066	0.182	2303.61	2.464
116	CCVL	4.995	83562.53	3.771	5.156	63767.21	2.805	2.741	26074.23	2.834

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	<0.000	26261.24	N/A	0.164	4424.09	11.658	0.185	2356.93	9.810
118	lcs 500-513712...	497.404	5377506.38	3.749	204.144	2362183.98	3.913	509.105	4597354.10	3.827
119	500-172425-f-...	0.943	36794.38	8.685	0.481	7745.40	3.593	571.108	5041374.51	1.002
120	500-172425-g-...	1.134	38454.70	5.164	0.406	6838.37	4.358	569.075	4980242.84	1.991
121	500-172425-f-...	1.204	40553.04	23.272	1.175	15998.22	5.882	911.206	8255176.96	0.751
122	500-172425-f-...	0.633	33791.17	11.360	1.345	17653.15	2.663	916.649	8157545.92	1.221
123	500-172425-f-...	502.856	5270090.03	2.376	205.292	2302781.48	3.199	1404.952	12298983.15	2.159
124	500-172425-f-...	501.420	5173049.71	0.630	203.247	2244558.35	0.512	1430.323	12326059.40	0.363
125	500-172425-f-...	<0.000	26771.88	N/A	0.356	6338.11	7.525	180.355	1593018.72	0.430
126	500-172425-g-...	<0.000	24495.33	N/A	0.226	4690.86	2.497	1017.039	8656434.66	1.953
127	CCV	254.073	2544586.37	1.891	256.622	2736883.19	2.092	255.805	2129828.56	1.524
128	CCB	<0.000	22719.33	N/A	0.057	2840.35	20.855	0.305	3147.09	10.239
129	500-172425-g-...	<0.000	22792.82	N/A	0.298	5494.44	9.559	1018.599	8700399.66	1.500
130	500-172425-g-...	490.121	4928706.39	1.008	200.139	2154116.74	1.399	1522.891	12789854.39	0.750
131	500-172425-g-...	492.831	4990743.78	0.506	199.495	2162227.63	0.387	1544.474	13062732.30	0.598
132	500-172425-g-...	<0.000	22949.74	N/A	0.139	3840.59	4.269	196.568	1718251.33	2.507
133	500-172425-f-...	<0.000	24762.29	N/A	0.645	9256.17	6.162	112.931	961230.72	1.283
134	500-172425-g-...	<0.000	24942.64	N/A	0.463	7135.14	10.098	122.824	1026132.25	2.127
135	500-172425-f-...	0.824	32589.13	7.347	0.328	5507.80	15.431	572.434	4633404.51	1.114
136	500-172425-g-...	1.065	35381.45	2.562	0.339	5707.90	13.778	576.149	4727029.41	0.585
137	500-172425-f-...	0.690	31650.62	32.136	1.019	12828.65	4.513	2669.173	21870279.67	0.885
138	500-172425-g-...	0.018	25283.00	260.722	0.665	9176.20	10.669	2602.258	21463052.18	1.525
139	CCV	254.159	2488392.15	0.516	256.510	2674522.67	0.717	256.923	2091063.25	0.485
140	CCB	<0.000	21627.88	N/A	0.049	2757.03	43.412	0.502	4827.54	2.789
141	500-172384-d-...	0.902	34295.75	24.690	0.732	9976.68	12.522	1377.654	11474274.83	2.077
142	500-172384-d-...	1.339	38431.28	12.619	0.389	6291.45	12.342	1319.327	10933902.34	1.224
143	500-172384-d-...	4.568	72589.57	4.082	1.618	19949.17	5.337	289.807	2478662.26	3.116
144	500-172384-d-...	<0.000	24178.05	N/A	0.410	6748.31	0.971	503.754	4323199.93	1.383
145	500-172384-d-...	0.129	26895.65	60.488	0.245	4834.23	6.863	295.335	2484684.60	2.377
146	500-172384-d-...	0.677	31346.83	16.646	0.411	6408.12	6.294	191.580	1559810.39	1.694

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	1.703	42337.59	7.689	0.477	7281.84	8.638	1073.583	8958927.99	3.197
148	500-172384-d-...	0.769	33080.02	8.328	0.261	4981.04	14.005	444.875	3716722.97	1.527
149	500-172384-d-...	0.643	32158.35	0.045	0.378	6291.47	12.088	324.021	2735770.48	0.448
150	500-172494-a-...	14.329	166959.09	2.752	23.696	253993.55	3.481	42.998	357459.00	3.088
151	CCV	250.683	2499049.49	1.496	251.963	2674581.63	1.570	250.592	2076400.18	1.951
152	CCB	<0.000	21898.41	N/A	0.066	2823.69	43.619	0.296	2943.72	11.745
153	CCVL	4.737	71239.68	2.063	5.082	55508.05	2.237	2.739	22992.95	3.272
154	mb 500-51382...	<0.000	21194.00	N/A	0.169	3953.96	8.110	0.317	3160.42	4.228
155	lcs 500-513820...	513.510	4838475.97	0.580	209.805	2116157.31	1.040	525.815	4138951.71	1.258
156	500-172924-c-...	10.181	125171.50	2.421	0.686	9402.97	4.181	4.971	41555.14	1.523
157	500-172924-c-...	10.168	124143.96	2.013	0.589	8319.11	5.754	5.168	42875.59	1.143
158	500-172924-c-...	513.450	4940731.18	3.000	204.831	2109984.19	2.844	513.205	4125552.02	3.116
159	500-172924-c-...	507.508	4928880.55	2.558	201.912	2099087.42	2.679	506.424	4108749.73	2.051
160	500-172924-c-...	2.018	45702.43	2.500	0.202	4360.73	4.183	1.226	10837.27	2.439
161	500-172927-c-...	2.464	47681.82	4.412	4.623	49289.35	1.278	153.804	1226954.15	0.799
162	500-172430-g-...	5.419	81995.12	2.623	0.338	5997.96	10.386	23.977	207586.86	0.362
163	500-172430-g-...	1.248	37629.55	1.741	0.509	7588.69	3.858	501.481	4165520.88	0.488
164	CCV	253.274	2400087.83	2.700	255.831	2581597.93	2.238	254.297	2003234.92	2.474
165	CCB	<0.000	21414.25	N/A	0.047	2563.65	25.170	0.190	2030.21	7.915
166	500-172430-g-...	0.783	31096.32	13.881	0.311	5157.67	13.771	462.693	3619400.26	1.654
167	500-172430-g-...	0.646	30224.38	26.134	1.136	13609.39	3.729	3866.193	30641703.71	2.519
168	500-172430-g-...	0.274	26041.01	19.970	0.552	7485.30	7.049	5047.380	38998376.92	2.213
169	500-172430-g-...	0.575	29145.91	27.668	0.326	5311.09	3.040	935.983	7315260.10	1.539
170	500-172430-g-...	<0.000	21924.85	N/A	0.411	6094.66	0.819	717.588	5549437.00	1.021
171	500-172430-g-...	0.398	27185.93	22.747	0.797	9906.65	4.490	230.971	1785635.34	0.834
172	500-172430-g-...	0.906	32903.04	8.786	0.746	9709.81	3.807	3145.732	25110617.13	0.756
173	500-172430-g-...	0.463	29590.12	16.364	0.203	4294.07	7.288	2589.949	21317570.10	2.248
174	500-172430-g-...	1.126	34740.07	2.829	0.737	9549.74	7.227	2826.263	22388977.16	1.517
175	500-172430-g-...	6.308	85930.94	1.151	0.224	4467.47	4.164	14.029	114713.42	0.832
176	CCV	252.715	2404915.75	1.170	254.874	2582806.21	1.076	254.761	2015394.97	1.002

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	<0.000	21507.67	N/A	0.032	2396.94	71.498	0.510	4564.17	2.059

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	3.279	107671.92	4.367	<0.000	443.36	N/A	0.028	356.69	50.149
2	ICIS	0.000	64999.71	N/A	0.000	490.03	N/A	0.000	216.68	N/A
3	Std1	1058.140	13666003.55	2.440	10.561	206956.97	3.855	10.483	51228.90	5.026
4	Std2	10405.797	1.27432E+08	1.093	104.917	1954203.15	0.123	104.827	486138.96	0.593
5	Std3	49917.678	6.01153E+08	1.558	499.005	9141325.07	0.778	499.025	2275872.15	0.965
6	S1	49536.068	6.07641E+08	2.094	496.725	9267909.65	2.021	498.910	2317562.57	1.853
7	ICV	20603.327	2.47667E+08	8.886	206.601	3778817.03	8.032	208.678	950063.27	8.536
8	ICB	4.481	113752.79	16.783	0.049	1340.10	7.748	0.073	530.04	26.957
9	ICVL	106.069	1371007.11	3.087	1.100	21114.08	3.042	2.135	10170.13	7.440
10	icsa	97334.325	1.22438E+09	0.107	0.255	5351.07	8.393	0.231	1313.45	15.147
11	icsab	97856.761	1.21522E+09	1.239	19.698	372511.06	1.797	19.184	90412.59	1.889
12	CRI	225.833	2875233.81	1.722	2.111	40462.85	2.186	4.205	20035.92	4.127
13	CCV	25714.166	3.17299E+08	1.394	260.260	4884697.43	1.405	260.430	1216927.28	1.232
14	CCB	8.275	162277.97	8.900	0.039	1180.10	35.136	0.048	426.69	10.838
15	mb 500-51356...	7.941	149554.17	15.716	0.022	830.05	5.229	0.087	573.37	20.532
16	lcs 500-513568...	1061.220	13135773.55	1.098	522.554	9792859.23	0.786	528.783	2466991.53	0.906
17	500-171892-g-...	33568.148	4.02297E+08	2.416	73.667	1343354.04	1.953	14.160	64444.41	4.722
18	500-171892-h-...	3662.186	44725227.67	0.620	7.975	148441.62	1.768	1.458	6938.41	8.014
19	500-171892-g-...	6135.271	78323268.83	2.710	1.691	33287.23	4.039	14.493	70237.15	3.848
20	500-171892-g-...	5038.372	62576724.07	1.816	15.262	288533.89	2.380	59.479	279696.51	0.132
21	500-171892-g-...	2469.303	30358067.05	1.913	4.420	82967.62	1.730	5.990	28037.46	2.870
22	500-171892-g-...	1079.877	13392827.72	1.062	0.869	16792.31	0.954	7.165	33704.84	0.606
23	CCV	25958.481	3.08280E+08	2.514	262.579	4743393.89	2.033	262.148	1178951.88	2.422
24	CCB	4.469	113546.59	8.539	0.050	1353.45	22.633	0.057	460.03	36.798
25	CCVL	105.951	1337387.59	0.890	1.095	20519.80	3.026	2.076	9669.86	9.074
26	400-176914-b-...	162.067	2074085.49	1.348	0.450	8959.41	3.631	0.749	3730.58	9.731

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	3884.139	47970410.95	1.465	0.202	4267.39	7.434	2.315	11024.03	2.297
28	400-176914-b-...	3784.199	47643867.62	2.707	0.195	4207.41	8.239	2.372	11504.40	5.752
29	400-176914-b-...	2777.102	35318482.81	6.595	0.742	14810.38	9.196	1.443	7165.21	3.107
30	CCV	25417.431	3.27310E+08	1.568	254.521	4985270.45	1.544	251.496	1226391.83	1.670
31	CCB	3.918	113476.15	7.547	0.036	1173.41	34.264	0.046	433.36	44.000
32	mb 500-51388...	<0.000	58025.82	N/A	<0.000	350.02	N/A	<0.000	130.01	N/A
33	lcs 500-513882...	1042.129	12934728.56	0.739	514.203	9661827.98	0.245	514.739	2407858.82	0.425
34	500-171924-d-...	1211.395	15455702.69	0.552	0.157	3520.52	9.033	0.788	4007.33	7.671
35	500-171924-d-...	569.604	7260861.14	1.227	0.052	1476.80	2.426	0.661	3377.15	5.884
36	500-171924-d-...	59.584	820905.48	0.975	0.092	2266.92	7.897	0.889	4487.44	3.478
37	500-171924-d-...	57.691	797398.84	0.993	0.083	2083.56	8.785	0.924	4657.51	8.808
38	500-171924-d-...	145.757	1920604.76	0.116	0.086	2146.90	17.242	0.559	2910.39	5.060
39	500-171924-d-...	416.961	5304362.42	0.453	0.075	1910.21	15.423	0.670	3400.50	5.373
40	CCV	27247.681	3.09046E+08	1.162	271.180	4678368.89	1.278	271.823	1167423.19	1.894
41	CCB	1.653	80917.36	22.352	0.028	960.07	41.825	0.025	316.69	61.262
42	500-171924-d-...	438.791	5612164.08	0.847	0.085	2116.89	12.498	0.546	2833.70	7.838
43	500-171924-d-...	14.789	222573.33	1.781	0.061	1476.80	22.790	2.710	11674.47	1.691
44	500-171924-d-...	18.994	302968.95	0.548	0.104	2480.30	5.018	2.060	10016.77	5.205
45	500-171924-d-...	389.178	4999993.78	2.568	0.091	2236.91	20.789	0.813	4110.71	14.507
46	500-171924-d-...	395.455	4995814.40	2.770	0.105	2463.62	7.450	0.842	4184.04	8.083
47	500-171924-d-...	1479.931	17897486.81	3.079	523.080	9591417.98	2.428	518.264	2366031.32	1.982
48	500-171924-d-...	1457.364	17901324.31	1.052	522.499	9729461.94	1.064	517.802	2400478.19	0.613
49	500-171924-d-...	80.205	1041987.15	0.935	0.087	2093.59	24.389	0.257	1396.79	6.109
50	CCV	26651.997	3.10550E+08	2.615	264.116	4681348.68	2.111	264.695	1168035.74	1.959
51	CCB	1.210	75030.27	22.164	0.032	1043.41	13.111	0.041	386.69	55.365
52	CCVL	105.995	1348077.58	1.477	1.128	21294.35	2.212	2.172	10190.18	1.984
53	mb 500-51388...	<0.000	57837.91	N/A	0.001	473.36	651.480	0.017	280.01	34.129
54	lcs 500-513886...	1054.559	12568968.98	0.271	520.834	9397901.32	1.180	522.140	2345577.15	0.246
55	500-171453-a-...	18.643	314938.77	25.250	0.044	1396.79	13.192	0.057	506.69	42.858
56	500-171453-a-...	<0.000	56930.11	N/A	0.015	823.39	14.576	0.056	520.03	11.540

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	1790.699	23097604.66	1.903	0.117	2783.70	9.983	167.782	817511.81	1.404
58	CCV	25712.890	3.10694E+08	0.840	257.220	4727574.09	0.695	255.112	1167371.31	0.407
59	CCB	3.925	106792.85	10.807	0.051	1363.45	12.791	0.037	366.69	53.484
60	mb 500-51388...	0.077	62185.21	74.932	0.007	596.71	11.695	0.029	336.69	48.367
61	lcs 500-513883...	1068.024	12702828.56	1.069	528.621	9519219.23	0.396	524.403	2350959.18	1.352
62	500-172276-e-...	33.728	486656.02	2.278	0.393	7968.90	3.898	3.706	17803.31	2.052
63	500-172276-e-...	19.824	320027.26	2.882	0.220	4794.20	7.337	5.930	29046.07	3.733
64	500-172276-e-...	71.954	1006449.44	1.361	0.202	4510.79	8.746	4.127	20636.75	1.392
65	500-172276-e-...	262.262	3423411.10	2.382	0.197	4324.06	1.484	3.991	19568.72	4.292
66	500-172276-g-...	57.131	781918.12	1.430	0.154	3420.50	3.765	3.878	18667.56	0.881
67	500-172276-d-...	90.921	1196281.67	0.708	0.091	2200.25	8.606	2.024	9759.88	1.830
68	500-172276-d-...	41.197	578149.77	0.797	0.229	4837.59	2.503	7.990	37993.75	1.136
69	500-172276-d-...	7.454	153840.84	2.058	0.137	3027.06	6.322	5.145	24078.05	1.042
70	CCV	26305.499	3.04458E+08	1.488	260.977	4594430.87	1.462	259.718	1138305.77	1.690
71	CCB	9.337	171511.37	17.332	0.109	2430.28	21.746	0.131	790.05	36.785
72	500-172276-c-...	102.155	1344069.09	0.419	0.373	7582.01	4.634	7.060	33711.34	3.376
73	500-172276-e-...	54.351	745532.18	1.269	0.106	2496.96	14.941	6.553	31333.29	0.609
74	500-172276-g-...	111.130	1493754.35	2.768	0.121	2863.69	2.119	6.882	33711.59	4.023
75	500-172276-e-...	59.888	825547.31	0.796	0.606	12194.96	2.437	13.070	63085.55	1.861
76	500-172276-g-...	32.086	467086.70	2.547	0.115	2677.00	10.016	5.439	26081.11	5.392
77	500-172276-g-...	31.872	463511.01	1.968	0.115	2680.34	3.525	5.409	25877.56	4.520
78	500-172276-g-...	1104.043	13658603.97	1.801	529.038	9911027.35	1.653	525.324	2450048.19	1.561
79	500-172276-g-...	1097.662	13235419.38	0.474	524.817	9582291.73	0.783	522.459	2374843.14	0.366
80	500-172276-g-...	6.075	132079.45	2.243	0.130	2790.35	12.575	1.239	5741.24	10.280
81	CCV	26378.647	3.03462E+08	0.482	260.337	4555374.31	0.475	260.862	1136466.13	0.355
82	CCB	3.345	98576.38	7.337	0.076	1796.84	17.005	0.079	546.70	27.745
83	CCVL	104.997	1299049.69	0.314	1.143	20963.94	3.156	2.221	10123.46	3.167
84	mb 500-51371...	4.634	114424.91	3.175	0.029	963.41	14.505	0.184	1020.08	8.165
85	lcs 500-513710...	1075.293	12212885.24	1.695	538.204	9255409.45	1.249	528.632	2263174.24	1.273
86	500-172276-d-...	1286.331	14728593.11	0.714	0.538	9773.22	3.369	4.276	18657.70	3.810

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	5130.711	59317545.78	1.313	1.668	29740.40	1.444	22.861	100187.81	0.311
88	500-172276-d-...	1457.130	16548978.09	2.420	0.300	5607.84	4.622	5.055	21858.21	4.302
89	500-172276-d-...	11668.318	1.45080E+08	0.872	3.299	62857.90	1.857	21.975	103640.80	2.556
90	500-172276-f-...	15.036	240960.02	3.199	0.008	596.70	55.649	0.321	1656.82	7.899
91	500-172276-f-...	7.844	151482.46	4.889	0.038	1116.75	11.740	0.596	2837.04	10.738
92	500-172276-f-...	1858.559	20608219.28	1.617	0.260	4800.89	5.772	4.833	20433.23	2.325
93	500-172276-c-...	6411.619	77293073.85	1.730	1.508	28097.80	4.491	8.571	39300.20	2.511
94	CCV	26450.880	2.93566E+08	2.295	261.658	4417388.16	1.576	261.576	1099374.83	2.177
95	CCB	4.437	106048.84	7.994	0.048	1236.77	1.091	0.053	413.36	22.608
96	500-172276-c-...	986.349	11092436.92	1.986	0.416	7508.64	4.832	8.988	38271.14	1.729
97	500-172276-c-...	1556.736	17637888.90	2.640	0.443	8045.56	6.046	6.921	29797.29	1.128
98	500-172276-d-...	1554.073	17352173.08	3.542	0.577	10193.47	3.245	8.879	37613.31	3.004
99	500-172276-d-...	2591.030	29384472.90	0.878	0.714	12728.70	4.026	14.102	60640.03	1.214
100	500-172276-f-...	1013.228	11349329.83	1.124	0.281	5197.69	3.915	9.155	38825.84	1.901
101	500-172276-d-...	16320.731	2.02385E+08	1.530	8.289	156778.34	1.583	129.323	607309.95	1.066
102	CCV	26849.594	2.91038E+08	3.784	265.355	4375302.54	3.347	266.199	1092719.96	3.521
103	CCB	5.558	116046.21	8.469	0.062	1436.80	15.414	0.064	450.03	28.623
104	500-172276-f-...	1038.577	11524890.66	0.961	0.259	4770.87	4.498	5.899	24852.51	1.616
105	500-172276-f-...	1010.040	11538442.74	0.342	0.234	4470.80	7.805	5.734	24855.69	3.888
106	500-172276-f-...	2664.286	29633974.56	0.778	514.686	8692919.24	1.037	508.728	2138918.20	0.992
107	500-172276-f-...	2176.758	24108107.14	2.228	508.645	8549832.79	2.210	503.990	2108957.10	2.274
108	500-172276-f-...	206.238	2329384.96	1.890	0.207	3897.28	8.980	1.421	6118.07	6.245
109	500-172715-d-...	176.803	2044466.27	0.885	0.214	4090.65	5.059	2.282	9903.32	3.572
110	500-172885-a-...	24.580	326570.88	3.191	0.138	2730.34	11.498	1.212	5237.72	5.932
111	500-172885-a-...	2357.691	26884512.10	2.473	1.091	19318.33	3.352	3.643	15891.51	2.563
112	500-171541-d-...	8.452	156213.25	1.865	0.024	863.40	41.325	0.267	1363.45	11.289
113	500-171541-d-...	9.436	168298.39	3.829	0.014	690.04	39.761	0.097	623.38	7.973
114	CCV	26429.112	2.87285E+08	2.350	258.988	4282308.48	1.631	258.047	1062244.02	2.054
115	CCB	5.751	120293.05	9.330	0.075	1690.15	16.798	0.073	496.69	9.432
116	CCVL	105.147	1221838.37	2.103	1.130	19485.33	2.972	2.193	9393.01	1.756

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	21.291	295616.44	1.440	0.013	653.38	40.588	0.069	483.36	39.914
118	lcs 500-513712...	1083.547	11723536.08	3.902	538.061	8815820.07	3.155	523.348	2134613.56	3.554
119	500-172425-f-...	622.478	6607474.07	0.208	3.100	50045.24	1.658	15.314	61222.35	2.719
120	500-172425-g-...	575.567	6060518.66	1.773	2.974	47625.16	1.592	14.818	58746.87	1.081
121	500-172425-f-...	3357.588	36332132.79	0.501	0.562	9653.21	2.431	1.763	7398.60	5.184
122	500-172425-f-...	3374.619	35870785.30	1.085	0.515	8722.60	3.874	1.685	6955.09	2.150
123	500-172425-f-...	4473.338	46756759.30	2.177	528.767	8398774.25	2.019	511.660	2023218.98	1.801
124	500-172425-f-...	4351.318	44774629.33	0.642	526.509	8231941.33	0.216	510.503	1987074.92	0.262
125	500-172425-f-...	657.017	6972599.06	0.515	0.285	4974.28	7.121	0.529	2290.27	3.405
126	500-172425-g-...	3732.907	37942453.60	2.523	0.622	9993.35	5.358	1.607	6348.11	4.969
127	CCV	26929.940	2.67407E+08	1.466	261.974	3956749.73	1.812	262.483	987006.62	1.528
128	CCB	6.454	117019.17	11.440	0.100	1930.19	10.815	0.087	506.70	22.328
129	500-172425-g-...	3764.347	38396608.59	1.102	0.592	9563.13	6.569	1.663	6588.21	3.114
130	500-172425-g-...	4809.889	48228182.62	0.655	520.099	7925461.55	0.948	501.516	1902484.66	0.739
131	500-172425-g-...	4857.594	49048889.27	0.419	523.623	8034856.13	0.370	502.504	1919687.73	0.379
132	500-172425-g-...	755.990	7931373.63	3.225	0.271	4690.86	8.937	0.488	2100.23	13.322
133	500-172425-f-...	540.980	5540596.37	0.826	0.178	3133.75	13.265	0.425	1803.51	6.753
134	500-172425-g-...	449.389	4526255.04	2.293	0.191	3273.79	11.399	0.390	1640.15	10.821
135	500-172425-f-...	624.475	6077683.66	0.369	2.996	44372.98	1.494	15.013	55051.05	1.305
136	500-172425-g-...	599.391	5914717.83	0.726	3.005	45104.56	0.914	14.717	54699.77	0.917
137	500-172425-f-...	3053.974	29895077.06	1.974	2.993	44864.04	2.017	5.228	19515.36	0.341
138	500-172425-g-...	2928.315	28853504.57	2.445	3.040	45856.84	2.937	5.042	18944.88	5.401
139	CCV	26960.649	2.61701E+08	0.920	263.117	3884873.69	0.227	261.351	960700.74	0.425
140	CCB	6.341	116147.85	10.987	0.079	1603.49	21.213	0.095	536.70	31.002
141	500-172384-d-...	103.677	1080501.68	2.205	4.367	66378.34	1.996	15.261	57582.58	0.522
142	500-172384-d-...	102.323	1061860.69	0.922	4.137	62580.82	1.033	14.296	53673.32	1.954
143	500-172384-d-...	7879.900	80410735.47	3.687	0.363	6021.31	4.189	2.828	11090.72	5.210
144	500-172384-d-...	3208.235	32887457.84	1.454	1.243	19742.14	1.717	2.070	8198.99	2.504
145	500-172384-d-...	3693.938	37108316.95	2.597	0.281	4674.19	10.877	0.944	3757.28	3.912
146	500-172384-d-...	214.138	2128161.17	2.023	0.720	11000.72	7.041	3.421	12738.63	4.803

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	150.244	1546076.38	3.504	4.454	67820.30	3.172	19.326	73015.11	1.872
148	500-172384-d-...	2809.407	28040239.58	2.341	0.376	6088.01	1.261	2.313	8892.72	6.085
149	500-172384-d-...	3599.521	36292728.62	1.806	0.073	1500.13	6.067	0.407	1723.51	14.052
150	500-172494-a-...	2579.820	25591460.45	3.168	32.262	486242.43	3.403	10.644	40072.10	3.901
151	CCV	26576.513	2.62637E+08	1.816	257.280	3867461.61	1.430	257.690	964355.93	1.600
152	CCB	6.190	109787.19	8.696	0.070	1406.79	12.650	0.093	510.03	25.267
153	CCVL	105.764	1084526.89	0.874	1.163	17686.65	1.871	2.208	8349.09	4.759
154	mb 500-51382...	4.586	95559.40	3.327	0.009	516.70	16.951	0.056	380.02	73.907
155	lcs 500-513820...	1136.084	10712296.51	0.331	565.882	8081138.42	0.615	543.664	1932819.92	0.482
156	500-172924-c-...	42.431	467729.19	3.141	0.265	4340.73	4.458	0.485	1973.54	5.368
157	500-172924-c-...	59.063	626955.69	1.280	0.089	1703.49	9.093	0.285	1220.10	12.618
158	500-172924-c-...	1137.184	10950199.84	3.606	546.794	7974489.88	3.170	521.854	1894707.42	3.165
159	500-172924-c-...	1125.953	10943510.67	1.922	541.440	7969278.84	2.322	515.280	1888181.95	2.149
160	500-172924-c-...	8.316	134289.08	0.231	0.201	3437.18	5.253	0.259	1150.09	14.143
161	500-172927-c-...	788.626	7549933.64	4.191	0.341	5307.75	3.412	3.926	14303.37	1.524
162	500-172430-g-...	35.133	414360.38	0.203	0.166	3000.40	1.926	0.703	2917.05	7.235
163	500-172430-g-...	1221.846	12153821.90	1.264	0.699	10910.56	1.832	7.466	28177.69	2.278
164	CCV	27098.868	2.54598E+08	2.216	261.657	3739261.61	1.625	260.860	928091.34	2.061
165	CCB	4.797	93924.04	7.146	0.083	1563.46	8.102	0.076	433.36	37.578
166	500-172430-g-...	619.852	5829882.41	1.280	0.207	3300.49	10.537	1.873	6775.01	2.174
167	500-172430-g-...	1662.684	15766069.35	1.888	2.414	35077.44	2.616	3.681	13345.78	0.592
168	500-172430-g-...	14549.612	1.34121E+08	2.611	16.056	225436.36	2.317	2.802	9936.68	2.743
169	500-172430-g-...	934.826	8761788.20	0.927	1.810	26020.95	0.566	1.637	5938.01	5.173
170	500-172430-g-...	893.348	8286325.50	1.639	0.100	1760.17	5.776	0.595	2236.93	8.604
171	500-172430-g-...	360.507	3370285.37	0.890	1.232	17636.54	5.013	3.607	12745.33	3.127
172	500-172430-g-...	8208.105	78193808.83	0.552	2.210	32365.19	3.121	5.738	20853.68	2.422
173	500-172430-g-...	1915.579	18854999.30	2.899	0.912	13992.99	4.055	1.029	3993.98	2.845
174	500-172430-g-...	13166.715	1.24446E+08	1.539	12.403	178617.25	2.454	7.657	27560.07	1.918
175	500-172430-g-...	21.229	255644.09	0.992	0.057	1210.09	18.449	0.371	1530.14	9.370
176	CCV	27135.931	2.56020E+08	0.660	259.942	3730267.65	0.784	258.435	923321.60	0.926

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	5.617	101366.24	1.935	0.075	1440.13	8.601	0.091	486.70	18.959

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.024	3223.69	29.828	0.047	363.36	60.620	0.078	1119.71	3.612
2	ICIS	0.000	2923.63	N/A	0.000	240.01	N/A	0.000	939.36	N/A
3	Std1	10.658	136376.29	1.721	10.526	27573.40	1.822	9.989	24094.27	1.239
4	Std2	105.909	1261964.22	0.494	103.824	256208.02	0.799	101.517	224314.53	0.207
5	Std3	498.805	5844606.16	0.288	499.225	1212745.82	0.236	499.697	1084209.50	0.256
6	S1	506.823	5944947.54	0.921	502.658	1222388.16	0.896	507.403	1102083.21	0.734
7	ICV	205.075	2437802.26	7.480	203.324	501013.73	6.842	199.425	439253.16	7.312
8	ICB	0.019	3040.32	89.306	0.097	473.36	41.929	<0.000	726.02	N/A
9	ICVL	2.134	29331.20	4.694	20.240	52245.89	3.587	0.921	3043.29	5.081
10	icsa	0.070	3464.84	20.969	0.801	2113.57	0.769	<0.000	594.01	N/A
11	icsab	20.540	235150.86	0.517	21.568	50841.13	3.190	21.205	45281.08	0.722
12	CRI	4.144	54748.52	2.286	40.487	105241.84	0.863	1.878	5285.85	4.522
13	CCV	263.141	3141016.06	0.759	259.472	641970.85	0.472	257.295	568906.58	0.740
14	CCB	<0.000	2204.62	N/A	0.073	420.02	61.536	<0.000	772.69	N/A
15	mb 500-51356...	0.189	4872.99	18.062	5.661	13779.55	7.249	<0.000	278.67	N/A
16	lcs 500-513568...	262.643	3192929.32	2.469	517.925	1304784.25	2.552	101.898	230015.67	2.448
17	500-171892-g-...	2.680	34562.17	1.462	22.272	55014.55	2.355	8.565	19694.55	2.379
18	500-171892-h-...	<0.000	2033.49	N/A	1.157	3113.75	5.187	0.827	2741.57	1.964
19	500-171892-g-...	4.813	57850.35	2.392	48.015	114351.21	0.728	4.614	10648.73	1.216
20	500-171892-g-...	3.349	41262.75	1.253	51.289	122749.68	0.510	10.358	22948.34	1.861
21	500-171892-g-...	0.607	9625.10	1.349	9.885	23707.54	1.946	8.866	19663.51	1.272
22	500-171892-g-...	5.679	67418.32	1.871	12.589	29984.55	3.774	0.752	2443.19	3.795
23	CCV	261.482	3049185.09	2.088	257.811	623150.76	1.562	254.043	548789.58	1.558
24	CCB	<0.000	2154.61	N/A	0.149	610.04	20.636	<0.000	837.35	N/A
25	CCVL	2.023	27711.75	1.001	20.445	52305.91	1.942	0.962	3109.30	1.287
26	400-176914-b-...	1.112	15059.14	3.243	1.470	3627.20	11.743	0.380	1627.42	10.549

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	0.090	3383.72	14.769	1.548	3553.88	2.892	0.889	2499.86	4.533
28	400-176914-b-...	0.169	4197.25	9.497	2.048	4624.17	12.274	0.684	2101.47	0.847
29	400-176914-b-...	0.253	5265.33	11.022	2.582	6008.01	5.021	3.550	7928.56	6.989
30	CCV	267.903	3167820.98	1.059	264.895	649275.15	0.539	263.563	577286.19	0.958
31	CCB	<0.000	2836.94	N/A	0.098	483.36	6.812	0.018	959.03	20.821
32	mb 500-51388...	<0.000	2021.26	N/A	0.084	466.70	58.941	<0.000	851.69	N/A
33	lcs 500-513882...	253.908	3111737.31	0.604	502.905	1277196.02	0.709	99.251	225874.62	0.561
34	500-171924-d-...	<0.000	2034.60	N/A	1.356	3557.19	3.548	0.012	915.03	151.589
35	500-171924-d-...	0.197	5180.86	9.121	2.123	5524.47	4.790	<0.000	358.67	N/A
36	500-171924-d-...	1.614	22016.75	3.392	6.419	16084.91	3.542	<0.000	643.68	N/A
37	500-171924-d-...	0.785	12219.00	3.005	9.256	23270.28	1.922	<0.000	578.68	N/A
38	500-171924-d-...	1.013	14875.60	3.288	5.925	14890.55	4.547	0.645	2319.84	1.603
39	500-171924-d-...	0.120	4176.14	8.610	1.846	4744.23	4.290	0.413	1786.77	1.626
40	CCV	261.535	3004416.20	0.687	257.691	613585.36	0.043	255.258	543182.54	0.613
41	CCB	<0.000	1695.66	N/A	0.091	463.36	32.545	0.018	952.03	46.816
42	500-171924-d-...	<0.000	2221.29	N/A	2.032	5221.03	5.763	0.497	1980.13	5.057
43	500-171924-d-...	3.017	35053.23	2.223	205.394	459538.82	1.583	0.016	840.36	15.057
44	500-171924-d-...	3.089	39561.93	2.243	13.003	32338.66	2.820	1.258	3666.75	2.485
45	500-171924-d-...	0.213	5369.81	0.335	2.479	6394.82	9.399	0.116	1160.05	8.938
46	500-171924-d-...	0.197	5139.75	5.793	2.209	5691.20	2.358	0.090	1093.04	29.387
47	500-171924-d-...	260.027	3067163.90	0.569	527.731	1290007.53	0.653	106.199	232552.97	1.027
48	500-171924-d-...	268.014	3113046.82	0.820	541.996	1304632.17	1.037	109.357	235792.39	1.219
49	500-171924-d-...	0.091	3876.05	14.985	0.773	2143.57	9.951	0.059	1025.37	26.872
50	CCV	261.893	3020641.96	1.586	256.483	613167.09	1.812	255.802	546543.54	1.277
51	CCB	<0.000	1550.09	N/A	0.053	370.02	69.571	<0.000	909.03	N/A
52	CCVL	2.058	27951.05	0.981	20.642	52456.26	0.729	0.977	3122.30	1.823
53	mb 500-51388...	<0.000	1850.13	N/A	0.549	1626.82	9.513	<0.000	911.70	N/A
54	lcs 500-513886...	256.659	3033597.79	1.153	506.275	1240036.10	1.799	99.830	219108.48	1.074
55	500-171453-a-...	<0.000	2283.52	N/A	2.590	6853.86	99.019	<0.000	517.68	N/A
56	500-171453-a-...	2.156	29889.91	2.139	0.397	1270.11	20.438	<0.000	344.67	N/A

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	1656.907	20984239.16	1.555	1375.323	3611968.90	1.301	31.971	75892.84	1.469
58	CCV	258.955	3033893.98	1.519	255.599	620695.00	0.968	253.446	550049.81	1.081
59	CCB	<0.000	2436.88	N/A	0.228	813.39	1.732	0.002	923.03	568.688
60	mb 500-51388...	0.040	3312.59	30.859	0.325	1050.08	7.114	<0.000	863.36	N/A
61	lcs 500-513883...	256.283	3045349.88	1.162	506.427	1247044.77	1.877	100.221	221138.11	1.458
62	500-172276-e-...	4.130	52219.57	0.390	8.166	20499.86	3.939	0.506	2018.13	4.645
63	500-172276-e-...	3.382	44082.95	2.382	8.505	21738.21	2.797	1.167	3548.39	2.890
64	500-172276-e-...	3.590	45803.12	0.379	5.790	14620.26	4.193	0.987	3087.96	2.131
65	500-172276-e-...	2.272	30212.78	1.616	2.120	5534.52	2.022	1.049	3247.99	3.062
66	500-172276-g-...	2.917	37250.13	0.352	4.558	11404.28	2.688	0.790	2616.55	3.322
67	500-172276-d-...	2.130	27954.40	2.062	2.064	5287.70	4.897	0.892	2841.59	2.154
68	500-172276-d-...	3.402	43404.65	2.017	3.902	9886.67	7.234	1.048	3211.99	2.770
69	500-172276-d-...	2.758	35462.90	1.051	2.200	5634.49	1.003	0.938	2947.27	4.803
70	CCV	255.025	2948375.09	2.360	251.929	603678.01	2.508	248.984	533235.17	2.106
71	CCB	<0.000	2618.01	N/A	0.297	990.08	5.398	0.037	1002.03	17.541
72	500-172276-c-...	0.754	11883.21	1.752	2.675	6911.68	1.143	0.842	2779.24	1.459
73	500-172276-e-...	2.558	33482.13	1.344	2.480	6398.15	8.899	1.037	3202.32	2.695
74	500-172276-g-...	2.298	30338.39	3.437	3.777	9616.56	3.320	0.933	2969.27	3.950
75	500-172276-e-...	2.683	34734.77	0.768	6.075	15234.15	3.892	2.653	6743.05	0.491
76	500-172276-g-...	4.500	56254.45	0.558	14.406	35732.44	1.526	1.196	3521.72	3.265
77	500-172276-g-...	4.511	55903.17	1.749	15.090	37105.39	0.438	1.225	3556.39	2.793
78	500-172276-g-...	275.984	3201788.07	0.965	555.989	1336704.82	1.647	111.234	239554.91	0.825
79	500-172276-g-...	268.551	3096274.67	0.413	540.871	1292302.14	0.725	108.123	231429.64	0.379
80	500-172276-g-...	0.915	13651.23	2.990	2.939	7475.29	1.996	0.183	1293.72	10.421
81	CCV	257.136	2925322.87	2.076	252.977	596520.59	1.831	251.422	529854.00	1.608
82	CCB	<0.000	2106.82	N/A	0.278	926.73	20.144	<0.000	879.36	N/A
83	CCVL	2.058	27343.41	2.391	20.151	50092.35	0.893	0.952	2997.28	2.318
84	mb 500-51371...	0.157	4717.39	6.298	8.099	20513.31	1.600	<0.000	792.69	N/A
85	lcs 500-513710...	252.016	2927403.63	1.445	498.142	1199150.61	1.191	97.361	210030.11	1.382
86	500-172276-d-...	17.952	205591.87	0.854	23.434	55148.28	3.108	0.990	2918.93	3.527

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	69.091	792789.81	1.078	283.956	673655.54	1.010	2.929	7058.17	1.305
88	500-172276-d-...	7.222	85318.46	1.266	22.178	52840.69	3.598	1.545	4131.52	2.468
89	500-172276-d-...	478.484	5477033.81	0.433	914.869	2170837.52	0.111	4.546	10487.30	0.990
90	500-172276-f-...	0.307	6546.91	2.824	9.247	23477.23	2.264	<0.000	770.35	N/A
91	500-172276-f-...	1.479	20849.70	2.896	5.482	14076.49	4.873	<0.000	738.69	N/A
92	500-172276-f-...	5.491	64086.47	1.742	20.615	48073.17	2.823	1.382	3705.76	0.901
93	500-172276-c-...	14.685	166851.32	1.218	59.761	138823.77	1.453	2.567	6153.82	1.055
94	CCV	253.689	2842933.36	1.935	247.332	574493.49	1.699	244.851	508290.56	2.161
95	CCB	<0.000	1851.24	N/A	0.292	923.40	21.801	<0.000	816.35	N/A
96	500-172276-c-...	3.818	45524.60	2.841	16.415	38465.11	3.040	1.539	4044.83	3.031
97	500-172276-c-...	4.033	47756.30	0.793	18.222	42514.86	2.438	1.565	4081.20	4.313
98	500-172276-d-...	3.721	43914.74	1.527	17.242	39915.20	2.414	1.499	3914.47	1.944
99	500-172276-d-...	26.603	298269.30	0.331	73.323	169196.84	1.477	1.969	4884.40	2.273
100	500-172276-f-...	8.591	98359.51	1.194	25.346	58800.64	0.584	1.340	3600.40	1.368
101	500-172276-d-...	430.383	4725503.56	2.045	1136.697	2587143.09	1.972	16.103	33539.72	1.380
102	CCV	253.315	2813601.49	1.055	248.936	573102.01	1.319	244.632	503340.83	0.714
103	CCB	<0.000	2056.82	N/A	0.386	1126.75	21.216	<0.000	783.36	N/A
104	500-172276-f-...	19.384	215212.89	2.290	44.376	101173.70	1.829	1.565	4000.82	2.519
105	500-172276-f-...	19.072	213599.85	1.933	42.785	98418.56	2.492	1.575	4057.17	2.230
106	500-172276-f-...	300.694	3323393.69	1.728	578.453	1325062.85	2.012	99.301	203825.04	2.013
107	500-172276-f-...	267.596	2965744.47	2.194	537.263	1233923.92	2.792	98.049	201810.70	2.295
108	500-172276-f-...	3.990	48022.65	2.115	9.315	22168.76	6.676	0.266	1413.40	12.112
109	500-172715-d-...	0.985	13070.75	2.761	94.539	210455.92	1.278	0.300	1400.06	11.493
110	500-172885-a-...	3.841	42249.53	3.338	7.022	15297.49	3.170	3.513	7521.70	1.918
111	500-172885-a-...	4.092	45101.33	1.426	13.583	29573.72	1.792	4.172	8835.02	2.299
112	500-171541-d-...	0.284	5942.24	12.022	5.760	13932.96	5.585	0.015	893.70	71.229
113	500-171541-d-...	0.114	3954.96	19.169	6.091	14583.56	4.891	0.005	864.03	301.147
114	CCV	257.642	2750863.99	0.485	253.605	561252.89	0.096	250.011	494482.94	0.610
115	CCB	<0.000	2002.37	N/A	0.312	970.08	5.701	<0.000	842.35	N/A
116	CCVL	1.960	25043.13	2.070	19.630	46702.97	2.281	0.954	2873.59	2.902

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	0.058	3355.93	24.620	4.648	11320.95	4.176	<0.000	755.69	N/A
118	lcs 500-513712...	251.056	2771793.57	1.100	498.050	1139489.36	1.243	96.108	197066.95	0.836
119	500-172425-f-...	14.484	152828.16	0.681	323.299	696383.92	1.269	1.186	3059.62	6.400
120	500-172425-g-...	12.215	127956.17	1.205	320.584	683579.16	0.893	1.189	3033.28	1.876
121	500-172425-f-...	0.702	9822.98	4.426	5.817	12868.73	5.042	6.382	13192.21	2.009
122	500-172425-f-...	0.584	8482.23	2.647	6.042	13195.75	8.381	6.343	12962.35	1.716
123	500-172425-f-...	249.999	2611702.47	0.545	491.834	1064736.26	0.633	104.890	203430.65	0.559
124	500-172425-f-...	248.768	2558049.69	1.298	490.758	1045737.30	1.566	104.553	199601.27	1.068
125	500-172425-f-...	0.186	4569.57	3.587	1.536	3680.59	0.676	1.159	3156.31	1.643
126	500-172425-g-...	0.287	5325.35	0.465	6.159	13272.40	3.732	6.568	13213.88	1.377
127	CCV	248.106	2553461.56	2.135	243.228	518813.60	2.478	238.761	455222.14	1.978
128	CCB	<0.000	2032.37	N/A	0.351	993.40	12.655	<0.000	783.02	N/A
129	500-172425-g-...	0.402	6622.50	3.405	7.005	15327.57	2.603	6.520	13348.99	2.091
130	500-172425-g-...	240.010	2446849.00	2.334	473.920	1001164.91	2.483	100.722	190659.37	2.357
131	500-172425-g-...	242.630	2488116.08	2.925	476.643	1012904.49	2.669	102.192	194581.16	2.434
132	500-172425-g-...	0.121	3757.13	14.437	1.635	3800.61	10.140	1.251	3249.66	0.448
133	500-172425-f-...	0.873	11545.19	3.286	6.013	13209.05	5.429	0.638	2014.13	1.501
134	500-172425-g-...	0.724	9829.64	2.003	6.104	13185.76	3.465	0.618	1943.79	5.313
135	500-172425-f-...	14.135	141216.75	2.198	311.924	635975.35	0.899	1.110	2757.57	2.796
136	500-172425-g-...	12.588	124420.06	1.397	314.694	633470.94	1.561	1.202	2887.59	1.261
137	500-172425-f-...	0.220	4556.23	1.326	6.019	12738.77	1.603	2.904	6157.15	0.227
138	500-172425-g-...	0.596	8441.10	5.564	7.020	15003.94	5.115	2.723	5891.05	2.391
139	CCV	248.175	2497939.49	1.305	244.735	510553.80	1.284	239.114	445834.64	1.393
140	CCB	<0.000	1960.14	N/A	0.293	863.40	15.412	<0.000	732.69	N/A
141	500-172384-d-...	2.723	29160.93	1.015	8.629	17836.74	2.668	0.486	1627.09	2.125
142	500-172384-d-...	2.682	28761.32	1.267	6.812	14129.75	3.383	0.505	1661.09	7.807
143	500-172384-d-...	3.979	41057.58	3.056	14.371	29239.73	3.746	28.705	52524.64	3.008
144	500-172384-d-...	4.380	46907.30	1.118	42.596	89997.74	2.471	2.642	5736.00	1.145
145	500-172384-d-...	0.586	8237.66	6.643	61.703	128918.70	3.347	2.821	6007.10	4.726
146	500-172384-d-...	1.003	11680.84	5.758	5.240	10443.61	3.644	0.923	2323.17	1.239

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	1.719	19137.65	1.268	7.034	14483.45	3.039	1.052	2644.88	3.781
148	500-172384-d-...	2.650	28363.98	2.673	17.416	35722.18	1.526	2.523	5334.53	0.376
149	500-172384-d-...	0.587	8097.59	1.084	8.626	17833.41	3.686	12.182	22984.38	3.433
150	500-172494-a-...	3288.201	32565469.82	0.991	369.756	759592.93	1.653	2.524	5370.54	1.310
151	CCV	246.884	2494888.58	1.196	242.918	508786.09	1.301	239.296	447960.17	1.369
152	CCB	0.097	3477.07	27.144	0.308	873.40	4.698	<0.000	745.69	N/A
153	CCVL	2.014	23216.13	3.578	19.708	42401.03	2.288	0.905	2505.20	4.344
154	mb 500-51382...	0.053	3054.77	20.100	4.416	9960.05	3.784	<0.000	629.01	N/A
155	lcs 500-513820...	250.627	2511962.54	0.815	492.647	1023220.38	1.221	95.147	177114.74	0.833
156	500-172924-c-...	0.615	8505.58	4.526	40.233	83822.69	2.277	1.459	3458.70	5.215
157	500-172924-c-...	1.062	13129.68	2.227	40.313	84952.22	0.866	1.437	3458.70	2.959
158	500-172924-c-...	252.690	2476591.57	2.284	529.655	1075740.97	2.503	99.221	180583.06	1.923
159	500-172924-c-...	247.434	2467969.42	0.468	524.737	1084592.17	0.234	97.215	180067.91	0.673
160	500-172924-c-...	0.100	3461.52	16.796	8.169	17776.60	0.868	0.238	1235.38	9.406
161	500-172927-c-...	2.066	22004.50	0.589	12.325	24642.39	1.657	1.892	4070.51	2.967
162	500-172430-g-...	0.717	8845.75	7.016	7.561	14773.72	5.131	1.492	3270.34	2.092
163	500-172430-g-...	0.131	3552.65	10.402	6.933	14189.77	3.036	1.851	4067.51	3.072
164	CCV	247.357	2403155.67	2.282	243.353	490022.47	2.214	238.573	429379.52	1.764
165	CCB	<0.000	1671.21	N/A	0.293	823.39	6.413	<0.000	726.02	N/A
166	500-172430-g-...	0.616	7791.90	2.996	6.246	12054.75	4.462	0.553	1627.42	9.888
167	500-172430-g-...	0.162	3790.47	7.183	6.892	13886.22	1.964	5.837	11077.34	1.321
168	500-172430-g-...	0.320	5324.25	6.162	9.036	18203.88	2.504	1.519	3424.03	4.207
169	500-172430-g-...	0.502	7170.51	2.452	7.626	15621.24	7.414	3.439	6941.45	0.774
170	500-172430-g-...	0.201	4147.22	6.710	7.134	14293.34	4.942	1.636	3604.39	3.342
171	500-172430-g-...	0.170	3813.82	11.356	5.668	11304.27	3.775	0.839	2180.15	0.739
172	500-172430-g-...	0.339	5277.55	2.071	6.448	12505.23	1.920	5.438	9972.98	1.022
173	500-172430-g-...	0.552	7263.87	7.850	7.884	15304.30	2.404	3.571	6809.74	2.127
174	500-172430-g-...	0.328	5254.23	2.403	10.287	20152.82	3.035	6.300	11621.37	1.407
175	500-172430-g-...	0.585	7557.33	2.458	7.001	13586.05	3.529	0.840	2128.15	7.472
176	CCV	248.146	2400250.18	0.540	243.315	487805.18	0.267	238.891	428066.09	0.421

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	<0.000	1456.75	N/A	0.337	900.07	9.981	<0.000	730.35	N/A

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	509.34	N/A	0.012	583.37	18.516	0.509	3787.29	4.463
2	ICIS	0.000	515.01	N/A	0.000	390.02	N/A	0.000	60.00	N/A
3	Std1	9.861	2713.23	2.422	10.083	168147.92	0.273	9.958	73016.89	1.888
4	Std2	103.814	22464.02	1.271	102.571	1620396.28	0.399	101.354	705090.95	0.425
5	Std3	499.240	104581.76	0.225	499.484	7771454.47	0.349	499.730	3424299.63	0.154
6	S1	508.265	106576.22	0.210	504.849	7863260.72	0.834	505.008	3464202.13	0.395
7	ICV	202.220	43250.24	6.814	200.919	3170197.66	7.000	201.520	1399976.64	7.531
8	ICB	<0.000	434.68	N/A	0.028	830.06	2.196	0.068	533.37	17.395
9	ICVL	2.233	1001.37	14.566	3.990	66033.22	5.461	3.903	28358.85	3.960
10	icsa	0.008	471.01	957.925	3.075	46977.84	1.023	2044.308	13650033.55	0.933
11	icsab	21.973	4892.73	2.857	24.055	362087.84	0.294	2051.781	13589260.21	1.446
12	CRI	4.739	1569.41	4.856	7.853	130853.24	0.301	8.383	61402.17	1.629
13	CCV	258.807	55441.20	1.080	259.251	4107532.75	1.219	258.576	1804352.84	0.505
14	CCB	<0.000	488.68	N/A	0.026	803.40	35.402	0.165	1243.44	18.674
15	mb 500-51356...	<0.000	469.34	N/A	0.100	1893.53	16.400	0.106	770.05	18.749
16	lcs 500-513568...	103.414	22861.25	2.800	1010.668	16307186.42	2.769	1016.134	7220840.31	2.643
17	500-171892-g-...	0.605	615.68	13.451	236.029	3719741.82	1.058	0.626	4400.79	6.232
18	500-171892-h-...	<0.000	467.34	N/A	26.052	416358.89	0.785	0.091	700.05	12.169
19	500-171892-g-...	0.980	671.02	28.980	563.489	8579685.71	0.774	1.193	8052.29	0.844
20	500-171892-g-...	0.327	541.01	38.230	718.890	11000517.76	1.310	0.704	4794.23	10.692
21	500-171892-g-...	<0.000	452.34	N/A	509.397	7753026.97	1.580	3.620	24325.49	1.968
22	500-171892-g-...	4.707	1424.73	4.754	465.749	7055756.14	1.576	1.979	13259.20	2.795
23	CCV	255.414	53462.42	1.459	256.497	3970085.25	2.144	258.013	1758684.77	2.508
24	CCB	<0.000	462.68	N/A	0.071	1536.81	17.551	0.076	600.03	10.291
25	CCVL	2.062	956.03	7.005	4.017	65919.51	1.730	3.879	27931.20	1.794
26	400-176914-b-...	19.714	4389.26	3.080	1210.458	17999141.82	1.830	32.102	210283.66	1.842

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	0.878	592.68	18.131	2167.454	30064282.05	0.732	81.208	496114.60	1.439
28	400-176914-b-...	1.065	626.02	33.740	2154.031	29811807.06	2.749	80.229	489070.29	2.852
29	400-176914-b-...	0.517	544.68	45.570	897.415	12907994.81	6.348	0.569	3657.24	8.677
30	CCV	266.839	56612.40	1.126	266.744	4186592.44	1.327	260.081	1797918.78	0.324
31	CCB	0.011	506.01	530.488	0.114	2236.91	7.757	0.083	653.38	21.554
32	mb 500-51388...	<0.000	501.68	N/A	0.045	1183.45	1.680	0.011	146.68	32.144
33	lcs 500-513882...	101.646	22659.29	1.917	1001.803	16294641.01	0.851	985.739	7061689.06	0.668
34	500-171924-d-...	1.015	701.02	12.587	2438.927	38378017.76	1.503	17.810	123502.54	1.263
35	500-171924-d-...	0.599	622.68	1.325	1813.430	28967891.23	0.803	20.052	141129.15	0.225
36	500-171924-d-...	<0.000	480.01	N/A	2394.609	37898372.77	1.030	42.162	293931.34	1.683
37	500-171924-d-...	<0.000	471.34	N/A	1919.770	30602667.04	1.635	56.921	399690.75	2.018
38	500-171924-d-...	<0.000	466.34	N/A	1804.378	28600065.41	1.057	35.205	245818.32	0.467
39	500-171924-d-...	<0.000	429.34	N/A	2868.635	44957497.66	0.445	22.437	154915.11	0.594
40	CCV	256.789	52946.80	0.233	259.038	3949928.90	0.500	260.434	1748903.98	0.771
41	CCB	<0.000	439.01	N/A	0.136	2570.31	2.281	0.070	553.36	10.865
42	500-171924-d-...	17.911	4266.89	2.843	3197.406	50341955.92	1.056	18.127	125752.19	1.261
43	500-171924-d-...	1.426	717.02	13.092	618.330	8858261.74	1.902	6.471	40868.52	3.423
44	500-171924-d-...	0.196	531.34	15.340	1753.728	27740259.59	0.589	43.330	301910.27	1.248
45	500-171924-d-...	4.114	1376.06	8.084	1510.106	24090090.47	3.170	28.105	197592.35	1.618
46	500-171924-d-...	4.105	1362.73	10.533	1527.111	24186819.64	2.611	28.365	198011.66	0.688
47	500-171924-d-...	108.456	23238.07	2.191	2517.994	39419478.58	0.962	1059.606	7305705.72	1.221
48	500-171924-d-...	110.225	23250.77	2.019	2565.389	39549578.58	0.897	1082.889	7352398.85	1.710
49	500-171924-d-...	0.691	638.01	21.478	289.356	4590091.29	0.398	6.095	42633.11	2.197
50	CCV	257.176	53240.07	1.041	258.018	3950288.90	1.379	259.509	1749744.35	1.673
51	CCB	<0.000	486.68	N/A	0.077	1630.16	10.342	0.103	796.72	4.117
52	CCVL	2.280	996.70	11.263	4.060	66177.15	2.076	4.011	28689.38	1.289
53	mb 500-51388...	<0.000	463.34	N/A	0.020	706.71	5.175	0.033	293.35	16.422
54	lcs 500-513886...	99.600	21426.69	0.528	997.482	15648455.18	1.010	1003.263	6931537.19	1.402
55	500-171453-a-...	<0.000	479.34	N/A	0.368	6425.66	9.080	1.645	11965.19	26.894
56	500-171453-a-...	0.057	527.34	126.594	12.676	211057.48	0.600	0.041	360.02	23.126

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	25.633	6299.87	1.220	0.028	870.06	28.655	60.348	447175.61	1.208
58	CCV	255.179	53663.09	0.969	253.303	3939219.73	0.891	257.478	1763388.25	1.473
59	CCB	<0.000	455.68	N/A	0.054	1256.77	23.753	0.099	766.72	12.487
60	mb 500-51388...	<0.000	421.34	N/A	0.022	730.05	16.937	0.020	203.34	28.025
61	lcs 500-513883...	100.484	21727.76	2.084	1012.307	15965399.76	1.041	1001.443	6955998.44	1.348
62	500-172276-e-...	<0.000	466.34	N/A	242.997	3863088.90	1.090	3.704	25984.77	2.234
63	500-172276-e-...	0.366	581.01	30.847	183.782	2976960.89	1.367	9.021	64414.58	0.411
64	500-172276-e-...	0.021	497.34	417.596	189.996	3023682.97	1.377	2.739	19255.38	0.690
65	500-172276-e-...	0.056	508.01	186.606	210.565	3374232.03	0.145	3.649	25811.08	1.174
66	500-172276-g-...	0.113	510.01	144.941	199.980	3141605.37	0.951	2.275	15791.58	4.327
67	500-172276-d-...	<0.000	481.68	N/A	254.042	3992006.51	1.641	2.365	16422.12	1.709
68	500-172276-d-...	0.011	493.34	1111.948	208.123	3301656.51	1.128	4.852	33959.65	2.694
69	500-172276-d-...	0.014	490.34	1511.086	246.157	3876205.46	0.459	4.884	33919.59	2.259
70	CCV	249.627	51810.29	2.104	250.513	3844255.26	1.997	254.515	1720014.25	2.593
71	CCB	<0.000	436.01	N/A	0.108	2143.58	15.190	0.133	1010.09	6.001
72	500-172276-c-...	0.070	510.01	188.787	250.656	4009604.63	1.086	2.755	19468.89	1.607
73	500-172276-e-...	0.097	514.01	92.957	126.073	2009503.36	0.728	2.127	14987.44	2.040
74	500-172276-g-...	0.116	517.34	143.658	153.275	2440702.98	1.781	2.073	14590.29	2.462
75	500-172276-e-...	0.110	513.01	112.778	182.280	2883960.90	0.862	8.196	57163.98	0.607
76	500-172276-g-...	0.192	529.34	18.038	185.441	2928098.60	0.404	4.870	33922.72	1.384
77	500-172276-g-...	0.307	549.01	34.648	186.893	2925961.41	1.272	4.894	33799.17	1.319
78	500-172276-g-...	113.802	23963.12	1.294	1266.590	19504031.38	0.854	1072.408	7273174.89	1.216
79	500-172276-g-...	111.343	23310.52	0.795	1231.679	18848564.72	0.185	1036.167	6983656.56	0.324
80	500-172276-g-...	<0.000	469.34	N/A	34.699	548445.13	0.527	1.495	10447.02	8.742
81	CCV	250.542	51169.66	1.024	251.579	3798971.51	1.892	257.802	1714440.65	2.234
82	CCB	<0.000	432.01	N/A	0.105	2060.22	8.470	0.171	1263.44	5.678
83	CCVL	2.072	930.70	7.350	3.987	63550.71	2.654	4.071	28472.47	0.898
84	mb 500-51371...	<0.000	425.34	N/A	0.113	2186.92	16.231	0.056	453.36	5.675
85	lcs 500-513710...	97.863	20695.77	2.036	987.995	15232476.86	1.204	992.412	6738382.19	1.455
86	500-172276-d-...	0.030	471.01	76.739	237.918	3573472.24	0.802	3.879	25717.68	2.369

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	0.447	561.34	33.951	191.176	2904624.22	1.139	10.009	67024.65	1.389
88	500-172276-d-...	0.027	476.01	417.484	182.602	2775962.15	2.272	2.756	18497.83	6.457
89	500-172276-d-...	0.676	608.01	18.928	221.963	3373880.78	0.471	5.143	34477.20	1.201
90	500-172276-f-...	<0.000	408.01	N/A	0.134	2530.31	12.068	0.078	613.37	17.297
91	500-172276-f-...	<0.000	400.34	N/A	0.119	2300.26	18.806	0.053	433.36	1.992
92	500-172276-f-...	<0.000	427.68	N/A	193.244	2874492.14	2.109	2.256	14833.91	3.756
93	500-172276-c-...	<0.000	421.68	N/A	257.429	3824775.99	2.063	2.419	15878.33	5.319
94	CCV	245.720	49443.22	1.382	247.863	3686838.80	1.946	255.309	1672441.90	2.293
95	CCB	<0.000	414.01	N/A	0.091	1756.87	5.188	0.069	526.70	7.717
96	500-172276-c-...	<0.000	443.01	N/A	199.196	2973730.79	2.228	5.123	33735.51	1.662
97	500-172276-c-...	<0.000	448.01	N/A	237.287	3528664.32	0.523	5.081	33331.36	1.493
98	500-172276-d-...	<0.000	433.68	N/A	249.202	3676263.80	1.235	2.813	18327.51	1.953
99	500-172276-d-...	<0.000	445.34	N/A	128.584	1898781.22	0.568	2.900	18914.90	1.795
100	500-172276-f-...	<0.000	446.01	N/A	145.058	2148178.82	0.498	2.394	15668.15	2.474
101	500-172276-d-...	1.557	755.35	11.831	239.329	3489189.84	2.265	13.406	86122.21	1.959
102	CCV	243.772	48615.13	0.583	247.976	3655819.94	0.826	256.816	1667472.53	1.669
103	CCB	<0.000	394.68	N/A	0.110	2020.22	13.542	0.094	680.05	9.419
104	500-172276-f-...	<0.000	434.68	N/A	179.704	2619515.84	1.832	3.756	24162.12	1.713
105	500-172276-f-...	0.209	496.34	19.769	177.997	2616897.67	0.915	3.732	24222.07	3.669
106	500-172276-f-...	97.476	19620.84	1.902	1162.761	17058944.74	1.917	1000.796	6466962.20	1.698
107	500-172276-f-...	96.236	19429.28	1.679	1153.526	16968845.16	2.243	996.275	6454407.20	2.569
108	500-172276-f-...	<0.000	394.34	N/A	36.073	545201.71	2.754	1.129	7565.44	4.622
109	500-172715-d-...	<0.000	409.01	N/A	168.052	2394332.05	0.598	7.555	47453.32	1.252
110	500-172885-a-...	1.334	672.69	22.637	1152.945	15880968.10	3.021	2.419	14727.18	3.077
111	500-172885-a-...	1.374	684.02	13.574	1155.051	16000758.93	0.867	2.424	14837.34	2.255
112	500-171541-d-...	<0.000	432.68	N/A	1.297	20146.31	2.992	0.063	480.03	10.810
113	500-171541-d-...	<0.000	427.01	N/A	1.079	16652.42	1.840	0.044	346.68	22.793
114	CCV	250.568	48027.45	0.786	252.833	3583249.01	0.580	261.251	1630597.06	0.312
115	CCB	<0.000	389.68	N/A	0.128	2333.61	8.050	0.107	780.06	9.027
116	CCVL	2.006	877.03	14.891	4.014	61237.40	2.870	3.889	26034.89	1.540

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	<0.000	425.68	N/A	0.134	2406.96	15.455	0.034	283.35	22.350
118	lcs 500-513712...	95.907	19288.46	0.510	991.814	14533167.28	0.638	996.782	6432798.86	1.248
119	500-172425-f-...	1.088	628.35	17.394	2910.360	40144681.90	0.823	5.403	32877.18	1.654
120	500-172425-g-...	0.954	597.34	6.098	2906.850	39692954.41	0.781	4.978	29988.33	3.370
121	500-172425-f-...	<0.000	379.34	N/A	307.821	4294274.94	1.182	1.598	9866.67	2.302
122	500-172425-f-...	<0.000	388.01	N/A	305.213	4207973.69	0.509	1.514	9239.67	3.595
123	500-172425-f-...	98.209	18678.43	0.446	1326.174	18387229.31	0.327	1035.086	6320900.11	0.727
124	500-172425-f-...	98.077	18361.74	1.426	1325.726	18092894.73	1.051	1035.546	6224260.53	1.350
125	500-172425-f-...	<0.000	375.01	N/A	59.537	862237.46	1.497	0.675	4357.45	2.819
126	500-172425-g-...	<0.000	367.34	N/A	301.361	4098554.73	0.449	1.562	9403.15	5.117
127	CCV	238.180	44025.83	1.740	242.652	3314759.43	2.031	255.006	1534101.49	2.394
128	CCB	<0.000	363.34	N/A	0.175	2853.71	2.557	0.153	1023.41	7.107
129	500-172425-g-...	<0.000	363.01	N/A	299.191	4139027.33	2.263	1.398	8565.94	8.618
130	500-172425-g-...	94.315	17522.84	2.050	1280.762	17329078.07	2.152	1000.927	5964058.24	2.870
131	500-172425-g-...	95.342	17813.48	2.132	1301.992	17720560.15	2.643	1010.496	6057225.74	2.637
132	500-172425-g-...	<0.000	368.34	N/A	59.964	844435.54	2.058	0.625	3927.31	5.863
133	500-172425-f-...	<0.000	382.01	N/A	100.905	1397987.85	0.756	0.674	4164.06	8.073
134	500-172425-g-...	<0.000	364.68	N/A	104.655	1426977.64	2.238	0.552	3363.85	6.855
135	500-172425-f-...	1.022	583.01	20.228	2863.125	37381844.44	1.592	5.011	28862.99	4.310
136	500-172425-g-...	0.772	532.34	25.531	2910.323	37516534.44	1.513	4.901	27871.38	2.885
137	500-172425-f-...	<0.000	350.01	N/A	1209.252	16143181.01	3.144	2.924	17239.76	2.287
138	500-172425-g-...	<0.000	353.01	N/A	1226.417	16574060.17	1.873	3.014	17987.20	1.259
139	CCV	238.444	43095.82	1.998	243.953	3259196.62	1.259	255.189	1501443.05	1.076
140	CCB	<0.000	357.34	N/A	0.299	4630.85	5.807	0.111	753.38	15.153
141	500-172384-d-...	<0.000	337.00	N/A	449.757	5893564.70	0.917	0.725	4230.73	4.404
142	500-172384-d-...	<0.000	362.01	N/A	438.045	5740769.71	0.336	0.651	3803.95	5.488
143	500-172384-d-...	0.238	441.68	111.788	243.718	3156054.43	2.862	53.151	303159.23	3.069
144	500-172384-d-...	<0.000	362.34	N/A	374.919	5063816.38	1.581	2.644	15774.80	3.796
145	500-172384-d-...	<0.000	372.01	N/A	334.047	4464087.54	3.242	1.714	10133.55	4.077
146	500-172384-d-...	0.633	495.01	6.867	686.153	8609621.33	2.561	0.294	1670.16	9.405

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	<0.000	401.34	N/A	394.040	5130609.30	1.581	2.379	13686.38	2.377
148	500-172384-d-...	<0.000	357.67	N/A	380.107	4967689.09	2.219	3.931	22676.39	3.137
149	500-172384-d-...	<0.000	371.01	N/A	291.186	3816451.92	1.403	0.496	2910.39	5.899
150	500-172494-a-...	<0.000	368.01	N/A	23.074	303852.72	0.484	10.402	60314.94	1.702
151	CCV	238.669	43313.05	1.869	242.857	3257457.45	1.266	253.093	1495028.88	1.422
152	CCB	<0.000	336.01	N/A	0.136	2226.91	8.162	0.088	593.37	29.670
153	CCVL	2.045	800.69	2.625	3.878	53521.47	5.282	4.071	24649.23	2.727
154	mb 500-51382...	<0.000	331.33	N/A	0.152	2486.96	7.463	0.034	263.34	12.244
155	lcs 500-513820...	95.188	17382.03	1.545	1014.936	13501220.22	1.483	1012.410	5931355.12	1.508
156	500-172924-c-...	<0.000	395.34	N/A	133.753	1781249.04	1.901	57.519	337359.44	1.823
157	500-172924-c-...	<0.000	370.67	N/A	135.006	1818647.68	0.809	57.367	340353.38	0.609
158	500-172924-c-...	97.213	17350.01	2.859	1167.816	15191361.86	1.757	1089.160	6239877.62	2.094
159	500-172924-c-...	95.997	17437.08	2.311	1139.299	15082023.52	0.264	1068.933	6232099.28	0.534
160	500-172924-c-...	<0.000	358.67	N/A	26.474	365229.24	0.391	11.525	70012.94	0.744
161	500-172927-c-...	<0.000	335.67	N/A	398.997	5072850.97	0.884	40.497	226786.80	0.915
162	500-172430-g-...	0.030	387.68	565.479	6229.046	77036320.52	2.111	0.422	2343.59	3.154
163	500-172430-g-...	<0.000	335.67	N/A	818.645	10590833.59	2.321	0.507	2933.72	0.937
164	CCV	237.851	41501.51	2.305	244.083	3147478.91	1.863	254.464	1445122.53	1.813
165	CCB	<0.000	366.34	N/A	0.407	5877.97	5.775	0.133	850.07	7.053
166	500-172430-g-...	<0.000	333.34	N/A	1024.131	12475149.81	1.348	0.137	780.05	4.673
167	500-172430-g-...	<0.000	338.34	N/A	453.353	5773442.41	0.548	0.331	1903.52	0.721
168	500-172430-g-...	<0.000	388.68	N/A	375.758	4799971.91	1.739	0.117	703.38	23.813
169	500-172430-g-...	<0.000	340.34	N/A	241.651	3131513.71	1.802	0.203	1206.76	10.882
170	500-172430-g-...	<0.000	332.34	N/A	452.267	5731845.96	1.349	0.189	1100.08	6.475
171	500-172430-g-...	<0.000	310.67	N/A	454.372	5712229.08	1.910	0.098	590.04	3.281
172	500-172430-g-...	<0.000	349.67	N/A	1276.307	15631868.10	1.723	0.334	1846.85	6.830
173	500-172430-g-...	<0.000	354.00	N/A	4659.736	57276285.81	0.876	0.668	3660.57	3.429
174	500-172430-g-...	0.368	446.34	35.663	948.182	11793143.99	1.755	2.727	14980.79	1.362
175	500-172430-g-...	<0.000	356.34	N/A	2663.549	32676915.35	1.578	0.102	596.71	27.383
176	CCV	239.234	41557.31	0.638	244.637	3140848.70	0.650	254.798	1440654.56	0.915

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	<0.000	313.67	N/A	0.481	6771.67	3.574	0.090	580.04	12.048

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.075	73.34	86.566	0.846	16615.96	5.776	<0.000	3.33	N/A
2	ICIS	0.000	50.00	N/A	0.000	43.33	N/A	0.000	6.67	N/A
3	Std1	10.994	3490.53	12.231	1.070	21004.59	1.637	10.007	2356.95	12.379
4	Std2	104.664	31167.36	0.993	10.857	202004.58	0.336	105.665	23567.97	2.922
5	Std3	499.047	146215.06	0.742	99.914	1830860.81	0.495	498.867	109592.21	2.079
6	S1	505.564	148279.82	1.270	101.134	1855145.60	0.746	504.645	110975.06	1.636
7	ICV	203.513	60510.12	6.322	42.207	784463.17	6.483	203.630	45377.88	6.307
8	ICB	0.007	50.00	1418.351	0.010	233.35	28.784	0.001	6.67	1784.598
9	ICVL	0.376	166.68	26.360	0.515	10023.50	5.312	0.588	143.34	20.293
10	icsa	0.344	143.34	43.656	0.018	356.68	15.566	14.551	3120.43	2.848
11	icsab	20.173	5757.92	4.573	20.786	368130.34	1.462	35.526	7548.65	1.480
12	CRI	0.778	293.35	36.359	1.051	20613.83	2.072	1.038	250.01	14.492
13	CCV	266.242	79465.36	2.101	53.947	1006679.90	0.271	261.384	58476.15	1.861
14	CCB	0.026	56.67	317.759	0.009	206.68	30.648	0.073	23.33	68.253
15	mb 500-51356...	<0.000	33.33	N/A	0.007	163.34	59.221	0.077	23.33	83.976
16	lcs 500-513568...	51.250	15614.83	2.918	53.689	1020306.44	2.484	59.267	13516.20	1.317
17	500-171892-g-...	0.200	106.67	95.236	0.021	426.69	28.920	0.076	23.33	89.190
18	500-171892-h-...	<0.000	40.00	N/A	0.003	106.67	23.940	<0.000	0.00	0.000
19	500-171892-g-...	0.981	326.69	39.457	0.012	256.68	44.110	0.685	153.34	13.848
20	500-171892-g-...	0.467	180.01	46.493	0.009	210.01	66.314	0.634	143.34	39.495
21	500-171892-g-...	0.062	63.33	64.421	0.011	233.35	52.585	0.049	16.67	144.522
22	500-171892-g-...	0.437	170.01	77.154	0.014	296.68	13.528	0.237	56.67	11.485
23	CCV	261.983	76392.94	0.621	53.922	983044.15	1.244	266.967	58355.94	2.725
24	CCB	0.048	63.33	103.754	0.009	210.01	36.990	<0.000	0.00	0.000
25	CCVL	0.319	146.68	26.320	0.547	10543.93	2.242	0.551	133.34	17.748
26	400-176914-b-...	0.031	53.33	238.110	0.003	86.67	106.842	0.290	66.67	81.252

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	<0.000	10.00	N/A	0.002	66.67	46.354	0.534	110.00	17.296
28	400-176914-b-...	0.033	50.00	116.572	0.005	113.34	39.702	0.688	140.01	41.213
29	400-176914-b-...	0.003	43.33	4154.857	0.006	136.67	45.547	0.005	6.67	556.456
30	CCV	267.017	78942.50	0.885	54.225	1002347.28	1.171	260.634	57773.93	1.533
31	CCB	<0.000	33.33	N/A	0.012	263.35	38.750	0.030	13.33	222.644
32	mb 500-51388...	<0.000	50.00	N/A	0.004	126.68	54.277	<0.000	6.67	N/A
33	lcs 500-513882...	51.393	15781.55	4.140	51.917	994583.13	1.240	57.888	13292.61	8.233
34	500-171924-d-...	<0.000	40.00	N/A	0.014	306.69	16.782	0.107	30.00	40.875
35	500-171924-d-...	<0.000	30.00	N/A	0.003	90.00	108.070	0.120	33.33	56.767
36	500-171924-d-...	0.040	60.00	497.881	0.002	76.67	114.899	0.344	83.34	18.297
37	500-171924-d-...	0.085	73.33	19.222	0.001	63.34	171.983	0.635	150.01	47.511
38	500-171924-d-...	0.019	53.33	98.404	0.000	46.67	447.928	0.255	63.34	73.326
39	500-171924-d-...	0.010	50.00	1266.623	0.001	66.67	143.648	0.108	30.00	74.002
40	CCV	267.783	76909.65	0.883	54.025	970222.98	0.884	266.499	57375.88	1.121
41	CCB	<0.000	46.67	N/A	0.008	193.34	7.341	<0.000	0.00	0.000
42	500-171924-d-...	0.021	53.34	523.973	0.003	90.00	133.087	0.107	30.00	84.079
43	500-171924-d-...	0.139	80.00	126.489	<0.000	30.00	N/A	0.203	46.67	38.725
44	500-171924-d-...	0.098	76.67	103.964	0.002	86.67	90.972	0.464	110.01	16.451
45	500-171924-d-...	<0.000	33.33	N/A	<0.000	26.67	N/A	0.150	40.00	32.356
46	500-171924-d-...	0.063	66.67	71.680	<0.000	30.00	N/A	0.168	43.33	108.033
47	500-171924-d-...	52.534	15528.04	2.744	45.040	830466.08	1.894	60.444	13369.36	2.115
48	500-171924-d-...	54.596	15891.73	1.659	45.797	831586.29	3.915	63.119	13746.30	0.976
49	500-171924-d-...	<0.000	26.67	N/A	0.120	2280.29	3.597	0.031	13.33	82.831
50	CCV	263.021	75860.85	3.891	55.922	1008403.53	0.987	269.480	58242.32	3.697
51	CCB	0.059	66.67	32.744	0.028	576.70	20.722	<0.000	0.00	0.000
52	CCVL	0.464	190.01	35.792	0.596	11414.46	0.860	0.482	116.67	13.304
53	mb 500-51388...	<0.000	40.00	N/A	0.011	243.35	5.668	<0.000	0.00	0.000
54	lcs 500-513886...	52.119	15441.24	1.470	52.980	978880.17	1.286	58.804	13032.57	1.033
55	500-171453-a-...	0.315	146.67	34.719	0.028	573.42	18.997	0.230	60.00	81.455
56	500-171453-a-...	<0.000	33.33	N/A	0.010	236.68	39.718	<0.000	0.00	0.000

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	49.054	15584.76	3.090	315.171	6244258.87	1.749	51.826	12318.54	4.317
58	CCV	257.940	75555.52	2.197	53.356	977270.74	0.303	261.217	57352.20	2.944
59	CCB	<0.000	46.67	N/A	0.036	740.05	10.303	0.001	6.67	5581.531
60	mb 500-51388...	<0.000	3.33	N/A	0.016	336.69	35.220	<0.000	3.33	N/A
61	lcs 500-513883...	51.893	15454.60	2.056	53.234	988863.53	1.006	60.536	13486.21	2.332
62	500-172276-e-...	0.141	90.00	45.153	0.018	386.69	20.615	0.432	103.34	73.571
63	500-172276-e-...	0.047	63.33	213.653	0.008	190.01	28.704	0.118	33.33	57.899
64	500-172276-e-...	<0.000	36.67	N/A	0.006	160.01	20.290	0.166	43.34	57.429
65	500-172276-e-...	<0.000	33.33	N/A	0.003	103.34	49.245	0.016	10.00	276.305
66	500-172276-g-...	<0.000	26.67	N/A	0.002	86.67	138.280	0.077	23.33	188.240
67	500-172276-d-...	<0.000	40.00	N/A	0.001	60.00	87.835	0.017	10.00	264.890
68	500-172276-d-...	<0.000	33.33	N/A	0.000	46.67	658.599	0.090	26.67	74.553
69	500-172276-d-...	0.077	70.00	132.679	0.000	43.33	1471.389	<0.000	3.33	N/A
70	CCV	257.760	74508.35	1.612	53.239	962242.28	0.831	260.474	56438.87	3.060
71	CCB	<0.000	40.00	N/A	0.022	456.69	10.210	0.102	30.00	185.387
72	500-172276-c-...	0.007	50.00	1419.783	0.005	130.01	62.222	0.075	23.33	34.263
73	500-172276-e-...	<0.000	23.33	N/A	0.003	96.67	89.053	0.016	10.00	477.700
74	500-172276-g-...	<0.000	26.67	N/A	<0.000	26.67	N/A	<0.000	3.33	N/A
75	500-172276-e-...	0.098	76.67	54.093	0.002	70.00	67.536	0.046	16.67	201.080
76	500-172276-g-...	0.234	116.67	74.230	0.000	50.00	219.528	0.330	80.00	40.489
77	500-172276-g-...	0.270	126.67	112.292	<0.000	33.33	N/A	0.289	70.00	31.648
78	500-172276-g-...	56.403	16395.57	2.798	50.733	920185.09	1.614	61.621	13402.85	1.749
79	500-172276-g-...	51.958	15014.34	1.219	44.781	807210.95	5.028	59.112	12778.86	1.062
80	500-172276-g-...	<0.000	46.67	N/A	0.020	406.69	13.772	0.076	23.33	31.941
81	CCV	257.611	73272.92	2.722	53.775	956358.45	1.366	263.045	56087.78	0.583
82	CCB	<0.000	46.67	N/A	0.020	423.36	22.584	<0.000	3.33	N/A
83	CCVL	0.521	203.34	31.771	0.552	10353.72	3.084	0.511	120.00	100.060
84	mb 500-51371...	<0.000	23.33	N/A	0.010	226.68	6.945	<0.000	3.33	N/A
85	lcs 500-513710...	52.088	15157.67	4.396	52.776	958280.95	1.741	61.207	13339.31	3.782
86	500-172276-d-...	0.523	193.34	55.994	0.035	660.05	16.743	0.617	136.68	22.554

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	17.935	5174.37	3.356	0.088	1620.15	5.601	18.268	3924.00	3.536
88	500-172276-d-...	0.262	120.01	76.192	0.018	363.36	43.349	0.266	63.33	65.457
89	500-172276-d-...	26.381	7592.12	3.288	0.575	10337.10	7.462	25.592	5497.83	4.165
90	500-172276-f-...	<0.000	13.33	N/A	0.008	196.68	38.208	<0.000	3.33	N/A
91	500-172276-f-...	<0.000	30.00	N/A	0.006	150.01	34.153	0.001	6.67	2065.979
92	500-172276-f-...	0.887	293.35	12.513	0.028	530.03	28.147	0.926	200.01	26.793
93	500-172276-c-...	2.706	800.11	20.384	0.048	873.40	3.870	2.708	576.79	48.916
94	CCV	258.156	72318.15	4.046	53.550	938124.34	1.597	252.873	53100.89	4.096
95	CCB	<0.000	40.00	N/A	0.013	270.02	8.554	0.049	16.67	110.165
96	500-172276-c-...	0.611	216.68	34.438	0.013	266.68	30.639	0.416	93.34	41.375
97	500-172276-c-...	0.757	256.68	6.403	0.010	206.68	33.917	0.815	176.68	32.949
98	500-172276-d-...	0.848	280.02	9.654	0.020	393.36	18.578	0.773	166.68	22.994
99	500-172276-d-...	2.784	816.73	23.084	0.045	820.06	18.275	1.969	416.69	13.450
100	500-172276-f-...	0.427	163.34	20.112	0.017	343.35	25.361	0.562	123.34	26.467
101	500-172276-d-...	58.260	16031.75	1.998	0.321	5547.85	3.894	60.552	12468.55	2.361
102	CCV	254.711	70731.90	1.338	53.748	933159.75	0.511	261.979	54535.78	1.575
103	CCB	<0.000	23.33	N/A	0.016	326.68	20.290	0.050	16.67	54.191
104	500-172276-f-...	3.229	930.07	5.664	0.038	683.38	12.763	3.408	706.71	16.283
105	500-172276-f-...	3.425	990.07	17.648	0.032	593.37	17.644	3.069	643.37	16.324
106	500-172276-f-...	61.618	17066.27	6.531	51.526	890427.44	0.980	67.271	13939.87	1.628
107	500-172276-f-...	57.786	16045.21	5.175	51.145	886164.41	1.983	65.048	13519.60	4.884
108	500-172276-f-...	0.605	216.68	39.138	0.025	486.70	28.614	0.661	146.68	29.600
109	500-172715-d-...	<0.000	16.67	N/A	0.010	200.01	13.965	0.039	13.33	199.215
110	500-172885-a-...	0.059	56.67	76.798	0.014	266.68	5.551	0.092	23.34	225.892
111	500-172885-a-...	0.672	216.68	18.637	0.016	290.02	32.615	0.227	50.00	77.176
112	500-171541-d-...	<0.000	30.00	N/A	0.006	143.34	49.114	0.018	10.00	2.742
113	500-171541-d-...	<0.000	23.33	N/A	0.005	120.01	44.056	<0.000	3.33	N/A
114	CCV	262.497	70078.39	0.511	54.342	906993.27	0.808	262.875	52609.75	1.044
115	CCB	0.014	50.00	251.516	0.017	350.02	12.818	0.048	16.67	146.081
116	CCVL	0.342	143.34	41.836	0.542	9716.71	0.387	0.658	146.67	50.574

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	<0.000	10.00	N/A	0.006	143.34	45.539	<0.000	3.33	N/A
118	lcs 500-513712...	50.721	14036.73	6.369	53.236	918790.11	0.666	58.394	12088.35	6.241
119	500-172425-f-...	0.956	290.02	29.452	0.087	1453.47	14.710	1.049	210.01	17.019
120	500-172425-g-...	0.982	293.35	10.154	0.037	623.38	20.216	0.890	176.68	33.977
121	500-172425-f-...	0.082	63.34	271.994	0.013	246.68	39.837	0.006	6.67	504.985
122	500-172425-f-...	0.084	63.33	144.075	0.006	133.34	42.656	0.091	23.33	85.396
123	500-172425-f-...	50.449	13209.32	9.568	52.733	861142.59	0.522	59.268	11608.04	1.253
124	500-172425-f-...	50.381	12985.73	0.431	53.046	852701.45	0.395	59.912	11551.27	3.182
125	500-172425-f-...	<0.000	40.00	N/A	0.018	336.68	8.031	0.054	16.67	139.634
126	500-172425-g-...	0.062	56.67	37.026	0.024	420.03	27.978	0.059	16.67	255.388
127	CCV	254.908	65583.02	3.296	53.534	861329.88	1.708	257.894	49737.25	3.268
128	CCB	0.113	73.33	72.767	0.021	396.69	6.701	0.072	20.00	123.900
129	500-172425-g-...	<0.000	23.33	N/A	0.007	150.01	30.882	0.074	20.00	68.363
130	500-172425-g-...	48.843	12481.92	3.157	51.382	818856.53	1.896	57.930	11064.25	8.650
131	500-172425-g-...	49.752	12785.46	4.328	51.907	832178.03	1.763	57.470	11050.82	1.539
132	500-172425-g-...	<0.000	26.67	N/A	0.026	470.03	1.760	0.005	6.67	564.955
133	500-172425-f-...	<0.000	23.33	N/A	0.010	196.68	31.961	<0.000	3.33	N/A
134	500-172425-g-...	<0.000	13.33	N/A	0.011	213.34	13.926	<0.000	0.00	0.000
135	500-172425-f-...	0.953	273.35	20.640	0.080	1256.77	8.921	0.984	186.68	24.951
136	500-172425-g-...	1.146	316.69	4.630	0.035	560.04	29.200	1.034	193.34	3.510
137	500-172425-f-...	0.052	53.33	239.617	0.005	113.34	49.251	0.044	13.33	285.127
138	500-172425-g-...	0.011	43.33	545.087	0.006	126.68	24.533	0.094	23.33	32.932
139	CCV	251.885	63384.02	0.912	54.016	849813.34	1.944	257.201	48510.25	1.681
140	CCB	0.062	60.00	155.145	0.016	310.02	7.326	0.021	10.00	233.111
141	500-172384-d-...	0.193	86.67	81.746	0.008	160.01	37.757	0.062	16.67	182.290
142	500-172384-d-...	0.044	50.00	247.099	0.003	83.34	67.677	0.099	23.33	85.966
143	500-172384-d-...	0.524	166.68	32.184	0.024	400.02	19.054	0.650	123.34	36.791
144	500-172384-d-...	<0.000	40.00	N/A	0.008	160.01	71.084	0.006	6.67	925.326
145	500-172384-d-...	0.052	53.33	239.494	0.004	93.33	30.074	0.008	6.67	765.733
146	500-172384-d-...	0.039	46.67	440.929	0.005	110.00	58.491	<0.000	3.33	N/A

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	0.031	46.67	331.836	0.003	83.34	118.087	0.044	13.33	141.780
148	500-172384-d-...	0.003	40.00	3817.584	0.005	110.00	22.286	0.135	30.00	82.211
149	500-172384-d-...	0.044	50.00	97.862	0.020	336.68	20.904	0.080	20.00	67.762
150	500-172494-a-...	0.811	240.01	23.790	0.230	3597.21	9.444	1.031	196.68	30.838
151	CCV	256.720	64856.94	1.665	53.344	842679.44	0.675	255.020	48303.37	2.528
152	CCB	<0.000	23.33	N/A	0.019	353.36	9.254	0.022	10.00	392.512
153	CCVL	0.447	156.68	25.972	0.538	8732.67	1.552	0.473	96.67	56.266
154	mb 500-51382...	<0.000	26.67	N/A	0.003	86.67	24.219	<0.000	0.00	0.000
155	lcs 500-513820...	51.268	12878.88	2.111	3.509	55004.28	1.608	59.201	11124.26	1.234
156	500-172924-c-...	0.027	46.67	91.410	0.011	210.01	30.658	0.397	80.00	34.830
157	500-172924-c-...	<0.000	20.00	N/A	0.006	130.00	68.136	0.499	100.00	46.739
158	500-172924-c-...	52.378	12865.60	6.906	3.791	58127.96	0.770	61.250	11254.41	4.531
159	500-172924-c-...	50.434	12612.04	4.635	3.606	56255.10	0.322	58.093	10864.09	2.372
160	500-172924-c-...	<0.000	20.00	N/A	0.003	80.00	45.806	0.023	10.00	221.542
161	500-172927-c-...	0.453	146.67	61.158	0.008	160.01	34.544	0.269	53.33	11.928
162	500-172430-g-...	0.254	96.67	106.277	0.350	5131.00	7.500	0.068	16.67	50.207
163	500-172430-g-...	0.087	60.00	50.202	0.001	46.67	89.227	<0.000	3.33	N/A
164	CCV	259.511	63039.67	2.518	53.564	813472.41	1.802	255.652	46544.31	4.096
165	CCB	0.035	50.00	4.924	0.016	300.02	11.512	0.006	6.67	957.744
166	500-172430-g-...	0.294	103.34	78.530	0.004	93.34	96.404	0.265	50.00	59.767
167	500-172430-g-...	0.160	76.67	54.022	0.006	120.01	29.543	0.139	30.00	80.211
168	500-172430-g-...	0.007	40.00	1056.730	0.002	60.00	197.460	0.064	16.67	49.470
169	500-172430-g-...	0.183	83.34	80.644	0.001	46.67	41.164	<0.000	3.33	N/A
170	500-172430-g-...	0.008	40.00	1365.641	0.003	83.34	46.861	<0.000	3.33	N/A
171	500-172430-g-...	<0.000	23.33	N/A	0.003	76.67	36.722	<0.000	3.33	N/A
172	500-172430-g-...	0.015	40.00	523.222	0.002	56.67	129.281	0.010	6.67	652.127
173	500-172430-g-...	0.013	40.00	316.680	0.003	70.00	94.551	0.011	6.67	628.671
174	500-172430-g-...	0.082	56.67	77.660	0.005	100.01	25.288	0.067	16.67	130.599
175	500-172430-g-...	<0.000	26.67	N/A	0.270	3930.65	3.356	<0.000	3.33	N/A
176	CCV	254.882	61637.75	0.955	53.697	811914.18	0.773	257.887	46745.26	1.569

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	<0.000	26.67	N/A	0.018	323.35	38.577	0.024	10.00	214.341

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.008	62.45	77.451	1.190	12311.87	13.933	8.976	116785.91	0.696
2	ICIS	0.000	34.38	N/A	0.000	903.40	N/A	0.000	810.05	N/A
3	Std1	10.191	36566.38	2.369	9.998	96827.05	1.500	9.895	128684.83	1.385
4	Std2	103.887	353690.00	0.967	103.396	942591.65	0.526	102.792	1261985.63	0.302
5	Std3	499.219	1674107.50	0.810	499.321	4480765.56	0.165	499.444	6037132.82	0.617
6	S1	504.483	1693505.40	1.179	503.958	4527222.23	1.129	504.417	6103760.32	0.245
7	ICV	202.885	689913.82	7.097	200.891	1828290.70	7.343	212.398	2603208.92	7.687
8	ICB	0.060	241.06	10.331	0.257	3240.46	16.662	0.180	3017.07	6.090
9	ICVL	0.548	1973.75	9.884	5.045	48775.40	4.153	3.167	41304.06	2.981
10	icsa	0.207	708.62	67.323	0.032	1106.76	50.115	0.083	1716.84	19.887
11	icsab	21.238	68879.05	1.759	21.022	183105.03	1.464	10.579	124291.47	1.666
12	CRI	1.062	3833.18	9.283	9.946	96173.32	1.998	6.240	81332.85	1.861
13	CCV	260.640	890043.02	0.364	259.552	2372259.91	0.260	259.050	3189053.49	0.704
14	CCB	0.045	191.60	48.119	0.177	2540.30	0.723	0.125	2376.96	11.251
15	mb 500-51356...	0.016	83.76	69.635	0.032	1110.09	75.986	0.018	963.41	123.852
16	lcs 500-513568...	52.346	182063.60	2.913	1015.136	9446165.69	2.791	539.346	6761327.19	2.472
17	500-171892-g-...	0.111	409.82	25.016	0.551	5864.68	1.906	0.172	2867.07	10.925
18	500-171892-h-...	0.010	67.23	69.276	0.560	6024.72	3.942	0.019	1013.41	25.950
19	500-171892-g-...	0.408	1368.49	5.291	0.171	2323.64	8.278	0.063	1483.48	9.047
20	500-171892-g-...	0.319	1083.81	5.238	0.225	2813.71	5.386	0.055	1396.79	26.689
21	500-171892-g-...	0.032	137.18	32.139	0.135	2013.56	4.594	<0.000	693.38	N/A
22	500-171892-g-...	0.172	592.45	24.797	0.168	2293.60	9.181	0.029	1083.42	48.701
23	CCV	260.189	868007.20	1.611	258.568	2308623.09	2.180	258.953	3114220.06	1.963
24	CCB	0.052	215.06	23.848	0.190	2653.68	8.697	0.138	2523.66	2.952
25	CCVL	0.544	1945.87	5.726	4.986	47791.83	0.884	3.083	39870.76	0.829
26	400-176914-b-...	0.051	195.89	59.661	0.433	4520.87	9.125	0.017	920.07	110.938

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	<0.000	-3.73	N/A	0.481	4604.21	6.850	<0.000	550.04	N/A
28	400-176914-b-...	0.001	31.31	4218.195	0.467	4480.83	4.226	<0.000	443.36	N/A
29	400-176914-b-...	0.018	85.96	86.110	0.469	4667.56	8.978	<0.000	460.03	N/A
30	CCV	263.929	892849.32	0.616	259.923	2353353.51	0.803	259.003	3158565.58	0.845
31	CCB	0.054	224.51	47.549	0.186	2623.66	1.019	0.126	2386.95	14.916
32	mb 500-51388...	0.009	71.05	90.793	0.052	1443.46	39.714	<0.000	643.38	N/A
33	lcs 500-513882...	51.154	179356.86	1.823	988.193	9270172.78	0.541	470.428	5945002.20	0.499
34	500-171924-d-...	0.035	151.71	31.586	0.296	3543.89	11.675	0.433	6048.05	12.899
35	500-171924-d-...	0.011	70.49	46.269	<0.000	816.72	N/A	0.153	2680.34	11.570
36	500-171924-d-...	0.027	123.10	72.165	<0.000	633.38	N/A	0.064	1553.49	11.081
37	500-171924-d-...	0.122	451.77	20.984	<0.000	476.70	N/A	0.029	1140.09	23.743
38	500-171924-d-...	0.049	199.47	66.403	<0.000	446.69	N/A	0.011	903.40	59.489
39	500-171924-d-...	0.013	76.01	163.918	<0.000	300.02	N/A	<0.000	730.05	N/A
40	CCV	262.440	862504.50	0.913	261.398	2299163.98	0.590	260.557	3086927.77	0.626
41	CCB	0.025	118.99	51.891	0.175	2510.33	3.785	0.190	3170.45	13.939
42	500-171924-d-...	0.011	68.56	8.648	<0.000	833.39	N/A	<0.000	606.70	N/A
43	500-171924-d-...	0.190	614.42	34.653	<0.000	370.02	N/A	0.027	993.41	58.147
44	500-171924-d-...	0.096	360.56	25.361	<0.000	540.04	N/A	<0.000	766.72	N/A
45	500-171924-d-...	0.008	62.55	158.531	<0.000	380.02	N/A	<0.000	456.69	N/A
46	500-171924-d-...	0.007	57.77	146.497	<0.000	316.68	N/A	<0.000	270.01	N/A
47	500-171924-d-...	54.026	182320.48	1.162	1050.071	9480629.86	1.071	473.855	5763115.75	1.843
48	500-171924-d-...	54.820	182182.41	1.479	1075.893	9565643.81	1.338	484.937	5808298.46	1.703
49	500-171924-d-...	0.008	59.40	190.419	1.649	15945.23	9.164	2.677	33740.44	18.657
50	CCV	263.189	868390.49	1.684	260.602	2301288.14	2.622	260.847	3102608.60	2.199
51	CCB	0.028	130.94	40.204	0.334	4010.68	12.785	0.603	8395.93	17.136
52	CCVL	0.501	1783.49	7.777	5.243	49875.05	0.518	3.560	45599.08	2.807
53	mb 500-51388...	0.011	70.56	128.917	0.616	6658.31	4.919	0.196	3262.17	16.347
54	lcs 500-513886...	52.063	176056.91	1.524	1014.709	9180082.99	1.625	477.570	5820761.58	1.119
55	500-171453-a-...	0.009	64.35	209.844	8.332	79842.97	28.595	6.679	86064.02	30.297
56	500-171453-a-...	0.004	48.80	233.165	<0.000	893.40	N/A	0.104	2150.25	24.190

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	50.063	181557.36	0.783	<0.000	716.71	N/A	13.076	171690.41	2.897
58	CCV	256.506	859718.63	1.213	253.316	2272422.99	1.492	254.896	3079850.27	1.560
59	CCB	0.038	165.18	9.225	0.218	2920.40	6.882	0.285	4394.14	20.879
60	mb 500-51388...	0.011	72.31	78.645	0.361	4230.75	11.373	0.120	2290.29	30.654
61	lcs 500-513883...	52.249	177637.45	0.513	1018.297	9261932.36	1.925	485.813	5952715.12	1.745
62	500-172276-e-...	0.201	721.26	3.896	0.266	3307.19	20.236	1.178	15327.88	1.783
63	500-172276-e-...	0.118	445.98	8.867	0.084	1663.49	28.970	3.011	38670.52	1.922
64	500-172276-e-...	0.008	61.52	30.530	0.033	1170.09	43.070	0.834	11081.05	4.337
65	500-172276-e-...	0.018	94.74	64.206	0.089	1690.17	15.416	1.315	17146.47	3.268
66	500-172276-g-...	0.047	192.01	33.562	0.035	1173.44	36.241	0.561	7608.79	5.495
67	500-172276-d-...	0.007	56.50	143.173	<0.000	306.68	N/A	0.197	3170.45	2.284
68	500-172276-d-...	0.043	180.20	9.083	<0.000	386.69	N/A	0.419	5931.33	9.197
69	500-172276-d-...	0.040	169.91	21.268	<0.000	260.01	N/A	0.528	7225.26	4.794
70	CCV	257.046	850139.81	1.698	253.415	2243217.68	1.972	253.513	3022623.70	1.991
71	CCB	0.093	358.39	14.903	0.244	3173.92	11.827	0.201	3330.49	1.935
72	500-172276-c-...	0.047	196.51	7.829	<0.000	580.04	N/A	0.358	5221.08	1.446
73	500-172276-e-...	<0.000	30.43	N/A	<0.000	626.71	N/A	0.361	5241.07	5.197
74	500-172276-g-...	0.006	53.46	104.714	<0.000	786.72	N/A	0.383	5511.16	5.690
75	500-172276-e-...	0.023	110.69	54.878	0.070	1496.80	17.243	0.904	11884.85	3.835
76	500-172276-g-...	0.338	1183.39	4.553	0.045	1266.78	51.548	1.565	19963.16	0.960
77	500-172276-g-...	0.325	1128.42	18.172	0.049	1290.11	33.338	1.506	19075.31	5.340
78	500-172276-g-...	55.322	183648.44	0.650	1087.561	9659136.52	0.798	501.735	6003234.70	1.863
79	500-172276-g-...	53.272	175739.09	0.875	1055.704	9317368.40	0.591	488.146	5804213.67	1.774
80	500-172276-g-...	0.070	270.63	28.921	1.419	13779.89	10.661	2.565	32247.39	16.115
81	CCV	260.037	846286.05	2.100	256.419	2233521.58	2.206	258.165	3028927.45	2.050
82	CCB	0.046	192.09	9.483	0.368	4260.73	0.675	0.606	8295.81	16.038
83	CCVL	0.495	1723.43	4.314	5.219	48557.59	2.906	3.527	44194.95	2.642
84	mb 500-51371...	0.007	57.58	170.783	0.208	2800.36	6.582	0.252	3920.67	17.576
85	lcs 500-513710...	50.671	168360.42	2.830	1008.892	8969846.95	1.701	522.326	6256748.45	1.054
86	500-172276-d-...	0.551	1814.57	8.199	1.843	16782.97	1.490	1.074	13262.75	2.759

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	18.575	60852.09	0.281	9.444	83499.90	29.040	3.618	43439.92	3.066
88	500-172276-d-...	0.216	737.11	17.410	0.771	7578.77	4.905	0.905	11417.86	8.082
89	500-172276-d-...	25.729	84307.33	1.019	68.130	597982.79	3.078	4.828	57741.53	1.282
90	500-172276-f-...	0.003	43.28	310.855	0.198	2713.68	8.385	0.069	1646.82	39.706
91	500-172276-f-...	0.007	59.10	38.880	0.133	2113.58	23.512	0.090	1910.20	29.841
92	500-172276-f-...	0.572	1866.37	8.027	0.729	7061.84	8.769	0.679	8572.66	11.895
93	500-172276-c-...	1.576	5073.45	10.885	1.172	10844.09	7.872	0.383	5131.05	16.999
94	CCV	259.045	830445.99	2.158	255.308	2190494.24	2.372	254.799	2944545.16	2.568
95	CCB	0.036	152.68	18.212	0.191	2540.31	14.301	0.140	2426.96	13.412
96	500-172276-c-...	0.397	1308.83	12.776	0.348	3810.60	2.983	0.518	6738.32	4.231
97	500-172276-c-...	0.548	1786.72	15.238	0.354	3840.63	7.881	0.608	7752.22	2.478
98	500-172276-d-...	0.557	1801.94	6.023	0.406	4257.41	5.320	0.423	5564.51	9.679
99	500-172276-d-...	2.099	6708.51	4.917	3.083	27050.42	3.547	0.674	8449.26	3.850
100	500-172276-f-...	0.445	1449.25	7.220	0.954	8949.50	5.338	0.502	6491.62	1.749
101	500-172276-d-...	57.039	179244.64	1.523	33.834	285400.16	5.249	2.793	32332.27	6.582
102	CCV	258.043	819902.71	1.101	254.666	2165745.07	1.248	254.703	2917516.83	0.773
103	CCB	0.049	189.95	34.908	0.187	2446.97	5.477	0.151	2500.29	11.557
104	500-172276-f-...	3.195	10062.48	6.333	3.022	26185.68	2.674	1.172	13979.96	5.165
105	500-172276-f-...	3.169	10062.82	6.914	3.324	28939.62	11.043	1.131	13629.68	3.568
106	500-172276-f-...	61.264	193745.29	2.766	1028.895	8707030.91	1.783	525.600	5991105.54	1.957
107	500-172276-f-...	58.310	184900.30	2.251	1025.319	8698007.58	3.128	521.941	5965061.79	2.447
108	500-172276-f-...	0.638	2108.39	11.399	1.389	12915.71	3.955	0.406	5501.20	8.447
109	500-172715-d-...	0.012	65.10	124.155	1.577	13726.35	2.779	0.362	4697.59	3.049
110	500-172885-a-...	0.016	74.92	143.384	0.236	2623.67	6.249	0.187	2673.68	12.399
111	500-172885-a-...	0.075	251.90	16.290	0.401	3953.99	3.594	0.214	2980.41	10.519
112	500-171541-d-...	0.007	55.52	140.269	0.187	2473.63	4.151	0.020	980.07	56.655
113	500-171541-d-...	0.008	57.58	138.058	0.176	2353.61	18.728	0.021	980.09	50.449
114	CCV	261.884	799898.58	1.023	259.297	2119791.12	0.743	259.159	2853684.64	0.503
115	CCB	0.063	240.33	17.584	0.193	2546.97	3.300	0.143	2460.30	11.000
116	CCVL	0.462	1542.29	7.049	4.997	44539.17	1.432	3.111	37401.05	1.638

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	0.004	44.06	264.749	0.092	1646.84	20.046	0.006	820.06	43.914
118	lcs 500-513712...	51.613	163031.28	1.030	1038.967	8780039.87	0.220	526.632	5995395.54	0.760
119	500-172425-f-...	0.970	2913.29	1.082	0.645	5877.98	1.132	9.266	99959.84	1.175
120	500-172425-g-...	0.884	2631.53	2.448	0.194	2266.91	14.238	8.982	95942.69	1.757
121	500-172425-f-...	0.039	144.58	71.669	0.209	2440.30	7.009	0.102	1783.51	10.585
122	500-172425-f-...	0.016	76.68	4.666	0.154	1973.54	11.523	0.062	1330.11	22.478
123	500-172425-f-...	51.264	153213.30	1.510	1054.126	8428896.12	0.372	537.230	5786994.91	0.193
124	500-172425-f-...	51.725	152168.70	2.979	1056.835	8317874.25	1.974	539.949	5725072.00	1.336
125	500-172425-f-...	0.015	76.01	106.337	0.768	7195.22	6.908	0.174	2660.33	7.925
126	500-172425-g-...	0.021	88.75	22.974	0.290	3010.43	15.779	0.150	2250.25	12.985
127	CCV	258.580	761282.45	2.276	253.779	1999614.81	2.833	253.449	2689823.50	2.811
128	CCB	0.097	331.25	35.027	0.265	2973.73	8.177	0.142	2286.93	1.500
129	500-172425-g-...	0.019	86.37	39.542	0.192	2280.27	10.604	0.154	2323.62	12.886
130	500-172425-g-...	50.381	146965.77	2.065	998.030	7787263.01	4.299	521.875	5486094.29	2.043
131	500-172425-g-...	50.718	148801.17	2.744	1024.980	8044317.80	3.688	527.811	5581250.54	2.463
132	500-172425-g-...	0.012	66.55	81.914	0.790	7181.95	1.008	0.191	2773.71	20.417
133	500-172425-f-...	0.009	54.25	39.440	0.304	3177.13	17.652	0.361	4554.14	16.632
134	500-172425-g-...	0.014	70.19	72.227	0.214	2423.62	13.962	0.393	4820.92	9.921
135	500-172425-f-...	0.920	2615.53	4.226	0.193	2160.25	20.688	9.118	93119.69	1.169
136	500-172425-g-...	0.900	2528.12	1.056	0.189	2103.56	7.250	8.834	89084.04	2.535
137	500-172425-f-...	0.015	69.77	40.930	0.488	4477.48	11.201	0.102	1706.83	13.829
138	500-172425-g-...	0.016	74.74	36.771	0.496	4600.85	5.310	0.166	2400.29	3.818
139	CCV	259.101	746034.62	0.861	254.908	1964466.79	0.918	255.947	2656821.68	1.324
140	CCB	0.087	298.46	15.728	0.191	2360.27	13.313	0.120	2040.23	13.694
141	500-172384-d-...	0.075	238.34	22.904	0.535	4750.92	4.153	0.131	1970.21	8.321
142	500-172384-d-...	0.037	133.17	38.481	0.444	4067.35	7.053	0.124	1896.87	17.753
143	500-172384-d-...	0.076	238.34	24.981	2.318	18017.39	0.934	0.588	6541.65	8.686
144	500-172384-d-...	0.040	143.41	13.186	0.645	5754.62	3.931	0.201	2763.71	8.200
145	500-172384-d-...	0.023	93.59	78.864	0.347	3403.84	6.092	0.129	1983.55	13.480
146	500-172384-d-...	0.032	112.08	3.322	0.246	2456.96	15.215	0.063	1223.43	25.593

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	0.055	181.35	39.532	0.263	2683.68	10.429	0.174	2396.97	8.852
148	500-172384-d-...	0.005	41.70	252.638	0.389	3637.23	10.458	0.128	1940.22	7.956
149	500-172384-d-...	0.015	70.08	97.045	0.156	1890.20	5.279	0.025	890.06	43.312
150	500-172494-a-...	0.435	1259.11	18.730	1.137	9339.77	1.397	0.835	9176.38	4.022
151	CCV	255.379	738209.27	1.679	252.608	1954438.05	1.559	254.138	2648411.47	1.971
152	CCB	0.071	243.77	25.474	0.200	2370.29	10.178	0.138	2176.90	26.327
153	CCVL	0.530	1596.12	7.341	5.073	40879.73	1.714	3.126	33983.68	1.427
154	mb 500-51382...	0.016	77.04	80.616	0.064	1290.11	26.821	<0.000	676.71	N/A
155	lcs 500-513820...	53.044	152107.54	1.116	1060.473	8136319.05	4.686	540.952	5590629.50	0.796
156	500-172924-c-...	0.056	189.82	16.667	0.686	5991.42	0.902	5.107	53476.77	2.442
157	500-172924-c-...	0.016	74.65	82.306	0.294	3017.09	6.285	5.008	53051.46	1.349
158	500-172924-c-...	52.207	146412.84	1.885	1069.312	8024546.76	1.660	553.974	5598855.96	1.748
159	500-172924-c-...	51.415	146727.80	0.196	1008.312	7698214.47	0.198	541.711	5571356.58	0.657
160	500-172924-c-...	0.013	67.89	35.150	0.748	6695.01	4.695	1.137	12848.91	4.267
161	500-172927-c-...	0.113	334.84	47.563	0.413	3717.25	1.588	0.374	4310.79	3.578
162	500-172430-g-...	0.065	199.32	26.789	0.260	2523.67	31.502	0.059	1170.09	25.684
163	500-172430-g-...	0.018	75.60	41.461	0.183	2070.23	7.065	0.041	1040.07	13.779
164	CCV	260.230	723266.98	1.523	254.789	1895207.68	2.263	254.250	2547349.03	2.261
165	CCB	0.054	187.72	11.123	0.221	2483.65	0.622	0.122	1956.87	14.859
166	500-172430-g-...	0.029	101.97	28.794	0.179	1916.88	9.497	0.057	1136.76	20.963
167	500-172430-g-...	0.016	69.72	14.826	0.169	1933.54	4.853	0.047	1086.76	38.051
168	500-172430-g-...	0.029	106.01	53.232	0.134	1683.50	12.924	0.036	976.74	52.379
169	500-172430-g-...	0.039	136.76	35.196	0.115	1560.15	34.444	0.047	1106.76	23.733
170	500-172430-g-...	0.000	26.98	1912.184	0.079	1263.45	22.477	0.013	746.72	14.260
171	500-172430-g-...	0.007	44.25	70.388	0.082	1280.10	13.106	0.038	980.08	35.265
172	500-172430-g-...	0.040	130.08	30.847	0.124	1543.48	20.172	0.020	783.38	84.031
173	500-172430-g-...	0.019	76.74	70.490	0.131	1596.82	13.943	0.018	773.39	47.728
174	500-172430-g-...	0.011	55.41	84.992	0.293	2777.02	17.291	0.036	953.41	28.078
175	500-172430-g-...	0.031	106.80	32.182	0.087	1283.45	44.050	0.013	716.72	64.252
176	CCV	258.165	714348.33	0.720	254.287	1883210.02	1.161	255.941	2553117.88	0.626

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	0.051	176.32	13.377	0.153	1913.54	14.120	0.120	1906.86	6.184

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
1	blk I.S /tune	0.162	720.05	1.649						
2	ICIS	0.000	16.67	N/A						
3	Std1	10.537	46563.13	0.727						
4	Std2	103.634	453926.51	0.586						
5	Std3	499.262	2180921.95	0.414						
6	S1	504.155	2202974.24	1.195						
7	ICV	200.648	877693.24	7.529						
8	ICB	0.043	196.68	52.975						
9	ICVL	2.490	11184.42	4.226						
10	icsa	0.281	1240.11	14.458						
11	icsab	20.211	87182.31	3.045						
12	CRI	5.280	23498.16	2.788						
13	CCV	257.903	1154783.89	0.730						
14	CCB	0.033	160.01	29.317						
15	mb 500-51356...	0.130	536.70	28.852						
16	lcs 500-513568...	521.660	2314184.18	0.731						
17	500-171892-g-...	267.320	1218598.52	1.122						
18	500-171892-h-...	31.448	139665.60	1.858						
19	500-171892-g-...	245.645	1295560.16	0.342						
20	500-171892-g-...	545.563	2421244.03	0.808						
21	500-171892-g-...	222.785	966799.05	0.950						
22	500-171892-g-...	457.949	2030315.23	0.521						
23	CCV	258.140	1126064.23	0.509						
24	CCB	0.074	340.02	14.512						
25	CCVL	2.644	11451.26	3.188						
26	400-176914-b-...	35.476	147219.40	2.706						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
27	400-176914-b-...	14.654	56783.01	2.069						
28	400-176914-b-...	13.833	53738.54	3.643						
29	400-176914-b-...	8.431	33262.78	7.957						
30	CCV	266.331	1151137.51	0.701						
31	CCB	0.068	310.02	47.416						
32	mb 500-51388...	0.006	43.33	91.038						
33	lcs 500-513882...	515.500	2268817.94	0.681						
34	500-171924-d-...	91.556	405585.98	1.186						
35	500-171924-d-...	53.875	242527.00	0.528						
36	500-171924-d-...	61.119	271498.98	1.346						
37	500-171924-d-...	53.707	242005.01	0.619						
38	500-171924-d-...	57.021	256320.25	1.045						
39	500-171924-d-...	43.244	193661.93	1.424						
40	CCV	261.762	1120845.69	0.998						
41	CCB	0.037	173.34	8.176						
42	500-171924-d-...	43.655	195382.80	0.478						
43	500-171924-d-...	27.189	107646.61	1.373						
44	500-171924-d-...	54.057	243282.12	1.010						
45	500-171924-d-...	32.690	146812.56	2.518						
46	500-171924-d-...	33.034	149534.86	2.760						
47	500-171924-d-...	539.589	2448095.02	1.826						
48	500-171924-d-...	555.169	2473269.29	1.822						
49	500-171924-d-...	6.661	28763.69	3.075						
50	CCV	260.722	1122182.77	0.447						
51	CCB	0.052	240.02	20.590						
52	CCVL	2.751	11838.21	0.657						
53	mb 500-51388...	0.044	206.68	18.571						
54	lcs 500-513886...	498.160	2211619.97	0.960						
55	500-171453-a-...	1.004	4550.26	41.210						
56	500-171453-a-...	0.328	1493.47	11.385						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
57	500-171453-a-...	1529.931	6817186.36	2.438						
58	CCV	255.752	1112061.86	0.927						
59	CCB	0.095	423.36	10.235						
60	mb 500-51388...	0.055	253.35	28.567						
61	lcs 500-513883...	505.519	2224529.76	0.981						
62	500-172276-e-...	105.650	476881.03	0.679						
63	500-172276-e-...	109.237	486799.84	2.000						
64	500-172276-e-...	62.415	279296.79	0.339						
65	500-172276-e-...	114.257	509942.12	0.967						
66	500-172276-g-...	67.820	299093.92	0.424						
67	500-172276-d-...	176.582	790959.73	1.354						
68	500-172276-d-...	116.595	519939.98	1.171						
69	500-172276-d-...	145.973	645904.54	1.753						
70	CCV	255.773	1091641.03	0.990						
71	CCB	0.124	543.36	20.974						
72	500-172276-c-...	105.201	467386.70	1.808						
73	500-172276-e-...	69.089	307315.81	1.057						
74	500-172276-g-...	74.475	330120.43	0.598						
75	500-172276-e-...	132.589	585179.14	1.076						
76	500-172276-g-...	75.982	337429.33	1.029						
77	500-172276-g-...	75.750	332834.19	0.016						
78	500-172276-g-...	596.627	2617743.09	0.529						
79	500-172276-g-...	576.194	2543548.82	0.519						
80	500-172276-g-...	14.918	63551.79	1.030						
81	CCV	256.393	1089261.13	1.453						
82	CCB	0.078	346.68	13.389						
83	CCVL	2.634	11267.76	2.961						
84	mb 500-51371...	0.101	446.69	27.019						
85	lcs 500-513710...	499.092	2138934.66	2.265						
86	500-172276-d-...	111.138	473320.02	0.848						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
87	500-172276-d-...	160.938	695077.12	2.562						
88	500-172276-d-...	75.458	321698.17	1.222						
89	500-172276-d-...	207.168	915145.30	1.054						
90	500-172276-f-...	0.182	793.38	12.356						
91	500-172276-f-...	0.198	863.39	2.145						
92	500-172276-f-...	80.875	345201.22	1.446						
93	500-172276-c-...	241.845	1057674.78	1.368						
94	CCV	248.734	1060247.28	0.776						
95	CCB	0.089	390.02	8.419						
96	500-172276-c-...	121.418	514744.09	2.374						
97	500-172276-c-...	159.861	676151.66	0.683						
98	500-172276-d-...	117.538	497015.26	1.048						
99	500-172276-d-...	96.730	411436.45	1.270						
100	500-172276-f-...	81.153	344150.24	0.918						
101	500-172276-d-...	462.192	2118493.04	0.126						
102	CCV	251.999	1065280.61	0.507						
103	CCB	0.099	426.69	19.656						
104	500-172276-f-...	73.376	307704.64	0.753						
105	500-172276-f-...	72.239	308354.76	2.478						
106	500-172276-f-...	568.555	2424069.65	1.384						
107	500-172276-f-...	550.196	2339899.03	1.107						
108	500-172276-f-...	15.153	63634.96	1.690						
109	500-172715-d-...	38.859	158452.32	2.473						
110	500-172885-a-...	146.476	590296.41	2.155						
111	500-172885-a-...	166.131	674181.89	0.864						
112	500-171541-d-...	0.267	1146.76	4.901						
113	500-171541-d-...	0.217	916.74	20.455						
114	CCV	249.013	1033726.24	1.938						
115	CCB	0.100	430.02	16.509						
116	CCVL	2.502	10250.36	2.921						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
117	mb 500-51371...	0.084	363.35	6.053						
118	lcs 500-513712...	491.352	2064201.01	2.594						
119	500-172425-f-...	129.988	523604.90	0.730						
120	500-172425-g-...	128.885	517090.22	1.314						
121	500-172425-f-...	47.355	192507.39	1.718						
122	500-172425-f-...	46.754	190865.10	1.132						
123	500-172425-f-...	531.871	2162129.14	0.410						
124	500-172425-f-...	525.830	2135753.09	0.270						
125	500-172425-f-...	9.698	39777.47	1.026						
126	500-172425-g-...	48.642	195106.41	1.057						
127	CCV	246.792	979697.67	0.443						
128	CCB	0.090	373.35	23.818						
129	500-172425-g-...	48.382	197302.95	1.914						
130	500-172425-g-...	514.471	2051460.91	0.672						
131	500-172425-g-...	525.767	2096989.29	1.173						
132	500-172425-g-...	9.720	39259.67	1.448						
133	500-172425-f-...	31.784	127230.07	1.461						
134	500-172425-g-...	31.539	126738.30	0.792						
135	500-172425-f-...	127.338	490733.26	1.458						
136	500-172425-g-...	127.289	492244.35	0.655						
137	500-172425-f-...	166.098	645178.09	2.431						
138	500-172425-g-...	163.967	639667.98	1.505						
139	CCV	244.730	958521.99	1.631						
140	CCB	0.124	506.70	21.158						
141	500-172384-d-...	167.555	649062.79	1.504						
142	500-172384-d-...	158.598	616634.52	1.989						
143	500-172384-d-...	89.947	346846.15	1.530						
144	500-172384-d-...	160.201	633762.07	0.777						
145	500-172384-d-...	95.971	376923.67	1.340						
146	500-172384-d-...	35.902	136461.36	2.055						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
147	500-172384-d-...	140.431	542646.62	1.960						
148	500-172384-d-...	110.117	425969.37	1.117						
149	500-172384-d-...	140.042	541515.85	0.324						
150	500-172494-a-...	65.565	255383.02	1.795						
151	CCV	245.033	961412.72	1.065						
152	CCB	0.107	426.69	25.705						
153	CCVL	2.389	9373.24	6.080						
154	mb 500-51382...	0.167	666.71	34.547						
155	lcs 500-513820...	490.011	1909439.24	0.254						
156	500-172924-c-...	6.419	24873.62	2.271						
157	500-172924-c-...	6.024	23441.57	3.128						
158	500-172924-c-...	489.297	1906151.95	1.997						
159	500-172924-c-...	478.962	1895238.04	1.084						
160	500-172924-c-...	1.396	5531.19	2.950						
161	500-172927-c-...	49.679	188193.36	0.466						
162	500-172430-g-...	1396.230	5024027.84	1.710						
163	500-172430-g-...	148.369	570177.40	1.642						
164	CCV	242.669	925771.81	1.946						
165	CCB	0.176	683.38	5.816						
166	500-172430-g-...	285.730	1053350.79	1.220						
167	500-172430-g-...	160.189	622933.26	0.237						
168	500-172430-g-...	128.550	504601.49	2.110						
169	500-172430-g-...	118.456	459760.23	0.106						
170	500-172430-g-...	77.836	296697.08	0.850						
171	500-172430-g-...	72.752	272967.86	0.346						
172	500-172430-g-...	818.161	3037953.08	0.902						
173	500-172430-g-...	1960.385	7106085.73	1.249						
174	500-172430-g-...	245.082	923896.78	0.702						
175	500-172430-g-...	1510.348	5526910.54	0.706						
176	CCV	242.635	922462.72	0.766						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
177	CCB	0.280	1060.08	27.510						

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.074	2677.04	9.680	0.041	560.04	34.720	0.044	500.04	9.202
2	ICIS	0.000	216.68	N/A	0.000	86.67	N/A	0.000	60.00	N/A
3	Std1	10.114	341898.54	0.563	10.049	116785.98	1.080	9.913	99815.18	0.182
4	Std2	104.304	3386905.99	0.557	101.538	1133463.55	0.202	101.405	980789.59	1.139
5	Std3	499.137	15659113.10	0.733	499.691	5389183.04	0.761	499.721	4669776.49	0.705
6	S1	500.522	15798291.85	0.559	502.098	5448190.54	0.330	500.417	4704805.35	0.497
7	ICV	201.351	6624212.19	6.346	196.079	2217790.96	6.126	194.602	1907028.10	6.278
8	ICB	0.107	3780.63	5.055	0.047	630.05	17.892	0.060	656.72	15.434
9	ICVL	2.036	71134.77	4.563	0.530	6441.67	6.057	0.539	5651.30	6.228
10	icsa	0.035	1276.80	22.214	0.182	2026.90	4.182	0.183	1753.51	6.881
11	icsab	10.470	322864.10	2.525	20.449	216750.15	0.952	20.541	188637.99	0.803
12	CRI	4.056	141861.10	0.766	1.012	12235.49	3.716	1.012	10590.85	2.291
13	CCV	265.182	8700714.87	1.394	256.565	2893997.46	1.018	257.827	2519845.59	0.789
14	CCB	0.082	3030.47	5.992	0.048	656.71	25.971	0.045	523.37	10.512
15	mb 500-51356...	0.023	960.08	22.509	0.047	596.71	35.305	0.066	706.72	11.248
16	lcs 500-513568...	107.383	3579621.09	0.315	104.803	1201020.22	0.451	105.775	1050294.13	0.820
17	500-171892-g-...	0.062	2306.95	8.915	0.627	7348.79	1.038	0.589	5964.73	8.036
18	500-171892-h-...	0.011	600.04	38.166	0.016	273.35	23.983	0.027	333.35	25.143
19	500-171892-g-...	0.041	1523.49	7.627	7.417	82519.76	2.846	6.901	66534.26	0.884
20	500-171892-g-...	0.201	6558.41	2.300	1.516	16529.67	2.253	1.383	13059.61	3.583
21	500-171892-g-...	0.008	480.03	30.493	0.139	1613.50	6.297	0.138	1376.80	10.240
22	500-171892-g-...	0.038	1450.14	17.628	1.237	13730.20	2.966	1.115	10714.27	1.451
23	CCV	262.873	8615950.08	1.410	254.942	2872574.33	1.448	257.646	2515539.44	0.708
24	CCB	0.091	3270.51	13.147	0.059	773.39	13.742	0.059	653.38	17.530
25	CCVL	2.016	69447.06	0.827	0.557	6665.05	8.022	0.536	5544.60	7.005
26	400-176914-b-...	0.012	566.70	26.027	0.018	266.68	17.540	0.020	230.01	18.229

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	0.003	260.01	71.693	0.037	413.36	29.447	0.037	343.35	30.010
28	400-176914-b-...	0.001	216.68	109.966	0.058	616.71	10.449	0.053	486.70	38.127
29	400-176914-b-...	<0.000	183.34	N/A	0.043	490.04	16.188	0.044	420.02	5.059
30	CCV	262.607	8510972.79	2.242	255.036	2841554.75	1.498	254.894	2460727.57	1.072
31	CCB	0.064	2346.96	10.988	0.072	903.40	18.230	0.071	756.72	20.966
32	mb 500-51388...	0.008	503.36	20.646	0.092	1180.10	18.475	0.084	933.41	17.578
33	lcs 500-513882...	106.136	3476742.24	1.169	103.029	1160286.55	0.560	104.607	1020769.34	0.308
34	500-171924-d-...	0.033	1246.78	19.219	0.047	600.04	25.715	0.054	570.04	11.139
35	500-171924-d-...	0.004	340.02	31.959	0.038	513.37	23.647	0.029	346.69	38.361
36	500-171924-d-...	0.000	216.68	1163.332	0.065	803.40	7.999	0.052	563.37	4.540
37	500-171924-d-...	<0.000	146.67	N/A	0.043	563.37	6.587	0.043	470.03	34.955
38	500-171924-d-...	0.000	223.35	311.072	0.027	386.70	3.388	0.034	386.69	31.344
39	500-171924-d-...	<0.000	163.34	N/A	0.031	426.69	42.104	0.026	306.69	24.706
40	CCV	263.880	8573488.62	0.047	256.639	2866133.39	1.169	258.599	2502339.44	1.112
41	CCB	0.047	1813.54	12.420	0.041	556.70	31.835	0.049	550.04	6.165
42	500-171924-d-...	0.016	553.37	16.874	0.066	630.05	8.521	0.086	683.38	7.542
43	500-171924-d-...	0.028	1000.07	4.614	0.091	986.75	7.455	0.098	903.40	9.955
44	500-171924-d-...	0.004	346.69	65.986	0.070	883.40	23.209	0.071	753.39	5.609
45	500-171924-d-...	0.001	220.01	37.317	0.059	706.72	16.518	0.059	600.04	14.906
46	500-171924-d-...	<0.000	180.01	N/A	0.059	693.39	15.081	0.063	626.71	29.770
47	500-171924-d-...	106.663	3652638.70	1.055	103.571	1219352.04	0.354	103.934	1060170.74	1.075
48	500-171924-d-...	110.736	3699242.76	0.291	107.146	1230498.26	0.128	107.601	1070667.77	0.986
49	500-171924-d-...	0.017	766.73	7.702	0.030	426.70	9.952	0.042	480.03	13.199
50	CCV	226.437	8544545.71	7.525	220.721	2863524.23	7.349	222.034	2496008.30	7.215
51	CCB	0.048	1873.52	14.915	0.046	633.38	12.799	0.046	530.03	10.899
52	CCVL	2.012	69105.37	2.146	0.527	6288.23	5.984	0.502	5184.46	3.347
53	mb 500-51388...	0.004	366.69	44.387	0.015	270.01	6.254	0.020	270.01	40.388
54	lcs 500-513886...	104.809	3546602.03	0.958	101.315	1178521.99	2.125	102.118	1029263.34	1.565
55	500-171453-a-...	0.011	546.70	29.628	0.037	473.36	19.995	0.044	456.70	13.513
56	500-171453-a-...	<0.000	190.01	N/A	0.046	573.37	10.872	0.053	553.37	31.941

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	2.355	82458.77	3.337	45.170	542309.56	1.426	42.903	446285.40	1.065
58	CCV	261.545	8494391.75	1.162	252.718	2821303.08	0.270	254.293	2459657.57	1.056
59	CCB	0.076	2787.05	7.283	0.068	873.40	6.436	0.064	710.05	20.763
60	mb 500-51388...	0.013	663.38	41.280	0.021	330.02	24.900	0.025	313.35	30.203
61	lcs 500-513883...	106.161	3524378.49	1.684	102.915	1174575.14	1.948	103.910	1027537.41	1.955
62	500-172276-e-...	0.039	1543.47	8.657	0.246	2933.77	8.902	0.244	2506.96	10.213
63	500-172276-e-...	0.019	840.07	17.286	1.084	12168.74	6.305	1.023	9940.32	5.297
64	500-172276-e-...	0.002	293.35	99.730	0.421	4830.97	2.082	0.421	4167.46	2.444
65	500-172276-e-...	0.001	260.01	139.478	0.278	3183.81	7.074	0.261	2570.33	12.136
66	500-172276-g-...	0.004	343.36	55.222	0.227	2600.35	8.928	0.244	2400.31	8.440
67	500-172276-d-...	<0.000	133.34	N/A	0.083	1026.75	7.575	0.096	996.74	14.184
68	500-172276-d-...	<0.000	196.68	N/A	0.121	1466.81	9.143	0.146	1506.80	8.903
69	500-172276-d-...	<0.000	216.68	N/A	0.103	1266.78	8.321	0.091	963.41	2.074
70	CCV	264.304	8617705.70	2.611	250.588	2808812.88	1.154	254.166	2468313.24	1.265
71	CCB	0.112	4004.06	11.686	0.115	1426.80	13.991	0.116	1233.45	18.012
72	500-172276-c-...	0.017	786.73	3.170	0.097	1180.09	20.413	0.089	930.07	8.803
73	500-172276-e-...	0.002	290.01	49.601	0.277	3250.51	4.778	0.270	2723.71	8.037
74	500-172276-g-...	0.002	263.35	234.386	0.252	2877.11	12.113	0.253	2483.65	8.964
75	500-172276-e-...	0.002	273.35	24.863	1.266	14160.55	3.305	1.282	12402.36	3.516
76	500-172276-g-...	0.032	1253.44	27.746	1.704	19056.02	0.580	1.619	15672.06	4.245
77	500-172276-g-...	0.031	1196.77	15.807	1.697	18815.76	3.009	1.637	15705.65	1.945
78	500-172276-g-...	109.492	3615875.05	1.714	109.014	1237691.65	1.243	109.769	1079816.00	1.295
79	500-172276-g-...	110.132	3567657.96	1.184	108.220	1205172.85	1.332	108.599	1047802.75	1.900
80	500-172276-g-...	0.035	1376.80	17.802	0.356	4134.09	5.155	0.358	3587.26	11.221
81	CCV	260.957	8421976.54	0.337	254.004	2817842.25	0.891	254.371	2445182.77	0.514
82	CCB	0.074	2690.36	6.837	0.065	840.08	4.170	0.066	713.38	32.473
83	CCVL	2.077	69537.93	2.430	0.569	6621.74	2.164	0.553	5557.92	1.263
84	mb 500-51371...	0.008	510.03	27.697	0.041	566.70	11.245	0.040	466.70	15.906
85	lcs 500-513710...	103.998	3447362.34	0.763	101.372	1155197.80	0.828	102.703	1014078.09	0.845
86	500-172276-d-...	0.061	2220.25	9.755	5.766	64866.70	1.842	5.595	54525.80	1.598

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	0.289	9860.28	0.272	66.413	762095.51	0.569	63.538	631718.62	0.462
88	500-172276-d-...	0.013	640.05	11.140	6.900	76715.35	1.694	6.501	62614.44	2.254
89	500-172276-d-...	0.579	22287.35	1.595	282.065	3688985.05	1.765	269.244	3051350.68	1.035
90	500-172276-f-...	0.001	246.68	125.635	0.146	1796.85	4.792	0.120	1270.11	18.308
91	500-172276-f-...	<0.000	220.01	N/A	0.084	1066.75	10.677	0.079	860.06	14.603
92	500-172276-f-...	0.019	843.39	17.184	4.956	55958.23	2.475	4.715	46128.28	1.933
93	500-172276-c-...	0.118	4157.43	0.662	9.827	112519.94	1.245	9.066	89930.85	2.165
94	CCV	268.786	8735739.04	1.508	252.728	2823311.94	0.607	255.421	2472264.44	1.090
95	CCB	0.064	2393.64	8.816	0.063	816.72	12.902	0.069	753.39	13.232
96	500-172276-c-...	0.034	1333.47	1.551	1.667	18755.80	3.321	1.558	15174.95	3.341
97	500-172276-c-...	0.039	1513.49	12.647	2.995	34243.28	3.668	2.734	27081.95	2.594
98	500-172276-d-...	0.032	1263.45	8.838	2.336	26136.85	1.194	2.176	21078.92	1.596
99	500-172276-d-...	0.095	3360.53	3.355	16.122	183209.78	2.229	15.487	152455.35	2.525
100	500-172276-f-...	0.023	960.07	13.089	4.711	52301.59	0.662	4.438	42678.10	3.186
101	500-172276-d-...	0.623	22521.00	3.791	324.346	3989272.44	1.471	309.361	3296238.81	2.592
102	CCV	270.511	8777163.62	4.391	254.532	2838922.56	0.807	256.274	2476648.82	0.963
103	CCB	0.074	2720.35	12.065	0.096	1193.43	11.561	0.081	876.73	16.559
104	500-172276-f-...	0.125	4267.47	4.416	20.418	226926.80	0.811	19.625	188974.84	0.785
105	500-172276-f-...	0.113	3920.66	10.289	20.350	229404.99	1.790	19.284	188335.70	0.619
106	500-172276-f-...	100.542	3322884.22	2.131	162.807	1849668.98	2.384	160.713	1582045.92	2.314
107	500-172276-f-...	100.325	3322534.64	2.040	122.831	1398406.86	2.194	123.194	1215195.94	2.998
108	500-172276-f-...	0.065	2360.30	10.314	4.104	46917.29	1.635	4.016	39767.12	2.657
109	500-172715-d-...	0.016	683.38	53.752	0.340	3593.95	10.726	0.345	3147.13	8.640
110	500-172885-a-...	0.010	496.70	38.281	0.091	1016.75	3.442	0.081	780.05	5.530
111	500-172885-a-...	0.044	1533.48	5.204	1.414	14941.35	2.395	1.330	12168.70	2.281
112	500-171541-d-...	0.004	350.02	84.851	0.053	683.38	9.706	0.062	663.38	1.139
113	500-171541-d-...	0.002	273.35	65.536	0.029	410.02	26.702	0.035	400.02	41.559
114	CCV	266.344	8402083.62	5.314	254.129	2756551.52	1.752	256.740	2412952.52	1.676
115	CCB	0.083	2920.42	8.149	0.081	1003.41	14.185	0.088	916.74	5.719
116	CCVL	2.028	66671.24	3.234	0.545	6228.19	2.740	0.564	5557.99	7.087

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	0.009	526.70	23.139	0.028	410.02	4.969	0.024	296.68	36.314
118	lcs 500-513712...	104.477	3402362.24	1.899	101.857	1140318.55	1.004	103.654	1005450.48	1.238
119	500-172425-f-...	0.118	3797.32	2.948	5.494	57634.33	0.769	5.439	49432.13	0.270
120	500-172425-g-...	0.087	2847.07	12.799	4.123	43303.16	4.786	4.029	36648.92	3.550
121	500-172425-f-...	0.011	543.37	13.669	0.128	1476.81	8.602	0.106	1056.75	3.435
122	500-172425-f-...	0.006	393.36	5.867	0.097	1116.76	7.182	0.095	926.74	12.331
123	500-172425-f-...	105.921	3276527.97	1.094	103.420	1099726.78	1.585	104.356	961522.22	1.243
124	500-172425-f-...	105.323	3249503.28	2.190	102.771	1090103.35	1.613	103.223	948670.64	1.631
125	500-172425-f-...	0.039	1480.14	12.699	0.061	763.39	19.077	0.072	750.06	18.251
126	500-172425-g-...	0.011	550.04	79.650	0.070	823.40	24.386	0.064	643.38	21.630
127	CCV	265.419	8265793.84	3.517	253.859	2717815.37	0.274	255.875	2373608.40	1.438
128	CCB	0.099	3393.88	5.126	0.086	1030.08	4.896	0.082	840.06	12.802
129	500-172425-g-...	0.026	1013.42	9.269	0.071	833.40	23.782	0.073	730.05	9.024
130	500-172425-g-...	101.137	3144811.93	1.977	99.051	1058797.38	2.306	99.757	923989.39	1.551
131	500-172425-g-...	103.782	3214646.62	1.233	101.254	1078210.69	1.226	102.195	942882.75	1.238
132	500-172425-g-...	0.046	1673.49	19.438	0.051	636.71	10.087	0.049	523.37	23.785
133	500-172425-f-...	0.027	1073.42	13.343	0.058	713.39	2.123	0.060	626.72	6.079
134	500-172425-g-...	0.019	806.73	11.344	0.041	530.03	18.402	0.043	466.70	13.778
135	500-172425-f-...	0.086	2780.40	6.588	5.182	53432.24	2.335	5.079	45365.83	2.038
136	500-172425-g-...	0.085	2767.04	16.383	4.335	44934.55	1.315	4.190	37614.32	2.440
137	500-172425-f-...	0.010	520.03	16.656	0.095	1100.09	7.661	0.097	960.08	13.718
138	500-172425-g-...	0.006	380.02	21.936	0.089	1033.42	1.890	0.093	916.74	11.043
139	CCV	265.733	8237990.29	6.710	250.517	2671128.92	1.701	254.348	2349803.66	1.913
140	CCB	0.093	3193.83	9.196	0.088	1063.42	7.163	0.094	956.74	19.372
141	500-172384-d-...	0.117	3623.92	7.800	0.253	2633.69	2.930	0.219	1973.56	3.149
142	500-172384-d-...	0.097	3053.78	4.694	0.223	2333.62	6.602	0.203	1830.19	11.722
143	500-172384-d-...	0.007	406.69	24.477	9.176	95052.15	1.071	8.656	77670.26	1.222
144	500-172384-d-...	0.032	1176.77	6.783	1.223	12942.70	3.062	1.215	11124.61	4.541
145	500-172384-d-...	0.008	426.69	41.058	0.142	1550.15	1.885	0.132	1240.11	1.150
146	500-172384-d-...	0.032	1123.42	16.759	0.088	943.40	1.338	0.102	926.74	10.447

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	0.251	7502.20	3.835	0.205	2130.26	17.918	0.189	1696.84	7.486
148	500-172384-d-...	0.006	370.02	23.688	0.343	3583.91	2.013	0.338	3043.80	1.265
149	500-172384-d-...	0.001	220.01	319.643	0.052	600.04	22.780	0.052	513.36	2.874
150	500-172494-a-...	0.022	950.07	6.296	7.003	81387.15	1.830	6.959	70077.03	1.731
151	CCV	258.678	7892339.67	1.378	252.617	2649629.23	1.012	254.839	2315966.73	0.805
152	CCB	0.084	2840.40	2.396	0.083	970.08	12.282	0.070	710.05	18.538
153	CCVL	2.020	64244.07	3.146	0.529	5854.69	9.697	0.535	5107.76	1.340
154	mb 500-51382...	0.008	470.03	11.700	0.043	553.37	16.692	0.044	480.03	5.947
155	lcs 500-513820...	104.914	3281211.72	2.382	102.735	1104536.81	2.871	103.846	967371.42	2.991
156	500-172924-c-...	0.053	1866.89	9.858	0.282	3127.13	12.525	0.280	2670.36	5.445
157	500-172924-c-...	0.015	653.38	10.848	0.285	3087.11	4.684	0.289	2697.04	4.927
158	500-172924-c-...	104.369	3180750.58	1.903	102.247	1071397.09	1.225	103.328	938024.99	1.793
159	500-172924-c-...	103.377	3185282.87	1.523	101.367	1073734.20	1.380	102.667	942247.36	1.793
160	500-172924-c-...	0.043	1573.48	4.550	0.093	1106.76	7.762	0.106	1066.76	7.682
161	500-172927-c-...	0.022	820.06	3.162	0.710	7182.00	5.105	0.687	6004.78	4.017
162	500-172430-g-...	0.018	643.37	30.792	0.058	596.71	32.485	0.047	420.02	25.357
163	500-172430-g-...	0.008	416.69	8.675	0.140	1490.14	15.753	0.152	1393.47	2.755
164	CCV	257.774	7800889.05	2.294	250.926	2610566.06	2.118	253.301	2283328.09	2.112
165	CCB	0.087	2893.73	5.493	0.072	853.40	16.436	0.075	750.05	16.508
166	500-172430-g-...	0.025	896.74	29.854	0.179	1800.20	7.363	0.183	1570.15	16.796
167	500-172430-g-...	0.013	583.37	14.829	0.140	1506.82	9.757	0.154	1420.13	5.257
168	500-172430-g-...	0.013	570.04	5.568	0.080	883.40	14.093	0.086	806.72	9.106
169	500-172430-g-...	0.010	503.37	20.925	0.219	2370.30	11.429	0.238	2206.92	5.497
170	500-172430-g-...	0.005	353.35	32.111	0.063	730.06	29.260	0.062	606.71	14.084
171	500-172430-g-...	0.008	433.36	28.141	0.038	463.37	17.665	0.036	373.36	19.565
172	500-172430-g-...	0.004	300.02	18.311	0.085	903.41	13.368	0.084	756.72	22.698
173	500-172430-g-...	0.003	253.35	143.441	0.105	1036.75	21.025	0.091	776.73	2.582
174	500-172430-g-...	0.005	340.02	50.125	0.086	920.07	4.019	0.091	823.39	12.811
175	500-172430-g-...	0.004	290.02	71.752	0.059	620.04	24.725	0.078	676.71	11.617
176	CCV	259.206	7668698.22	1.552	252.757	2570583.24	1.541	254.792	2245217.15	1.693

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	0.091	2983.78	13.909	0.076	886.73	14.052	0.074	730.06	23.675

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.042	2196.83	10.527	0.017	823.39	13.351
2	ICIS	0.000	330.01	N/A	0.000	46.67	N/A
3	Std1	10.116	458566.92	0.097	9.699	441665.98	1.032
4	Std2	103.314	4498246.65	0.635	102.959	4505826.18	0.898
5	Std3	499.335	21003931.04	1.091	499.414	21118006.35	0.546
6	S1	500.273	21172645.72	0.509	502.183	21364096.35	0.642
7	ICV	200.066	8825947.73	6.159	200.338	8881982.58	6.766
8	ICB	0.054	2723.56	5.326	0.045	2086.92	12.421
9	ICVL	0.547	25889.72	4.626	0.940	44211.17	3.449
10	icsa	0.177	7697.80	6.031	0.032	1396.79	15.843
11	icsab	20.825	860944.54	0.746	20.826	865184.36	1.365
12	CRI	1.038	48930.06	1.988	0.017	846.73	19.737
13	CCV	262.835	11563440.66	0.842	262.512	11608651.08	2.011
14	CCB	0.051	2660.23	16.409	0.039	1863.53	5.220
15	mb 500-51356...	0.055	2690.22	15.716	0.010	473.37	28.766
16	lcs 500-513568...	107.287	4795404.36	0.385	106.831	4799653.89	1.231
17	500-171892-g-...	0.625	28561.87	5.758	0.117	5347.89	3.663
18	500-171892-h-...	0.019	1200.08	24.668	0.014	676.72	5.237
19	500-171892-g-...	7.233	313951.70	1.132	1.584	69082.79	2.470
20	500-171892-g-...	1.491	63409.00	1.687	5.458	232267.65	0.604
21	500-171892-g-...	0.144	6514.23	8.996	0.588	25436.10	2.115
22	500-171892-g-...	1.221	52842.33	2.171	12.957	560401.54	2.178
23	CCV	261.613	11497789.51	0.957	263.596	11644703.16	1.495
24	CCB	0.063	3156.96	7.933	0.050	2310.33	11.582
25	CCVL	0.543	25325.93	3.282	0.948	43936.76	0.992
26	400-176914-b-...	0.021	1126.75	5.324	0.924	37147.75	1.813

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	400-176914-b-...	0.037	1610.11	19.918	0.016	630.05	16.647
28	400-176914-b-...	0.054	2273.51	4.910	0.016	640.05	7.344
29	400-176914-b-...	0.042	1863.47	11.074	0.165	6301.62	2.772
30	CCV	260.218	11308273.90	1.399	259.588	11339366.50	2.014
31	CCB	0.068	3356.95	8.704	0.048	2183.60	0.477
32	mb 500-51388...	0.090	4547.15	11.565	0.005	300.02	12.192
33	lcs 500-513882...	105.769	4645945.85	0.440	105.179	4643556.91	1.162
34	500-171924-d-...	0.054	2626.90	8.571	0.113	4867.70	6.899
35	500-171924-d-...	0.029	1600.11	20.780	0.085	3812.32	7.248
36	500-171924-d-...	0.054	2673.56	10.638	0.223	9747.09	3.535
37	500-171924-d-...	0.041	2120.16	18.758	0.139	6148.22	4.397
38	500-171924-d-...	0.027	1480.10	20.331	0.070	3080.48	4.867
39	500-171924-d-...	0.033	1750.13	5.944	0.161	7032.04	2.954
40	CCV	263.401	11473407.75	1.152	272.700	11940875.24	0.729
41	CCB	0.045	2346.84	6.666	0.027	1256.79	14.889
42	500-171924-d-...	0.076	2783.59	9.089	0.315	10584.25	4.721
43	500-171924-d-...	0.094	3960.38	7.238	4.311	168714.89	1.177
44	500-171924-d-...	0.071	3463.68	6.212	0.385	17107.25	3.374
45	500-171924-d-...	0.061	2856.91	6.176	0.669	27944.18	5.133
46	500-171924-d-...	0.060	2730.23	15.525	0.683	27777.27	0.566
47	500-171924-d-...	106.149	4874208.78	0.632	109.131	5036723.36	1.461
48	500-171924-d-...	109.722	4914680.47	0.611	112.212	5052071.59	0.968
49	500-171924-d-...	0.038	2030.15	8.819	0.135	6091.54	4.619
50	CCV	226.429	11457017.64	7.438	235.057	11953782.74	7.731
51	CCB	0.045	2416.86	8.246	0.025	1216.78	5.777
52	CCVL	0.530	24685.71	1.703	0.948	43802.99	4.126
53	mb 500-51388...	0.018	1146.73	19.701	0.002	163.34	24.177
54	lcs 500-513886...	104.047	4720802.27	1.432	103.819	4734739.93	1.637
55	500-171453-a-...	0.037	1846.81	3.623	0.032	1360.21	23.981
56	500-171453-a-...	0.047	2273.51	5.639	0.002	126.68	52.309

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	500-171453-a-...	44.954	2105045.57	1.403	0.001	76.67	113.790
58	CCV	259.183	11284982.65	0.815	265.152	11605545.66	0.976
59	CCB	0.073	3620.35	7.020	0.052	2396.99	10.843
60	mb 500-51388...	0.025	1450.09	10.833	0.009	436.69	29.402
61	lcs 500-513883...	105.356	4689874.75	1.919	104.766	4687287.22	3.225
62	500-172276-e-...	0.249	11558.91	0.667	0.820	37264.96	1.920
63	500-172276-e-...	1.068	46743.46	5.275	1.234	54003.68	2.493
64	500-172276-e-...	0.426	19025.60	1.608	0.592	26184.31	0.741
65	500-172276-e-...	0.283	12619.33	5.405	0.578	25272.60	5.957
66	500-172276-g-...	0.239	10668.65	1.947	0.367	16002.67	2.876
67	500-172276-d-...	0.091	4340.44	8.108	0.861	38116.96	1.482
68	500-172276-d-...	0.138	6474.17	5.792	1.258	56332.10	0.940
69	500-172276-d-...	0.100	4800.53	2.166	2.257	100917.15	1.580
70	CCV	258.237	11289288.53	1.011	268.460	11796613.16	0.914
71	CCB	0.112	5413.95	16.257	0.097	4474.20	22.097
72	500-172276-c-...	0.098	4627.16	6.938	1.429	63196.05	1.133
73	500-172276-e-...	0.277	12642.66	3.283	0.133	5991.47	4.786
74	500-172276-g-...	0.255	11335.58	7.609	0.123	5381.26	3.615
75	500-172276-e-...	1.295	56467.00	1.238	0.544	23743.20	1.212
76	500-172276-g-...	1.710	74558.64	2.964	0.603	26354.42	1.579
77	500-172276-g-...	1.704	73660.25	2.466	0.602	26080.69	0.945
78	500-172276-g-...	111.968	4958042.50	1.614	113.009	5030089.72	1.396
79	500-172276-g-...	110.749	4810221.49	1.754	111.262	4857783.57	1.093
80	500-172276-g-...	0.345	15633.77	5.467	0.138	6191.61	5.787
81	CCV	259.944	11248551.60	0.269	275.105	11965662.74	0.692
82	CCB	0.069	3423.67	14.052	0.044	2043.58	3.711
83	CCVL	0.565	25626.16	0.263	0.984	44291.28	2.661
84	mb 500-51371...	0.042	2236.83	6.977	0.009	443.36	9.658
85	lcs 500-513710...	104.635	4650737.10	0.850	105.384	4708323.68	1.749
86	500-172276-d-...	5.829	255788.15	1.427	0.893	39353.96	3.258

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
87	500-172276-d-...	66.097	2958325.10	0.743	1.481	66682.34	2.088
88	500-172276-d-...	6.772	293648.48	2.214	0.672	29299.91	2.595
89	500-172276-d-...	280.318	14299971.03	1.440	0.817	41951.08	4.069
90	500-172276-f-...	0.139	6657.59	5.290	0.001	96.67	21.626
91	500-172276-f-...	0.087	4280.45	9.691	0.001	86.67	42.097
92	500-172276-f-...	4.946	217836.19	2.343	0.383	16987.06	3.381
93	500-172276-c-...	9.637	430388.06	1.336	1.099	49357.50	1.410
94	CCV	260.981	11370958.78	1.123	275.529	12067277.74	1.577
95	CCB	0.070	3526.99	3.976	0.043	2023.66	20.591
96	500-172276-c-...	1.650	72381.49	2.234	1.362	59832.74	4.119
97	500-172276-c-...	2.903	129480.33	3.461	2.392	106976.54	4.525
98	500-172276-d-...	2.289	99885.33	1.110	1.519	66447.14	0.191
99	500-172276-d-...	16.052	711483.81	1.667	0.262	11725.21	4.419
100	500-172276-f-...	4.675	202408.42	1.875	0.157	6855.23	2.035
101	500-172276-d-...	325.266	15600165.08	3.491	1.090	52611.79	3.030
102	CCV	260.567	11335479.42	0.894	279.019	12201275.65	1.600
103	CCB	0.096	4663.84	11.499	0.057	2617.03	14.770
104	500-172276-f-...	20.453	886587.76	0.946	0.482	21035.81	2.945
105	500-172276-f-...	19.992	879001.13	0.873	0.475	21019.06	3.603
106	500-172276-f-...	164.607	7294252.34	2.281	104.921	4673279.82	3.091
107	500-172276-f-...	125.895	5590311.71	2.461	105.660	4716373.89	2.514
108	500-172276-f-...	4.140	184588.61	2.066	0.122	5511.37	0.513
109	500-172715-d-...	0.346	14259.96	7.158	0.488	19797.46	1.268
110	500-172885-a-...	0.086	3737.01	5.884	6.126	247332.54	1.090
111	500-172885-a-...	1.401	57765.66	1.367	6.180	254750.06	1.741
112	500-171541-d-...	0.059	2940.25	4.159	0.006	333.36	28.291
113	500-171541-d-...	0.035	1880.13	2.592	0.003	190.01	16.277
114	CCV	261.131	11047699.16	1.763	279.001	11864717.32	2.180
115	CCB	0.083	3960.36	11.809	0.060	2710.39	14.081
116	CCVL	0.561	24992.55	0.960	0.990	43756.17	3.470

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
117	mb 500-51371...	0.025	1473.43	12.955	0.009	473.36	16.865
118	lcs 500-513712...	105.051	4587073.17	1.117	106.591	4678455.04	1.883
119	500-172425-f-...	5.503	225162.75	1.334	2.913	119702.19	0.979
120	500-172425-g-...	4.123	168893.65	2.306	2.895	119043.86	2.425
121	500-172425-f-...	0.124	5597.35	2.803	0.219	9400.07	5.687
122	500-172425-f-...	0.109	4817.20	7.101	0.218	9113.27	1.012
123	500-172425-f-...	106.290	4408394.28	1.500	111.425	4645593.68	0.908
124	500-172425-f-...	105.477	4363646.29	1.750	110.768	4606286.29	1.721
125	500-172425-f-...	0.067	3233.63	9.767	0.070	3120.47	4.175
126	500-172425-g-...	0.067	3066.94	12.568	0.155	6465.04	7.352
127	CCV	260.549	10879827.44	0.741	285.684	11991611.07	0.972
128	CCB	0.086	3983.71	8.198	0.073	3177.16	13.582
129	500-172425-g-...	0.075	3420.32	5.796	0.178	7405.51	0.384
130	500-172425-g-...	101.475	4231022.26	1.508	107.398	4501085.04	1.513
131	500-172425-g-...	103.890	4314842.36	1.181	109.296	4562540.66	2.308
132	500-172425-g-...	0.050	2456.86	5.616	0.064	2763.74	11.041
133	500-172425-f-...	0.058	2773.57	3.751	0.290	12459.11	1.808
134	500-172425-g-...	0.042	2096.83	13.983	0.282	12118.82	4.332
135	500-172425-f-...	5.227	210193.84	2.559	2.931	118351.77	1.798
136	500-172425-g-...	4.313	174351.47	0.824	2.906	117938.75	0.505
137	500-172425-f-...	0.095	4293.75	7.586	0.701	29487.17	1.674
138	500-172425-g-...	0.096	4287.12	6.624	0.695	29019.51	1.408
139	CCV	258.054	10731510.00	1.888	286.699	11985443.16	1.804
140	CCB	0.091	4240.43	10.776	0.070	3070.46	6.403
141	500-172384-d-...	0.243	9851.73	1.245	1.642	65037.70	3.036
142	500-172384-d-...	0.212	8631.34	4.507	1.579	62616.96	1.984
143	500-172384-d-...	9.068	366314.23	1.250	0.528	21453.17	2.416
144	500-172384-d-...	1.267	52284.65	1.569	0.798	32941.21	2.434
145	500-172384-d-...	0.143	6070.77	3.241	0.420	17090.48	3.978
146	500-172384-d-...	0.094	3910.36	7.508	5.408	209969.98	2.124

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
147	500-172384-d-...	0.188	7637.74	10.557	1.765	69461.00	2.825
148	500-172384-d-...	0.352	14336.70	1.915	1.211	48557.68	3.379
149	500-172384-d-...	0.053	2400.19	12.691	0.017	723.38	12.664
150	500-172494-a-...	7.086	321191.85	1.272	0.159	7278.78	4.433
151	CCV	259.430	10613194.84	1.169	290.699	11954202.74	1.636
152	CCB	0.077	3537.00	12.888	0.066	2827.07	14.285
153	CCVL	0.546	23528.13	4.109	0.994	42522.45	4.339
154	mb 500-51382...	0.040	2020.15	14.327	0.010	470.03	14.071
155	lcs 500-513820...	105.509	4424495.06	2.668	108.622	4578411.08	2.887
156	500-172924-c-...	0.294	12679.39	4.395	0.115	4901.03	4.590
157	500-172924-c-...	0.293	12369.20	1.077	0.095	3967.37	5.551
158	500-172924-c-...	105.198	4299077.41	1.597	110.147	4524372.64	1.918
159	500-172924-c-...	103.999	4296719.81	1.207	108.608	4510202.95	2.135
160	500-172924-c-...	0.095	4387.10	0.465	0.046	2040.24	7.144
161	500-172927-c-...	0.713	28118.08	1.941	0.892	35042.66	2.466
162	500-172430-g-...	0.055	2230.17	4.479	13.659	488351.76	1.537
163	500-172430-g-...	0.153	6330.84	6.650	2.432	96664.91	3.904
164	CCV	257.939	10466594.48	2.167	292.372	11925176.07	2.454
165	CCB	0.074	3396.97	5.510	0.063	2663.72	7.074
166	500-172430-g-...	0.186	7264.36	5.662	11.124	419323.34	1.782
167	500-172430-g-...	0.147	6177.46	1.005	1.301	52260.27	1.859
168	500-172430-g-...	0.082	3533.66	8.702	0.093	3730.64	3.653
169	500-172430-g-...	0.236	9918.40	2.049	1.025	42051.27	3.721
170	500-172430-g-...	0.064	2866.92	6.140	2.614	105974.72	2.348
171	500-172430-g-...	0.039	1820.13	9.610	0.701	27873.89	0.212
172	500-172430-g-...	0.077	3196.96	12.771	0.649	24731.62	1.849
173	500-172430-g-...	0.097	3773.69	7.554	21.547	780427.59	1.370
174	500-172430-g-...	0.090	3727.36	8.523	1.477	56625.94	0.578
175	500-172430-g-...	0.072	2856.91	2.612	12.714	460211.41	1.098
176	CCV	259.647	10299806.15	1.440	295.328	11775503.57	2.299

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
177	CCB	0.073	3336.96	11.081	0.064	2683.71	12.755

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	115942.37	100.0	105031.81	100.0	186346.62	100.0
2	ICIS	114965.82	100.0	106895.35	100.0	186431.23	100.0
3	Std1	116059.11	101.0	106908.35	100.0	186424.22	100.0
4	Std2	110502.40	96.1	101981.58	95.4	176969.49	94.9
5	Std3	108708.33	94.6	102286.75	95.7	174327.45	93.5
6	S1	110735.18	96.3	102239.48	95.6	174513.82	93.6
7	ICV	108897.81	94.7	102371.81	95.8	177265.09	95.1
8	ICB	107209.51	93.3	100955.60	94.4	179119.62	96.1
9	ICVL	111375.96	96.9	105507.41	98.7	184613.77	99.0
10	icsa	113545.87	98.8	102638.44	96.0	169868.70	91.1
11	icsab	112124.14	97.5	101378.96	94.8	168499.55	90.4
12	CRI	112398.41	97.8	102850.42	96.2	186153.94	99.9
13	CCV	111385.07	96.9	103486.70	96.8	177524.48	95.2
14	CCB	109533.64	95.3	101192.46	94.7	182258.13	97.8
15	mb 500-51356...	104009.10	90.5	96806.35	90.6	172682.92	92.6
16	lcs 500-513568...	111201.88	96.7	102783.26	96.2	180859.12	97.0
17	500-171892-g-...	108192.55	94.1	183613.86	171.8	176576.49	94.7
18	500-171892-h-...	110090.19	95.8	107801.23	100.8	178911.19	96.0
19	500-171892-g-...	115177.97	100.2	614685.74	575.0	170600.37	91.5
20	500-171892-g-...	112007.19	97.4	175743.53	164.4	171464.96	92.0
21	500-171892-g-...	110761.21	96.3	103719.48	97.0	170549.55	91.5
22	500-171892-g-...	111428.87	96.9	146323.65	136.9	169754.72	91.1
23	CCV	107205.71	93.3	98889.80	92.5	173457.15	93.0
24	CCB	107054.36	93.1	101216.88	94.7	181463.68	97.3
25	CCVL	108710.55	94.6	101857.66	95.3	182793.28	98.0
26	400-176914-b-...	111981.86	97.4	100520.37	94.0	166602.70	89.4

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
27	400-176914-b-...	111362.38	96.9	95745.08	89.6	155421.38	83.4
28	400-176914-b-...	113502.93	98.7	97736.34	91.4	155070.97	83.2
29	400-176914-b-...	114953.91	100.0	102482.84	95.9	161565.92	86.7
30	CCV	116237.98	101.1	102061.42	95.5	175868.09	94.3
31	CCB	113526.30	98.7	103028.11	96.4	182261.52	97.8
32	mb 500-51388...	120989.93	105.2	110635.19	103.5	193830.65	104.0
33	lcs 500-513882...	111495.96	97.0	103605.69	96.9	182260.67	97.8
34	500-171924-d-...	114690.11	99.8	104798.83	98.0	176347.13	94.6
35	500-171924-d-...	114059.86	99.2	105362.24	98.6	178982.61	96.0
36	500-171924-d-...	114556.22	99.6	103879.57	97.2	177351.88	95.1
37	500-171924-d-...	114640.19	99.7	106224.49	99.4	178639.88	95.8
38	500-171924-d-...	114922.11	100.0	104704.96	98.0	177600.22	95.3
39	500-171924-d-...	113448.13	98.7	101549.03	95.0	175601.72	94.2
40	CCV	102379.71	89.1	96013.41	89.8	170842.46	91.6
41	CCB	108171.58	94.1	100529.21	94.0	180997.15	97.1
42	500-171924-d-...	114141.01	99.3	105194.83	98.4	176418.17	94.6
43	500-171924-d-...	101001.38	87.9	93887.23	87.8	160542.67	86.1
44	500-171924-d-...	113496.10	98.7	104010.69	97.3	177235.83	95.1
45	500-171924-d-...	114532.78	99.6	104936.22	98.2	178879.40	95.9
46	500-171924-d-...	112671.04	98.0	105054.40	98.3	177525.14	95.2
47	500-171924-d-...	108852.65	94.7	102954.10	96.3	175425.62	94.1
48	500-171924-d-...	110497.95	96.1	101948.03	95.4	172745.52	92.7
49	500-171924-d-...	110257.58	95.9	101702.99	95.1	177730.92	95.3
50	CCV	105189.24	91.5	98741.69	92.4	171547.29	92.0
51	CCB	107308.94	93.3	98819.81	92.4	181952.84	97.6
52	CCVL	109550.26	95.3	101297.37	94.8	181589.83	97.4
53	mb 500-51388...	108185.43	94.1	100402.13	93.9	182129.23	97.7
54	lcs 500-513886...	107072.02	93.1	99261.40	92.9	175783.45	94.3
55	500-171453-a-...	119230.96	103.7	111225.56	104.1	183653.06	98.5
56	500-171453-a-...	122775.46	106.8	111421.66	104.2	186226.44	99.9

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
57	500-171453-a-...	116129.86	101.0	108177.71	101.2	188496.51	101.1
58	CCV	109056.98	94.9	100710.89	94.2	174245.17	93.5
59	CCB	106809.93	92.9	99150.09	92.8	181996.39	97.6
60	mb 500-51388...	108343.07	94.2	99888.24	93.4	180602.75	96.9
61	lcs 500-513883...	106853.76	92.9	100019.90	93.6	176714.15	94.8
62	500-172276-e-...	113146.33	98.4	104607.76	97.9	178128.99	95.5
63	500-172276-e-...	115911.44	100.8	104876.03	98.1	181505.81	97.4
64	500-172276-e-...	117908.81	102.6	106316.38	99.5	178324.36	95.7
65	500-172276-e-...	115623.02	100.6	107603.88	100.7	179536.25	96.3
66	500-172276-g-...	113429.23	98.7	103564.43	96.9	176010.76	94.4
67	500-172276-d-...	112462.36	97.8	103933.83	97.2	176097.00	94.5
68	500-172276-d-...	112723.72	98.0	104352.72	97.6	177750.62	95.3
69	500-172276-d-...	110584.10	96.2	104912.54	98.1	176430.74	94.6
70	CCV	104462.02	90.9	98369.78	92.0	171950.04	92.2
71	CCB	107218.57	93.3	100509.77	94.0	182232.39	97.7
72	500-172276-c-...	113117.36	98.4	105865.89	99.0	179223.69	96.1
73	500-172276-e-...	113201.31	98.5	105865.45	99.0	178570.17	95.8
74	500-172276-g-...	116053.43	100.9	102252.65	95.7	178436.66	95.7
75	500-172276-e-...	114663.40	99.7	104031.09	97.3	177264.12	95.1
76	500-172276-g-...	113391.82	98.6	103866.77	97.2	176903.06	94.9
77	500-172276-g-...	113191.03	98.5	102805.67	96.2	175415.39	94.1
78	500-172276-g-...	111178.10	96.7	102239.08	95.6	172549.98	92.6
79	500-172276-g-...	108342.70	94.2	102199.30	95.6	171468.22	92.0
80	500-172276-g-...	106648.54	92.8	100589.52	94.1	176977.44	94.9
81	CCV	103828.56	90.3	96371.50	90.2	169191.59	90.8
82	CCB	105370.73	91.7	97320.00	91.0	179194.25	96.1
83	CCVL	106504.45	92.6	98692.39	92.3	177599.47	95.3
84	mb 500-51371...	106084.67	92.3	98989.67	92.6	179749.65	96.4
85	lcs 500-513710...	102044.63	88.8	97551.46	91.3	172783.01	92.7
86	500-172276-d-...	102952.91	89.6	110055.16	103.0	168282.78	90.3

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
87	500-172276-d-...	104260.24	90.7	148827.75	139.2	170222.01	91.3
88	500-172276-d-...	102181.93	88.9	102561.49	95.9	170353.70	91.4
89	500-172276-d-...	112186.67	97.6	189144.86	176.9	170293.73	91.3
90	500-172276-f-...	108017.16	94.0	99959.32	93.5	180440.66	96.8
91	500-172276-f-...	105646.07	91.9	99499.48	93.1	181276.36	97.2
92	500-172276-f-...	99817.68	86.8	99718.09	93.3	166679.93	89.4
93	500-172276-c-...	108748.16	94.6	165968.46	155.3	166496.87	89.3
94	CCV	100180.93	87.1	93468.57	87.4	166677.01	89.4
95	CCB	100348.54	87.3	95738.06	89.6	172723.23	92.6
96	500-172276-c-...	101011.10	87.9	101522.52	95.0	167283.07	89.7
97	500-172276-c-...	101963.54	88.7	111248.10	104.1	166609.41	89.4
98	500-172276-d-...	100505.31	87.4	106108.16	99.3	165302.35	88.7
99	500-172276-d-...	102168.82	88.9	120562.20	112.8	165437.76	88.7
100	500-172276-f-...	100596.44	87.5	101073.24	94.6	165906.49	89.0
101	500-172276-d-...	111901.95	97.3	311132.16	291.1	163366.31	87.6
102	CCV	97880.26	85.1	93133.28	87.1	165169.24	88.6
103	CCB	98261.96	85.5	93807.05	87.8	169118.19	90.7
104	500-172276-f-...	99677.68	86.7	99065.36	92.7	163337.51	87.6
105	500-172276-f-...	102601.24	89.2	99664.06	93.2	164707.56	88.3
106	500-172276-f-...	100210.78	87.2	107627.17	100.7	164410.01	88.2
107	500-172276-f-...	99761.40	86.8	100194.05	93.7	164845.30	88.4
108	500-172276-f-...	99499.49	86.5	96294.23	90.1	169263.19	90.8
109	500-172715-d-...	101458.38	88.3	94141.86	88.1	159611.54	85.6
110	500-172885-a-...	99318.35	86.4	92995.87	87.0	154359.57	82.8
111	500-172885-a-...	102714.56	89.3	116631.75	109.1	155216.04	83.3
112	500-171541-d-...	104026.48	90.5	95539.76	89.4	170942.99	91.7
113	500-171541-d-...	104506.26	90.9	95723.64	89.5	169310.86	90.8
114	CCV	98121.58	85.3	90823.28	85.0	158789.68	85.2
115	CCB	100042.77	87.0	94359.76	88.3	172098.90	92.3
116	CCVL	100056.04	87.0	93407.79	87.4	169990.16	91.2

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
117	mb 500-51371...	101102.26	87.9	94362.46	88.3	171431.59	92.0
118	lcs 500-513712...	97274.35	84.6	91509.93	85.6	164184.54	88.1
119	500-172425-f-...	95041.36	82.7	90033.13	84.2	154562.86	82.9
120	500-172425-g-...	94226.59	82.0	88819.12	83.1	153007.02	82.1
121	500-172425-f-...	97531.16	84.8	92803.98	86.8	156308.97	83.8
122	500-172425-f-...	95808.63	83.3	92086.19	86.1	154470.95	82.9
123	500-172425-f-...	94263.39	82.0	90941.08	85.1	155353.24	83.3
124	500-172425-f-...	92775.62	80.7	89167.77	83.4	152921.60	82.0
125	500-172425-f-...	95060.90	82.7	90250.78	84.4	162233.11	87.0
126	500-172425-g-...	91642.74	79.7	86811.85	81.2	152375.11	81.7
127	CCV	89621.87	78.0	84121.97	78.7	153072.33	82.1
128	CCB	91311.04	79.4	87315.31	81.7	161001.07	86.4
129	500-172425-g-...	91940.76	80.0	88927.12	83.2	155006.87	83.1
130	500-172425-g-...	90419.53	78.6	87518.91	81.9	151638.52	81.3
131	500-172425-g-...	91052.62	79.2	87174.27	81.6	152549.90	81.8
132	500-172425-g-...	94105.79	81.9	87354.39	81.7	157763.52	84.6
133	500-172425-f-...	91588.51	79.7	85884.23	80.3	155215.31	83.3
134	500-172425-g-...	89913.63	78.2	85622.60	80.1	152758.45	81.9
135	500-172425-f-...	87146.02	75.8	82577.00	77.3	146304.35	78.5
136	500-172425-g-...	88325.21	76.8	83190.43	77.8	144451.76	77.5
137	500-172425-f-...	88214.93	76.7	87150.16	81.5	149623.20	80.3
138	500-172425-g-...	88800.69	77.2	87354.40	81.7	151436.44	81.2
139	CCV	87608.73	76.2	84624.32	79.2	149691.81	80.3
140	CCB	91599.14	79.7	87073.13	81.5	160872.14	86.3
141	500-172384-d-...	89675.23	78.0	85344.16	79.8	146818.55	78.8
142	500-172384-d-...	89226.46	77.6	86218.57	80.7	146842.14	78.8
143	500-172384-d-...	92111.41	80.1	87861.36	82.2	145147.47	77.9
144	500-172384-d-...	92392.73	80.4	86708.22	81.1	151347.51	81.2
145	500-172384-d-...	90570.58	78.8	86014.98	80.5	149805.32	80.4
146	500-172384-d-...	87658.60	76.2	82704.31	77.4	140617.52	75.4

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
147	500-172384-d-...	89863.29	78.2	86252.82	80.7	145886.95	78.3
148	500-172384-d-...	89950.32	78.2	85599.02	80.1	146469.26	78.6
149	500-172384-d-...	90884.67	79.1	85525.80	80.0	146856.71	78.8
150	500-172494-a-...	89384.20	77.7	99164.17	92.8	147401.00	79.1
151	CCV	89202.79	77.6	84054.92	78.6	150285.93	80.6
152	CCB	87745.56	76.3	83709.31	78.3	156383.49	83.9
153	CCVL	88298.11	76.8	85042.89	79.6	153724.50	82.5
154	mb 500-51382...	89029.48	77.4	83380.87	78.0	158604.96	85.1
155	lcs 500-513820...	84737.02	73.7	80714.42	75.5	149044.65	79.9
156	500-172924-c-...	88847.72	77.3	85220.86	79.7	149213.03	80.0
157	500-172924-c-...	88204.88	76.7	84603.81	79.1	150913.35	80.9
158	500-172924-c-...	86569.85	75.3	81457.78	76.2	145775.51	78.2
159	500-172924-c-...	87347.04	76.0	82135.32	76.8	148332.23	79.6
160	500-172924-c-...	90328.68	78.6	86050.84	80.5	154444.57	82.8
161	500-172927-c-...	85852.68	74.7	83301.12	77.9	142443.69	76.4
162	500-172430-g-...	92960.08	80.9	94258.75	88.2	138597.22	74.3
163	500-172430-g-...	89420.58	77.8	93524.86	87.5	144995.80	77.8
164	CCV	84801.09	73.8	81850.03	76.6	144488.41	77.5
165	CCB	85658.57	74.5	83199.61	77.8	153065.84	82.1
166	500-172430-g-...	84211.18	73.2	96491.96	90.3	136513.71	73.2
167	500-172430-g-...	85360.47	74.2	118017.10	110.4	142689.34	76.5
168	500-172430-g-...	83199.35	72.4	177299.18	165.9	143136.82	76.8
169	500-172430-g-...	84147.20	73.2	99076.53	92.7	145203.62	77.9
170	500-172430-g-...	83253.30	72.4	83012.30	77.7	142003.56	76.2
171	500-172430-g-...	83209.38	72.4	84342.94	78.9	140871.16	75.6
172	500-172430-g-...	85947.08	74.8	93186.11	87.2	137222.93	73.6
173	500-172430-g-...	88613.48	77.1	83528.55	78.1	137720.23	73.9
174	500-172430-g-...	85290.25	74.2	139865.08	130.8	139368.45	74.8
175	500-172430-g-...	87635.37	76.2	84771.01	79.3	137461.35	73.7
176	CCV	85153.03	74.1	80815.40	75.6	143844.62	77.2

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
177	CCB	85353.09	74.2	80606.88	75.4	150524.91	80.7

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	229208.48	100.0	135670.02	100.0
2	ICIS	226789.11	100.0	134130.74	100.0
3	Std1	233732.83	103.1	138175.39	103.0
4	Std2	231746.80	102.2	132801.10	99.0
5	Std3	231124.52	101.9	128323.51	95.7
6	S1	231198.91	101.9	129095.82	96.2
7	ICV	232179.38	102.4	134840.71	100.5
8	ICB	225265.97	99.3	136074.99	101.4
9	ICVL	237492.03	104.7	142595.79	106.3
10	icsa	230165.71	101.5	127001.27	94.7
11	icsab	228244.02	100.6	126067.16	94.0
12	CRI	235285.62	103.7	142797.41	106.5
13	CCV	236902.47	104.5	134203.84	100.1
14	CCB	231991.68	102.3	139736.54	104.2
15	mb 500-51356...	215783.41	95.1	133124.97	99.3
16	lcs 500-513568...	234730.16	103.5	136335.45	101.6
17	500-171892-g-...	241195.52	106.4	137825.77	102.8
18	500-171892-h-...	234951.09	103.6	139958.35	104.3
19	500-171892-g-...	279049.46	123.0	132262.72	98.6
20	500-171892-g-...	234829.86	103.5	129119.90	96.3
21	500-171892-g-...	229604.69	101.2	130947.87	97.6
22	500-171892-g-...	234576.62	103.4	131271.32	97.9
23	CCV	230805.08	101.8	134072.36	100.0
24	CCB	229998.17	101.4	137079.45	102.2
25	CCVL	228781.94	100.9	140433.51	104.7
26	400-176914-b-...	219561.20	96.8	121889.25	90.9

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
27	400-176914-b-...	205038.97	90.4	109298.41	81.5
28	400-176914-b-...	205517.58	90.6	112322.97	83.7
29	400-176914-b-...	209229.65	92.3	115004.54	85.7
30	CCV	228682.73	100.8	132561.69	98.8
31	CCB	227253.80	100.2	135438.27	101.0
32	mb 500-51388...	240421.92	106.0	143036.66	106.6
33	lcs 500-513882...	232862.18	102.7	133981.76	99.9
34	500-171924-d-...	234400.61	103.4	129428.77	96.5
35	500-171924-d-...	238165.71	105.0	134677.77	100.4
36	500-171924-d-...	235051.17	103.6	132001.58	98.4
37	500-171924-d-...	238394.91	105.1	132761.28	99.0
38	500-171924-d-...	237826.42	104.9	132243.38	98.6
39	500-171924-d-...	236937.04	104.5	131883.78	98.3
40	CCV	226578.25	99.9	132884.70	99.1
41	CCB	226710.14	100.0	137044.69	102.2
42	500-171924-d-...	236781.15	104.4	101828.35	75.9
43	500-171924-d-...	209464.55	92.4	118735.14	88.5
44	500-171924-d-...	238126.60	105.0	134498.86	100.3
45	500-171924-d-...	237726.93	104.8	126585.70	94.4
46	500-171924-d-...	239662.62	105.7	123230.09	91.9
47	500-171924-d-...	240128.10	105.9	140062.44	104.4
48	500-171924-d-...	235753.47	104.0	136624.75	101.9
49	500-171924-d-...	228305.01	100.7	135757.55	101.2
50	CCV	227730.77	100.4	154891.61	115.5
51	CCB	228310.31	100.7	139565.16	104.1
52	CCVL	227361.14	100.3	140044.85	104.4
53	mb 500-51388...	228829.95	100.9	139386.45	103.9
54	lcs 500-513886...	234907.39	103.6	138404.12	103.2
55	500-171453-a-...	237444.62	104.7	125443.12	93.5
56	500-171453-a-...	237745.60	104.8	127399.55	95.0

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
57	500-171453-a-...	235812.88	104.0	142819.01	106.5
58	CCV	230062.84	101.4	132820.66	99.0
59	CCB	226573.85	99.9	137883.66	102.8
60	mb 500-51388...	227341.23	100.2	137742.14	102.7
61	lcs 500-513883...	232830.26	102.7	135794.68	101.2
62	500-172276-e-...	238812.21	105.3	137711.45	102.7
63	500-172276-e-...	235804.75	104.0	132690.93	98.9
64	500-172276-e-...	236745.18	104.4	133978.28	99.9
65	500-172276-e-...	236141.14	104.1	132491.67	98.8
66	500-172276-g-...	233331.32	102.9	131832.47	98.3
67	500-172276-d-...	236994.52	104.5	134251.50	100.1
68	500-172276-d-...	235951.35	104.0	135804.78	101.2
69	500-172276-d-...	234125.54	103.2	135645.73	101.1
70	CCV	225813.85	99.6	133352.39	99.4
71	CCB	225128.43	99.3	138253.12	103.1
72	500-172276-c-...	235093.24	103.7	134128.80	100.0
73	500-172276-e-...	235333.09	103.8	135645.64	101.1
74	500-172276-g-...	234509.43	103.4	131787.73	98.3
75	500-172276-e-...	233533.08	103.0	132242.85	98.6
76	500-172276-g-...	234950.67	103.6	132414.09	98.7
77	500-172276-g-...	232464.22	102.5	131295.33	97.9
78	500-172276-g-...	232149.27	102.4	135086.50	100.7
79	500-172276-g-...	233567.37	103.0	132505.59	98.8
80	500-172276-g-...	225354.10	99.4	135152.61	100.8
81	CCV	224781.77	99.1	131998.09	98.4
82	CCB	224127.25	98.8	136692.55	101.9
83	CCVL	226070.41	99.7	136533.63	101.8
84	mb 500-51371...	225122.46	99.3	138497.96	103.3
85	lcs 500-513710...	226799.71	100.0	135570.99	101.1
86	500-172276-d-...	225331.28	99.4	133695.22	99.7

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
87	500-172276-d-...	228556.79	100.8	136505.99	101.8
88	500-172276-d-...	225558.04	99.5	132144.93	98.5
89	500-172276-d-...	233731.51	103.1	155636.70	116.0
90	500-172276-f-...	225872.35	99.6	138811.18	103.5
91	500-172276-f-...	225917.56	99.6	138334.13	103.1
92	500-172276-f-...	225815.08	99.6	134185.81	100.0
93	500-172276-c-...	231393.46	102.0	136133.37	101.5
94	CCV	225529.01	99.4	132911.84	99.1
95	CCB	223348.74	98.5	138110.34	103.0
96	500-172276-c-...	224310.77	98.9	133244.70	99.3
97	500-172276-c-...	223779.26	98.7	135740.46	101.2
98	500-172276-d-...	223708.19	98.6	132649.89	98.9
99	500-172276-d-...	225034.87	99.2	135162.01	100.8
100	500-172276-f-...	224369.67	98.9	131869.40	98.3
101	500-172276-d-...	242510.73	106.9	146350.71	109.1
102	CCV	223666.14	98.6	132696.52	98.9
103	CCB	219500.47	96.8	137240.73	102.3
104	500-172276-f-...	221868.78	97.8	132175.52	98.5
105	500-172276-f-...	225861.57	99.6	134059.29	99.9
106	500-172276-f-...	225587.42	99.5	135184.62	100.8
107	500-172276-f-...	225013.04	99.2	135468.25	101.0
108	500-172276-f-...	222140.71	98.0	135760.58	101.2
109	500-172715-d-...	215739.24	95.1	122961.28	91.7
110	500-172885-a-...	213229.56	94.0	122505.02	91.3
111	500-172885-a-...	214715.42	94.7	125078.35	93.3
112	500-171541-d-...	223591.93	98.6	134253.99	100.1
113	500-171541-d-...	218815.38	96.5	133468.51	99.5
114	CCV	219656.28	96.9	129061.65	96.2
115	CCB	218261.87	96.2	133765.68	99.7
116	CCVL	216443.62	95.4	134059.14	99.9

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
117	mb 500-51371...	219439.90	96.8	136557.68	101.8
118	lcs 500-513712...	222349.13	98.0	133190.61	99.3
119	500-172425-f-...	213112.47	94.0	124650.08	92.9
120	500-172425-g-...	212275.73	93.6	124739.92	93.0
121	500-172425-f-...	215089.49	94.8	129726.62	96.7
122	500-172425-f-...	215978.01	95.2	126350.24	94.2
123	500-172425-f-...	215082.92	94.8	126533.73	94.3
124	500-172425-f-...	214903.16	94.8	126208.77	94.1
125	500-172425-f-...	216921.16	95.6	132473.45	98.8
126	500-172425-g-...	212199.80	93.6	125499.82	93.6
127	CCV	210028.52	92.6	127369.91	95.0
128	CCB	210035.73	92.6	130712.98	97.5
129	500-172425-g-...	215764.14	95.1	125821.47	93.8
130	500-172425-g-...	210971.90	93.0	127193.67	94.8
131	500-172425-g-...	211028.85	93.1	126691.97	94.5
132	500-172425-g-...	213640.00	94.2	129314.23	96.4
133	500-172425-f-...	211772.91	93.4	129902.15	96.8
134	500-172425-g-...	212587.35	93.7	129971.48	96.9
135	500-172425-f-...	203919.21	89.9	122528.18	91.3
136	500-172425-g-...	204605.20	90.2	123106.10	91.8
137	500-172425-f-...	205545.72	90.6	127464.81	95.0
138	500-172425-g-...	206418.13	91.0	126541.60	94.3
139	CCV	207215.65	91.4	126882.08	94.6
140	CCB	210371.15	92.8	131566.43	98.1
141	500-172384-d-...	204943.27	90.4	120128.73	89.6
142	500-172384-d-...	205733.11	90.7	120219.28	89.6
143	500-172384-d-...	204029.80	90.0	123135.97	91.8
144	500-172384-d-...	209309.66	92.3	125102.84	93.3
145	500-172384-d-...	207785.55	91.6	123193.33	91.8
146	500-172384-d-...	201100.27	88.7	117801.06	87.8

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
147	500-172384-d-...	204451.36	90.2	119369.23	89.0
148	500-172384-d-...	204688.83	90.3	121549.51	90.6
149	500-172384-d-...	204582.36	90.2	120320.53	89.7
150	500-172494-a-...	206048.33	90.9	138140.85	103.0
151	CCV	207597.40	91.5	124786.39	93.0
152	CCB	203914.33	89.9	127750.88	95.2
153	CCVL	207282.20	91.4	129684.79	96.7
154	mb 500-51382...	205371.53	90.6	130648.40	97.4
155	lcs 500-513820...	206169.35	90.9	127935.16	95.4
156	500-172924-c-...	204900.41	90.3	128316.40	95.7
157	500-172924-c-...	205767.77	90.7	125418.89	93.5
158	500-172924-c-...	206116.89	90.9	124661.93	92.9
159	500-172924-c-...	209363.69	92.3	126022.94	94.0
160	500-172924-c-...	209038.50	92.2	130585.08	97.4
161	500-172927-c-...	200412.25	88.4	119023.57	88.7
162	500-172430-g-...	190423.62	84.0	108485.18	80.9
163	500-172430-g-...	203343.33	89.7	120620.55	89.9
164	CCV	201882.29	89.0	123790.88	92.3
165	CCB	201180.90	88.7	126590.92	94.4
166	500-172430-g-...	195064.63	86.0	114409.38	85.3
167	500-172430-g-...	205745.78	90.7	121788.19	90.8
168	500-172430-g-...	207723.43	91.6	119917.73	89.4
169	500-172430-g-...	205350.51	90.5	124356.93	92.7
170	500-172430-g-...	201690.01	88.9	122988.81	91.7
171	500-172430-g-...	198511.06	87.5	120471.20	89.8
172	500-172430-g-...	196466.65	86.6	115560.28	86.2
173	500-172430-g-...	191783.63	84.6	109915.52	81.9
174	500-172430-g-...	199452.73	87.9	116272.81	86.7
175	500-172430-g-...	193617.52	85.4	109841.65	81.9
176	CCV	201146.42	88.7	121019.20	90.2

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
177	CCB	197132.99	86.9	125699.96	93.7

Tune Report

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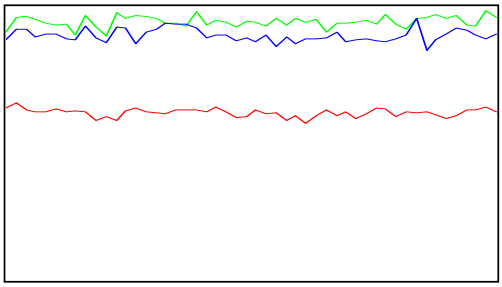
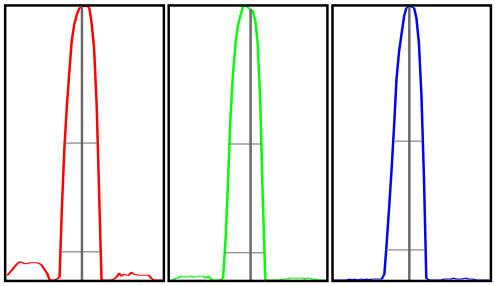
Acq. Date-Time 11/6/2019 9:36
Report Comment 072015Atune
Instrument Name G3281A JP11040848

[He]



Mass	Range	Count	RSD%	Background
59	5000	3057	2.424	
89	5000	4712	2.156	
205	5000	4459	2.635	

Ratio 156/140 1.290 %
Integration Time [sec] 0.1 **Sampling Period [sec]** 0.31



Mass	Peak Height	Axis	W-50%	W-10%
59	3010.02	59.00	0.61	0.765
89	4619.34	89.05	0.59	0.752
205	4400.78	205.00	0.55	0.745

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.54 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1500 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-50 V
Extract 2	-200.0 V	Cell Exit	-80 V
Omega Bias	-100 V	Deflect	3.0 V
Omega Lens	8.0 V	Plate Bias	-60 V

Cell Parameters

Use Gas	true	OctP Bias	-18.0 V

Tune Report

He Flow	3.5 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	3.0 V
3rd Gas Flow	0 %		

[no gas]

Mass	Range	Count	RSD%	Background
7	5000	2991	2.105	5.300
89	10000	9000	1.530	3.500
205	10000	5486	2.579	10.200

Ratio 156/140 1.795 % **Ratio** 70/140 30.573 %

Integration Time [sec] 0.1 **Sampling Period [sec]** 0.311

Mass	Peak Height	Axis	W-50%	W-10%
7	2941.54	7.10	0.67	0.800
89	9073.78	89.05	0.59	0.757
205	5481.82	205.00	0.55	0.753

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.74 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1550 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-34 V
Extract 2	-200.0 V	Cell Exit	-60 V
Omega Bias	-80 V	Deflect	14.2 V
Omega Lens	10.1 V	Plate Bias	-50 V

Cell Parameters

Use Gas	false	OctP Bias	-8.0 V
He Flow	0.0 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	5.0 V
3rd Gas Flow	0 %		

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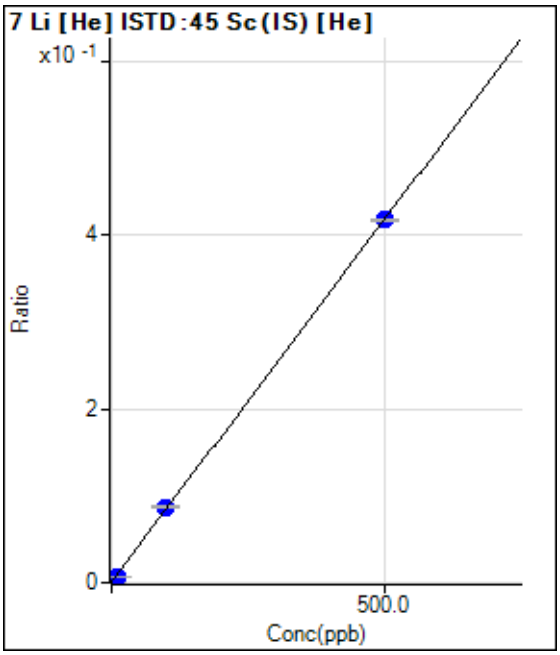
Analysis File: MS4111819He-1.batch.bin
DA Date-Time: 11/18/2019 2:42:47 PM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	002CALB.d	ICIS	11/18/2019 9:51:55 AM
2	003CALS.d	Std1	11/18/2019 9:55:40 AM
3	004CALS.d	Std2	11/18/2019 9:59:37 AM
4	005CALS.d	Std3	11/18/2019 10:03:24 AM



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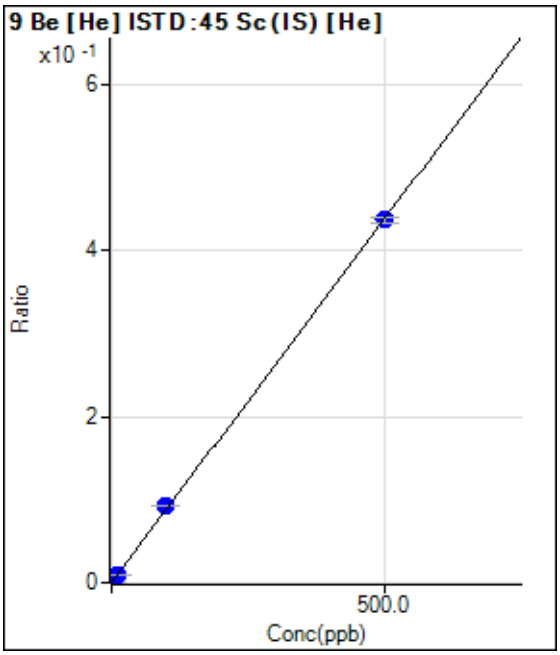
1	☐	0.000	0.000	103.34	0.0009	P	23.2
2	☐	10.000	7.250	840.05	0.0069	P	12.7
3	☐	100.000	102.940	10566.87	0.0867	P	2.4
4	☐	500.000	499.467	51987.59	0.4174	P	0.8

y = 8.3395E-004 * x + 8.6284E-004
R = 1.0000
DL = 0.7208
BEC = 1.035

Weight: <None>
Min Conc: 0



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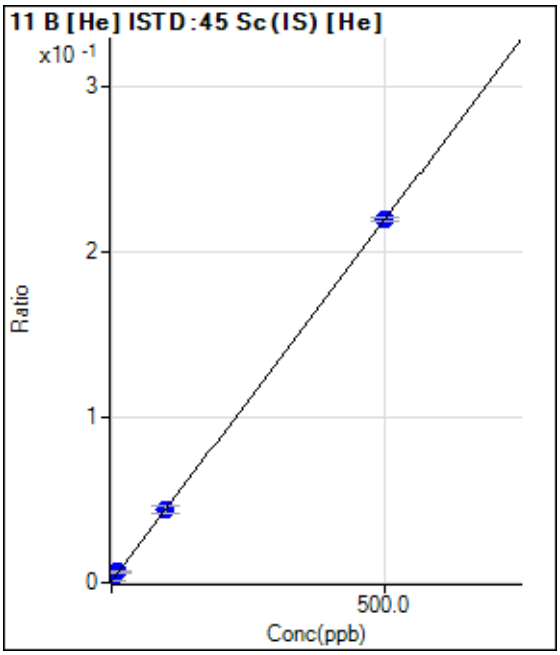
1	☐	0.000	0.000	3.33	0.0000	P	173.
2	☐	10.000	11.050	1180.09	0.0097	P	2.5
3	☐	100.000	105.704	11277.37	0.0925	P	1.9
4	☐	500.000	498.838	54375.35	0.4365	P	1.9

y = 8.7508E-004 * x + 2.7113E-005
R = 0.9999
DL = 0.161
BEC = 0.03098

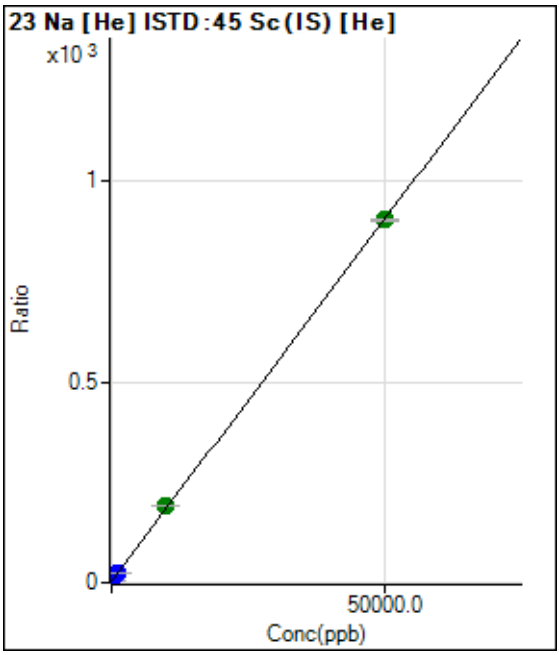
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	96.67	0.0008	P	37.0
2	☐	10.000	13.007	790.05	0.0065	P	9.1
3	☐	100.000	99.540	5404.42	0.0444	P	11.5
4	☐	500.000	500.032	27348.73	0.2196	P	0.9

y = 4.3750E-004 * x + 8.0669E-004
R = 1.0000
DL = 2.048
BEC = 1.844

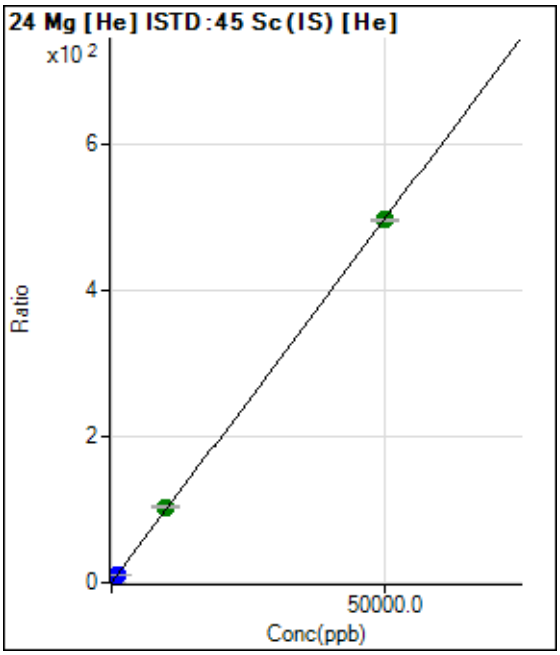
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	411266.22	3.4301	P	2.1
2	☐	1000.000	1078.584	2787528.19	22.9072	P	1.3
3	☐	10000.00	10401.21	23308068.82	191.2554	A	1.7
4	☐	50000.00	49918.18	112700654.9	904.8534	A	0.6

y = 0.0181 * x + 3.4301
R = 1.0000
DL = 12
BEC = 189.9

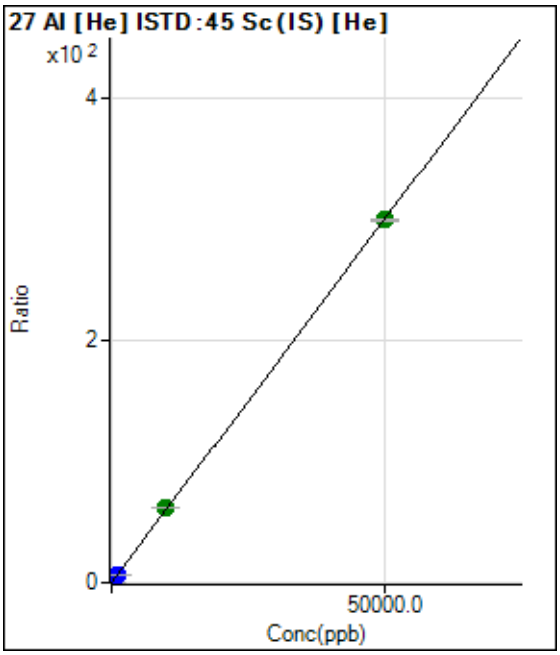
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	22422.02	0.1870	P	5.3
2	☐	1000.000	1092.768	1344075.61	11.0457	P	2.0
3	☐	10000.00	10394.44	12610757.31	103.4752	A	1.0
4	☐	50000.00	49919.25	61807684.08	496.2278	A	0.7

y = 0.0099 * x + 0.1870
R = 1.0000
DL = 2.965
BEC = 18.82

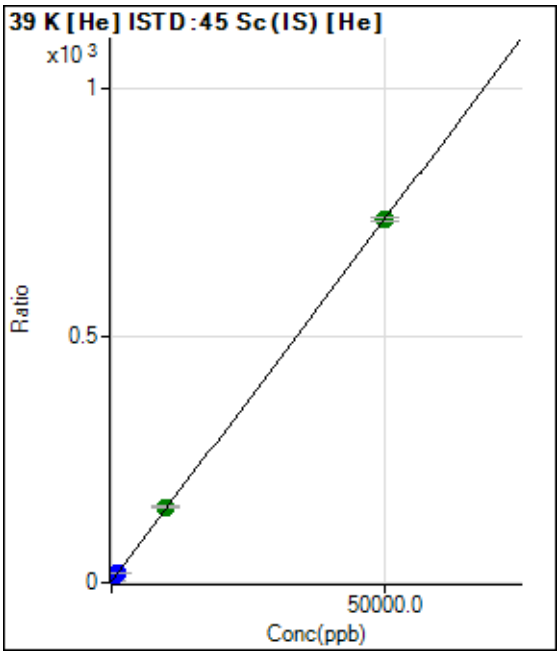
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	916.73	0.0076	P	13.1
2	☐	1000.000	1067.055	779663.32	6.4070	P	1.7
3	☐	10000.00	10303.13	7531292.39	61.7982	A	1.2
4	☐	50000.00	49938.03	37303436.11	299.4991	A	0.3

y = 0.0060 * x + 0.0076
R = 1.0000
DL = 0.5004
BEC = 1.273

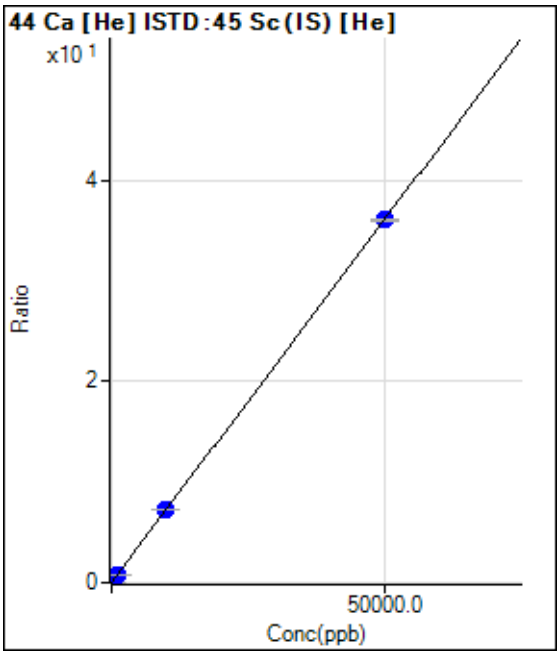
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	326550.59	2.7235	P	2.0
2	☐	1000.000	1068.530	2237022.31	18.3835	P	1.5
3	☐	10000.00	10281.86	18696667.22	153.4113	A	0.8
4	☐	50000.00	49942.25	91503505.30	734.6619	A	0.9

y = 0.0147 * x + 2.7235
R = 1.0000
DL = 11.06
BEC = 185.8

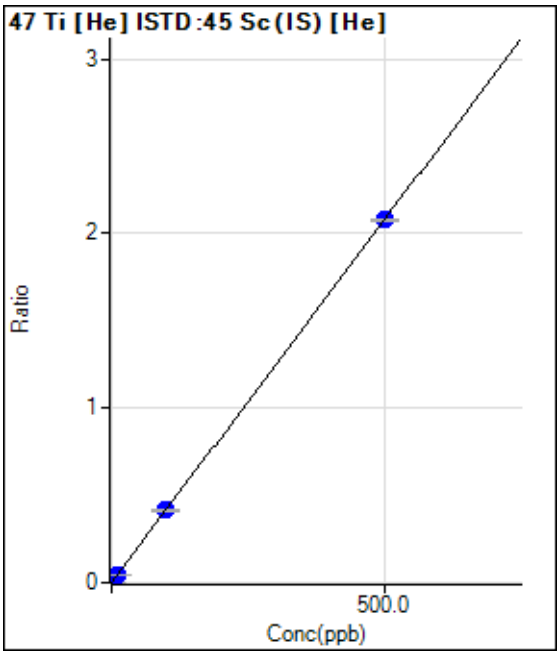
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1667.29	0.0139	P	12.5
2	☐	1000.000	1041.673	93191.18	0.7657	P	1.4
3	☐	10000.00	10118.24	891723.55	7.3169	P	1.0
4	☐	50000.00	49975.51	4494326.53	36.0843	P	0.3

y = 7.2176E-004 * x + 0.0139
R = 1.0000
DL = 7.22
BEC = 19.27

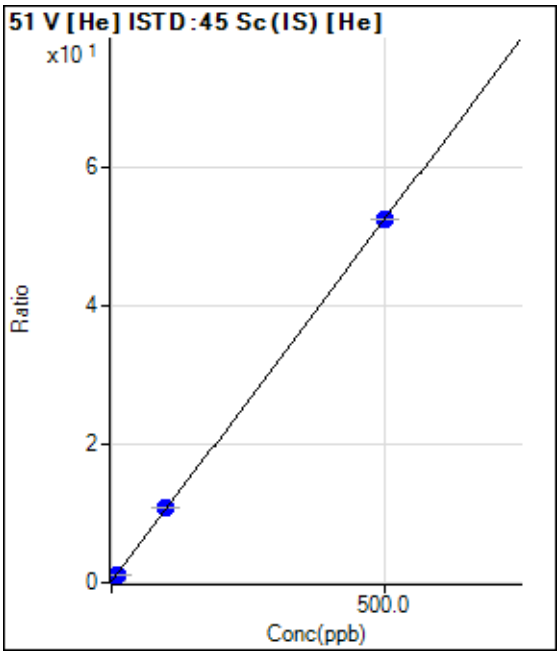
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0002	P	173.
2	☐	10.000	10.259	5207.68	0.0428	P	1.9
3	☐	100.000	100.513	50910.33	0.4178	P	2.8
4	☐	500.000	499.892	258711.14	2.0771	P	0.6

y = 0.0042 * x + 1.6268E-004
R = 1.0000
DL = 0.2035
BEC = 0.03915

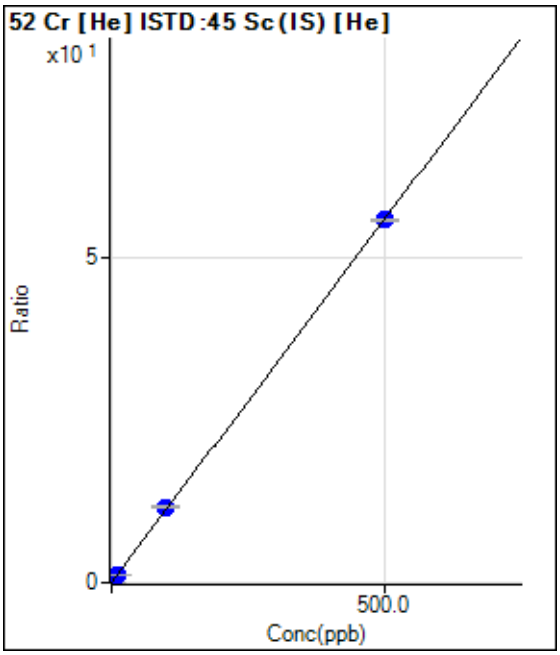
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	17339.54	0.1446	P	4.4
2	☐	10.000	10.267	148194.18	1.2177	P	1.8
3	☐	100.000	101.974	1316609.02	10.8028	P	0.7
4	☐	500.000	499.600	6521873.03	52.3624	P	0.1

y = 0.1045 * x + 0.1446
R = 1.0000
DL = 0.1829
BEC = 1.383

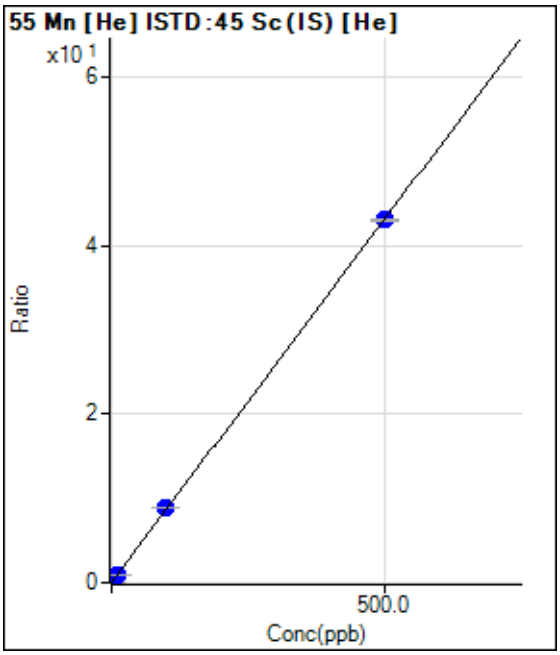
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3063.73	0.0256	P	5.5
2	☐	10.000	10.542	146342.60	1.2025	P	1.4
3	☐	100.000	103.497	1411257.11	11.5806	P	1.9
4	☐	500.000	499.290	6946210.52	55.7692	P	0.5

y = 0.1116 * x + 0.0256
R = 1.0000
DL = 0.03744
BEC = 0.2289

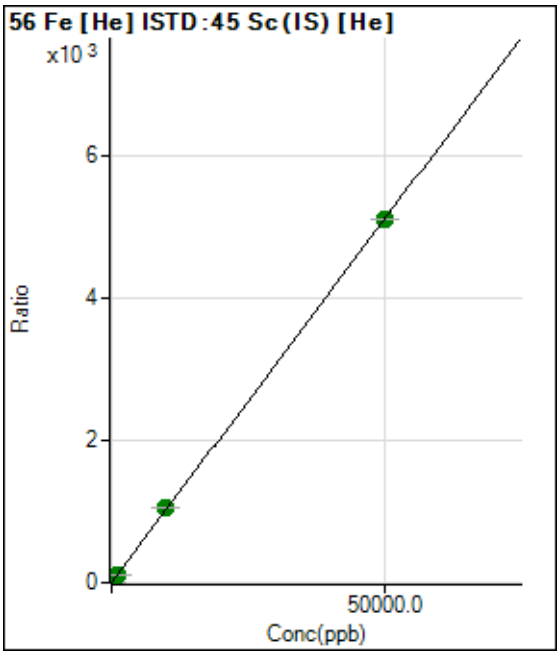
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1400.12	0.0117	P	5.6
2	☐	10.000	10.761	114485.83	0.9408	P	1.5
3	☐	100.000	103.850	1094240.82	8.9784	P	0.6
4	☐	500.000	499.215	5370146.38	43.1153	P	0.2

y = 0.0863 * x + 0.0117
R = 1.0000
DL = 0.02278
BEC = 0.1352

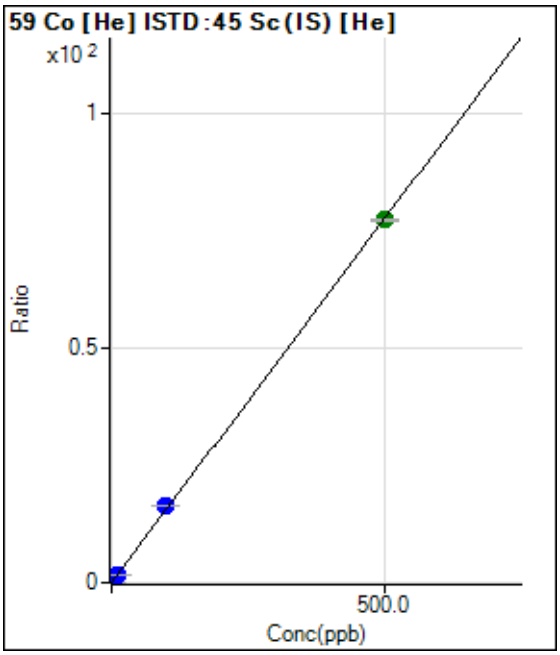
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	116227.08	0.9692	P	0.7
2	☐	1000.000	1085.912	13623526.05	111.9528	A	1.3
3	☐	10000.00	10405.50	129728451.4	1,064.444	A	0.6
4	☐	50000.00	49917.18	635544163.8	5,102.661	A	0.2

y = 0.1022 * x + 0.9692
R = 1.0000
DL = 0.1965
BEC = 9.483

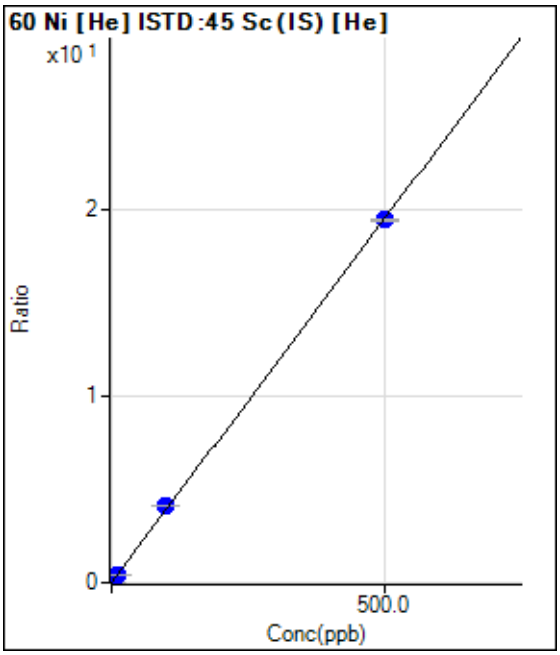
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	800.06	0.0067	P	25.1
2	☐	10.000	11.052	209535.74	1.7219	P	1.2
3	☐	100.000	106.650	2018015.02	16.5577	P	0.5
4	☐	500.000	498.649	9639212.36	77.3925	A	0.5

y = 0.1552 * x + 0.0067
R = 0.9999
DL = 0.0324
BEC = 0.04301

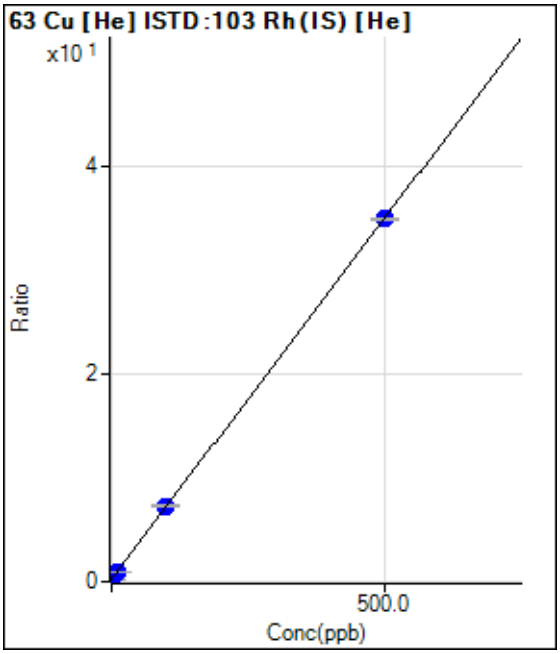
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	363.35	0.0030	P	29.5
2	☐	10.000	11.171	53284.95	0.4379	P	1.9
3	☐	100.000	105.981	503130.69	4.1286	P	1.8
4	☐	500.000	498.780	2418741.42	19.4192	P	0.5

y = 0.0389 * x + 0.0030
R = 0.9999
DL = 0.0692
BEC = 0.07813

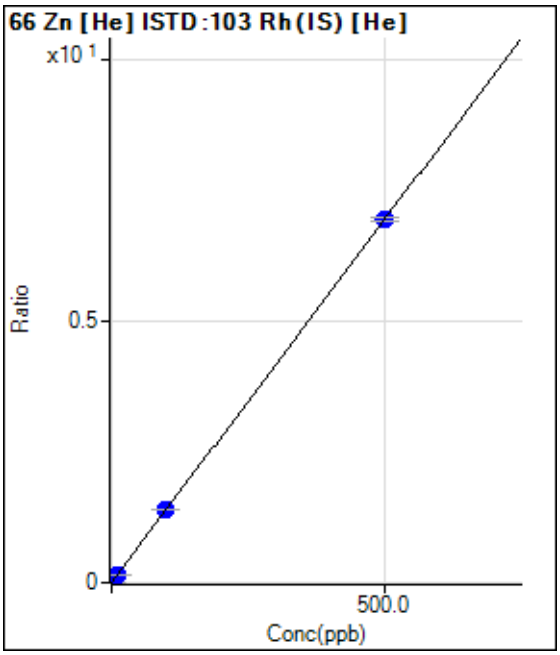
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	41439.89	0.2278	P	1.7
2	☐	10.000	9.774	167349.34	0.9069	P	1.9
3	☐	100.000	101.968	1326978.91	7.3127	P	0.9
4	☐	500.000	499.611	6221238.08	34.9416	P	0.6

y = 0.0695 * x + 0.2278
R = 1.0000
DL = 0.1702
BEC = 3.279

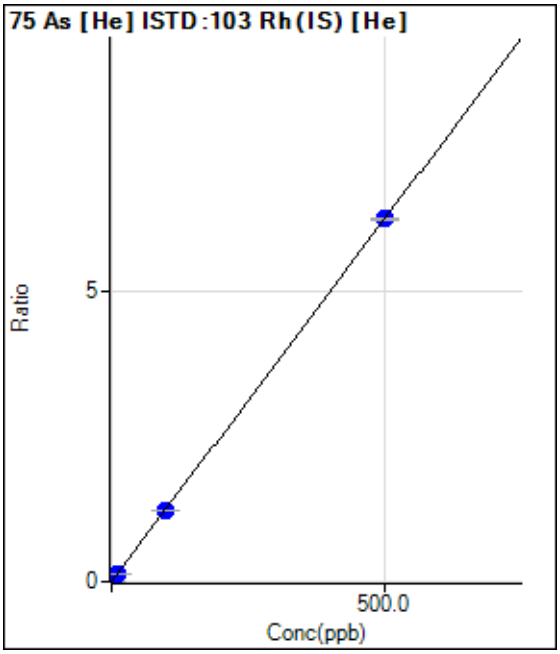
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	420.03	0.0023	P	15.2
2	☐	10.000	10.442	27169.75	0.1472	P	1.7
3	☐	100.000	100.823	254373.23	1.4018	P	0.5
4	☐	500.000	499.827	1235649.41	6.9400	P	0.9

y = 0.0139 * x + 0.0023
R = 1.0000
DL = 0.07612
BEC = 0.1664

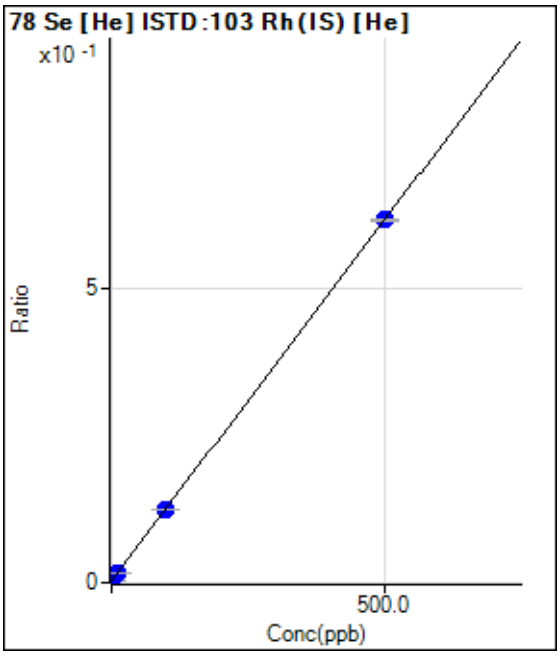
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	504.34	0.0028	P	3.2
2	☐	10.000	9.778	22961.33	0.1244	P	2.3
3	☐	100.000	97.863	221486.13	1.2206	P	0.7
4	☐	500.000	500.432	1109231.25	6.2300	P	0.8

y = 0.0124 * x + 0.0028
R = 1.0000
DL = 0.02171
BEC = 0.2228

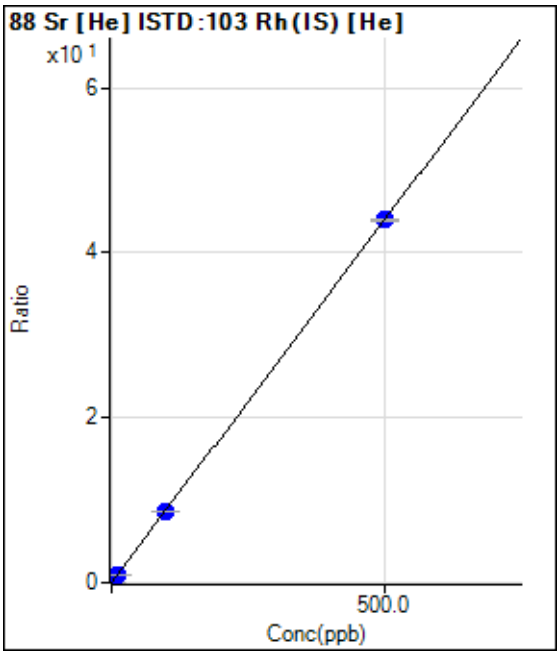
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	573.01	0.0032	P	1.2
2	☐	10.000	9.877	2815.58	0.0153	P	2.5
3	☐	100.000	98.560	22499.42	0.1240	P	0.8
4	☐	500.000	500.291	109771.10	0.6165	P	0.8

y = 0.0012 * x + 0.0032
R = 1.0000
DL = 0.09437
BEC = 2.569

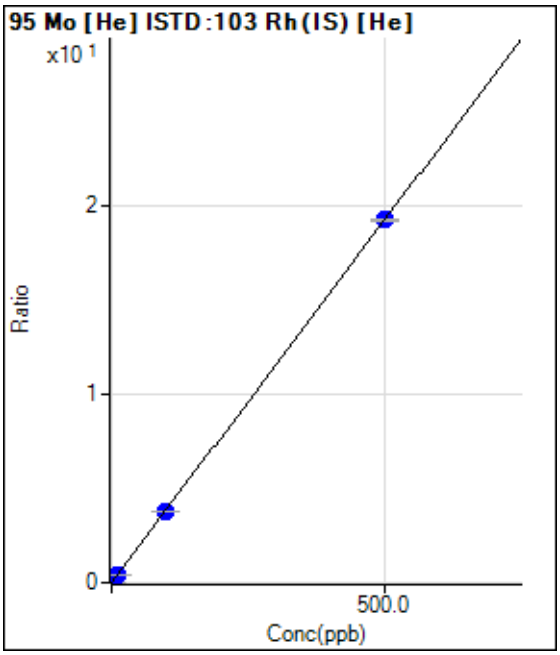
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	406.69	0.0022	P	40.5
2	☐	10.000	9.941	161750.87	0.8766	P	1.7
3	☐	100.000	98.970	1579911.18	8.7064	P	0.7
4	☐	500.000	500.207	7833016.55	43.9942	P	0.3

y = 0.0879 * x + 0.0022
R = 1.0000
DL = 0.03093
BEC = 0.02547

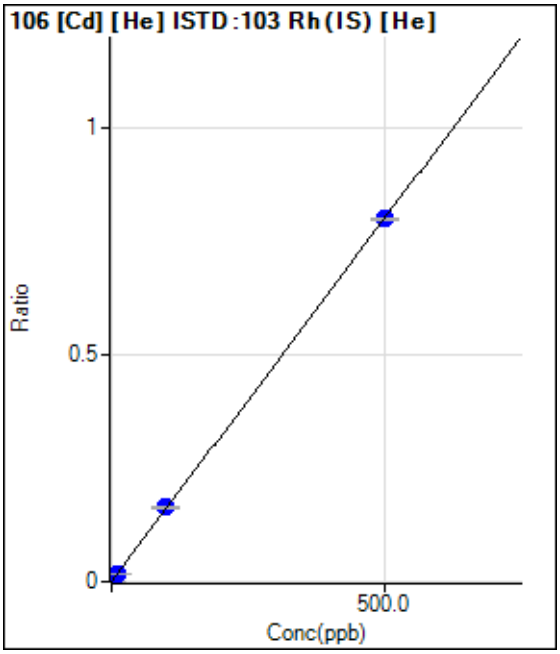
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	166.68	0.0009	P	39.7
2	☐	10.000	9.710	69230.23	0.3752	P	3.5
3	☐	100.000	97.586	682856.53	3.7630	P	0.7
4	☐	500.000	500.489	3435524.32	19.2956	P	0.8

y = 0.0386 * x + 9.1534E-004
R = 1.0000
DL = 0.02825
BEC = 0.02374

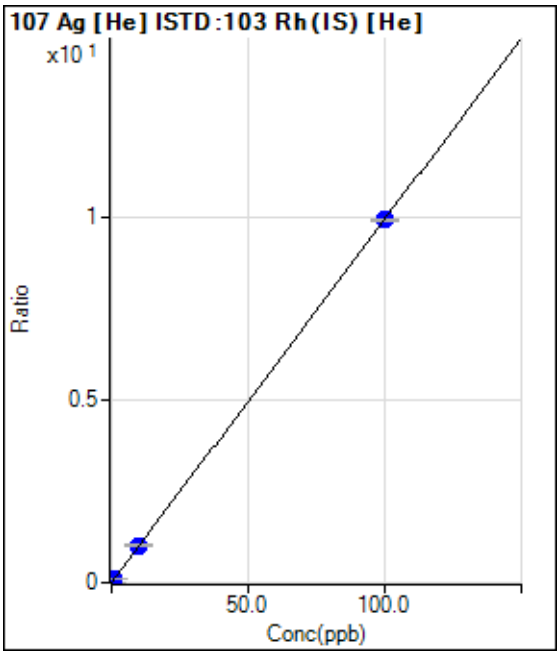
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63.34	0.0003	P	63.6
2	☐	10.000	11.037	3317.18	0.0180	P	11.2
3	☐	100.000	102.359	29741.31	0.1639	P	3.1
4	☐	500.000	499.508	142179.55	0.7986	P	0.5

y = 0.0016 * x + 3.4790E-004
R = 1.0000
DL = 0.4155
BEC = 0.2177

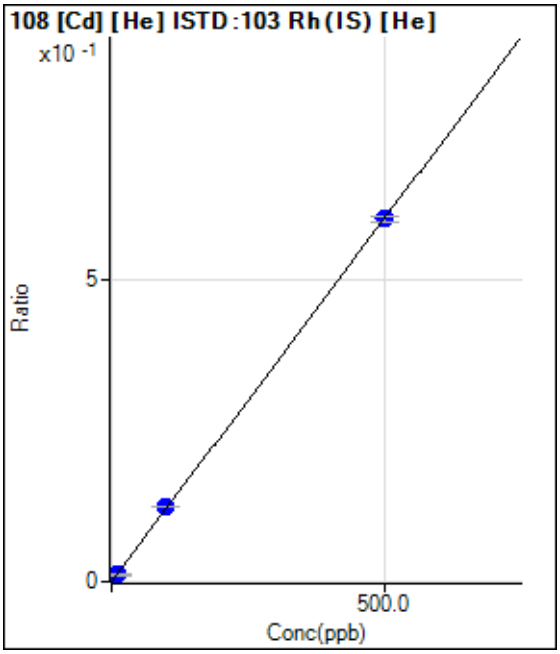
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	60.00	0.0003	P	67.2
2	☐	1.000	1.017	18721.40	0.1015	P	0.9
3	☐	10.000	10.305	185917.93	1.0245	P	0.9
4	☐	100.000	99.969	1769030.65	9.9357	P	0.8

y = 0.0994 * x + 3.3062E-004
R = 1.0000
DL = 0.00671
BEC = 0.003327

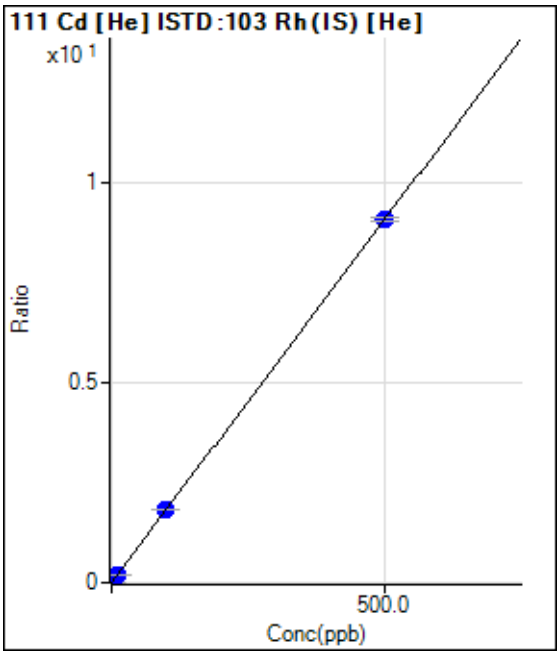
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	0.00	0.0000	P	
2	☐	10.000	9.639	2136.93	0.0116	P	8.5
3	☐	100.000	102.589	22359.67	0.1232	P	1.0
4	☐	500.000	499.489	106818.02	0.5999	P	1.7

y = 0.0012 * x + 0.0000E+000
R = 1.0000
DL = 0
BEC = 0

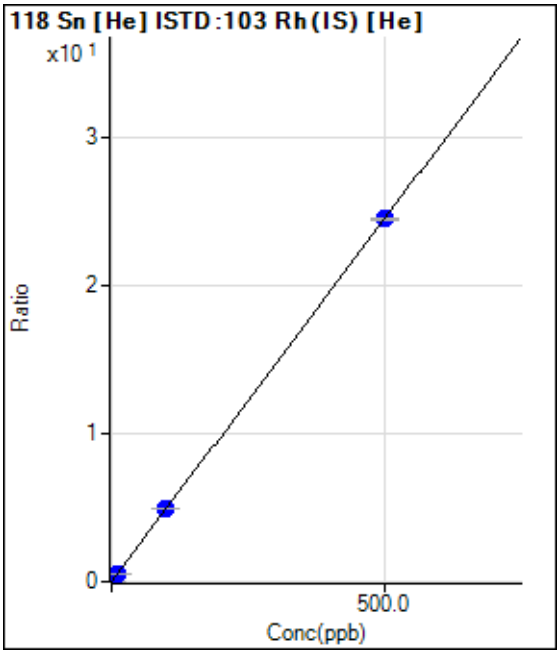
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	65.05	0.0004	P	52.2
2	☐	10.000	10.294	34495.22	0.1870	P	2.0
3	☐	100.000	100.915	331986.73	1.8296	P	2.0
4	☐	500.000	499.811	1613127.74	9.0601	P	0.9

y = 0.0181 * x + 3.5726E-004
R = 1.0000
DL = 0.03089
BEC = 0.01971

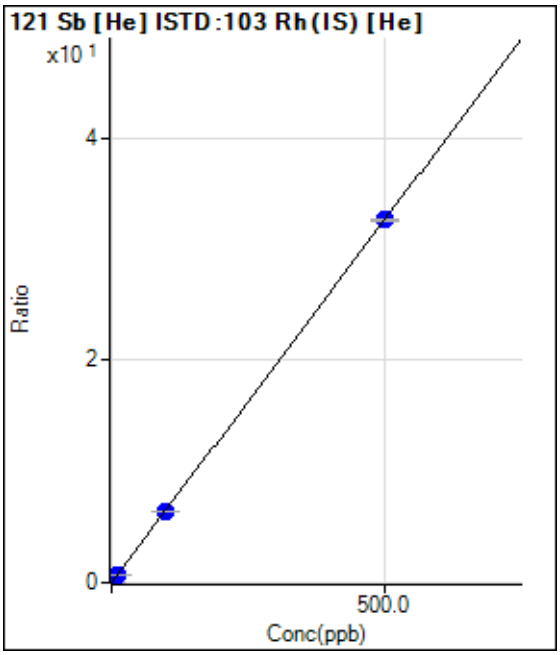
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	900.06	0.0049	P	6.0
2	☐	10.000	10.083	92066.03	0.4990	P	1.7
3	☐	100.000	99.578	886252.70	4.8839	P	0.5
4	☐	500.000	500.083	4363387.02	24.5069	P	0.8

y = 0.0490 * x + 0.0049
R = 1.0000
DL = 0.01819
BEC = 0.101

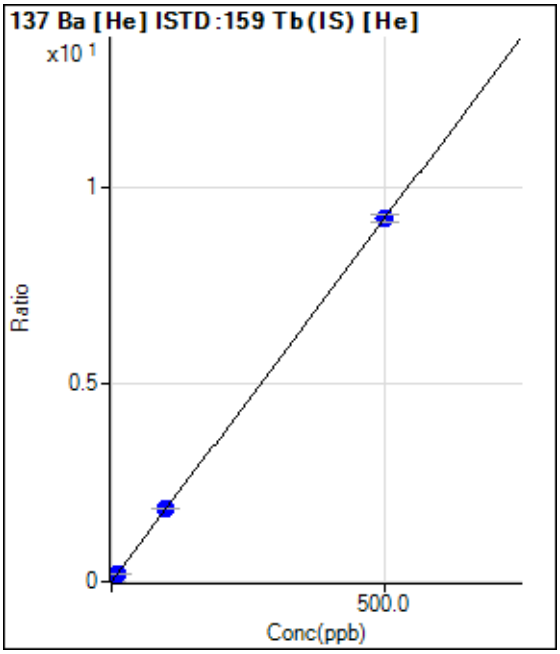
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	573.37	0.0031	P	36.1
2	☐	10.000	9.776	118238.65	0.6406	P	1.7
3	☐	100.000	98.662	1168071.00	6.4368	P	0.1
4	☐	500.000	500.272	5808809.70	32.6252	P	0.3

y = 0.0652 * x + 0.0031
R = 1.0000
DL = 0.05224
BEC = 0.04826

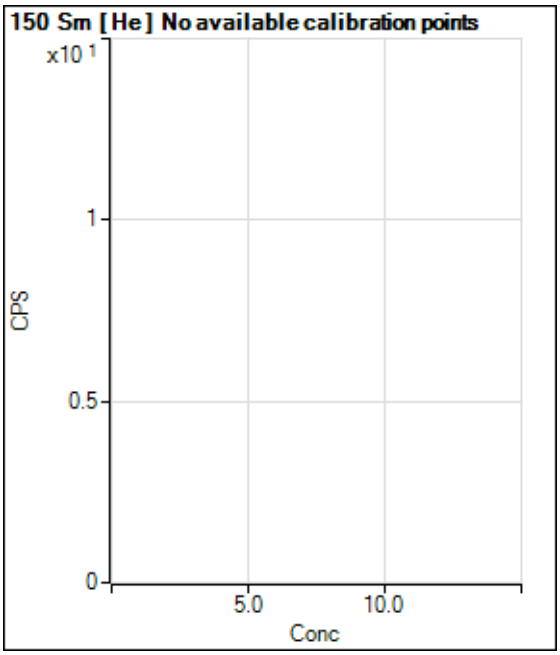
Weight: <None>
Min Conc: 0



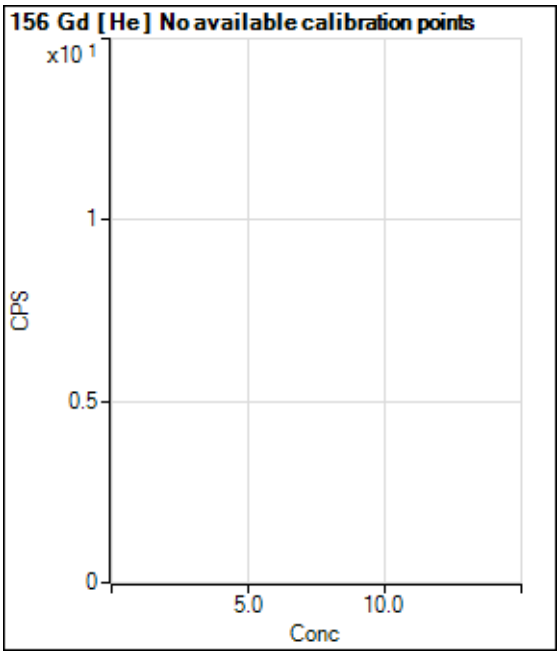
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	46.67	0.0002	P	53.4
2	☐	10.000	10.270	42070.20	0.1891	P	2.6
3	☐	100.000	100.706	414268.78	1.8520	P	1.3
4	☐	500.000	499.853	2044800.28	9.1913	P	2.1

y = 0.0184 * x + 2.1653E-004
R = 1.0000
DL = 0.01886
BEC = 0.01178

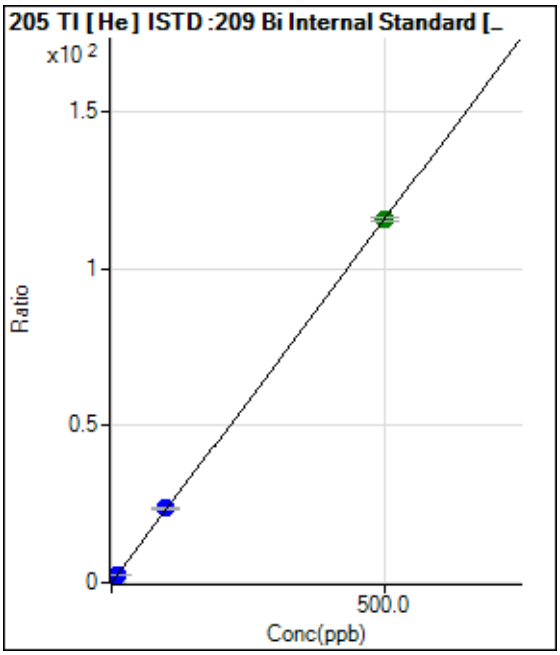
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



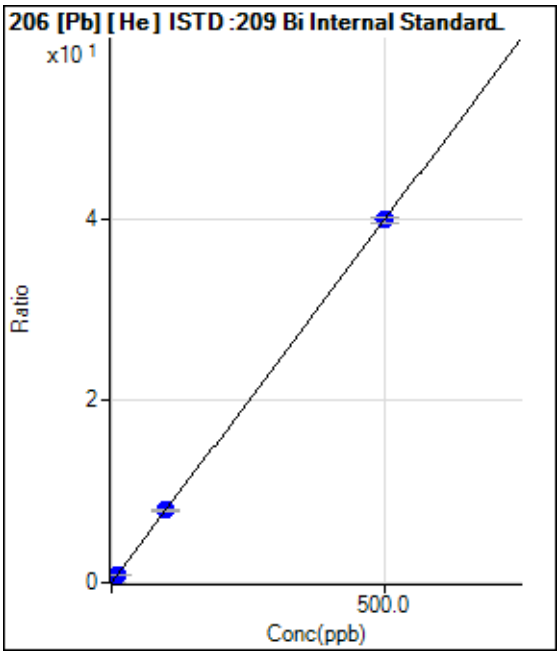
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	330.02	0.0027	P	25.5
2	☐	10.000	10.226	307238.20	2.3698	P	1.0
3	☐	100.000	103.035	2985813.50	23.8539	P	2.3
4	☐	500.000	499.389	14008325.62	115.6048	A	1.1

y = 0.2315 * x + 0.0027
R = 1.0000
DL = 0.008879
BEC = 0.01161

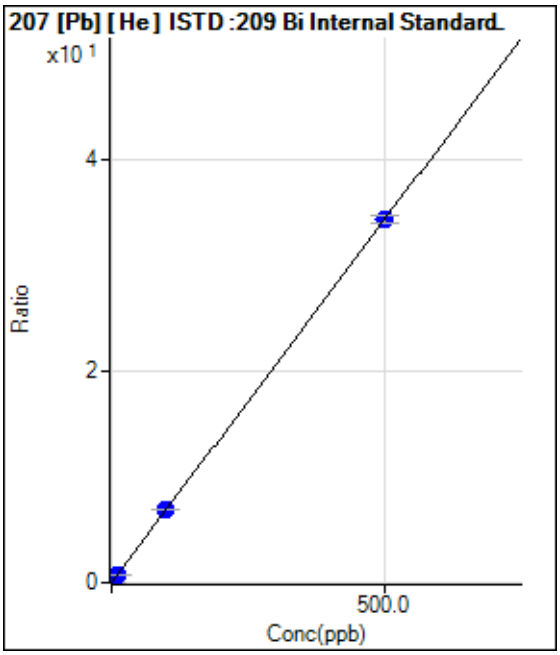
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	123.34	0.0010	P	9.1
2	☐	10.000	9.960	103144.27	0.7955	P	0.8
3	☐	100.000	100.240	1000969.44	7.9965	P	2.0
4	☐	500.000	499.953	4832289.61	39.8787	P	1.4

y = 0.0798 * x + 0.0010
R = 1.0000
DL = 0.003443
BEC = 0.01257

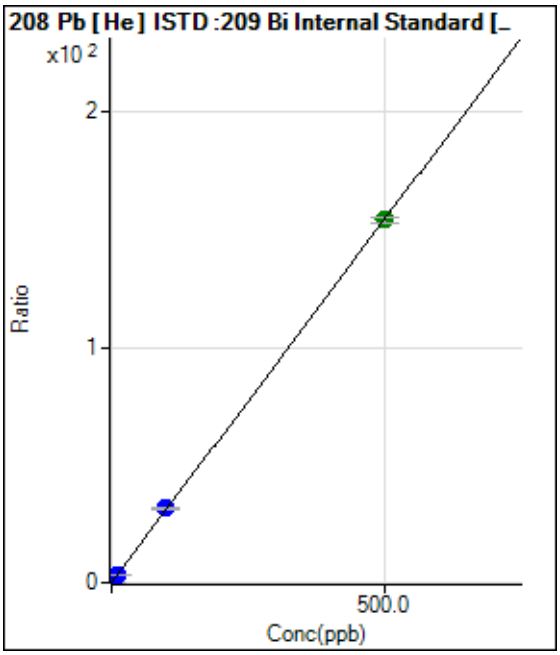
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	100.00	0.0008	P	53.5
2	☐	10.000	10.014	89035.88	0.6868	P	1.5
3	☐	100.000	100.981	865950.12	6.9178	P	1.9
4	☐	500.000	499.804	4148252.34	34.2363	P	2.0

y = 0.0685 * x + 8.1443E-004
R = 1.0000
DL = 0.01907
BEC = 0.01189

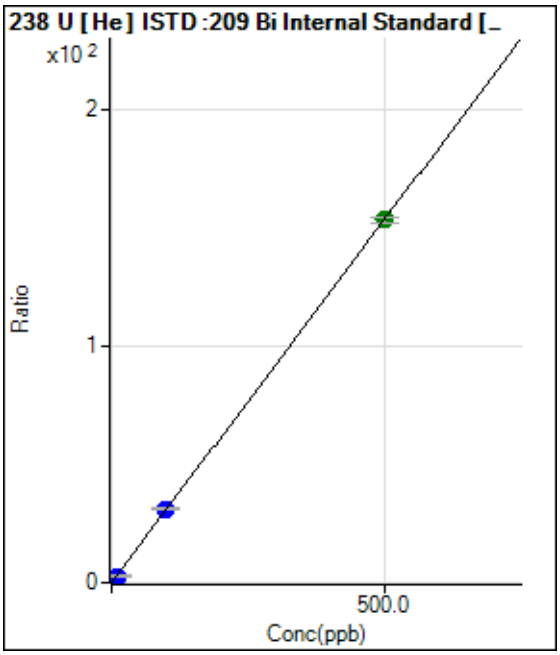
Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	443.36	0.0036	P	17.5
2	☐	10.000	10.219	409551.47	3.1590	P	1.0
3	☐	100.000	102.682	3969630.77	31.7108	P	1.7
4	☐	500.000	499.459	18688535.56	154.2315	A	1.3

y = 0.3088 * x + 0.0036
R = 1.0000
DL = 0.00612
BEC = 0.01167

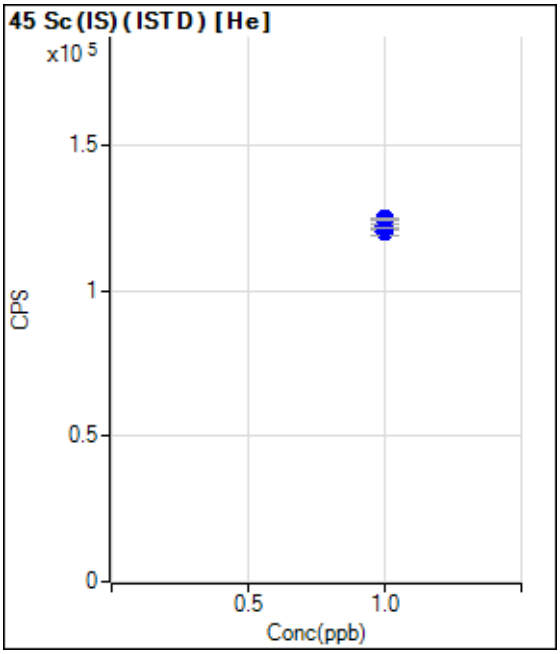
Weight: <None>
Min Conc: 0



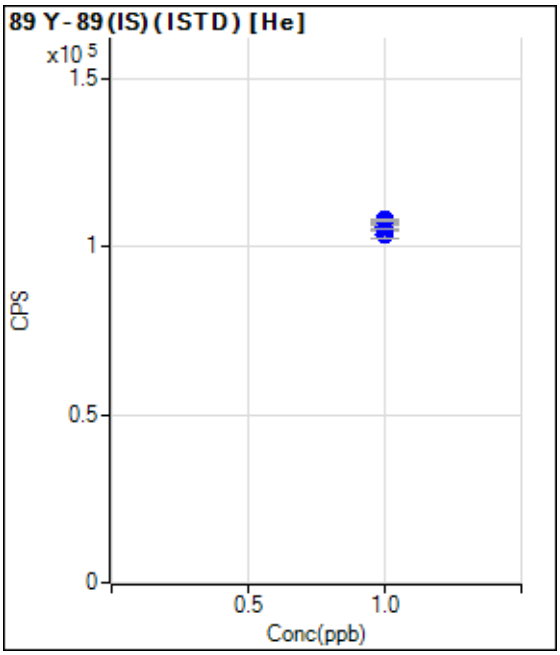
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	40.00	0.0003	P	0.8
2	☐	10.000	9.195	366206.77	2.8248	P	1.9
3	☐	100.000	101.779	3914101.92	31.2656	P	1.3
4	☐	500.000	499.660	18598273.89	153.4895	A	1.6

y = 0.3072 * x + 3.2532E-004
R = 1.0000
DL = 2.586E-05
BEC = 0.001059

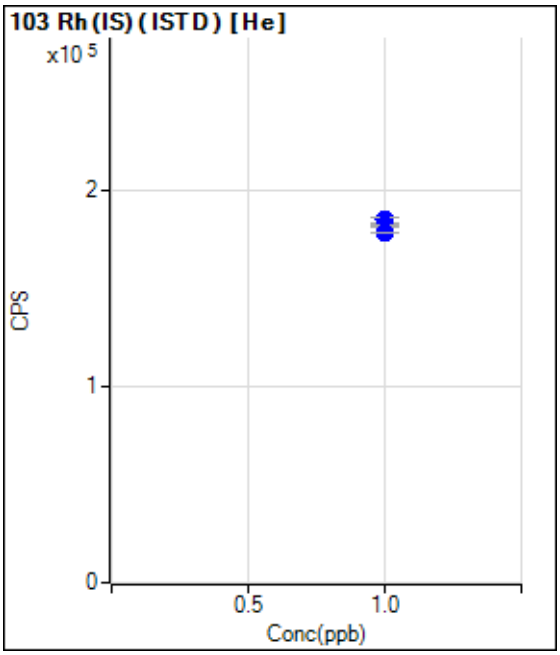
Weight: <None>
Min Conc: 0



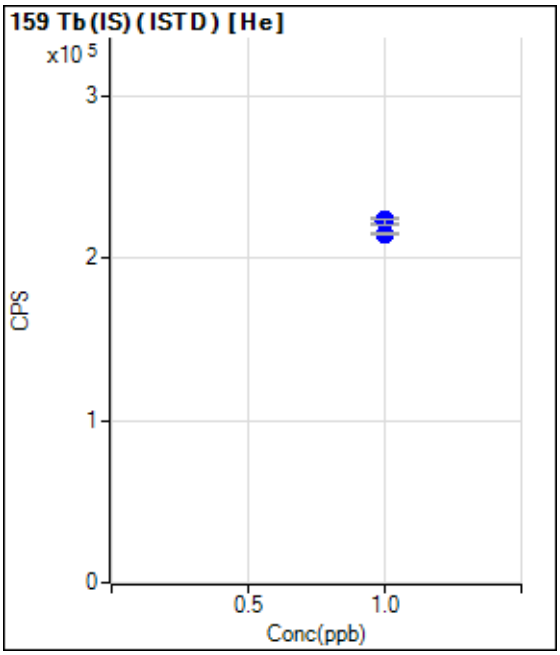
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		119936.50		P	2.2
2	☐	1.000		121702.07		P	1.5
3	☐	1.000		121879.36		P	1.0
4	☐	1.000		124552.21		P	0.5



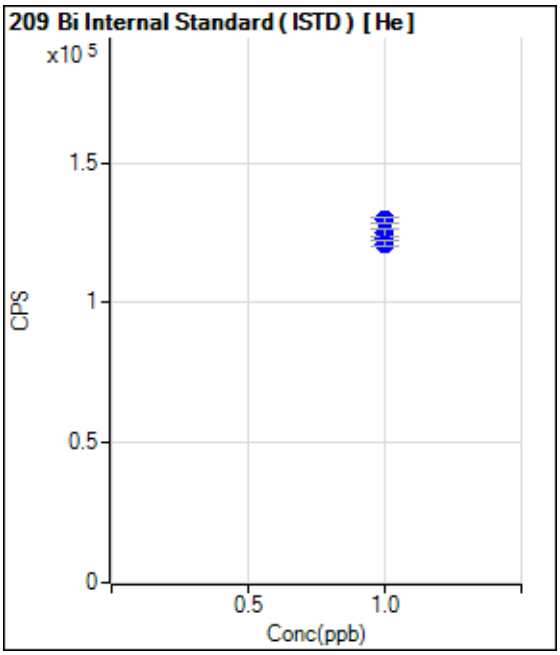
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		103729.33		P	2.1
2	☐	1.000		105879.23		P	2.6
3	☐	1.000		105664.69		P	1.0
4	☐	1.000		107959.33		P	0.8



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		181909.66		P	0.7
2	☐	1.000		184546.29		P	1.4
3	☐	1.000		181469.53		P	0.7
4	☐	1.000		178046.08		P	0.1



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		214973.02		P	0.7
2	☐	1.000		222586.88		P	1.5
3	☐	1.000		223719.43		P	1.5
4	☐	1.000		222524.39		P	1.7



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		122961.78		P	0.8
2	☐	1.000		129653.83		P	1.8
3	☐	1.000		125210.65		P	2.1
4	☐	1.000		121187.37		P	1.5

Batch Summary Report

Batch Folder: C:\Agilent\ICPMH\1\DATA\MS4111819He-1.b\
Analysis File: MS4111819He-1.batch.bin
Tune Step: #1 He

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
1		11/18/2019 9:48:08 AM	001CALB.d	blk I.S /tune	CalBlk	1	1.0000
2		11/18/2019 9:51:55 AM	002CALB.d	ICIS	CalBlk	1	1.0000
3		11/18/2019 9:55:40 AM	003CALS.d	Std1	CalStd	2	1.0000
4		11/18/2019 9:59:37 AM	004CALS.d	Std2	CalStd	3	1.0000
5		11/18/2019 10:03:24 AM	005CALS.d	Std3	CalStd	4	1.0000
6		11/18/2019 10:07:10 AM	006_QCS.d	S1	QCS		1.0000
7		11/18/2019 10:10:56 AM	007_ICV.d	ICV	ICV		1.0000
8		11/18/2019 10:14:42 AM	008_ICB.d	ICVL	LLCCV		1.0000
9		11/18/2019 10:18:27 AM	009LICV.d	ICB	ICB		1.0000
10		11/18/2019 10:22:12 AM	010ICSA.d	icsa	ICSA		1.0000
11		11/18/2019 10:26:00 AM	011ICSB.d	icsab	ICSB		1.0000
12		11/18/2019 10:29:46 AM	012SMPL.d	CRI	Sample		1.0000
13		11/18/2019 10:33:31 AM	013_CCV.d	CCV	CCV		1.0000
14		11/18/2019 10:37:17 AM	014_CCB.d	CCB	CCB		1.0000
15		11/18/2019 10:41:02 AM	015_PB.d	mb 500-515672/1-a	PB		1.0000
16		11/18/2019 10:44:50 AM	016_LCS.d	lcs 500-515672/2-a	LCS		1.0000
17		11/18/2019 10:48:35 AM	017SMPL.d	500-172538-n-1-b	Sample		1.0000
18		11/18/2019 10:52:21 AM	018SMPL.d	500-173332-a-1-a	Sample		1.0000
19		11/18/2019 10:56:07 AM	019SMPL.d	500-173332-a-1-b du	Sample		1.0000
20		11/18/2019 10:59:53 AM	020SMPL.d	500-173332-a-1-c ms	Sample		1.0000
21		11/18/2019 11:03:39 AM	021SMPL.d	500-173332-a-1-a SD@5	Sample		1.0000
22		11/18/2019 11:07:25 AM	022_LCS.d	lcs 500-515678/2-a	LCS		1.0000
23		11/18/2019 11:11:11 AM	023_CCV.d	CCV	CCV		1.0000
24		11/18/2019 11:14:57 AM	024_CCB.d	CCB	CCB		1.0000
25		11/18/2019 11:18:43 AM	025_PB.d	mb 500-514853/1-a	PB		1.0000
26		11/18/2019 11:22:30 AM	026_LCS.d	lcs 500-514853/2-a	LCS		1.0000
27		11/18/2019 11:26:15 AM	027SMPL.d	500-173203-d-2-a @5	Sample		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
28		11/18/2019 11:30:02 AM	028SMPL.d	500-173203-d-2-a @20	Sample		1.0000
29		11/18/2019 11:33:49 AM	029SMPL.d	500-173203-d-3-a @5	Sample		1.0000
30		11/18/2019 11:37:35 AM	030SMPL.d	500-173203-d-3-a @20	Sample		1.0000
31		11/18/2019 11:41:22 AM	031_CCV.d	CCV	CCV		1.0000
32		11/18/2019 11:45:14 AM	032_CCB.d	CCB	CCB		1.0000
33		11/18/2019 11:49:00 AM	033LCCV.d	CCVL	LLCCV		1.0000
34		11/18/2019 11:52:46 AM	034_LCS.d	lcs 500-515411/2-a	LCS		1.0000
35		11/18/2019 11:56:33 AM	035_PB.d	lb3 500-514915/1-b	PB		1.0000
36		11/18/2019 12:00:21 PM	036SMPL.d	500-173292-a-1-d	Sample		1.0000
37		11/18/2019 12:04:06 PM	037SMPL.d	500-173292-a-1-d @5	Sample		1.0000
38		11/18/2019 12:08:43 PM	038_PB.d	mb 500-515518/1-a	PB		1.0000
39		11/18/2019 12:12:28 PM	039_LCS.d	lcs 500-515518/2-a	LCS		1.0000
40		11/18/2019 12:16:16 PM	040SMPL.d	500-173445-d-3-a	Sample		1.0000
41		11/18/2019 12:20:01 PM	041SMPL.d	500-172965-m-11-e @5	Sample		1.0000
42		11/18/2019 12:23:48 PM	042_CCV.d	CCV	CCV		1.0000
43		11/18/2019 12:27:34 PM	043_CCB.d	CCB	CCB		1.0000
44		11/18/2019 12:31:19 PM	044LCCV.d	CCVL	LLCCV		1.0000
45		11/18/2019 12:35:05 PM	045_PB.d	mb 500-514546/1-a	PB		1.0000
46		11/18/2019 12:38:51 PM	046_LCS.d	lcs 500-514546/2-a	LCS		1.0000
47		11/18/2019 12:42:37 PM	047SMPL.d	500-173071-a-1-a	Sample		1.0000
48		11/18/2019 12:46:23 PM	048SMPL.d	500-173071-a-1-b du	Sample		1.0000
49		11/18/2019 12:50:07 PM	049SMPL.d	500-173071-a-1-c ms	Sample		1.0000
50		11/18/2019 12:53:54 PM	050SMPL.d	500-173071-a-1-a SD@5	Sample		1.0000
51		11/18/2019 12:57:40 PM	051SMPL.d	500-173168-a-1-a	Sample		1.0000
52		11/18/2019 1:02:18 PM	052SMPL.d	500-173079-a-1-a	Sample		1.0000
53		11/18/2019 1:06:03 PM	053SMPL.d	500-173079-a-2-a	Sample		1.0000
54		11/18/2019 1:09:48 PM	054SMPL.d	500-173079-a-3-a	Sample		1.0000
55		11/18/2019 1:13:34 PM	055_CCV.d	CCV	CCV		1.0000
56		11/18/2019 1:17:19 PM	056_CCB.d	CCB	CCB		1.0000
57		11/18/2019 1:21:04 PM	057SMPL.d	400-176914-b-1-c @10	Sample		1.0000
58		11/18/2019 1:24:51 PM	058SMPL.d	400-176914-b-3-c @100	Sample		1.0000
59		11/18/2019 1:28:36 PM	059SMPL.d	400-176914-b-4-c @100	Sample		1.0000

	Rjct	Acq. Date-Time	Data File	Sample Name	Type	Level	Dilution
60		11/18/2019 1:32:22 PM	060SMPL.d	400-176914-b-5-c @100	Sample		1.0000
61		11/18/2019 1:36:09 PM	061SMPL.d	400-176914-b-6-c @20	Sample		1.0000
62		11/18/2019 1:39:55 PM	062SMPL.d	400-176914-b-6-c @100	Sample		1.0000
63		11/18/2019 1:43:42 PM	063SMPL.d	400-176914-b-7-c	Sample		1.0000
64		11/18/2019 1:47:32 PM	064_CCV.d	CCV	CCV		1.0000
65		11/18/2019 1:51:18 PM	065_CCB.d	CCB	CCB		1.0000
66		11/18/2019 1:55:06 PM	066SMPL.d	500-173125-a-2-a	Sample		1.0000
67		11/18/2019 1:58:53 PM	067SMPL.d	500-173128-a-1-a	Sample		1.0000
68		11/18/2019 2:02:39 PM	068SMPL.d	500-173196-a-1-a	Sample		1.0000
69		11/18/2019 2:06:27 PM	069SMPL.d	500-173196-a-1-b du	Sample		1.0000
70		11/18/2019 2:10:13 PM	070SMPL.d	500-173196-a-1-c ms	Sample		1.0000
71		11/18/2019 2:13:59 PM	071SMPL.d	500-173196-a-1-a SD@5	Sample		1.0000
72		11/18/2019 2:17:46 PM	072SMPL.d	mb 500-515293/1-a	Sample		1.0000
73		11/18/2019 2:21:31 PM	073SMPL.d	lcs 500-515293/2-a	Sample		1.0000
74		11/18/2019 2:25:18 PM	074SMPL.d	500-173389-d-1-a	Sample		1.0000
75		11/18/2019 2:29:02 PM	075SMPL.d	500-173389-d-2-a	Sample		1.0000
76		11/18/2019 2:32:49 PM	076_CCV.d	CCV	CCV		1.0000
77		11/18/2019 2:36:33 PM	077_CCB.d	CCB	CCB		1.0000
78		11/18/2019 2:40:19 PM	078SMPL.d	500-173389-d-3-a	Sample		1.0000
79		11/18/2019 2:44:04 PM	079SMPL.d	500-173389-d-4-a	Sample		1.0000
80		11/18/2019 2:47:52 PM	080SMPL.d	500-173389-d-5-a	Sample		1.0000
81		11/18/2019 2:51:38 PM	081SMPL.d	500-173389-d-6-a	Sample		1.0000
82		11/18/2019 2:55:24 PM	082SMPL.d	500-173389-d-7-a	Sample		1.0000
83		11/18/2019 2:59:09 PM	083_CCV.d	CCV	CCV		1.0000
84		11/18/2019 3:02:55 PM	084_CCB.d	CCB	CCB		1.0000
85		11/18/2019 3:06:42 PM	085LCCV.d	CCVL	LLCCV		1.0000

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	63.34	N/A	0.021	6.67	432.600	0.025	103.34	6406.403
2	ICIS	0.000	103.34	N/A	0.000	3.33	N/A	0.000	96.67	N/A
3	Std1	7.250	840.05	14.540	11.050	1180.09	2.517	13.007	790.05	10.358
4	Std2	102.940	10566.87	2.434	105.704	11277.37	1.931	99.540	5404.42	11.733
5	Std3	499.467	51987.59	0.785	498.838	54375.35	1.914	500.032	27348.73	0.916
6	S1	512.667	53696.24	1.990	515.699	56568.55	2.598	512.832	28220.11	0.526
7	ICV	205.572	22121.38	2.339	203.799	22902.36	5.153	205.217	11631.01	6.755
8	ICVL	10.644	1196.76	9.448	1.331	146.67	58.931	52.796	2940.36	2.862
9	ICB	0.066	106.67	315.680	0.133	16.67	43.372	3.472	270.01	29.784
10	icsa	<0.000	80.00	N/A	0.083	13.33	157.359	0.327	126.67	152.110
11	icsab	19.945	2346.93	11.627	18.100	2133.55	12.224	51.966	3163.74	8.134
12	CRI	20.043	2320.25	12.417	2.454	286.68	10.463	99.618	5857.86	1.488
13	CCV	264.215	28710.95	3.108	261.642	29719.38	1.852	253.118	14476.50	2.110
14	CCB	0.122	106.67	502.322	0.130	16.67	77.998	4.786	330.02	40.243
15	mb 500-51567...	0.531	153.34	111.930	0.240	26.67	77.282	1.316	170.01	33.229
16	lcs 500-515672...	107.134	11317.42	0.413	48.876	5367.66	6.758	1042.331	57311.75	0.860
17	500-172538-n-...	123.581	14182.90	1.992	0.107	16.67	223.414	484.798	29058.31	2.356
18	500-173332-a-...	4.284	626.70	11.454	0.104	16.67	45.458	58.739	3743.91	10.523
19	500-173332-a-...	3.134	490.03	27.350	<0.000	3.33	N/A	59.640	3797.24	1.752
20	500-173332-a-...	104.327	12404.72	6.465	51.813	6404.76	6.340	1059.730	65579.86	2.779
21	500-173332-a-...	0.266	146.67	272.458	0.026	6.67	382.527	20.350	1306.78	17.661
22	lcs 500-515678...	106.389	11434.13	2.992	50.284	5621.12	3.928	1032.886	57799.65	0.709
23	CCV	258.857	28063.20	4.742	260.895	29569.22	5.193	268.270	15297.24	2.790
24	CCB	0.230	133.34	167.534	0.120	16.67	44.851	9.438	623.37	28.804
25	mb 500-51485...	<0.000	80.00	N/A	0.117	16.67	157.479	4.667	363.35	22.883
26	lcs 500-514853...	107.376	11554.30	5.628	51.214	5731.16	7.631	1046.147	58592.23	3.121

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	51.086	6758.22	5.202	1.021	143.34	21.866	65.579	4584.14	5.424
28	500-173203-d-...	13.915	1700.15	11.121	0.332	43.33	15.013	23.822	1530.14	14.430
29	500-173203-d-...	29.949	3520.49	2.391	0.304	40.00	55.277	46.681	2893.71	8.400
30	500-173203-d-...	9.239	1133.42	17.697	0.083	13.33	156.429	13.672	896.72	13.884
31	CCV	271.897	28754.42	1.582	270.028	29856.36	0.764	261.168	14536.51	0.629
32	CCB	0.111	120.01	420.615	0.211	26.67	88.541	4.350	340.02	32.372
33	CCVL	9.999	1200.10	25.828	1.129	133.34	11.921	50.667	3013.72	16.348
34	lcs 500-515411...	107.258	10900.49	11.088	51.208	5401.05	13.707	1053.789	55532.95	15.967
35	lb3 500-514915...	0.744	166.68	22.152	0.071	10.00	248.560	24.738	1306.78	5.372
36	500-173292-a-...	0.793	180.01	126.072	0.036	6.67	324.058	49.902	2716.97	31.409
37	500-173292-a-...	0.401	156.67	227.299	0.058	10.00	13.656	12.481	800.05	20.584
38	mb 500-51551...	<0.000	106.67	N/A	0.056	10.00	152.902	3.940	326.69	23.781
39	lcs 500-515518...	116.503	12067.97	1.962	54.283	5851.22	4.465	1104.386	59575.13	3.848
40	500-173445-d-...	2.539	380.02	29.327	<0.000	3.33	N/A	24.740	1483.46	3.994
41	500-172965-m...	16.936	2493.62	1.844	0.451	70.00	53.352	27.295	2120.21	5.091
42	CCV	277.972	28884.44	1.157	276.504	30039.93	1.913	269.621	14743.45	1.161
43	CCB	0.048	110.01	222.540	0.281	33.33	50.417	6.597	450.03	25.813
44	CCVL	10.989	1243.42	4.411	1.042	116.67	38.848	56.366	3157.08	7.207
45	mb 500-51454...	<0.000	100.01	N/A	0.091	13.33	59.858	3.779	310.02	42.066
46	lcs 500-514546...	108.943	11480.92	3.657	54.486	5971.32	3.941	1061.263	58224.03	0.873
47	500-173071-a-...	4.889	650.04	8.130	0.027	6.67	186.060	4616.265	265805.37	2.464
48	500-173071-a-...	5.227	706.71	11.703	0.054	10.00	154.738	4551.922	269678.32	1.382
49	500-173071-a-...	110.720	11847.76	8.211	53.508	5961.25	7.633	5894.363	327769.35	8.845
50	500-173071-a-...	1.099	243.34	24.607	0.108	16.67	223.126	981.816	58836.07	2.252
51	500-173168-a-...	4.109	506.70	13.993	0.034	6.67	165.666	61.573	3267.09	11.055
52	500-173079-a-...	0.949	200.01	48.438	0.127	16.67	114.483	36.509	2033.55	10.486
53	500-173079-a-...	0.441	150.01	107.452	<0.000	0.00	0.000	39.304	2203.56	2.129
54	500-173079-a-...	0.671	173.34	113.034	0.000	3.33	26098.156	30.455	1726.83	5.433
55	CCV	267.893	27916.40	0.075	267.006	29084.98	2.163	278.634	15273.85	1.320
56	CCB	0.143	130.00	292.819	0.149	20.00	122.590	14.054	933.40	13.997

Analyte Table

		7 Li [He]			9 Be [He]			11 B [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	0.115	120.01	300.752	0.060	10.00	151.333	37.905	2176.90	17.624
58	400-176914-b-...	0.126	123.34	187.564	0.029	6.67	355.524	16.576	1026.74	4.057
59	400-176914-b-...	5.196	640.04	21.314	<0.000	0.00	0.000	26.298	1516.79	10.077
60	400-176914-b-...	4.944	623.37	17.093	<0.000	3.33	N/A	26.385	1543.46	10.204
61	400-176914-b-...	0.104	120.01	257.930	<0.000	3.33	N/A	27.474	1616.81	4.654
62	400-176914-b-...	0.060	116.67	449.983	<0.000	0.00	0.000	12.218	783.39	30.304
63	400-176914-b-...	<0.000	93.33	N/A	0.001	3.33	9609.166	6.386	443.36	28.313
64	CCV	276.247	28203.32	1.395	277.947	29672.70	1.946	278.208	14943.54	4.919
65	CCB	<0.000	70.00	N/A	0.124	16.67	154.931	11.165	696.71	2.563
66	500-173125-a-...	6.205	753.38	7.091	<0.000	0.00	0.000	90.130	5020.92	4.526
67	500-173128-a-...	7.652	910.06	8.314	<0.000	0.00	0.000	35.794	2070.20	7.182
68	500-173196-a-...	5.887	723.38	11.433	<0.000	0.00	0.000	243.765	13479.09	1.377
69	500-173196-a-...	6.574	770.05	20.623	0.032	6.67	341.208	235.921	12628.35	1.099
70	500-173196-a-...	112.575	11640.96	5.433	52.822	5681.14	8.807	1302.246	70117.86	1.648
71	500-173196-a-...	1.141	230.01	79.524	0.087	13.33	117.427	56.332	3247.11	8.880
72	mb 500-51529...	0.241	133.34	339.410	0.092	13.33	231.807	10.016	650.05	17.839
73	lcs 500-515293...	112.368	11457.48	8.909	55.786	5917.92	4.669	1119.950	59444.89	2.368
74	500-173389-d-...	0.064	113.34	611.164	0.125	16.67	114.552	31.040	1773.49	13.312
75	500-173389-d-...	0.034	110.00	777.062	<0.000	0.00	0.000	24.020	1400.12	26.202
76	CCV	278.960	27963.08	1.108	282.604	29619.15	0.653	277.722	14653.36	3.783
77	CCB	0.193	123.34	82.680	0.127	16.67	42.561	10.622	656.71	22.266
78	500-173389-d-...	0.236	130.00	110.393	0.062	10.00	150.846	11.797	733.38	13.447
79	500-173389-d-...	<0.000	83.34	N/A	0.120	16.67	156.046	14.037	863.39	18.063
80	500-173389-d-...	0.259	133.34	120.474	0.030	6.67	175.145	11.232	706.71	15.666
81	500-173389-d-...	<0.000	96.67	N/A	0.032	6.67	342.729	9.415	593.37	14.250
82	500-173389-d-...	<0.000	100.00	N/A	0.001	3.33	10154.316	17.377	1016.74	11.707
83	CCV	287.615	28640.83	2.306	276.225	28754.30	2.008	284.500	14896.88	4.350
84	CCB	<0.000	103.33	N/A	0.191	23.33	76.289	5.802	403.36	11.248
85	CCVL	12.176	1363.44	7.572	1.078	120.01	9.437	56.479	3157.10	5.797

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	407316.14	N/A	<0.000	23006.02	N/A	18.380	15724.56	42.952
2	ICIS	0.000	411266.22	N/A	0.000	22422.02	N/A	0.000	916.73	N/A
3	Std1	1078.584	2787528.19	1.518	1092.768	1344075.61	2.009	1067.055	779663.32	1.702
4	Std2	10401.218	23308068.82	1.737	10394.447	12610757.31	0.969	10303.139	7531292.39	1.244
5	Std3	49918.185	1.12701E+08	0.639	49919.255	61807684.08	0.667	49938.031	37303436.11	0.305
6	S1	50850.562	1.15513E+08	0.561	50420.324	62817175.73	1.584	50290.547	37801954.44	1.141
7	ICV	20041.844	46902689.30	0.801	19852.725	25350515.46	1.098	19799.500	15246059.77	2.084
8	ICVL	212.715	894166.60	4.597	207.200	276200.05	2.088	108.513	80976.88	1.438
9	ICB	<0.000	363674.11	N/A	<0.000	14953.60	N/A	1.354	1826.83	29.134
10	icsa	100065.272	2.41470E+08	2.336	100399.243	1.33090E+08	2.106	99380.322	79496332.15	2.546
11	icsab	99800.560	2.42513E+08	1.790	98621.009	1.31708E+08	0.885	98993.339	79770207.15	0.916
12	CRI	394.779	1393307.32	2.249	426.540	583943.12	1.862	219.547	174739.18	2.089
13	CCV	25570.762	60374580.77	0.643	25499.947	32911021.18	1.028	25505.268	19853838.04	1.832
14	CCB	<0.000	354892.48	N/A	<0.000	20309.32	N/A	5.547	4757.53	8.867
15	mb 500-51567...	<0.000	336040.01	N/A	<0.000	19988.95	N/A	3.514	3448.82	28.444
16	lcs 500-515672...	10052.653	23202147.16	2.058	10128.042	12647223.14	2.796	2020.113	1520606.33	2.797
17	500-172538-n-...	255346.966	6.29807E+08	1.043	48307.286	65545697.35	0.304	3.287	3730.54	8.296
18	500-173332-a-...	11681.071	30287731.22	0.929	10495.258	14761828.11	0.278	2.298	3027.11	12.398
19	500-173332-a-...	11651.369	30178833.72	1.511	10514.865	14772908.53	1.316	2.479	3177.18	8.628
20	500-173332-a-...	21022.778	54092840.86	1.355	20132.704	28275414.58	2.250	2039.077	1727892.89	1.910
21	500-173332-a-...	2199.286	5810705.12	1.345	2014.981	2721701.52	1.768	1.245	2033.57	27.580
22	lcs 500-515678...	9973.533	23428602.15	1.929	10100.083	12834487.31	2.768	2018.660	1546325.76	2.671
23	CCV	25840.631	60856315.76	0.976	25537.245	32878581.17	2.158	25511.736	19810238.45	2.269
24	CCB	<0.000	331450.65	N/A	<0.000	20592.86	N/A	4.122	4087.31	7.988
25	mb 500-51485...	<0.000	404478.33	N/A	2.265	26677.92	36.528	16.197	13342.26	4.879
26	lcs 500-514853...	10285.397	24172783.81	0.643	10297.417	13099673.55	0.865	2043.916	1567414.77	1.743

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	261720.436	7.35026E+08	0.486	110901.958	1.71316E+08	0.887	11317.077	10552201.72	2.408
28	500-173203-d-...	73164.574	1.80590E+08	1.671	30926.470	41922615.21	2.525	3161.474	2585984.44	2.411
29	500-173203-d-...	278234.404	6.85094E+08	0.709	95178.108	1.28900E+08	1.803	2951.346	2412915.59	1.734
30	500-173203-d-...	74711.822	1.78752E+08	2.036	25670.958	33734907.00	2.788	791.888	628634.39	2.650
31	CCV	26573.393	61056559.09	0.553	26405.472	33173331.17	0.596	26313.561	19938529.70	1.162
32	CCB	<0.000	365750.46	N/A	8.066	33423.32	11.710	9.002	7705.36	9.858
33	CCVL	167.960	847441.94	29.349	198.058	282255.57	17.696	100.880	80282.25	15.501
34	lcs 500-515411...	9638.942	21362190.52	14.897	9828.890	11768735.24	15.579	1927.489	1391352.17	15.452
35	lb3 500-514915...	<0.000	358383.61	N/A	<0.000	18290.24	N/A	7.890	6174.67	11.997
36	500-173292-a-...	43.930	511236.89	111.620	104.561	147888.04	28.840	6709.447	4850015.45	25.515
37	500-173292-a-...	<0.000	356006.86	N/A	20.105	49541.90	23.022	1621.509	1245190.24	13.785
38	mb 500-51551...	<0.000	357630.05	N/A	<0.000	21607.48	N/A	30.113	24318.07	5.727
39	lcs 500-515518...	10584.523	23954459.64	1.788	10685.323	13095337.72	2.506	2116.122	1563377.95	2.635
40	500-173445-d-...	18081.670	42075431.87	0.390	22214.423	28174759.58	0.998	388.327	297975.94	0.706
41	500-172965-m...	19240.934	58364667.46	1.265	91759.527	1.51710E+08	0.558	12148.343	12122328.57	0.787
42	CCV	26236.408	59236182.45	0.937	26132.743	32258297.85	1.585	25658.691	19103524.30	2.478
43	CCB	<0.000	291262.66	N/A	18.637	45390.80	16.856	13.760	10994.10	7.397
44	CCVL	171.449	809176.55	2.784	217.977	291714.31	3.140	110.253	82932.36	1.221
45	mb 500-51454...	<0.000	347980.35	N/A	<0.000	23142.88	N/A	8.326	7231.82	8.290
46	lcs 500-514546...	10381.369	23895949.64	0.957	10528.927	13120278.55	1.742	2061.868	1548874.30	2.295
47	500-173071-a-...	489371.940	1.16306E+09	2.245	15587.721	20401656.36	3.596	908.443	717737.62	3.751
48	500-173071-a-...	478415.470	1.16981E+09	1.646	15346.845	20672115.94	0.695	895.789	728353.92	0.718
49	500-173071-a-...	514523.252	1.18050E+09	9.521	27322.419	34519726.15	8.938	3165.680	2412726.53	9.229
50	500-173071-a-...	98340.545	2.43259E+08	0.615	3067.018	4192436.50	1.914	183.703	151680.09	2.018
51	500-173168-a-...	131033.906	2.79442E+08	1.710	6753.284	7937258.84	0.601	3235.776	2289746.58	0.655
52	500-173079-a-...	17923.102	39620700.24	1.565	16512.381	19898122.62	1.844	9.273	7662.06	1.139
53	500-173079-a-...	17775.546	39700066.07	1.233	16062.378	19550386.79	3.125	6.650	5814.53	2.570
54	500-173079-a-...	17997.988	40121218.57	1.538	16845.702	20472268.03	1.122	14.578	11610.97	4.032
55	CCV	25849.992	58527385.79	1.400	25864.169	32013572.86	1.077	25786.142	19250320.13	1.571
56	CCB	<0.000	331103.58	N/A	<0.000	17392.84	N/A	5.014	5051.11	17.273

Analyte Table

		23 Na [He]			24 Mg [He]			27 Al [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	33190.509	75458273.88	0.759	5354.719	6684238.44	1.388	10.705	8992.70	0.967
58	400-176914-b-...	24008.822	55687364.17	1.196	4080.638	5191447.84	1.294	0.005	976.73	356.795
59	400-176914-b-...	75910.871	1.69210E+08	1.418	1457.314	1806144.24	2.170	<0.000	923.40	N/A
60	400-176914-b-...	75264.173	1.70264E+08	1.020	1427.107	1795514.82	1.177	1.099	1776.84	12.128
61	400-176914-b-...	117070.646	2.66945E+08	1.233	20193.864	25320405.46	1.376	1.342	1980.91	40.472
62	400-176914-b-...	23784.247	55204712.51	2.163	4075.607	5188244.40	1.822	0.349	1240.10	52.693
63	400-176914-b-...	38.432	506343.72	17.317	5.482	29652.87	10.170	10.602	8742.52	5.026
64	CCV	26262.772	58263330.80	0.765	26310.796	31910962.02	1.128	25973.475	19000882.22	1.870
65	CCB	<0.000	333222.75	N/A	<0.000	16058.02	N/A	3.824	3740.59	29.710
66	500-173125-a-...	334355.417	7.53695E+08	1.314	14654.814	18191517.65	2.648	11.771	9759.84	1.742
67	500-173128-a-...	37930.155	86451722.04	2.591	37103.718	46322374.31	3.407	8.315	7228.83	7.981
68	500-173196-a-...	225509.550	5.11183E+08	1.897	16825.480	20994686.35	1.513	228.445	172808.31	1.396
69	500-173196-a-...	225516.561	4.94805E+08	0.785	16730.433	20205305.53	0.932	239.464	175271.82	0.235
70	500-173196-a-...	231407.419	5.13966E+08	1.313	26586.829	32491151.18	1.144	2336.583	1723148.98	1.904
71	500-173196-a-...	44778.903	1.03532E+08	7.918	3266.946	4163261.19	7.492	46.344	36416.55	6.621
72	mb 500-51529...	1.221	432919.42	138.682	<0.000	21090.24	N/A	8.853	7611.99	9.842
73	lcs 500-515293...	10615.868	23637213.81	0.394	10681.388	12878497.31	2.261	2092.961	1521243.78	2.623
74	500-173389-d-...	1325.657	3376523.07	1.435	548.835	695930.85	1.046	29.663	22886.01	6.126
75	500-173389-d-...	3666.725	8603644.66	1.434	685.709	864806.21	2.326	19.901	15687.72	0.993
76	CCV	26410.099	57516149.14	1.428	26291.568	31310196.20	0.291	26072.791	18727284.31	0.214
77	CCB	<0.000	310152.42	N/A	<0.000	17312.53	N/A	5.994	5254.35	5.834
78	500-173389-d-...	2156.335	5201347.42	0.990	226.804	299684.09	1.445	19.258	15120.65	3.445
79	500-173389-d-...	1624.076	4067304.52	2.422	340.285	442977.37	3.868	23.293	18287.06	5.195
80	500-173389-d-...	544.755	1639775.86	2.057	571.126	724456.60	2.828	42.260	32254.43	7.307
81	500-173389-d-...	597.187	1709601.75	2.879	369.739	464490.42	0.514	73.615	54038.73	1.083
82	500-173389-d-...	1413.721	3500708.91	1.393	933.742	1144307.41	0.786	37.756	28307.58	3.349
83	CCV	26356.496	57024834.15	0.980	26481.904	31325732.87	1.059	26145.531	18654370.56	1.081
84	CCB	<0.000	280047.36	N/A	<0.000	17022.24	N/A	5.791	5111.00	15.711
85	CCVL	165.396	793733.24	3.601	205.066	275154.66	4.660	103.901	78023.76	1.791

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	320794.37	N/A	2.299	2082.50	174.317	2.184	1200.11	53.974
2	ICIS	0.000	326550.59	N/A	0.000	1667.29	N/A	0.000	20.00	N/A
3	Std1	1068.530	2237022.31	1.725	1041.673	93191.18	1.471	10.259	5207.68	1.946
4	Std2	10281.862	18696667.22	0.816	10118.243	891723.55	0.963	100.513	50910.33	2.806
5	Std3	49942.257	91503505.30	0.943	49975.518	4494326.53	0.298	499.892	258711.14	0.638
6	S1	50398.161	92908708.62	0.533	50146.258	4537829.98	1.259	500.392	260596.82	2.972
7	ICV	19841.001	37679517.77	0.518	19548.202	1813155.79	1.172	194.425	103728.79	1.446
8	ICVL	517.244	1267079.96	3.592	196.638	19159.66	4.198	5.028	2590.30	3.599
9	ICB	3.786	322618.43	46.622	0.641	1667.72	115.425	0.009	23.33	460.331
10	icsa	99786.401	1.95421E+08	2.333	98874.810	9520235.29	2.417	1981.481	1098070.22	1.898
11	icsab	99775.421	1.96788E+08	1.082	99050.144	9605448.21	0.652	1987.404	1109263.97	0.646
12	CRI	1062.343	2413788.77	1.852	404.867	40388.39	3.006	10.527	5791.23	4.279
13	CCV	25582.210	49013270.93	0.534	25175.779	2360163.84	1.402	254.153	137071.30	1.855
14	CCB	24.419	354412.14	131.756	5.045	2023.30	61.709	0.106	66.67	71.358
15	mb 500-51567...	7.868	341814.93	456.315	0.223	1690.04	2138.490	0.095	70.00	104.894
16	lcs 500-515672...	10020.003	18765123.05	0.702	8852.129	803160.77	2.755	978.546	510034.68	1.851
17	500-172538-n-...	19372.914	39119918.58	1.531	97382.969	9596364.92	0.648	0.367	230.01	21.832
18	500-173332-a-...	4272.219	9230998.20	1.676	38244.628	3902101.87	0.557	0.341	223.35	24.008
19	500-173332-a-...	4238.350	9151736.32	0.614	38183.447	3891544.52	1.371	0.250	170.01	40.239
20	500-173332-a-...	14039.294	29440695.39	0.844	46237.063	4714442.64	1.659	964.015	565585.33	2.367
21	500-173332-a-...	817.551	1980503.30	1.507	7326.482	714013.47	1.959	0.515	310.02	16.031
22	lcs 500-515678...	10022.102	19097215.55	2.105	8841.779	816407.11	2.517	967.897	513337.31	2.922
23	CCV	25702.448	49119437.60	0.951	25161.818	2353048.40	1.409	253.239	136233.80	2.195
24	CCB	4.484	352046.14	52.493	5.221	2230.07	19.245	0.267	160.01	62.790
25	mb 500-51485...	5.550	357271.17	47.875	33.947	4893.46	3.402	0.440	253.35	31.378
26	lcs 500-514853...	10118.617	19297966.79	0.861	8966.543	828795.62	1.689	978.986	519799.90	1.510

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	6666.285	15607276.43	0.127	173967.406	19516712.53	0.104	154.884	100029.60	0.840
28	500-173203-d-...	1855.837	4079314.94	1.391	48354.300	4759993.29	2.024	42.621	24161.32	2.791
29	500-173203-d-...	4465.216	9287987.78	0.258	122617.551	12061112.66	1.987	56.997	32292.41	1.584
30	500-173203-d-...	1186.714	2658551.42	1.583	32671.558	3118064.70	2.800	14.889	8195.85	9.069
31	CCV	26345.082	49121524.27	0.434	25718.592	2346931.07	0.547	257.833	135365.12	2.059
32	CCB	3.425	347095.88	122.465	15.637	3148.76	29.140	0.222	136.67	48.379
33	CCVL	467.572	1254220.35	21.903	192.881	20082.84	14.915	5.015	2743.68	20.083
34	lcs 500-515411...	9530.460	17118021.00	16.435	8389.602	729808.32	15.790	932.772	465858.53	16.213
35	lb3 500-514915...	5.237	314700.31	15.471	42.785	5032.91	1.449	0.453	230.01	4.769
36	500-173292-a-...	77.556	466311.35	78.058	59185.024	5149152.76	25.546	0.456	253.34	27.241
37	500-173292-a-...	0.355	349191.78	7037.267	14030.550	1297012.78	14.349	0.135	96.67	84.024
38	mb 500-51551...	<0.000	336627.03	N/A	46.685	6148.44	4.220	0.086	66.67	122.276
39	lcs 500-515518...	10402.646	19107860.55	0.859	9091.999	809649.06	1.956	1013.897	518648.34	2.822
40	500-173445-d-...	847.140	1930510.33	0.714	59990.603	5523443.97	0.611	8.420	4484.12	7.458
41	500-172965-m...	2731.249	7111213.85	1.188	172954.994	20768419.02	0.429	186.404	128879.18	0.790
42	CCV	25553.301	46822635.97	1.325	25027.479	2244110.92	2.148	252.005	130007.12	2.395
43	CCB	2.087	335805.22	21.110	38.618	5093.77	10.012	0.525	286.86	114.513
44	CCVL	524.222	1290259.56	2.043	213.298	20810.25	3.428	5.021	2606.97	8.250
45	mb 500-51454...	<0.000	339249.51	N/A	35.216	4938.86	9.840	0.215	133.34	65.254
46	lcs 500-514546...	10188.411	19032247.22	0.825	8949.904	810381.04	2.300	991.702	515800.68	2.596
47	500-173071-a-...	428431.622	8.26404E+08	2.472	86025.695	8170192.23	3.585	0.998	566.70	3.407
48	500-173071-a-...	422540.855	8.38554E+08	1.646	84239.366	8232093.83	1.305	0.466	283.35	13.503
49	500-173071-a-...	455499.296	8.48486E+08	9.022	100398.029	9207701.81	9.093	1061.368	559865.92	10.141
50	500-173071-a-...	86727.043	1.74149E+08	0.188	17122.774	1691574.74	1.511	0.436	270.01	25.122
51	500-173168-a-...	7975.586	14103486.46	2.507	666477.106	56733391.41	1.152	0.544	286.68	19.291
52	500-173079-a-...	1037.821	2172363.66	1.491	56174.018	4913003.27	1.345	0.213	126.67	30.221
53	500-173079-a-...	944.270	2026833.15	1.192	56242.092	4968806.38	2.073	0.282	163.34	18.834
54	500-173079-a-...	969.238	2067972.10	1.533	59245.445	5225693.50	0.799	2.985	1536.80	13.153
55	CCV	25530.207	46911680.97	0.472	24982.689	2246152.75	0.884	251.701	130191.10	1.098
56	CCB	<0.000	341638.29	N/A	6.244	2463.20	86.472	0.038	43.33	9.162

Analyte Table

		39 K [He]			44 Ca [He]			47 Ti [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	75.668	479758.93	1.284	12613.499	1141387.61	1.765	0.294	173.34	26.349
58	400-176914-b-...	177.135	677884.34	2.467	2556.139	236897.37	1.142	0.024	33.33	42.653
59	400-176914-b-...	13063.430	23908868.81	1.299	5868.464	523257.95	1.770	0.020	30.00	263.270
60	400-176914-b-...	13038.297	24218712.97	0.713	5781.618	523209.87	0.869	0.038	40.00	175.275
61	400-176914-b-...	356.056	1001076.94	2.860	34420.408	3133509.20	1.702	0.018	30.00	212.548
62	400-176914-b-...	72.774	483213.82	9.349	6836.595	630993.36	2.485	0.023	33.33	255.696
63	400-176914-b-...	15.688	362644.15	27.201	68.705	7797.43	2.946	0.144	93.34	74.820
64	CCV	25909.794	46647112.64	0.770	25195.350	2219707.76	1.346	250.804	127112.07	1.450
65	CCB	5.231	342738.90	38.717	3.834	2038.89	138.813	0.079	60.00	68.365
66	500-173125-a-...	1917.283	3845328.80	1.145	44547.595	4013155.19	1.702	0.514	286.68	30.525
67	500-173128-a-...	2997.048	5858455.12	2.528	81907.230	7427097.34	2.022	0.217	133.34	39.503
68	500-173196-a-...	9869.965	18483477.64	2.086	70914.829	6420894.48	2.259	4.646	2446.95	11.115
69	500-173196-a-...	9759.963	17695374.32	0.539	70370.859	6167701.06	0.423	4.502	2290.25	2.705
70	500-173196-a-...	19602.992	35641210.30	0.729	78780.430	6989715.32	1.301	955.490	487910.80	1.512
71	500-173196-a-...	1902.679	3902256.40	8.890	13690.448	1261720.76	7.298	1.220	666.71	10.969
72	mb 500-51529...	13.076	365552.64	24.842	36.028	5006.19	11.505	0.172	110.01	28.598
73	lcs 500-515293...	10305.055	18623632.64	0.900	9035.334	791558.00	2.303	1001.151	503829.08	2.632
74	500-173389-d-...	1028.454	2195483.92	1.798	1668.103	150241.45	2.050	0.553	303.35	5.364
75	500-173389-d-...	480.900	1207170.04	1.279	2458.848	220955.22	1.665	0.494	273.35	27.691
76	CCV	25770.565	45549082.65	1.600	25098.156	2171004.90	0.727	250.269	124553.62	0.643
77	CCB	3.493	334489.55	70.245	9.139	2470.43	23.370	0.114	76.67	26.917
78	500-173389-d-...	297.569	869693.63	1.997	1299.659	116876.13	0.351	0.611	330.12	66.605
79	500-173389-d-...	1545.807	3151121.51	2.217	1636.643	148379.40	3.261	0.711	386.69	18.737
80	500-173389-d-...	768.165	1728046.12	1.657	2461.848	221329.99	1.508	0.351	200.02	67.737
81	500-173389-d-...	151.370	594381.37	5.131	1631.826	143363.23	0.794	0.395	216.68	48.140
82	500-173389-d-...	863.264	1858606.74	1.591	2716.817	238764.71	0.596	0.537	290.03	30.456
83	CCV	25866.777	45416697.66	1.404	25190.579	2164649.59	0.743	254.041	125596.86	1.780
84	CCB	3.090	333688.99	85.160	6.953	2280.96	38.430	0.081	60.00	129.570
85	CCVL	512.557	1266087.48	1.856	198.961	19488.67	4.486	4.729	2450.29	6.806

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	16235.68	N/A	0.055	4247.42	120.245	0.034	1953.54	122.942
2	ICIS	0.000	17339.54	N/A	0.000	3063.73	N/A	0.000	1400.12	N/A
3	Std1	10.267	148194.18	2.022	10.542	146342.60	1.409	10.761	114485.83	1.554
4	Std2	101.974	1316609.02	0.709	103.497	1411257.11	1.865	103.850	1094240.82	0.557
5	Std3	499.600	6521873.03	0.104	499.290	6946210.52	0.460	499.215	5370146.38	0.245
6	S1	501.421	6586674.70	1.996	500.242	7003217.60	1.989	501.495	5428182.63	1.570
7	ICV	195.112	2636748.40	1.951	198.398	2847052.98	1.562	200.126	2219897.88	1.359
8	ICVL	4.979	81783.50	2.695	5.112	73359.26	1.514	2.617	29226.03	1.102
9	ICB	<0.000	16325.23	N/A	0.009	3077.08	68.641	<0.000	1323.44	N/A
10	icsa	<0.000	7888.87	N/A	0.664	13302.48	4.648	0.458	6834.98	6.316
11	icsab	18.966	285727.75	0.461	19.770	299957.83	0.727	20.032	233900.48	0.840
12	CRI	10.493	163751.80	4.607	10.391	156438.65	2.891	5.205	60843.43	1.527
13	CCV	254.431	3470248.07	1.796	253.737	3680085.99	1.754	255.151	2860826.31	1.649
14	CCB	0.274	19939.13	89.593	0.028	3287.11	189.418	0.035	1690.17	81.222
15	mb 500-51567...	0.115	18847.88	248.059	0.001	3147.12	1335.990	<0.000	1236.76	N/A
16	lcs 500-515672...	494.943	6507312.82	2.174	202.258	2835612.25	2.996	510.761	5533268.46	2.524
17	500-172538-n-...	<0.000	7158.50	N/A	0.549	11861.31	4.347	4.362	52977.40	3.688
18	500-173332-a-...	<0.000	13085.58	N/A	2.173	37880.14	2.999	0.328	5644.51	12.839
19	500-173332-a-...	<0.000	12898.71	N/A	2.216	38535.32	2.597	0.319	5534.47	7.916
20	500-173332-a-...	487.140	7210233.43	1.866	199.598	3150328.81	1.922	496.187	6051275.95	1.989
21	500-173332-a-...	0.026	19832.46	325.499	0.436	9986.71	14.720	0.149	3300.49	5.020
22	lcs 500-515678...	491.718	6578532.82	3.118	200.362	2858619.43	2.721	504.636	5563351.79	2.675
23	CCV	255.195	3471941.61	2.411	255.803	3700882.55	2.755	254.883	2850838.19	2.358
24	CCB	0.109	19682.06	24.168	0.009	3350.47	223.751	0.031	1806.84	34.750
25	mb 500-51485...	0.019	18667.63	34.994	0.578	11477.68	3.541	0.756	9806.62	4.911
26	lcs 500-514853...	497.839	6667876.98	1.777	204.359	2918913.08	1.813	512.665	5658074.71	1.617

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	22.056	380741.34	1.376	22.059	386782.14	1.482	506.792	6802651.15	0.424
28	500-173203-d-...	6.098	106609.88	3.273	6.180	97547.39	1.799	142.486	1678923.83	2.222
29	500-173203-d-...	6.194	107918.06	1.008	5.584	88433.65	1.114	192.975	2271982.00	1.402
30	500-173203-d-...	1.795	43897.74	2.146	1.481	25229.34	4.024	51.415	588196.49	3.028
31	CCV	260.015	3451849.33	1.116	261.635	3693844.74	1.822	260.821	2846724.75	1.203
32	CCB	0.124	19715.52	28.234	0.052	3917.26	58.245	0.093	2466.97	15.509
33	CCVL	4.623	82178.69	21.654	4.733	72509.87	17.748	2.440	29056.30	20.712
34	lcs 500-515411...	479.658	6050585.12	14.841	197.025	2648424.75	15.715	489.950	5089855.86	15.360
35	lb3 500-514915...	3.845	61415.16	1.996	0.745	12218.16	3.230	0.344	4644.15	13.587
36	500-173292-a-...	762.816	9624680.90	25.560	2241.199	30166687.88	25.145	0.856	10353.65	24.404
37	500-173292-a-...	179.852	2423789.96	13.851	532.239	7607525.93	13.463	0.227	4007.33	21.009
38	mb 500-51551...	0.137	20526.55	31.997	0.614	12148.23	7.276	0.168	3380.46	23.017
39	lcs 500-515518...	516.788	6667930.11	2.300	212.730	2927184.33	3.198	530.169	5637246.17	2.291
40	500-173445-d-...	1.299	35755.48	1.960	3.014	46170.49	1.664	115.937	1278079.74	1.381
41	500-172965-m...	29.546	537821.28	1.932	21.115	396443.39	1.416	624.444	8971109.87	0.285
42	CCV	257.404	3357615.57	2.634	258.404	3584661.20	2.853	257.892	2765590.48	1.808
43	CCB	0.183	19959.16	23.170	0.142	5054.27	4.928	0.240	3947.28	4.240
44	CCVL	5.346	87193.44	3.745	5.347	77185.89	2.629	2.697	30317.99	2.360
45	mb 500-51454...	<0.000	17302.87	N/A	0.185	5804.59	8.401	0.363	5407.80	6.879
46	lcs 500-514546...	503.329	6603563.86	2.107	206.923	2895094.64	2.513	518.877	5609758.04	1.436
47	500-173071-a-...	0.239	22312.24	7.049	12.305	184100.28	2.901	40.051	456462.60	2.984
48	500-173071-a-...	0.196	22345.50	16.451	11.861	182709.08	1.251	38.926	456505.10	1.558
49	500-173071-a-...	533.792	7102284.48	9.980	224.333	3183717.04	9.788	571.126	6262765.12	9.954
50	500-173071-a-...	0.255	23410.27	12.986	2.441	40753.25	3.512	8.121	97470.56	1.502
51	500-173168-a-...	2.361	46150.45	3.961	2.251	32669.23	1.477	258.580	2634467.67	1.199
52	500-173079-a-...	0.382	22355.60	10.479	0.120	4724.25	9.762	109.875	1150665.97	0.711
53	500-173079-a-...	1.750	40075.45	6.083	0.152	5204.36	8.404	132.887	1405372.06	2.241
54	500-173079-a-...	6.733	103648.98	2.233	1.780	27399.67	1.392	138.196	1459099.41	1.188
55	CCV	254.687	3331428.91	1.097	255.986	3560539.43	1.444	255.231	2744466.42	1.320
56	CCB	<0.000	19118.36	N/A	0.005	3483.86	883.864	0.026	1860.19	114.160

Analyte Table

		51 V [He]			52 Cr [He]			55 Mn [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	0.680	26992.34	14.663	0.516	10403.62	13.180	8.296	91128.11	1.356
58	400-176914-b-...	0.278	22131.94	12.407	<0.000	2830.36	N/A	10.674	118938.93	2.039
59	400-176914-b-...	0.296	21617.78	9.574	<0.000	2793.68	N/A	35.738	381367.65	3.055
60	400-176914-b-...	0.219	20920.37	14.238	0.003	3240.44	333.173	50.490	546232.70	1.603
61	400-176914-b-...	0.357	22929.76	4.568	0.079	4327.39	13.004	561.875	6117386.16	1.753
62	400-176914-b-...	0.370	23370.26	11.659	0.007	3353.84	62.515	114.504	1262300.89	1.679
63	400-176914-b-...	1.388	35578.35	2.192	0.455	9372.95	2.006	0.414	5831.24	9.616
64	CCV	258.079	3307716.30	1.222	259.775	3540636.51	1.605	258.226	2720893.81	0.895
65	CCB	0.160	19735.52	27.501	0.012	3293.80	257.587	0.024	1680.15	5.918
66	500-173125-a-...	0.130	19728.78	29.003	0.314	7555.32	3.201	1.973	22709.39	5.473
67	500-173128-a-...	0.341	22629.18	35.035	0.439	9369.73	4.690	1.057	12932.20	5.356
68	500-173196-a-...	4.650	79054.53	5.217	5.533	80678.84	2.571	84.955	921438.01	2.282
69	500-173196-a-...	5.570	88225.86	1.603	6.053	85137.66	1.935	84.411	886225.77	1.057
70	500-173196-a-...	509.455	6561826.57	1.274	208.615	2865488.08	1.335	590.769	6270184.49	1.254
71	500-173196-a-...	1.005	31807.52	26.635	1.040	18067.01	7.399	16.902	187527.93	8.796
72	mb 500-51529...	0.191	20639.80	8.544	0.189	5847.94	4.091	0.265	4327.39	7.163
73	lcs 500-515293...	512.718	6508437.40	1.940	209.810	2840243.40	3.237	528.667	5530381.38	1.529
74	500-173389-d-...	0.494	24204.76	4.499	0.864	15053.97	5.219	21.892	234619.44	2.326
75	500-173389-d-...	0.366	22589.12	9.878	0.578	11134.05	4.602	23.196	248860.59	1.668
76	CCV	258.382	3251599.12	0.349	259.411	3471798.28	0.802	257.440	2663349.39	0.416
77	CCB	0.163	19478.46	22.970	0.046	3700.56	12.038	0.050	1930.18	15.373
78	500-173389-d-...	0.254	21007.15	18.949	0.466	9526.36	4.058	11.194	120086.81	0.913
79	500-173389-d-...	0.260	21320.80	26.224	0.742	13455.84	2.964	14.344	155214.16	2.857
80	500-173389-d-...	0.305	21804.88	18.673	0.480	9786.54	4.324	31.119	333531.30	1.437
81	500-173389-d-...	0.547	24264.77	10.990	0.893	15063.95	6.978	63.369	659555.12	1.389
82	500-173389-d-...	0.231	20402.94	10.038	0.510	9969.97	2.135	27.398	287383.76	1.261
83	CCV	258.638	3233337.35	1.259	260.526	3463473.80	1.251	258.889	2660618.03	1.138
84	CCB	0.180	19688.70	33.453	0.037	3573.85	56.536	0.058	2013.54	43.038
85	CCVL	5.200	85103.65	4.198	5.178	74667.77	1.807	2.609	29306.43	3.547

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	5.103	196980.78	97.382	0.002	946.74	876.815	0.042	653.38	138.024
2	ICIS	0.000	116227.08	N/A	0.000	800.06	N/A	0.000	363.35	N/A
3	Std1	1085.912	13623526.05	1.316	11.052	209535.74	1.158	11.171	53284.95	1.867
4	Std2	10405.505	1.29728E+08	0.618	106.650	2018015.02	0.453	105.981	503130.69	1.789
5	Std3	49917.181	6.35544E+08	0.159	498.649	9639212.36	0.547	498.780	2418741.42	0.500
6	S1	50039.919	6.41127E+08	1.738	505.480	9832389.85	1.700	503.198	2455398.40	1.854
7	ICV	19897.911	2.61204E+08	1.046	203.525	4055862.65	1.205	202.038	1010079.75	0.909
8	ICVL	108.216	1479326.86	2.178	1.131	22412.36	1.666	2.215	10974.00	3.545
9	ICB	0.144	114190.70	313.308	0.028	1286.78	27.798	0.038	523.36	65.741
10	icsa	97799.082	1.33329E+09	1.717	0.276	6611.60	4.906	0.283	1873.52	18.403
11	icsab	96464.744	1.32488E+09	0.825	19.658	410767.69	0.500	19.087	100214.19	1.342
12	CRI	222.164	3123845.16	2.089	2.180	45522.55	2.593	4.322	22592.60	4.662
13	CCV	25650.328	3.40377E+08	2.031	261.695	5271962.94	1.698	259.473	1311328.24	1.382
14	CCB	5.836	180688.90	32.165	0.048	1636.83	29.412	0.056	596.71	49.347
15	mb 500-51567...	5.056	178592.07	57.144	0.018	1133.43	93.566	0.015	436.69	129.386
16	lcs 500-515672...	1035.976	13402494.80	2.801	510.097	9930772.15	2.442	520.886	2543800.64	2.679
17	500-172538-n-...	51.408	849470.98	0.549	0.142	3917.31	8.094	0.653	3883.95	4.005
18	500-173332-a-...	13.182	327297.70	1.233	0.132	3833.95	6.340	0.974	5787.90	2.692
19	500-173332-a-...	12.974	323946.20	3.284	0.114	3447.16	12.372	1.041	6151.43	1.041
20	500-173332-a-...	1026.382	14949586.86	1.863	498.369	10922536.92	1.514	500.042	2749132.67	1.547
21	500-173332-a-...	0.927	143292.52	4.913	0.124	3480.49	13.353	0.286	1910.19	13.998
22	lcs 500-515678...	1027.574	13527476.47	3.326	512.464	10152365.68	2.381	515.819	2563414.65	3.054
23	CCV	25785.036	3.41313E+08	2.602	263.430	5293792.00	2.145	261.046	1316016.78	2.258
24	CCB	2.127	149814.82	10.614	0.082	2436.96	18.791	0.084	796.72	31.409
25	mb 500-51485...	52.311	804525.85	0.942	0.036	1553.47	7.839	0.305	1900.18	7.352
26	lcs 500-514853...	1098.543	14471444.37	1.800	524.648	10405459.84	1.067	527.065	2622271.52	1.689

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	21679.307	3.44532E+08	0.842	10.681	258622.02	1.115	26.430	160386.63	1.384
28	500-173203-d-...	6065.330	84646570.40	2.299	3.030	65006.90	3.536	7.500	40222.44	2.300
29	500-173203-d-...	6935.533	96720961.89	1.826	2.194	47310.65	0.852	6.498	34883.84	3.088
30	500-173203-d-...	1878.568	25499067.95	3.504	0.583	12838.75	5.618	1.784	9576.47	5.800
31	CCV	26542.052	3.42858E+08	1.643	268.688	5269018.88	1.196	266.743	1312246.10	1.174
32	CCB	7.187	213161.77	8.986	0.099	2760.35	13.013	0.075	746.72	33.349
33	CCVL	100.727	1475984.98	16.631	1.077	22783.11	15.422	2.079	10997.45	19.712
34	lcs 500-515411...	1056.224	13098254.81	15.896	506.223	9450240.90	15.472	509.440	2385697.15	15.429
35	lb3 500-514915...	10.306	227273.17	2.811	0.195	4150.69	9.767	0.414	2153.56	9.477
36	500-173292-a-...	10.745	250023.32	41.187	0.076	2253.58	19.248	0.194	1293.44	16.486
37	500-173292-a-...	0.438	130051.41	221.382	0.018	1213.44	25.178	0.061	693.38	20.885
38	mb 500-51551...	4.235	181051.37	9.524	0.031	1470.15	47.207	0.300	1903.51	5.702
39	lcs 500-515518...	1098.917	13946371.88	3.113	547.850	10469296.30	2.001	548.018	2626819.44	2.176
40	500-173445-d-...	1249.141	16404553.09	1.285	0.819	17065.97	2.665	80.150	398260.06	0.743
41	500-172965-m...	26534.811	4.51337E+08	0.580	10.904	282642.94	0.232	27.284	177204.67	1.005
42	CCV	26209.400	3.32645E+08	2.213	266.806	5140830.34	1.960	264.222	1277119.41	2.477
43	CCB	13.068	281118.74	16.953	0.146	3573.87	4.676	0.143	1050.08	12.262
44	CCVL	110.803	1524224.56	2.681	1.141	22789.55	2.484	2.310	11524.42	5.234
45	mb 500-51454...	8.510	231078.84	2.820	0.020	1226.77	66.632	0.089	816.72	14.546
46	lcs 500-514546...	1072.798	13846108.96	2.257	532.573	10346853.39	1.107	535.894	2611771.58	1.817
47	500-173071-a-...	164.154	2334700.43	2.465	87.183	1780888.46	2.310	7.935	41037.60	2.129
48	500-173071-a-...	154.660	2270902.78	1.400	84.304	1771852.58	1.430	7.255	38638.58	1.599
49	500-173071-a-...	1239.192	16210139.76	9.432	615.029	12117931.49	10.196	528.371	2610720.12	10.668
50	500-173071-a-...	31.275	569519.51	1.974	17.687	376204.30	1.444	1.642	9152.83	4.507
51	500-173168-a-...	333.773	4137685.56	0.938	5.170	95402.82	2.158	16.888	77897.15	1.905
52	500-173079-a-...	8.803	226378.67	3.779	0.162	3860.58	13.285	6.171	29473.33	1.895
53	500-173079-a-...	1.481	137098.42	20.973	0.016	1113.41	62.285	0.134	1013.40	14.358
54	500-173079-a-...	3414.785	42754437.69	1.442	0.044	1643.49	32.794	1.736	8625.89	1.564
55	CCV	26115.638	3.32343E+08	1.319	264.322	5106715.44	0.802	261.733	1268583.13	0.239
56	CCB	1.281	146876.60	157.606	0.054	2020.21	33.364	0.020	516.70	52.865

Analyte Table

		56 Fe [He]			59 Co [He]			60 Ni [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	13.327	291823.94	1.823	0.065	2100.22	20.082	0.643	3513.85	1.388
58	400-176914-b-...	5.187	191056.41	4.493	0.018	1206.76	23.437	0.025	513.36	64.926
59	400-176914-b-...	187.339	2476917.05	3.283	0.007	950.07	72.896	0.165	1166.76	15.771
60	400-176914-b-...	194.552	2605917.88	1.985	0.005	940.08	102.871	0.130	1013.41	33.125
61	400-176914-b-...	614.367	8037304.46	2.672	0.161	4000.66	7.202	0.318	1943.54	12.589
62	400-176914-b-...	118.322	1665756.17	2.644	0.032	1490.14	18.746	0.065	710.05	50.378
63	400-176914-b-...	61.557	891628.24	1.579	<0.000	770.05	N/A	0.098	843.39	15.128
64	CCV	26500.835	3.30474E+08	1.322	269.068	5094028.78	1.042	266.169	1264134.82	1.019
65	CCB	0.304	122427.09	332.071	0.042	1620.15	23.912	0.038	553.37	27.186
66	500-173125-a-...	63.357	928800.04	2.486	0.078	2350.28	12.509	0.413	2383.62	10.609
67	500-173128-a-...	22.059	404876.02	3.301	0.017	1166.76	32.394	0.304	1870.18	11.935
68	500-173196-a-...	2278.399	29330881.23	1.320	0.441	9426.35	2.812	5.877	29065.75	3.830
69	500-173196-a-...	2184.585	27223496.26	1.901	0.435	9009.43	4.328	6.091	29156.04	2.160
70	500-173196-a-...	3133.356	39477711.08	1.560	527.361	10059060.89	0.633	524.209	2508217.05	0.857
71	500-173196-a-...	429.196	5717470.54	7.074	0.183	4470.79	13.152	1.275	6718.30	9.718
72	mb 500-51529...	5.833	196298.00	1.690	0.021	1236.76	12.832	0.123	980.07	4.509
73	lcs 500-515293...	1100.105	13735639.79	2.407	548.145	10304916.93	1.548	547.195	2580372.88	2.307
74	500-173389-d-...	19.317	363138.15	1.888	1.088	21647.92	0.240	0.982	5090.99	6.577
75	500-173389-d-...	35.081	562601.50	3.576	2.759	53719.87	2.300	2.189	10900.61	4.621
76	CCV	26642.902	3.26222E+08	0.479	269.843	5015868.15	0.692	267.569	1247729.12	0.349
77	CCB	2.280	144935.19	4.004	0.075	2206.89	10.560	0.040	553.37	56.735
78	500-173389-d-...	25.659	440916.36	1.025	0.774	15557.85	6.075	0.743	3923.96	9.031
79	500-173389-d-...	32.365	530948.38	4.868	0.608	12545.18	2.641	1.154	5954.62	7.570
80	500-173389-d-...	23.260	413553.78	3.999	2.178	42594.99	1.156	1.874	9389.72	5.534
81	500-173389-d-...	232.399	2974014.54	0.629	2.056	39210.10	3.117	1.413	6981.71	4.116
82	500-173389-d-...	40.506	617648.82	1.439	0.767	15197.46	0.995	1.912	9366.31	3.458
83	CCV	26807.792	3.26070E+08	1.588	271.814	5019077.74	1.465	270.857	1254654.28	0.791
84	CCB	2.393	146326.57	18.225	0.070	2106.88	9.686	0.042	563.36	35.169
85	CCVL	103.633	1429993.99	2.971	1.141	22722.78	5.220	2.194	10940.66	4.889

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	38169.42	N/A	0.028	546.71	118.893	0.022	604.35	367.823
2	ICIS	0.000	41439.89	N/A	0.000	420.03	N/A	0.000	504.34	N/A
3	Std1	9.774	167349.34	2.483	10.442	27169.75	1.738	9.778	22961.33	2.324
4	Std2	101.968	1326978.91	0.921	100.823	254373.23	0.523	97.863	221486.13	0.701
5	Std3	499.611	6221238.08	0.579	499.827	1235649.41	0.946	500.432	1109231.25	0.819
6	S1	499.131	6287594.06	1.165	499.866	1250182.25	1.081	500.604	1122510.00	0.893
7	ICV	200.389	2617957.95	1.179	198.902	511165.92	1.189	195.845	451360.79	1.037
8	ICVL	2.576	75598.10	3.396	20.085	52238.80	2.010	1.000	2828.25	3.911
9	ICB	0.542	47786.54	12.603	0.091	643.37	3.485	0.015	532.68	93.993
10	icsa	<0.000	6474.67	N/A	1.404	3820.60	5.677	<0.000	482.68	N/A
11	icsab	17.912	259358.81	0.798	21.858	53850.67	1.097	21.548	47718.78	1.297
12	CRI	2.565	78382.72	4.381	40.844	109901.46	0.840	2.006	5353.20	1.679
13	CCV	257.245	3395475.35	1.023	256.747	668922.31	1.182	250.823	585962.96	0.533
14	CCB	<0.000	24210.89	N/A	0.158	793.39	26.378	0.029	552.01	93.504
15	mb 500-51567...	<0.000	26077.03	N/A	0.307	1190.09	53.715	0.005	528.68	514.190
16	lcs 500-515672...	246.391	3293287.16	1.837	493.964	1302016.07	2.483	95.873	227009.98	1.689
17	500-172538-n-...	3.430	86014.10	0.926	25.514	65766.59	2.071	<0.000	330.67	N/A
18	500-173332-a-...	23.178	363060.54	1.317	8.606	24048.08	2.335	2.215	5991.09	2.959
19	500-173332-a-...	23.320	364961.29	1.585	8.499	23750.97	1.916	2.162	5861.71	0.599
20	500-173332-a-...	284.813	3877459.85	0.629	538.290	1447713.73	0.650	107.611	259922.82	0.821
21	500-173332-a-...	2.725	81811.13	6.166	1.582	4760.89	9.149	0.404	1529.74	5.910
22	lcs 500-515678...	245.772	3320925.56	1.977	492.503	1312354.04	2.137	95.845	229423.03	1.759
23	CCV	254.546	3396758.48	2.031	252.554	665049.82	2.880	249.116	588298.81	1.921
24	CCB	<0.000	22398.41	N/A	0.107	730.04	40.267	0.032	610.68	25.641
25	mb 500-51485...	<0.000	27904.39	N/A	3.744	10623.75	1.685	0.127	851.03	4.667
26	lcs 500-514853...	255.454	3423107.36	2.629	511.531	1352403.05	2.917	99.080	235300.06	1.934

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	40.322	521364.60	2.486	68.617	164321.57	2.521	12.378	26984.96	2.149
28	500-173203-d-...	7.479	139883.05	3.072	16.178	42454.63	1.714	2.729	6874.09	2.374
29	500-173203-d-...	8.243	143101.95	2.714	30.054	74971.14	3.300	3.692	8708.28	2.087
30	500-173203-d-...	0.140	45169.24	33.529	7.453	20109.38	3.514	0.887	2625.55	3.934
31	CCV	253.906	3395011.60	0.707	252.880	667356.23	0.604	247.415	585433.69	0.702
32	CCB	<0.000	20755.17	N/A	0.221	1040.08	37.906	0.081	732.02	23.595
33	CCVL	0.083	47365.03	599.509	18.151	51432.34	18.684	0.923	2886.27	22.268
34	lcs 500-515411...	218.448	3143409.74	12.493	426.137	1207288.47	12.394	81.965	208620.48	12.770
35	lb3 500-514915...	6.756	131563.64	2.690	6.290	16909.11	1.936	0.605	1944.12	4.038
36	500-173292-a-...	2.490	77296.85	46.853	4.434	12248.48	26.646	1.073	3091.97	30.665
37	500-173292-a-...	<0.000	30663.55	N/A	1.176	3727.25	9.083	0.224	1107.04	32.172
38	mb 500-51551...	<0.000	26892.63	N/A	2.577	7718.76	3.563	0.001	563.68	524.851
39	lcs 500-515518...	257.098	3418692.50	1.464	519.508	1363000.34	2.108	99.133	233634.12	1.356
40	500-173445-d-...	9.149	162329.87	1.596	51.500	134817.28	1.463	2.860	7212.24	1.641
41	500-172965-m...	55.228	726913.77	2.957	116.044	288429.64	3.396	13.032	29494.50	3.145
42	CCV	252.831	3311797.23	1.402	251.167	649238.43	0.939	245.474	569008.23	1.073
43	CCB	<0.000	13819.13	N/A	0.240	1096.75	22.414	0.101	783.02	24.111
44	CCVL	<0.000	42324.12	N/A	20.124	54914.25	0.936	0.992	2946.94	4.031
45	mb 500-51454...	<0.000	19149.96	N/A	6.901	18944.66	1.527	0.011	562.01	66.311
46	lcs 500-514546...	249.022	3385324.31	1.035	503.471	1349971.85	0.934	95.984	231182.70	0.929
47	500-173071-a-...	<0.000	22786.64	N/A	411.719	1009539.73	1.674	0.376	1316.72	1.175
48	500-173071-a-...	<0.000	19337.89	N/A	417.205	1013799.75	1.356	0.400	1356.39	0.607
49	500-173071-a-...	281.087	3308862.79	8.188	991.346	2305032.88	7.859	117.354	245154.00	7.040
50	500-173071-a-...	<0.000	14166.09	N/A	83.469	219405.46	1.586	0.104	767.69	5.833
51	500-173168-a-...	9.892	150608.19	1.758	63.563	145563.56	2.052	1.195	2903.93	1.642
52	500-173079-a-...	<0.000	26799.19	N/A	13.247	33254.09	1.803	0.944	2593.88	0.485
53	500-173079-a-...	<0.000	14556.42	N/A	12.731	32572.59	1.886	0.244	1056.04	6.510
54	500-173079-a-...	6.691	127840.73	0.945	55.939	143720.95	0.806	0.577	1836.11	2.133
55	CCV	250.282	3280279.04	0.534	249.731	645790.07	1.442	244.648	567325.52	0.791
56	CCB	<0.000	9284.89	N/A	0.114	803.39	63.126	0.030	651.35	139.973

Analyte Table

		63 Cu [He]			66 Zn [He]			75 As [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	<0.000	9856.43	N/A	0.793	2533.63	2.642	0.033	605.35	57.208
58	400-176914-b-...	<0.000	8763.48	N/A	0.232	1060.08	22.213	0.028	598.01	66.699
59	400-176914-b-...	<0.000	8301.03	N/A	0.182	903.40	22.810	0.050	634.68	16.615
60	400-176914-b-...	<0.000	8944.72	N/A	16.377	42805.56	4.516	0.034	594.68	37.192
61	400-176914-b-...	<0.000	7468.42	N/A	13.985	36510.41	2.449	0.671	2067.47	2.308
62	400-176914-b-...	<0.000	7896.38	N/A	14.457	39233.47	0.579	0.160	921.70	3.492
63	400-176914-b-...	<0.000	18120.98	N/A	6.951	19401.88	0.704	0.193	1016.37	10.258
64	CCV	248.381	3280790.35	1.581	248.112	646603.68	0.879	241.554	564493.81	1.423
65	CCB	<0.000	8741.28	N/A	0.118	760.05	12.220	0.045	644.02	43.345
66	500-173125-a-...	1.152	55451.80	5.165	11.801	29924.34	4.626	1.476	3806.11	3.731
67	500-173128-a-...	<0.000	12154.49	N/A	5.286	13983.04	1.596	0.287	1173.05	4.271
68	500-173196-a-...	128.313	1676789.52	0.933	85.559	218204.66	1.278	10.320	24059.19	1.329
69	500-173196-a-...	108.357	1401671.61	2.249	82.101	206336.34	2.819	10.306	23677.00	1.372
70	500-173196-a-...	386.240	4868376.20	0.590	595.222	1486617.90	1.114	112.458	252216.63	0.557
71	500-173196-a-...	22.739	347547.36	8.288	16.435	44299.89	7.524	1.947	5190.83	8.358
72	mb 500-51529...	<0.000	12057.77	N/A	16.869	46776.27	1.603	0.029	620.35	43.819
73	lcs 500-515293...	253.860	3342294.87	1.401	513.260	1333192.79	1.662	98.310	229375.30	1.450
74	500-173389-d-...	<0.000	41720.36	N/A	9.852	27139.65	2.231	0.129	853.36	11.852
75	500-173389-d-...	<0.000	34317.19	N/A	27.628	74111.78	0.732	0.148	885.36	6.891
76	CCV	245.930	3222472.09	1.893	245.376	634279.18	2.293	238.924	553817.35	1.607
77	CCB	<0.000	7979.76	N/A	0.141	820.05	32.387	0.061	677.69	20.025
78	500-173389-d-...	<0.000	27491.39	N/A	8.412	23079.77	1.847	0.086	744.69	10.105
79	500-173389-d-...	0.249	48190.84	28.127	9.769	27109.53	3.339	0.084	750.35	3.210
80	500-173389-d-...	<0.000	39548.57	N/A	13.007	35635.60	3.083	0.090	759.02	5.260
81	500-173389-d-...	0.342	48352.39	11.647	8.990	24422.00	5.596	0.338	1341.73	0.584
82	500-173389-d-...	0.036	43590.58	216.895	15.463	41061.67	0.669	0.076	704.02	17.637
83	CCV	247.639	3222297.10	2.620	245.603	630511.80	2.387	239.667	551742.12	2.252
84	CCB	<0.000	7526.21	N/A	0.092	693.38	25.896	0.047	647.35	34.883
85	CCVL	<0.000	36262.27	N/A	19.747	53693.65	1.955	0.965	2870.26	3.398

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.058	648.68	600.845	0.029	943.40	72.920	0.603	4784.32	39.381
2	ICIS	0.000	573.01	N/A	0.000	406.69	N/A	0.000	166.68	N/A
3	Std1	9.877	2815.58	3.181	9.941	161750.87	1.683	9.710	69230.23	3.507
4	Std2	98.560	22499.42	0.790	98.970	1579911.18	0.665	97.586	682856.53	0.663
5	Std3	500.291	109771.10	0.774	500.207	7833016.55	0.274	500.489	3435524.32	0.837
6	S1	501.772	111369.16	0.834	492.336	7799293.22	0.172	500.704	3477051.72	1.181
7	ICV	198.415	45584.72	1.241	197.623	3215786.30	1.157	195.783	1396508.31	1.169
8	ICVL	2.270	1102.71	5.608	3.851	63359.42	0.870	3.917	28235.21	0.953
9	ICB	0.029	573.34	308.623	0.012	596.71	30.113	0.027	350.02	27.055
10	icsa	0.426	643.68	36.876	3.107	48304.93	1.468	2020.268	13654099.80	1.469
11	icsab	22.400	5392.22	2.000	24.360	377785.24	1.775	2018.667	13708475.63	1.177
12	CRI	4.840	1754.10	1.858	7.938	135225.41	1.321	8.326	62138.91	2.350
13	CCV	251.824	58502.48	0.613	251.302	4146033.58	0.498	248.702	1798614.87	0.916
14	CCB	0.413	646.35	39.965	0.031	890.06	17.453	0.171	1320.11	14.818
15	mb 500-51567...	0.143	615.01	341.288	0.016	663.38	87.218	0.087	783.39	26.651
16	lcs 500-515672...	97.171	23214.74	1.932	934.707	15606818.52	1.656	942.125	6895178.44	2.295
17	500-172538-n-...	0.351	660.35	63.453	2714.365	44044462.68	1.421	0.555	4117.39	1.598
18	500-173332-a-...	0.445	730.02	31.925	81.983	1424504.51	1.112	3.782	28969.87	5.973
19	500-173332-a-...	0.544	753.69	15.563	81.426	1414604.40	1.273	3.736	28619.13	3.745
20	500-173332-a-...	107.195	26067.23	1.182	1083.296	18456277.23	0.347	993.123	7416643.43	0.527
21	500-173332-a-...	0.257	679.35	102.207	15.312	264556.05	2.405	1.244	9583.21	4.071
22	lcs 500-515678...	97.741	23602.61	2.072	935.381	15788443.52	1.477	938.420	6943299.69	1.453
23	CCV	249.643	58632.24	2.368	248.545	4145164.52	2.108	247.342	1808156.43	2.199
24	CCB	0.024	612.01	235.933	0.117	2416.96	15.519	0.161	1373.45	6.984
25	mb 500-51485...	<0.000	592.34	N/A	0.181	3550.53	5.112	0.400	3200.45	2.848
26	lcs 500-514853...	99.745	23886.02	2.007	961.933	16110081.43	1.359	974.147	7151253.23	1.971

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	1.532	865.02	22.181	1108.611	16780470.59	2.142	13.824	91873.26	1.476
28	500-173203-d-...	0.361	672.35	39.901	249.553	4107689.21	2.076	3.088	22449.51	1.281
29	500-173203-d-...	0.463	664.68	48.945	955.256	15016889.78	2.213	11.092	76589.36	2.867
30	500-173203-d-...	0.096	621.35	154.214	231.750	3875678.90	1.193	2.831	20927.44	0.827
31	CCV	246.307	57967.00	0.835	246.845	4124722.65	0.712	247.617	1813825.65	0.410
32	CCB	<0.000	589.34	N/A	0.135	2733.67	14.407	0.145	1260.10	8.430
33	CCVL	1.963	1124.71	40.462	3.565	63911.71	17.921	3.620	28466.51	16.389
34	lcs 500-515411...	81.930	21114.12	14.800	814.631	14609977.70	13.442	844.054	6640822.19	11.995
35	lb3 500-514915...	<0.000	547.01	N/A	0.362	6431.52	3.341	0.375	2900.38	14.162
36	500-173292-a-...	0.711	779.35	71.866	82.618	1392402.95	26.475	281.271	2078810.91	25.878
37	500-173292-a-...	<0.000	591.34	N/A	19.713	346087.28	13.214	65.483	503725.22	12.205
38	mb 500-51551...	<0.000	576.01	N/A	0.133	2817.03	4.583	0.111	1056.75	19.317
39	lcs 500-515518...	100.046	23774.16	1.215	980.565	16297018.92	2.055	988.502	7201384.89	1.913
40	500-173445-d-...	0.008	594.01	1003.962	144.939	2396783.72	1.349	3.782	27584.07	2.056
41	500-172965-m...	0.831	745.35	24.871	107.290	1687557.74	3.123	2.193	15287.78	1.156
42	CCV	241.901	55781.32	0.812	243.153	3980245.15	0.892	249.164	1787919.92	1.398
43	CCB	<0.000	546.34	N/A	0.169	3317.18	2.692	0.169	1446.79	0.794
44	CCVL	2.257	1153.71	3.586	3.866	66739.40	0.830	3.908	29554.18	3.550
45	mb 500-51454...	<0.000	598.01	N/A	0.098	2103.57	9.195	0.054	576.70	24.919
46	lcs 500-514546...	96.086	23357.92	1.577	936.590	15906891.43	1.294	956.004	7117266.98	1.103
47	500-173071-a-...	1.441	867.69	14.134	227.035	3526471.51	1.566	43.088	293486.09	1.533
48	500-173071-a-...	1.201	808.69	13.194	229.888	3538497.45	1.189	42.600	287560.56	1.329
49	500-173071-a-...	115.533	24263.53	7.182	1336.716	19699544.29	6.951	1140.555	7364391.35	7.924
50	500-173071-a-...	0.348	676.02	13.623	45.040	749058.82	2.259	8.591	62774.06	1.918
51	500-173168-a-...	0.279	575.01	16.862	380.219	5504333.04	0.546	7.500	47750.80	0.810
52	500-173079-a-...	0.763	729.69	36.811	115.379	1812745.60	0.840	0.323	2386.96	9.926
53	500-173079-a-...	<0.000	556.01	N/A	55.428	887028.94	2.090	1.101	7892.22	3.677
54	500-173079-a-...	0.103	604.35	314.300	57.927	940612.25	0.872	0.408	3073.75	5.835
55	CCV	243.727	56220.40	1.446	244.283	4000541.19	0.825	246.729	1771229.35	0.586
56	CCB	<0.000	583.01	N/A	0.049	1340.12	46.837	0.099	973.41	28.965

Analyte Table

		78 Se [He]			88 Sr [He]			95 Mo [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	0.298	669.02	12.394	72.120	1207501.88	2.262	0.152	1286.78	13.794
58	400-176914-b-...	0.817	794.69	22.677	51.443	866488.56	1.438	1.334	10020.19	4.666
59	400-176914-b-...	<0.000	559.01	N/A	88.867	1462295.24	2.680	3.399	24679.44	1.169
60	400-176914-b-...	<0.000	570.68	N/A	89.025	1460353.68	0.942	3.515	25443.96	2.124
61	400-176914-b-...	<0.000	560.68	N/A	163.827	2678723.61	1.196	0.100	883.40	2.269
62	400-176914-b-...	<0.000	595.34	N/A	31.868	542197.14	1.361	0.013	276.68	55.814
63	400-176914-b-...	<0.000	547.01	N/A	0.157	3150.43	6.847	0.678	5314.43	0.379
64	CCV	240.395	55891.99	1.349	240.759	3973320.77	1.067	245.836	1778385.75	1.492
65	CCB	<0.000	544.34	N/A	0.044	1180.10	17.812	0.082	786.72	16.755
66	500-173125-a-...	0.092	587.68	178.973	433.770	6870844.27	2.801	11.314	78722.87	1.922
67	500-173128-a-...	<0.000	543.01	N/A	102.383	1663732.47	1.623	4.604	32953.75	1.685
68	500-173196-a-...	2.096	1047.70	23.102	195.018	3145669.74	1.393	5.845	41500.22	2.029
69	500-173196-a-...	1.761	959.70	3.196	191.613	3045634.96	2.234	5.249	36728.92	3.209
70	500-173196-a-...	103.456	23381.97	0.506	1178.166	18639288.89	0.800	1006.899	6982935.94	1.159
71	500-173196-a-...	0.308	679.35	38.365	37.045	626661.57	8.717	1.388	10453.81	10.948
72	mb 500-51529...	<0.000	557.01	N/A	0.131	2717.03	9.726	0.068	696.72	12.417
73	lcs 500-515293...	98.072	23084.56	1.787	964.738	15873398.93	0.532	979.323	7063385.94	0.990
74	500-173389-d-...	<0.000	578.68	N/A	10.384	178662.03	1.997	0.611	4774.25	2.645
75	500-173389-d-...	<0.000	526.01	N/A	12.688	214793.69	1.035	0.087	816.73	18.825
76	CCV	237.633	54806.46	1.601	237.290	3884236.40	1.928	244.939	1757541.28	2.489
77	CCB	<0.000	526.34	N/A	0.078	1740.18	15.384	0.112	1006.75	7.669
78	500-173389-d-...	<0.000	563.68	N/A	4.942	84668.72	0.339	0.039	470.03	48.280
79	500-173389-d-...	<0.000	568.34	N/A	7.259	125937.66	3.250	0.030	406.69	40.624
80	500-173389-d-...	<0.000	534.68	N/A	10.457	179674.03	1.572	0.035	443.38	40.311
81	500-173389-d-...	<0.000	502.68	N/A	9.902	167774.54	3.011	0.052	560.03	11.493
82	500-173389-d-...	<0.000	548.01	N/A	19.257	320973.08	1.868	0.031	396.69	30.221
83	CCV	238.148	54547.27	2.619	239.029	3885840.78	2.605	247.165	1761313.93	2.498
84	CCB	<0.000	531.68	N/A	0.062	1483.47	24.874	0.101	930.07	9.134
85	CCVL	2.040	1097.71	22.343	3.830	65869.22	1.478	3.842	28950.04	6.059

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	70.00	N/A	0.008	216.68	49.125	0.016	3.33	173.205
2	ICIS	0.000	63.34	N/A	0.000	60.00	N/A	0.000	0.00	N/A
3	Std1	11.037	3317.18	11.408	1.017	18721.40	0.914	9.639	2136.93	8.486
4	Std2	102.359	29741.31	3.091	10.305	185917.93	0.860	102.589	22359.67	0.978
5	Std3	499.508	142179.55	0.473	99.969	1769030.65	0.822	499.489	106818.02	1.711
6	S1	498.951	143669.94	2.302	100.600	1800612.00	1.449	495.453	107196.43	1.548
7	ICV	201.498	59630.18	1.043	41.129	756253.50	0.753	197.862	43967.18	1.682
8	ICVL	0.377	176.68	18.960	0.545	10123.56	2.585	0.627	140.01	20.745
9	ICB	0.014	66.67	1224.749	0.002	93.34	120.575	0.062	13.33	43.228
10	icsa	0.448	186.68	30.557	0.126	2260.25	7.609	17.836	3757.28	5.865
11	icsab	20.193	5744.58	3.865	21.003	367698.37	1.105	39.107	8272.51	1.980
12	CRI	0.893	343.35	25.368	1.057	20336.96	3.176	0.979	226.68	21.999
13	CCV	252.712	75817.27	1.239	52.163	972477.38	0.755	250.020	56335.59	2.339
14	CCB	<0.000	23.33	N/A	0.008	200.01	24.666	0.102	23.33	88.395
15	mb 500-51567...	<0.000	23.33	N/A	0.004	136.67	41.676	0.101	20.00	142.317
16	lcs 500-515672...	49.734	15154.29	2.195	50.910	960662.88	0.643	58.501	13339.39	5.489
17	500-172538-n-...	<0.000	46.67	N/A	0.015	326.68	21.842	0.106	23.33	138.270
18	500-173332-a-...	<0.000	53.33	N/A	0.025	546.71	34.098	0.155	36.67	57.345
19	500-173332-a-...	<0.000	26.67	N/A	0.023	520.03	24.182	0.014	3.33	173.205
20	500-173332-a-...	52.744	16395.50	3.452	51.568	992800.84	0.531	58.716	13659.70	2.172
21	500-173332-a-...	<0.000	60.00	N/A	0.015	353.36	26.132	0.014	3.33	173.205
22	lcs 500-515678...	47.657	14680.61	3.702	50.499	963296.94	0.971	59.072	13612.95	5.737
23	CCV	252.639	76618.17	1.211	52.303	985670.22	1.545	252.869	57583.13	3.460
24	CCB	<0.000	20.00	N/A	0.012	286.68	37.116	0.043	10.00	173.205
25	mb 500-51485...	<0.000	40.00	N/A	0.005	156.68	88.742	0.028	6.67	173.205
26	lcs 500-514853...	51.532	15744.91	4.155	52.814	999585.58	1.033	56.968	13029.13	3.244

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	1.394	443.36	6.361	0.103	1820.19	7.712	0.920	190.01	16.512
28	500-173203-d-...	0.161	113.34	85.112	0.026	550.04	18.921	0.297	66.67	43.733
29	500-173203-d-...	0.752	276.68	20.467	0.037	716.72	41.815	0.935	200.01	48.899
30	500-173203-d-...	0.100	96.67	37.801	0.014	320.02	26.945	0.219	50.00	59.732
31	CCV	245.151	74491.51	1.220	52.385	989114.31	0.891	255.557	58315.49	0.387
32	CCB	0.073	90.00	309.285	0.020	456.69	13.068	0.115	26.67	21.922
33	CCVL	0.576	256.68	24.780	0.495	10043.54	14.764	0.632	156.67	53.138
34	lcs 500-515411...	43.525	14256.95	13.151	45.324	918494.80	13.615	49.037	12015.14	13.431
35	lb3 500-514915...	<0.000	56.67	N/A	0.023	500.03	23.983	0.015	3.33	173.205
36	500-173292-a-...	<0.000	33.33	N/A	0.007	196.68	24.470	2.315	533.36	27.650
37	500-173292-a-...	<0.000	36.67	N/A	0.002	106.67	42.656	0.605	143.34	41.142
38	mb 500-51551...	<0.000	30.00	N/A	0.004	140.01	7.961	0.028	6.67	173.205
39	lcs 500-515518...	51.994	15768.28	2.188	53.288	1000835.92	1.189	59.129	13419.41	6.609
40	500-173445-d-...	0.071	86.67	28.150	0.063	1246.76	18.215	0.280	63.33	17.829
41	500-172965-m...	1.543	503.36	17.671	0.041	793.38	4.655	1.015	216.68	41.647
42	CCV	252.968	75294.52	1.205	53.059	981447.88	1.070	252.859	56529.49	1.632
43	CCB	<0.000	66.67	N/A	0.028	596.71	13.042	0.143	33.33	62.365
44	CCVL	0.477	216.68	46.242	0.530	10327.09	2.997	0.781	183.34	48.810
45	mb 500-51454...	<0.000	20.00	N/A	0.008	216.68	26.108	0.029	6.67	86.607
46	lcs 500-514546...	50.841	15758.30	4.627	50.809	975156.83	0.855	57.289	13289.29	2.857
47	500-173071-a-...	0.006	63.33	1132.228	0.042	786.73	17.353	0.344	73.34	29.424
48	500-173071-a-...	<0.000	40.00	N/A	0.033	623.37	2.538	0.381	80.00	24.774
49	500-173071-a-...	52.985	14236.84	9.277	52.066	866576.39	8.206	63.716	12855.61	2.787
50	500-173071-a-...	<0.000	33.33	N/A	0.015	336.68	27.732	0.294	66.67	9.466
51	500-173168-a-...	0.376	156.68	38.071	0.020	383.36	34.544	0.435	86.67	84.413
52	500-173079-a-...	<0.000	20.00	N/A	0.001	70.00	187.463	0.031	6.67	86.603
53	500-173079-a-...	<0.000	16.67	N/A	0.001	73.33	163.503	0.046	10.00	100.566
54	500-173079-a-...	0.178	116.67	67.535	0.002	93.33	76.939	0.076	16.67	173.205
55	CCV	255.087	75957.53	1.003	52.943	979644.77	1.717	251.429	56228.74	0.390
56	CCB	<0.000	46.67	N/A	0.012	320.02	30.452	0.043	10.00	173.205

Analyte Table

		106 [Cd] [He]			107 Ag [He]			108 [Cd] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	<0.000	60.00	N/A	0.002	106.67	113.367	0.014	3.33	173.205
58	400-176914-b-...	<0.000	30.00	N/A	<0.000	43.33	N/A	0.000	0.00	N/A
59	400-176914-b-...	<0.000	33.33	N/A	<0.000	36.67	N/A	0.015	3.33	173.205
60	400-176914-b-...	<0.000	36.67	N/A	0.007	196.68	30.789	0.105	23.33	89.026
61	400-176914-b-...	<0.000	33.33	N/A	0.005	150.01	69.966	0.015	3.33	173.205
62	400-176914-b-...	0.009	70.00	1085.457	0.004	133.34	51.191	0.000	0.00	N/A
63	400-176914-b-...	<0.000	40.00	N/A	0.003	123.34	52.324	0.000	0.00	N/A
64	CCV	255.865	76781.67	0.823	52.541	979812.80	1.569	251.303	56632.64	2.715
65	CCB	0.010	70.00	1188.019	0.008	210.01	30.001	0.087	20.00	50.529
66	500-173125-a-...	<0.000	56.67	N/A	0.003	110.00	67.524	0.262	56.67	27.760
67	500-173128-a-...	<0.000	33.33	N/A	0.002	106.67	58.091	0.045	10.00	99.543
68	500-173196-a-...	1.036	366.69	15.969	0.165	3063.78	12.186	0.666	146.68	14.365
69	500-173196-a-...	0.475	200.01	6.830	0.196	3577.21	5.391	1.089	236.68	26.886
70	500-173196-a-...	50.760	14650.62	3.491	51.269	916604.34	0.680	59.346	12825.56	4.997
71	500-173196-a-...	0.114	103.34	232.396	0.041	843.39	28.089	0.159	36.67	33.019
72	mb 500-51529...	<0.000	43.33	N/A	0.002	103.33	84.498	0.000	0.00	N/A
73	lcs 500-515293...	52.264	15688.17	5.691	53.220	989506.16	1.414	57.705	12965.70	3.758
74	500-173389-d-...	<0.000	50.00	N/A	0.011	276.68	28.066	0.085	20.00	0.351
75	500-173389-d-...	0.076	90.00	115.548	0.004	140.01	85.574	0.116	26.67	57.725
76	CCV	255.251	75971.03	1.891	52.509	971225.17	1.553	247.674	55358.78	2.502
77	CCB	<0.000	46.67	N/A	0.010	263.35	38.361	0.043	10.00	173.205
78	500-173389-d-...	0.008	70.00	37.046	0.004	143.34	99.721	0.086	20.00	173.205
79	500-173389-d-...	<0.000	60.00	N/A	0.004	136.67	88.910	0.071	16.67	125.213
80	500-173389-d-...	0.061	86.67	302.052	0.001	93.34	122.332	0.057	13.33	114.235
81	500-173389-d-...	<0.000	66.67	N/A	0.002	103.34	14.215	0.173	40.00	49.957
82	500-173389-d-...	<0.000	40.00	N/A	0.003	116.67	27.674	0.117	26.67	43.371
83	CCV	253.427	74906.09	4.033	52.740	968907.43	1.510	254.124	56422.23	1.644
84	CCB	<0.000	60.00	N/A	0.012	296.68	3.869	0.072	16.67	92.130
85	CCVL	0.394	190.01	15.620	0.532	10327.07	2.513	0.557	130.01	33.597

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	<0.000	66.57	N/A	2.252	22962.13	38.342	8.666	110688.17	54.243
2	ICIS	0.000	65.05	N/A	0.000	900.06	N/A	0.000	573.37	N/A
3	Std1	10.294	34495.22	1.970	10.083	92066.03	1.748	9.776	118238.65	1.715
4	Std2	100.915	331986.73	1.967	99.578	886252.70	0.510	98.662	1168071.00	0.112
5	Std3	499.811	1613127.74	0.940	500.083	4363387.02	0.829	500.272	5808809.70	0.344
6	S1	499.472	1630756.88	0.446	494.401	4364198.37	0.983	497.901	5848440.75	1.472
7	ICV	198.427	665475.41	1.306	195.198	1770257.58	1.295	205.813	2483453.56	1.359
8	ICVL	0.532	1858.27	9.793	5.161	47909.03	4.867	3.335	41000.09	2.361
9	ICB	0.018	123.30	80.247	0.139	2120.23	20.335	0.097	1710.16	5.698
10	icsa	0.267	908.67	31.159	0.025	1080.09	54.677	0.122	1943.55	13.214
11	icsab	20.781	66415.02	1.122	20.902	181254.89	0.292	10.489	121012.49	2.160
12	CRI	1.017	3633.01	10.670	9.964	95211.50	2.212	6.207	78759.97	1.132
13	CCV	251.076	853719.92	0.384	248.347	2283445.90	1.343	247.597	3029097.14	0.691
14	CCB	0.011	96.12	65.390	0.242	2950.42	19.422	0.228	3190.45	6.437
15	mb 500-51567...	0.005	79.70	218.347	0.097	1793.51	36.248	0.062	1356.78	7.590
16	lcs 500-515672...	49.342	169873.23	3.438	929.258	8644505.91	1.880	451.929	5595294.92	2.356
17	500-172538-n-...	0.013	110.62	136.780	0.386	4407.45	5.890	0.492	6494.94	10.658
18	500-173332-a-...	0.007	94.74	268.091	0.054	1500.14	44.953	0.378	5497.83	8.512
19	500-173332-a-...	<0.000	53.46	N/A	0.020	1170.10	42.262	0.237	3673.91	9.944
20	500-173332-a-...	52.394	184052.36	1.020	978.476	9287829.86	0.460	469.220	5928516.99	3.184
21	500-173332-a-...	0.005	88.93	167.789	1.433	14743.94	8.573	2.316	30236.55	16.645
22	lcs 500-515678...	49.214	171290.47	1.522	927.539	8722488.00	2.037	449.965	5631407.00	2.551
23	CCV	250.535	861178.71	1.905	247.827	2303124.97	3.212	249.454	3084964.23	2.949
24	CCB	0.046	227.89	20.871	0.476	5441.16	9.396	0.948	12502.05	15.435
25	mb 500-51485...	0.001	73.41	1642.689	0.291	3757.28	13.135	0.516	7205.27	15.723
26	lcs 500-514853...	51.632	178280.68	2.069	967.177	9024351.95	2.309	518.815	6442434.28	2.511

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	0.747	2391.77	6.161	1.839	16355.67	3.217	0.824	9790.06	8.121
28	500-173203-d-...	0.143	551.75	15.146	0.427	4837.59	4.128	0.283	4040.68	9.885
29	500-173203-d-...	0.420	1423.56	6.588	0.582	5984.72	5.427	0.490	6274.85	6.213
30	500-173203-d-...	0.110	446.89	15.010	0.224	3027.08	12.253	0.223	3363.87	10.405
31	CCV	250.038	861100.62	1.016	245.199	2283544.39	0.994	246.662	3056506.31	0.839
32	CCB	0.080	350.17	41.880	0.326	4054.01	4.431	0.364	5207.70	8.672
33	CCVL	0.516	1968.21	17.631	4.549	46106.29	18.579	2.999	40256.41	16.901
34	lcs 500-515411...	44.070	162934.03	13.902	828.607	8281691.75	12.958	442.013	5880839.08	12.637
35	lb3 500-514915...	0.030	169.73	22.976	2.322	22399.64	3.772	0.647	8556.03	15.822
36	500-173292-a-...	<0.000	19.86	N/A	1.417	14390.41	18.106	0.928	12231.93	25.658
37	500-173292-a-...	0.000	67.55	26867.148	0.215	3117.39	5.822	0.248	3857.28	17.273
38	mb 500-51551...	0.002	79.10	502.805	0.147	2456.98	9.501	0.044	1216.76	14.363
39	lcs 500-515518...	52.515	179952.02	1.545	984.897	9119832.78	1.835	525.941	6481443.86	1.695
40	500-173445-d-...	0.032	174.93	15.630	1.307	12965.76	7.127	2.063	25885.08	4.903
41	500-172965-m...	0.302	1042.14	0.459	0.664	6701.68	5.463	0.236	3313.82	8.945
42	CCV	254.605	858924.27	0.883	246.768	2251333.25	1.937	248.514	3016750.89	1.878
43	CCB	0.118	485.20	3.404	0.398	4750.92	5.233	0.352	5077.67	10.851
44	CCVL	0.524	1922.35	12.477	4.966	48407.32	2.535	3.090	39897.42	5.023
45	mb 500-51454...	0.005	84.80	324.917	0.386	4604.18	8.382	0.062	1390.13	29.128
46	lcs 500-514546...	49.896	174726.26	1.447	946.977	8961262.37	2.116	505.480	6365941.15	1.333
47	500-173071-a-...	0.030	159.71	25.631	2.044	18561.31	4.595	1.802	21298.19	1.296
48	500-173071-a-...	0.009	91.39	138.455	1.257	11641.30	0.791	1.547	18211.02	2.231
49	500-173071-a-...	52.668	159936.17	8.129	1059.327	8694732.79	7.677	572.305	6251804.91	7.623
50	500-173071-a-...	<0.000	53.94	N/A	0.834	8656.08	6.426	0.478	6481.58	4.516
51	500-173168-a-...	0.293	933.44	10.909	0.650	6054.75	1.990	1.778	19606.03	2.188
52	500-173079-a-...	<0.000	31.46	N/A	0.260	3157.13	5.631	0.170	2543.64	3.914
53	500-173079-a-...	<0.000	35.34	N/A	0.129	2046.89	1.641	0.088	1613.48	8.794
54	500-173079-a-...	0.014	111.25	100.965	0.137	2153.57	9.555	0.017	790.05	111.307
55	CCV	253.550	855752.63	1.024	246.552	2250200.07	0.261	248.323	3015619.85	0.445
56	CCB	0.030	191.60	55.775	0.310	4147.40	30.081	0.278	4400.85	24.315

Analyte Table

		111 Cd [He]			118 Sn [He]			121 Sb [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	0.003	78.93	387.595	0.103	1903.52	4.339	0.045	1160.09	27.600
58	400-176914-b-...	<0.000	62.92	N/A	0.054	1450.13	38.084	0.008	706.71	126.560
59	400-176914-b-...	<0.000	61.89	N/A	0.047	1360.12	18.103	<0.000	533.38	N/A
60	400-176914-b-...	<0.000	39.64	N/A	0.561	6046.64	45.399	<0.000	543.37	N/A
61	400-176914-b-...	0.006	85.22	65.052	0.040	1290.12	48.796	<0.000	576.70	N/A
62	400-176914-b-...	<0.000	66.81	N/A	0.012	1066.74	72.482	<0.000	470.03	N/A
63	400-176914-b-...	0.004	83.89	114.707	0.174	2643.66	14.063	0.014	796.73	75.857
64	CCV	252.495	858796.68	1.670	245.676	2259361.84	2.441	245.465	3003820.89	1.792
65	CCB	0.035	192.03	42.932	0.240	3223.82	4.995	0.189	2980.42	7.998
66	500-173125-a-...	<0.000	59.16	N/A	2.933	26811.38	46.348	0.067	1350.11	31.339
67	500-173128-a-...	0.008	91.41	57.479	0.105	1866.86	11.691	0.037	1020.07	41.400
68	500-173196-a-...	0.750	2556.40	10.896	41.669	375346.53	1.518	0.568	7372.02	1.148
69	500-173196-a-...	0.666	2245.81	11.300	40.057	355551.97	2.614	0.533	6845.09	5.930
70	500-173196-a-...	51.566	168187.90	1.178	967.651	8529250.91	0.730	527.953	6193273.87	0.954
71	500-173196-a-...	0.150	589.64	10.751	8.335	79481.59	5.996	0.265	3927.30	12.642
72	mb 500-51529...	<0.000	66.44	N/A	0.250	3400.50	9.161	0.037	1103.42	17.139
73	lcs 500-515293...	52.457	177966.67	1.971	988.794	9064321.11	2.401	523.770	6389961.36	2.108
74	500-173389-d-...	0.038	203.42	10.756	0.789	8512.64	1.716	0.263	3960.65	12.807
75	500-173389-d-...	0.077	336.83	32.638	0.281	3597.24	18.553	0.196	3057.08	4.093
76	CCV	250.443	844885.88	2.337	243.583	2221937.26	2.422	244.462	2967244.12	2.049
77	CCB	0.051	244.93	63.723	0.322	3983.98	16.301	0.241	3630.57	2.631
78	500-173389-d-...	0.029	172.03	36.272	0.196	2820.35	18.959	0.099	1856.86	5.695
79	500-173389-d-...	0.021	144.63	77.313	0.200	2897.04	5.733	0.095	1840.18	1.983
80	500-173389-d-...	0.027	165.25	84.202	0.120	2106.89	3.951	0.090	1756.84	14.679
81	500-173389-d-...	0.029	168.02	85.608	0.133	2203.59	15.235	0.085	1673.49	5.314
82	500-173389-d-...	0.048	231.96	18.567	0.171	2523.64	2.111	0.105	1893.53	5.563
83	CCV	254.153	851527.81	2.744	245.283	2222113.72	2.983	245.491	2959321.10	2.787
84	CCB	0.039	204.63	44.265	0.284	3643.90	12.149	0.221	3390.52	9.111
85	CCVL	0.535	1952.54	6.700	4.853	47153.66	2.998	3.048	39218.79	1.442

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
1	blk I.S /tune	0.189	846.73	65.788						
2	ICIS	0.000	46.67	N/A						
3	Std1	10.270	42070.20	2.647						
4	Std2	100.706	414268.78	1.317						
5	Std3	499.853	2044800.28	2.120						
6	S1	501.720	2067347.99	2.189						
7	ICV	198.770	831016.53	1.990						
8	ICVL	2.628	10800.79	2.351						
9	ICB	0.008	80.00	46.708						
10	icsa	0.248	1070.08	7.232						
11	icsab	20.774	85955.74	0.183						
12	CRI	5.108	21829.18	1.756						
13	CCV	254.032	1073647.25	2.290						
14	CCB	0.036	176.68	48.352						
15	mb 500-51567...	0.014	103.34	33.572						
16	lcs 500-515672...	497.189	2109372.47	1.715						
17	500-172538-n-...	21.188	89632.94	1.678						
18	500-173332-a-...	18.607	81650.73	1.294						
19	500-173332-a-...	18.467	80903.23	0.637						
20	500-173332-a-...	518.356	2314343.66	2.083						
21	500-173332-a-...	3.611	15631.71	1.291						
22	lcs 500-515678...	483.945	2103355.54	1.608						
23	CCV	250.528	1084838.08	2.197						
24	CCB	0.063	310.02	22.485						
25	mb 500-51485...	0.319	1396.79	4.585						
26	lcs 500-514853...	495.560	2155950.38	2.100						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
27	500-173203-d-...	118.107	531089.88	0.553						
28	500-173203-d-...	29.667	130963.09	3.011						
29	500-173203-d-...	56.512	235312.66	1.913						
30	500-173203-d-...	14.494	62356.78	0.744						
31	CCV	252.064	1088586.73	0.795						
32	CCB	0.115	533.36	4.489						
33	CCVL	2.333	10300.49	18.752						
34	lcs 500-515411...	456.624	1977373.51	15.159						
35	lb3 500-514915...	0.242	1033.42	13.364						
36	500-173292-a-...	32.794	144299.06	26.883						
37	500-173292-a-...	7.874	35494.46	16.810						
38	mb 500-51551...	0.237	1080.08	12.539						
39	lcs 500-515518...	506.237	2168141.22	0.716						
40	500-173445-d-...	309.059	1331570.71	1.325						
41	500-172965-m...	64.800	307971.47	3.255						
42	CCV	249.524	1065573.35	2.551						
43	CCB	0.159	710.05	11.311						
44	CCVL	2.668	11294.44	3.158						
45	mb 500-51454...	0.225	983.40	17.491						
46	lcs 500-514546...	491.547	2126229.71	1.814						
47	500-173071-a-...	5.913	23448.09	2.734						
48	500-173071-a-...	5.601	22119.64	1.597						
49	500-173071-a-...	542.868	2078103.20	9.968						
50	500-173071-a-...	1.182	5054.36	5.994						
51	500-173168-a-...	19.384	75587.20	2.751						
52	500-173079-a-...	10.809	45091.72	1.821						
53	500-173079-a-...	9.002	38236.80	3.592						
54	500-173079-a-...	11.081	47003.97	2.497						
55	CCV	247.019	1066884.28	1.159						
56	CCB	0.047	266.68	10.500						

Analyte Table

		137 Ba [He]			150 Sm [He]			156 Gd [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc.	CPS	Conc. RSD	Conc.	CPS	Conc. RSD
57	400-176914-b-...	3.640	15668.35	0.866						
58	400-176914-b-...	1.604	6855.10	3.531						
59	400-176914-b-...	0.665	2850.38	13.352						
60	400-176914-b-...	0.668	2880.40	2.420						
61	400-176914-b-...	1.622	6931.85	5.464						
62	400-176914-b-...	0.334	1470.14	13.171						
63	400-176914-b-...	0.246	1086.76	1.403						
64	CCV	245.873	1065449.07	1.343						
65	CCB	0.045	236.68	42.529						
66	500-173125-a-...	173.295	720330.35	0.346						
67	500-173128-a-...	39.993	170238.87	0.488						
68	500-173196-a-...	97.124	408131.65	0.711						
69	500-173196-a-...	94.432	391056.60	0.780						
70	500-173196-a-...	591.483	2480681.53	0.543						
71	500-173196-a-...	18.506	81165.96	7.162						
72	mb 500-51529...	0.196	880.07	9.545						
73	lcs 500-515293...	496.341	2150988.82	3.305						
74	500-173389-d-...	26.192	112915.90	1.295						
75	500-173389-d-...	14.509	62698.78	1.974						
76	CCV	245.643	1056091.44	1.978						
77	CCB	0.059	296.68	13.193						
78	500-173389-d-...	7.573	32307.07	3.501						
79	500-173389-d-...	23.887	103452.48	3.144						
80	500-173389-d-...	16.565	71605.44	1.383						
81	500-173389-d-...	23.735	102083.56	1.604						
82	500-173389-d-...	21.038	89783.49	1.600						
83	CCV	242.196	1049702.40	1.533						
84	CCB	0.073	356.68	40.609						
85	CCVL	2.547	10850.89	3.691						

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.099	3453.92	45.182	0.067	873.40	50.097	0.058	653.38	35.370
2	ICIS	0.000	330.02	N/A	0.000	123.34	N/A	0.000	100.00	N/A
3	Std1	10.226	307238.20	1.048	9.960	103144.27	0.846	10.014	89035.88	1.521
4	Std2	103.035	2985813.50	2.311	100.240	1000969.44	2.034	100.981	865950.12	1.943
5	Std3	499.389	14008325.62	1.109	499.953	4832289.61	1.373	499.804	4148252.34	2.039
6	S1	500.114	14017857.71	1.265	499.535	4824889.83	0.272	502.040	4163883.06	0.904
7	ICV	202.604	5891320.12	0.540	195.027	1954066.33	0.457	196.484	1690647.21	0.813
8	ICVL	2.117	64220.51	2.156	0.554	5884.78	7.947	0.550	5017.74	5.773
9	ICB	0.044	1613.49	3.861	0.035	476.70	20.199	0.032	373.36	35.117
10	icsa	0.042	1500.14	11.420	0.184	1883.53	10.723	0.172	1513.48	5.351
11	icsab	10.155	284269.41	1.572	19.740	190332.31	0.530	19.926	164969.69	0.807
12	CRI	4.100	126608.27	1.917	1.003	10777.69	5.900	0.989	9119.83	3.590
13	CCV	262.936	7613055.09	0.914	252.531	2519315.85	0.924	255.750	2191182.16	0.999
14	CCB	0.073	2363.63	4.882	0.048	586.71	17.427	0.052	533.37	22.315
15	mb 500-51567...	0.026	1080.08	32.618	0.031	430.03	23.109	0.032	373.35	14.201
16	lcs 500-515672...	105.915	3140489.22	1.834	102.829	1050545.06	2.375	103.645	909363.50	1.928
17	500-172538-n-...	0.061	1736.84	20.760	0.101	936.74	9.722	0.089	723.39	4.350
18	500-173332-a-...	0.017	816.73	41.391	0.442	4510.91	3.411	0.443	3870.68	8.994
19	500-173332-a-...	0.009	586.71	4.014	0.429	4397.50	10.884	0.448	3944.02	1.719
20	500-173332-a-...	109.333	3213087.66	6.813	106.647	1080247.95	6.157	107.321	933544.49	6.140
21	500-173332-a-...	0.028	1226.78	6.437	0.108	1296.79	5.988	0.115	1170.10	8.974
22	lcs 500-515678...	101.872	3130076.31	1.800	98.557	1043315.14	3.024	99.212	901999.21	2.068
23	CCV	258.071	7723966.55	0.964	249.976	2577814.55	1.216	253.234	2242723.98	1.481
24	CCB	0.080	2827.07	13.386	0.058	746.72	27.354	0.066	713.39	9.264
25	mb 500-51485...	0.013	796.73	9.873	0.088	1100.09	8.954	0.079	853.40	6.976
26	lcs 500-514853...	103.159	3229689.64	1.568	100.701	1086276.55	2.187	102.313	947800.95	2.415

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	0.748	21699.84	3.142	50.227	494249.64	1.187	44.803	378617.51	2.049
28	500-173203-d-...	0.166	5367.87	2.217	11.706	121831.96	1.287	10.394	92905.91	0.902
29	500-173203-d-...	0.145	4417.55	6.391	29.534	286728.69	1.928	26.083	217469.11	1.214
30	500-173203-d-...	0.043	1610.16	8.616	7.587	76866.34	1.659	6.616	57554.02	2.960
31	CCV	263.326	7874229.26	1.655	253.090	2607758.03	1.854	255.427	2260149.29	1.911
32	CCB	0.131	4400.81	9.212	0.103	1223.44	6.574	0.108	1096.76	10.240
33	CCVL	1.894	61928.27	13.766	0.490	5631.29	12.846	0.522	5117.78	20.298
34	lcs 500-515411...	96.173	3097563.08	11.663	93.583	1038466.88	11.912	94.920	904293.19	12.339
35	lb3 500-514915...	0.046	1763.52	20.865	0.124	1446.80	13.515	0.129	1283.45	7.049
36	500-173292-a-...	0.020	1043.42	28.188	0.091	1160.10	33.407	0.099	1073.43	29.204
37	500-173292-a-...	0.008	673.38	21.119	0.031	500.03	50.164	0.030	420.02	40.301
38	mb 500-51551...	0.007	600.04	32.801	0.058	803.39	26.769	0.057	670.05	27.750
39	lcs 500-515518...	105.660	3293289.01	0.523	103.335	1109713.89	0.549	104.614	964780.09	0.831
40	500-173445-d-...	0.064	2326.95	6.828	0.893	9570.13	4.007	0.929	8542.78	6.572
41	500-172965-m...	0.440	13786.92	4.001	19.649	206780.66	3.035	18.405	166341.47	2.874
42	CCV	256.012	7864557.80	0.526	246.473	2608701.26	0.587	251.339	2284717.15	0.727
43	CCB	0.153	5204.48	10.139	0.139	1656.83	5.805	0.144	1456.80	15.503
44	CCVL	2.031	65332.40	1.884	0.510	5751.36	4.137	0.552	5327.86	9.640
45	mb 500-51454...	0.026	1193.43	3.601	0.552	6148.15	0.857	0.516	4941.03	4.077
46	lcs 500-514546...	102.034	3243219.33	1.251	99.469	1089418.63	2.026	100.909	949091.86	1.902
47	500-173071-a-...	0.127	3727.27	7.441	0.189	1870.20	8.013	0.184	1553.49	8.638
48	500-173071-a-...	0.074	2243.60	1.280	0.106	1073.42	5.887	0.105	913.40	16.363
49	500-173071-a-...	108.663	2814759.65	7.128	108.129	964530.48	8.388	110.396	845670.80	8.374
50	500-173071-a-...	0.037	1423.47	4.330	0.053	663.38	17.013	0.053	566.70	14.910
51	500-173168-a-...	0.131	3823.98	3.828	8.016	74454.00	1.051	7.929	63233.23	1.212
52	500-173079-a-...	<0.000	346.69	N/A	0.222	2443.66	4.170	0.218	2060.23	10.466
53	500-173079-a-...	<0.000	340.02	N/A	0.092	1093.42	9.818	0.083	856.74	12.795
54	500-173079-a-...	<0.000	313.35	N/A	0.132	1536.82	13.108	0.122	1216.77	11.179
55	CCV	254.500	7928873.01	0.735	244.930	2629359.65	0.251	248.294	2288955.96	0.888
56	CCB	0.089	3370.52	20.647	0.062	863.41	28.247	0.060	713.38	27.285

Analyte Table

		205 Tl [He]			206 [Pb] [He]			207 [Pb] [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	0.005	520.03	78.065	0.017	313.35	56.905	0.017	270.01	63.129
58	400-176914-b-...	0.000	360.02	1086.425	0.012	263.35	51.910	0.013	223.35	101.937
59	400-176914-b-...	<0.000	263.35	N/A	0.007	210.02	120.228	0.008	180.01	51.098
60	400-176914-b-...	<0.000	216.68	N/A	0.027	416.69	6.642	0.020	290.02	30.891
61	400-176914-b-...	<0.000	203.35	N/A	0.021	343.35	5.944	0.011	200.01	20.821
62	400-176914-b-...	<0.000	193.34	N/A	0.009	233.34	18.417	0.010	200.01	2.731
63	400-176914-b-...	<0.000	273.35	N/A	0.069	890.07	13.907	0.070	770.05	36.832
64	CCV	259.257	7986421.13	1.142	249.534	2648601.21	1.020	253.682	2312267.36	1.597
65	CCB	0.075	2690.37	11.070	0.042	580.04	26.588	0.060	660.04	27.685
66	500-173125-a-...	0.005	490.03	92.289	0.163	1773.52	8.227	0.144	1360.13	19.174
67	500-173128-a-...	0.091	3097.13	4.133	0.087	1040.09	2.995	0.073	760.06	21.053
68	500-173196-a-...	0.022	1203.43	3.839	1.505	18515.44	4.715	1.467	15508.58	1.882
69	500-173196-a-...	0.026	1286.78	29.241	1.544	18415.36	0.746	1.481	15164.90	2.259
70	500-173196-a-...	89.732	3178321.72	0.472	88.228	1076807.90	0.419	90.101	944333.32	0.562
71	500-173196-a-...	0.027	1260.11	25.243	0.337	3974.07	3.945	0.358	3607.24	8.799
72	mb 500-51529...	0.004	516.70	57.296	0.074	973.41	13.313	0.062	716.72	16.889
73	lcs 500-515293...	105.738	3364228.59	0.366	103.359	1133028.58	0.744	104.745	986159.13	1.018
74	500-173389-d-...	0.038	1623.51	8.260	0.126	1566.83	4.186	0.110	1186.77	11.391
75	500-173389-d-...	0.006	553.37	32.952	0.095	1193.44	13.622	0.105	1113.43	6.927
76	CCV	259.731	8006394.05	1.335	250.490	2660605.27	1.965	254.557	2321952.47	1.548
77	CCB	0.096	3417.21	1.392	0.062	816.73	17.065	0.084	896.73	15.433
78	500-173389-d-...	0.017	930.06	3.085	0.073	960.09	8.229	0.062	706.71	30.743
79	500-173389-d-...	0.008	653.38	17.830	0.131	1630.17	11.595	0.119	1280.11	10.522
80	500-173389-d-...	0.004	520.03	58.013	0.100	1273.45	27.406	0.097	1056.75	15.592
81	500-173389-d-...	0.003	456.70	63.615	0.117	1440.14	5.522	0.119	1250.10	12.280
82	500-173389-d-...	0.014	843.39	8.403	0.127	1563.48	13.796	0.128	1353.46	10.727
83	CCV	255.268	7999650.09	1.124	247.027	2667389.86	0.518	250.853	2326147.41	0.905
84	CCB	0.096	3433.88	5.197	0.071	916.74	10.408	0.069	763.39	15.662
85	CCVL	2.063	67002.53	1.921	0.503	5734.73	4.584	0.506	4951.01	7.201

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
1	blk I.S /tune	0.065	3233.63	37.646	0.019	823.39	47.627
2	ICIS	0.000	443.36	N/A	0.000	40.00	N/A
3	Std1	10.219	409551.47	1.011	9.195	366206.77	1.880
4	Std2	102.682	3969630.77	1.655	101.779	3914101.92	1.332
5	Std3	499.459	18688535.56	1.312	499.660	18598273.89	1.579
6	S1	501.477	18750449.41	0.710	498.781	18553957.22	0.322
7	ICV	200.559	7779518.38	0.631	202.999	7833148.01	1.490
8	ICVL	0.572	23478.24	2.640	1.000	40062.17	2.319
9	ICB	0.036	1826.79	8.621	0.019	766.72	19.425
10	icsa	0.186	7324.36	8.122	0.030	1160.10	4.981
11	icsab	20.392	761081.15	0.947	20.461	759284.57	2.409
12	CRI	1.017	42244.92	1.628	0.021	893.41	9.299
13	CCV	261.061	10083089.18	0.645	258.283	9923345.06	0.245
14	CCB	0.050	2303.51	5.934	0.042	1616.85	14.141
15	mb 500-51567...	0.037	1860.12	24.123	0.021	816.74	36.382
16	lcs 500-515672...	105.203	4161043.53	1.953	104.710	4119724.10	2.138
17	500-172538-n-...	0.097	3486.99	9.839	0.139	4430.85	13.824
18	500-173332-a-...	0.449	17688.21	5.545	0.050	1943.56	10.825
19	500-173332-a-...	0.448	17734.87	7.566	0.052	2040.24	3.120
20	500-173332-a-...	109.184	4281414.54	6.168	108.777	4244984.94	5.054
21	500-173332-a-...	0.107	4937.20	0.735	0.037	1586.83	13.093
22	lcs 500-515678...	101.249	4149677.12	1.982	100.432	4094100.25	2.769
23	CCV	257.188	10267748.24	1.390	257.018	10207602.98	1.374
24	CCB	0.064	3126.95	19.318	0.047	1970.22	5.335
25	mb 500-51485...	0.084	4060.41	4.103	0.009	436.69	10.336
26	lcs 500-514853...	103.859	4337357.36	1.757	104.073	4323375.66	2.756

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
27	500-173203-d-...	47.948	1826551.40	1.755	6.284	238132.04	2.858
28	500-173203-d-...	11.249	453233.14	1.783	1.430	57286.05	2.766
29	500-173203-d-...	28.230	1060991.66	1.285	1.276	47724.72	0.317
30	500-173203-d-...	7.195	282156.54	0.857	0.317	12395.79	6.072
31	CCV	260.806	10403337.66	1.644	261.120	10361232.97	1.967
32	CCB	0.117	5270.63	3.965	0.093	3860.70	12.237
33	CCVL	0.520	23021.35	14.710	0.885	38212.15	13.876
34	lcs 500-515411...	97.096	4169678.01	12.564	98.392	4203426.08	12.446
35	lb3 500-514915...	0.126	5637.32	4.224	0.032	1363.45	9.234
36	500-173292-a-...	0.097	4733.87	22.517	0.014	650.05	15.005
37	500-173292-a-...	0.028	1760.12	25.938	0.005	290.02	42.489
38	mb 500-51551...	0.061	3210.31	20.439	0.005	276.68	25.042
39	lcs 500-515518...	106.547	4429664.62	0.136	107.019	4426199.31	0.953
40	500-173445-d-...	0.916	37963.41	3.803	0.337	13760.31	5.416
41	500-172965-m...	19.419	791152.78	2.934	0.941	38140.55	3.465
42	CCV	255.781	10481149.17	0.431	260.444	10617093.38	0.916
43	CCB	0.147	6690.86	9.032	0.123	5197.78	11.007
44	CCVL	0.556	24192.18	2.567	0.989	42021.54	2.586
45	mb 500-51454...	0.548	23611.58	4.023	0.012	553.37	4.447
46	lcs 500-514546...	102.581	4349437.96	1.860	103.141	4349961.70	2.832
47	500-173071-a-...	0.182	6950.92	7.059	0.158	5674.68	9.656
48	500-173071-a-...	0.114	4410.44	7.879	0.111	3920.71	7.668
49	500-173071-a-...	111.862	3863640.62	7.995	116.563	4005001.30	7.897
50	500-173071-a-...	0.055	2630.22	13.376	0.040	1603.49	1.026
51	500-173168-a-...	8.173	293817.31	1.154	0.548	19597.11	0.815
52	500-173079-a-...	0.214	9111.42	3.234	0.005	240.01	31.631
53	500-173079-a-...	0.090	4123.75	6.884	0.016	673.39	10.218
54	500-173079-a-...	0.132	5914.09	7.801	0.026	1116.76	19.405
55	CCV	253.932	10553231.15	0.556	259.842	10742824.84	1.073
56	CCB	0.061	3263.63	25.330	0.055	2486.99	26.148

Analyte Table

		208 Pb [He]			238 U [He]		
	Sample Name	Conc. [ppb]	CPS	Conc. RSD	Conc. [ppb]	CPS	Conc. RSD
57	400-176914-b-...	0.021	1373.43	22.859	0.031	1310.12	9.099
58	400-176914-b-...	0.012	976.73	28.362	0.041	1706.84	9.385
59	400-176914-b-...	0.008	800.05	43.224	0.002	120.01	37.187
60	400-176914-b-...	0.023	1410.09	9.197	0.001	96.67	84.569
61	400-176914-b-...	0.018	1206.74	16.397	0.038	1570.16	13.070
62	400-176914-b-...	0.014	1056.73	29.633	0.008	383.36	19.875
63	400-176914-b-...	0.072	3547.00	13.403	0.002	133.34	73.370
64	CCV	258.507	10622099.53	1.066	264.144	10796901.92	0.357
65	CCB	0.055	2776.90	19.881	0.047	1976.90	22.700
66	500-173125-a-...	0.158	6647.60	4.450	0.087	3427.23	8.802
67	500-173128-a-...	0.077	3597.00	2.622	1.003	40322.77	3.313
68	500-173196-a-...	1.531	72892.01	3.838	0.664	31277.47	2.181
69	500-173196-a-...	1.556	71833.07	2.535	0.629	28692.33	2.988
70	500-173196-a-...	91.542	4325272.07	0.169	92.033	4325635.77	0.592
71	500-173196-a-...	0.352	16010.69	6.815	0.156	6878.64	7.081
72	mb 500-51529...	0.072	3660.35	6.762	0.005	266.68	21.174
73	lcs 500-515293...	105.876	4493494.13	0.310	106.386	4491742.23	1.493
74	500-173389-d-...	0.128	6127.45	5.055	0.034	1533.48	7.545
75	500-173389-d-...	0.103	4917.22	1.738	0.012	556.70	20.647
76	CCV	260.012	10691651.82	1.682	266.570	10903915.67	1.199
77	CCB	0.078	3807.04	5.403	0.061	2610.34	12.487
78	500-173389-d-...	0.077	3833.73	5.249	0.014	626.71	2.493
79	500-173389-d-...	0.126	6074.10	2.269	0.008	410.03	2.473
80	500-173389-d-...	0.107	5230.64	4.066	0.010	500.03	18.285
81	500-173389-d-...	0.125	5897.41	1.415	0.042	1853.53	6.141
82	500-173389-d-...	0.126	5977.39	5.182	0.010	463.36	18.144
83	CCV	255.914	10697912.60	1.022	264.607	11003750.25	1.797
84	CCB	0.080	3930.40	3.858	0.064	2783.74	9.791
85	CCVL	0.516	22724.31	6.565	0.976	41864.08	1.906

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	135677.30	100.0	116265.56	100.0	203280.94	100.0
2	ICIS	119936.50	100.0	103729.33	100.0	181909.66	100.0
3	Std1	121702.07	101.5	105879.23	102.1	184546.29	101.4
4	Std2	121879.36	101.6	105664.69	101.9	181469.53	99.8
5	Std3	124552.21	103.8	107959.33	104.1	178046.08	97.9
6	S1	125324.21	104.5	108720.76	104.8	180117.61	99.0
7	ICV	128377.02	107.0	111536.12	107.5	184993.01	101.7
8	ICVL	123010.96	102.6	105175.57	101.4	185856.86	102.2
9	ICB	116100.05	96.8	100405.13	96.8	180019.65	99.0
10	icsa	133374.66	111.2	109800.66	105.9	175309.52	96.4
11	icsab	134349.99	112.0	110607.14	106.6	176138.21	96.8
12	CRI	131974.51	110.0	112962.05	108.9	193080.29	106.1
13	CCV	129784.54	108.2	111391.96	107.4	187566.20	103.1
14	CCB	116820.29	97.4	98921.25	95.4	177558.73	97.6
15	mb 500-51567...	123302.32	102.8	106892.89	103.0	188812.34	103.8
16	lcs 500-515672...	125464.71	104.6	111246.38	107.2	189862.48	104.4
17	500-172538-n-...	136499.26	113.8	113459.21	109.4	184516.28	101.4
18	500-173332-a-...	141294.17	117.8	118396.13	114.1	197526.42	108.6
19	500-173332-a-...	141149.12	117.7	117722.52	113.5	197495.73	108.6
20	500-173332-a-...	141223.17	117.7	117123.87	112.9	193710.01	106.5
21	500-173332-a-...	134691.17	112.3	115130.06	111.0	196182.86	107.8
22	lcs 500-515678...	127691.14	106.5	111576.29	107.6	191936.27	105.5
23	CCV	129465.42	107.9	112542.88	108.5	189625.02	104.2
24	CCB	126234.19	105.3	106999.93	103.2	192505.96	105.8
25	mb 500-51485...	127393.26	106.2	109532.35	105.6	195755.32	107.6
26	lcs 500-514853...	127785.94	106.5	109938.66	106.0	190436.76	104.7

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
27	500-173203-d-...	155414.86	129.6	402282.63	387.8	172114.25	94.6
28	500-173203-d-...	136334.56	113.7	183600.98	177.0	187142.58	102.9
29	500-173203-d-...	136260.17	113.6	176733.66	170.4	178767.39	98.3
30	500-173203-d-...	132178.06	110.2	129253.50	124.6	190126.20	104.5
31	CCV	126335.40	105.3	110254.29	106.3	189991.05	104.4
32	CCB	125170.43	104.4	108917.86	105.0	193625.49	106.4
33	CCVL	132168.56	110.2	113967.73	109.9	204679.60	112.5
34	lcs 500-515411...	121741.83	101.5	107040.66	103.2	205408.02	112.9
35	lb3 500-514915...	112381.91	93.7	100472.48	96.9	188698.11	103.7
36	500-173292-a-...	123579.38	103.0	109128.53	105.2	196951.06	108.3
37	500-173292-a-...	129052.17	107.6	114447.98	110.3	200761.21	110.4
38	mb 500-51551...	129204.08	107.7	112244.95	108.2	202842.81	111.5
39	lcs 500-515518...	123138.58	102.7	107929.45	104.0	188976.14	103.9
40	500-173445-d-...	127523.68	106.3	115126.85	111.0	187999.84	103.3
41	500-172965-m...	166359.29	138.7	502717.95	484.6	178893.75	98.3
42	CCV	124134.86	103.5	107359.03	103.5	186103.56	102.3
43	CCB	121930.47	101.7	105584.36	101.8	194323.41	106.8
44	CCVL	124008.05	103.4	107620.43	103.8	194988.59	107.2
45	mb 500-51454...	125677.09	104.8	107687.44	103.8	193133.35	106.2
46	lcs 500-514546...	125180.54	104.4	109401.59	105.5	193106.97	106.2
47	500-173071-a-...	131567.81	109.7	110168.20	106.2	176597.37	97.1
48	500-173071-a-...	135404.30	112.9	107975.90	104.1	174981.44	96.2
49	500-173071-a-...	127794.34	106.6	102320.28	98.6	168157.95	92.4
50	500-173071-a-...	136720.13	114.0	111213.38	107.2	189014.71	103.9
51	500-173168-a-...	117958.89	98.4	114596.19	110.5	164603.75	90.5
52	500-173079-a-...	121148.27	101.0	105456.71	101.7	178614.27	98.2
53	500-173079-a-...	122390.75	102.0	107231.56	103.4	181924.80	100.0
54	500-173079-a-...	122171.81	101.9	121680.82	117.3	184546.42	101.4
55	CCV	124474.79	103.8	108337.83	104.4	186199.32	102.4
56	CCB	135069.87	112.6	117752.29	113.5	208877.17	114.8

ISTD Table

		45 Sc (IS) (ISTD) [He]		89 Y - 89 (IS) (ISTD) [He]		103 Rh (IS) (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%	CPS	Recovery%
57	400-176914-b-...	125183.15	104.4	108871.93	105.0	190324.78	104.6
58	400-176914-b-...	127445.75	106.3	110793.59	106.8	191431.11	105.2
59	400-176914-b-...	123135.15	102.7	108797.76	104.9	187060.89	102.8
60	400-176914-b-...	124961.71	104.2	107122.93	103.3	186464.24	102.5
61	400-176914-b-...	126073.42	105.1	108693.51	104.8	185901.11	102.2
62	400-176914-b-...	127534.89	106.3	108683.88	104.8	193291.85	106.3
63	400-176914-b-...	122819.11	102.4	107691.15	103.8	196382.19	108.0
64	CCV	121973.86	101.7	107382.29	103.5	187634.99	103.1
65	CCB	122410.50	102.1	105942.28	102.1	192847.91	106.0
66	500-173125-a-...	124756.50	104.0	105480.90	101.7	180123.51	99.0
67	500-173128-a-...	125632.81	104.7	109129.83	105.2	184745.26	101.6
68	500-173196-a-...	125468.80	104.6	110139.94	106.2	183412.90	100.8
69	500-173196-a-...	121399.19	101.2	109365.66	105.4	180738.13	99.4
70	500-173196-a-...	122896.86	102.5	111512.17	107.5	179877.70	98.9
71	500-173196-a-...	127655.80	106.4	111316.35	107.3	192468.00	105.8
72	mb 500-51529...	125411.84	104.6	107811.73	103.9	197837.67	108.8
73	lcs 500-515293...	121133.85	101.0	107231.06	103.4	187083.81	102.8
74	500-173389-d-...	123383.81	102.9	113082.95	109.0	195164.31	107.3
75	500-173389-d-...	123547.92	103.0	111686.82	107.7	192104.05	105.6
76	CCV	119758.03	99.9	105651.55	101.9	186111.93	102.3
77	CCB	120557.81	100.5	104446.30	100.7	192247.52	105.7
78	500-173389-d-...	122772.21	102.4	109556.14	105.6	193814.87	106.5
79	500-173389-d-...	124192.96	103.5	109908.48	106.0	196603.82	108.1
80	500-173389-d-...	123608.29	103.1	110647.31	106.7	194900.95	107.1
81	500-173389-d-...	120308.37	100.3	122761.53	118.3	192168.68	105.6
82	500-173389-d-...	120901.85	100.8	108992.35	105.1	189269.04	104.0
83	CCV	118966.80	99.2	106086.60	102.3	184863.10	101.6
84	CCB	120530.34	100.5	104024.24	100.3	193218.59	106.2
85	CCVL	123706.08	103.1	106251.25	102.4	194271.14	106.8

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
1	blk I.S /tune	241153.42	100.0	138691.35	100.0
2	ICIS	214973.02	100.0	122961.78	100.0
3	Std1	222586.88	103.5	129653.83	105.4
4	Std2	223719.43	104.1	125210.65	101.8
5	Std3	222524.39	103.5	121187.37	98.6
6	S1	224087.34	104.2	121093.80	98.5
7	ICV	227396.29	105.8	125607.28	102.2
8	ICVL	222526.23	103.5	130339.06	106.0
9	ICB	217460.33	101.2	124700.68	101.4
10	icsa	224455.71	104.4	120256.76	97.8
11	icsab	224896.14	104.6	120807.43	98.2
12	CRI	231896.43	107.9	133017.80	108.2
13	CCV	229870.54	106.9	125072.69	101.7
14	CCB	207602.56	96.6	121003.06	98.4
15	mb 500-51567...	219722.59	102.2	126041.89	102.5
16	lcs 500-515672...	230742.87	107.3	128094.34	104.2
17	500-172538-n-...	229978.66	107.0	104441.98	84.9
18	500-173332-a-...	238489.16	110.9	124650.69	101.4
19	500-173332-a-...	238112.23	110.8	125423.27	102.0
20	500-173332-a-...	242859.69	113.0	127316.37	103.5
21	500-173332-a-...	234709.50	109.2	134468.08	109.4
22	lcs 500-515678...	236362.54	109.9	132737.90	108.0
23	CCV	235490.92	109.5	129283.87	105.1
24	CCB	226744.53	105.5	133100.81	108.2
25	mb 500-51485...	229707.59	106.9	137203.35	111.6
26	lcs 500-514853...	236599.80	110.1	135239.45	110.0

ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
27	500-173203-d-...	244525.04	113.7	123341.11	100.3
28	500-173203-d-...	239981.20	111.6	130336.65	106.0
29	500-173203-d-...	226387.41	105.3	121664.91	98.9
30	500-173203-d-...	233795.43	108.8	126799.93	103.1
31	CCV	234843.55	109.2	129173.42	105.1
32	CCB	228103.45	106.1	132938.81	108.1
33	CCVL	241522.08	112.3	141201.14	114.8
34	lcs 500-515411...	238245.77	110.8	140030.89	113.9
35	lb3 500-514915...	221373.43	103.0	132734.29	107.9
36	500-173292-a-...	246269.66	114.6	143897.53	117.0
37	500-173292-a-...	247390.63	115.1	145981.20	118.7
38	mb 500-51551...	236573.50	110.0	143137.75	116.4
39	lcs 500-515518...	232925.23	108.4	134624.57	109.5
40	500-173445-d-...	234317.97	109.0	132606.14	107.8
41	500-172965-m...	258589.40	120.3	131912.37	107.3
42	CCV	232255.54	108.0	132693.56	107.9
43	CCB	226827.89	105.5	136567.73	111.1
44	CCVL	229279.97	106.7	138130.42	112.3
45	mb 500-51454...	226374.33	105.3	136598.29	111.1
46	lcs 500-514546...	235237.35	109.4	137297.42	111.7
47	500-173071-a-...	215224.50	100.1	116064.78	94.4
48	500-173071-a-...	214309.76	99.7	113886.21	92.6
49	500-173071-a-...	209405.67	97.4	112274.98	91.3
50	500-173071-a-...	230135.59	107.1	127736.99	103.9
51	500-173168-a-...	212053.04	98.6	116268.72	94.6
52	500-173079-a-...	226573.64	105.4	130669.81	106.3
53	500-173079-a-...	230779.16	107.4	131496.18	106.9
54	500-173079-a-...	230509.60	107.2	132881.10	108.1
55	CCV	234881.56	109.3	134580.26	109.4
56	CCB	246676.16	114.7	146332.95	119.0

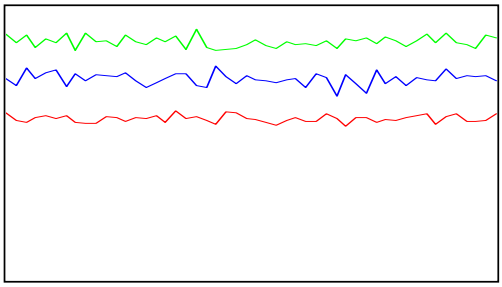
ISTD Table

		159 Tb (IS) (ISTD) [He]		209 Bi Internal Standard (ISTD) [He]	
	Sample Name	CPS	Recovery%	CPS	Recovery%
57	400-176914-b-...	233346.93	108.5	134381.42	109.3
58	400-176914-b-...	230741.07	107.3	133091.40	108.2
59	400-176914-b-...	228622.31	106.3	133320.10	108.4
60	400-176914-b-...	230610.47	107.3	132262.73	107.6
61	400-176914-b-...	230613.57	107.3	129640.08	105.4
62	400-176914-b-...	231233.30	107.6	133685.40	108.7
63	400-176914-b-...	229415.17	106.7	137286.75	111.6
64	CCV	235657.91	109.6	133065.57	108.2
65	CCB	227407.09	105.8	133964.78	108.9
66	500-173125-a-...	226049.85	105.2	126900.86	103.2
67	500-173128-a-...	231429.85	107.7	130713.49	106.3
68	500-173196-a-...	228510.52	106.3	153108.86	124.5
69	500-173196-a-...	225187.44	104.8	148326.75	120.6
70	500-173196-a-...	228086.75	106.1	152997.16	124.4
71	500-173196-a-...	238618.09	111.0	142568.71	115.9
72	mb 500-51529...	230526.29	107.2	141421.62	115.0
73	lcs 500-515293...	235768.75	109.7	137424.76	111.8
74	500-173389-d-...	234375.02	109.0	142133.88	115.6
75	500-173389-d-...	234852.83	109.2	139241.52	113.2
76	CCV	233816.55	108.8	133157.90	108.3
77	CCB	226636.68	105.4	136860.24	111.3
78	500-173389-d-...	231623.86	107.7	140007.85	113.9
79	500-173389-d-...	235352.77	109.5	142521.78	115.9
80	500-173389-d-...	234931.71	109.3	142228.87	115.7
81	500-173389-d-...	233834.90	108.8	139543.36	113.5
82	500-173389-d-...	232006.46	107.9	140994.36	114.7
83	CCV	235721.83	109.7	135367.21	110.1
84	CCB	228178.68	106.1	138204.88	112.4
85	CCVL	230656.79	107.3	139511.93	113.5

Tune Report

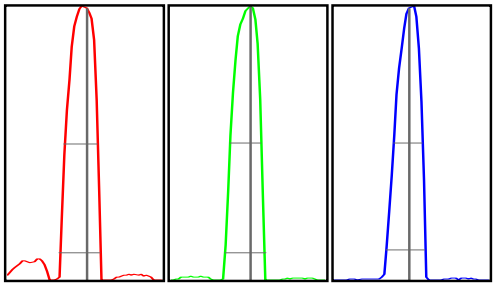
Batch Folder C:\Agilent\ICPMH\1\DATA\MS4111819TUNE.b
Acq. Date-Time 11/18/2019 9:20
Report Comment 072015Atune
Instrument Name G3281A JP11040848

[He]



Mass	Range	Count	RSD%	Background
59	5000	2947	2.332	
89	5000	4346	2.265	
205	5000	3670	3.008	

Ratio 156/140 1.528 %
Integration Time [sec] 0.1 **Sampling Period [sec]** 0.31



Mass	Peak Height	Axis	W-50%	W-10%
59	2954.43	59.05	0.61	0.764
89	4397.46	89.05	0.58	0.745
205	3691.86	205.00	0.53	0.742

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.54 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1500 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-50 V
Extract 2	-200.0 V	Cell Exit	-80 V
Omega Bias	-100 V	Deflect	3.0 V
Omega Lens	8.0 V	Plate Bias	-60 V

Cell Parameters

Use Gas	true	OctP Bias	-18.0 V

Tune Report

He Flow	3.5 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	3.0 V
3rd Gas Flow	0 %		

[no gas]

Mass	Range	Count	RSD%	Background
7	5000	2562	2.152	5.400
89	10000	8563	2.105	4.900
205	10000	5134	2.804	9.000

Ratio 156/140 2.050 % **Ratio** 70/140 6.603 %

Integration Time [sec] 0.1 **Sampling Period [sec]** 0.311

Mass	Peak Height	Axis	W-50%	W-10%
7	2567.20	7.05	0.67	0.798
89	8559.56	89.05	0.58	0.754
205	5089.90	205.00	0.55	0.747

Integration Time [sec] 0.1 **Acquisition Time [sec]** 22.74 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1550 W	Nebulizer Pump	0.10 rps
RF Matching	1.80 V	S/C Temp	2 ℃
Smpl Depth	9.0 mm	Gas Switch	Makeup Gas
Carrier Gas	1.00 L/min	Makeup/Dilution Gas	0.00 L/min
Option Gas	0.0 %		

Lenses Parameters

Extract 1	0.0 V	Cell Entrance	-34 V
Extract 2	-200.0 V	Cell Exit	-60 V
Omega Bias	-80 V	Deflect	14.2 V
Omega Lens	10.1 V	Plate Bias	-50 V

Cell Parameters

Use Gas	false	OctP Bias	-8.0 V
He Flow	0.0 mL/min	OctP RF	190 V
H2 Flow	0.0 mL/min	Energy Discrimination	5.0 V
3rd Gas Flow	0 %		

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG No.:

Project: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID	Lab Sample ID
AES-MW1-092319	400-176914-1
AES-MW2-092319	400-176914-2
AES-MW3-092319	400-176914-3
AES-MW4-092319	400-176914-4
AES-MW4-DUP-092319	400-176914-5
AES-MW5-092319	400-176914-6
AES-FB-092319	400-176914-7

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW1-092319 Lab Sample ID: 400-176914-1

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG ID.:

Matrix: Water Date Sampled: 09/23/2019 09:10

Reporting Basis: WET Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	360	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	360	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	1400	25	17	mg/L			1	SM 2540C
16887-00-6	Chloride	360	20	14	mg/L			10	SM 4500 Cl- E
16984-48-8	Fluoride	0.67	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	310	100	28	mg/L			20	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW2-092319 Lab Sample ID: 400-176914-2

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG ID.:

Matrix: Water Date Sampled: 09/23/2019 10:35

Reporting Basis: WET Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	590	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	590	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	670	10	6.8	mg/L			1	SM 2540C
16887-00-6	Chloride	72	4.0	2.8	mg/L			2	SM 4500 Cl- E
16984-48-8	Fluoride	0.71	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	8.0	5.0	1.4	mg/L			1	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW3-092319 Lab Sample ID: 400-176914-3

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG ID.:

Matrix: Water Date Sampled: 09/23/2019 13:10

Reporting Basis: WET Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	550	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	550	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	9300	130	85	mg/L			1	SM 2540C
16887-00-6	Chloride	3700	160	110	mg/L			80	SM 4500 Cl- E
16984-48-8	Fluoride	1.7	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	1500	500	140	mg/L			100	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW4-092319 Lab Sample ID: 400-176914-4

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG ID.:

Matrix: Water Date Sampled: 09/23/2019 14:50

Reporting Basis: WET Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	610	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	610	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	31000	1000	680	mg/L			1	SM 2540C
16887-00-6	Chloride	690	160	110	mg/L			80	SM 4500 Cl- E
16984-48-8	Fluoride	0.66	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	8200	1500	420	mg/L			300	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW4-DUP-092319 Lab Sample ID: 400-176914-5

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG ID.:

Matrix: Water Date Sampled: 09/23/2019 15:20

Reporting Basis: WET Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	610	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	610	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	23000	1000	680	mg/L			1	SM 2540C
16887-00-6	Chloride	690	160	110	mg/L			80	SM 4500 Cl- E
16984-48-8	Fluoride	0.64	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	8500	1500	420	mg/L			300	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-MW5-092319 Lab Sample ID: 400-176914-6

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG ID.:

Matrix: Water Date Sampled: 09/23/2019 17:10

Reporting Basis: WET Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	500	1.0	0.98	mg/L			1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	500	1.0	0.98	mg/L			1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	10000	130	85	mg/L			1	SM 2540C
16887-00-6	Chloride	3700	160	110	mg/L			80	SM 4500 Cl- E
16984-48-8	Fluoride	0.42	0.10	0.032	mg/L			1	SM 4500 F C
14808-79-8	Sulfate	2200	500	140	mg/L			100	SM 4500 SO4 E

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: AES-FB-092319 Lab Sample ID: 400-176914-7

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG ID.:

Matrix: Water Date Sampled: 09/23/2019 17:35

Reporting Basis: WET Date Received: 09/25/2019 08:52

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	Alkalinity, Total	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Bicarbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Carbonate Alkalinity as CaCO3	0.98	1.0	0.98	mg/L	U		1	SM 2320B
	Total Dissolved Solids	3.4	5.0	3.4	mg/L	U		1	SM 2540C
16887-00-6	Chloride	1.4	2.0	1.4	mg/L	U		1	SM 4500 Cl- E
16984-48-8	Fluoride	0.032	0.10	0.032	mg/L	U		1	SM 4500 F C
14808-79-8	Sulfate	1.7	5.0	1.4	mg/L	J		1	SM 4500 SO4 E

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Analyst: BAB Batch Start Date: 10/01/2019

Reporting Units: mg/L Analytical Batch No.: 459540

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
6	CCV	10:49	Alkalinity, Total	102	100	102	90-110		ALK-CCV-W_00069
			Bicarbonate Alkalinity as CaCO3	25.2	106	24			ALK-CCV-W_00069
			Carbonate Alkalinity as CaCO3	77.2	106	73			ALK-CCV-W_00069
17	CCV	12:18	Alkalinity, Total	101	100	101	90-110		ALK-CCV-W_00069
			Bicarbonate Alkalinity as CaCO3	39.7	106	37			ALK-CCV-W_00069
			Carbonate Alkalinity as CaCO3	61.6	106	58			ALK-CCV-W_00069
18	CCB	12:21	Alkalinity, Total	0.98				U	
			Bicarbonate Alkalinity as CaCO3	0.98				U	
			Carbonate Alkalinity as CaCO3	0.98				U	
1	CCV	13:26	Alkalinity, Total	104	100	104	90-110		ALK-CCV-W_00069
			Bicarbonate Alkalinity as CaCO3	49.0	106	46			ALK-CCV-W_00069
			Carbonate Alkalinity as CaCO3	54.5	106	51			ALK-CCV-W_00069
2	CCB	13:29	Alkalinity, Total	0.98				U	
			Bicarbonate Alkalinity as CaCO3	0.98				U	
			Carbonate Alkalinity as CaCO3	0.98				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Analyst: CLB Batch Start Date: 09/26/2019

Reporting Units: mg/L Analytical Batch No.: 458839

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
14	CCV	14:38	Total Dissolved Solids	322	293	110	78-122		GTDS-LCS-W_00105

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Analyst: HES Batch Start Date: 09/27/2019

Reporting Units: mg/L Analytical Batch No.: 459103

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	21:51	Chloride	36.5	35.0	104	90-110		CL-CCV-35ppm_00032
2	CCB	21:51	Chloride	0.60				U	
4	ICV	21:52	Chloride	31.4	30.0	105	90-110		CL-ICV-W_00056
5	ICB	21:52	Chloride	0.60				U	
13	CCV	21:55	Chloride	36.5	35.0	104	90-110		CL-CCV-35ppm_00032
14	CCB	21:55	Chloride	0.60				U	
27	CCV	22:21	Chloride	37.0	35.0	106	90-110		CL-CCV-35ppm_00032
28	CCB	22:21	Chloride	0.60				U	
39	CCV	22:23	Chloride	36.2	35.0	103	90-110		CL-CCV-35ppm_00032
40	CCB	22:23	Chloride	0.60				U	
53	CCV	22:46	Chloride	37.1	35.0	106	90-110		CL-CCV-35ppm_00032
54	CCB	22:46	Chloride	0.60				U	
65	CCV	22:52	Chloride	37.3	35.0	106	90-110		CL-CCV-35ppm_00032
66	CCB	22:52	Chloride	0.60				U	
73	CCV	23:13	Chloride	36.9	35.0	106	90-110		CL-CCV-35ppm_00032
74	CCB	23:13	Chloride	0.60				U	
79	CCV	23:14	Chloride	37.1	35.0	106	90-110		CL-CCV-35ppm_00032
80	CCB	23:14	Chloride	0.60				U	
81	CCV	23:32	Chloride	37.0	35.0	106	90-110		CL-CCV-35ppm_00032
82	CCB	23:32	Chloride	0.60				U	
85	CCV	23:33	Chloride	37.2	35.0	106	90-110		CL-CCV-35ppm_00032
86	CCB	23:33	Chloride	0.60				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Analyst: BAB Batch Start Date: 10/02/2019

Reporting Units: mg/L Analytical Batch No.: 459681

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
5	CCV	09:14	Fluoride	5.36	5.00	107	90-110		FL-CCV-S_00008
6	CCVL	09:17	Fluoride	0.490	0.500	98	50-150		FL-CCV-S_00008
18	CCV	09:46	Fluoride	5.25	5.00	105	90-110		FL-CCV-S_00008
19	CCB	09:49	Fluoride	0.032				U	
16	CCV	10:15	Fluoride	5.36	5.00	107	90-110		FL-CCV-S_00008
2	CCB	10:18	Fluoride	0.032				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Analyst: RRC Batch Start Date: 09/28/2019

Reporting Units: mg/L Analytical Batch No.: 459205

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	11:04	Sulfate	14.5	15.0	97	90-110		SO4-CCV-W_00033
2	CCB	11:04	Sulfate	1.4				U	
4	ICV	11:04	Sulfate	14.6	15.0	97	90-110		SO4-ICV-W_00063
5	ICB	11:04	Sulfate	1.4				U	
11	CCV	11:11	Sulfate	14.6	15.0	98	90-110		SO4-CCV-W_00033
12	CCB	11:11	Sulfate	1.4				U	
21	CCV	11:16	Sulfate	14.4	15.0	96	90-110		SO4-CCV-W_00033
22	CCB	11:16	Sulfate	1.4				U	
26	CCV	11:17	Sulfate	14.2	15.0	94	90-110		SO4-CCV-W_00033
27	CCB	11:17	Sulfate	1.4				U	
34	CCV	11:36	Sulfate	14.2	15.0	95	90-110		SO4-CCV-W_00033
35	CCB	11:36	Sulfate	1.4				U	
38	CCV	11:39	Sulfate	13.9	15.0	93	90-110		SO4-CCV-W_00033
39	CCB	11:39	Sulfate	1.4				U	
42	CCV	12:35	Sulfate	13.9	15.0	93	90-110		SO4-CCV-W_00033
43	CCB	12:35	Sulfate	1.4				U	
48	CCV	12:36	Sulfate	14.0	15.0	94	90-110		SO4-CCV-W_00033
49	CCB	12:36	Sulfate	1.4				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Analyst: RRC Batch Start Date: 10/01/2019

Reporting Units: mg/L Analytical Batch No.: 459675

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	16:39	Sulfate	13.7	15.0	91	90-110		SO4-CCV-W_00034
2	CCB	16:39	Sulfate	1.4				U	
4	ICV	16:39	Sulfate	13.5	15.0	90	90-110		SO4-ICV-W_00064
5	ICB	16:39	Sulfate	1.4				U	
10	CCV	16:42	Sulfate	13.7	15.0	92	90-110		SO4-CCV-W_00034
11	CCB	16:42	Sulfate	1.4				U	
14	CCV	16:45	Sulfate	13.6	15.0	91	90-110		SO4-CCV-W_00034
15	CCB	16:45	Sulfate	1.4				U	
16	CCV	17:02	Sulfate	15.1	15.0	101	90-110		SO4-CCV-W_00034
17	CCB	17:02	Sulfate	1.87				J	
18	CCV	17:03	Sulfate	15.0	15.0	100	90-110		SO4-CCV-W_00034
19	CCB	17:03	Sulfate	1.82				J	
20	CCV	17:40	Sulfate	15.2	15.0	101	90-110		SO4-CCV-W_00034
21	CCB	17:40	Sulfate	1.79				J	
23	CCV	17:41	Sulfate	15.0	15.0	100	90-110		SO4-CCV-W_00034
24	CCB	17:41	Sulfate	1.78				J	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Analyst: RRC Batch Start Date: 10/02/2019

Reporting Units: mg/L Analytical Batch No.: 459750

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
5	CCV	15:27	Sulfate	14.9	15.0	99	90-110		SO4-CCV-W_00034
6	CCB	15:27	Sulfate	1.60				J	
10	CCV	15:28	Sulfate	14.6	15.0	97	90-110		SO4-CCV-W_00034
11	CCB	15:28	Sulfate	1.43				J	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 459540 Date: 10/01/2019 10:33							
SM 2320B	MB 400-459540/4	Alkalinity, Total	0.98	U	mg/L	1.0	1
SM 2320B	MB 400-459540/4	Bicarbonate Alkalinity as CaCO3	0.98	U	mg/L	1.0	1
SM 2320B	MB 400-459540/4	Carbonate Alkalinity as CaCO3	0.98	U	mg/L	1.0	1
Batch ID: 458839 Date: 09/26/2019 14:38							
SM 2540C	MB 400-458839/1	Total Dissolved Solids	3.4	U	mg/L	5.0	1
Batch ID: 459103 Date: 09/27/2019 21:52							
SM 4500 Cl- E	MB 400-459103/6	Chloride	1.4	U	mg/L	2.0	1
Batch ID: 459681 Date: 10/02/2019 09:09							
SM 4500 F C	MB 400-459681/3	Fluoride	0.032	U	mg/L	0.10	1
Batch ID: 459205 Date: 09/28/2019 11:04							
SM 4500 SO4 E	MB 400-459205/6	Sulfate	1.4	U	mg/L	5.0	1
Batch ID: 459675 Date: 10/01/2019 16:39							
SM 4500 SO4 E	MB 400-459675/6	Sulfate	1.4	U	mg/L	5.0	1

5-IN
MATRIX SPIKE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 459103 Date: 09/27/2019 22:52											
SM 4500 Cl- E	400-176914-2	Chloride	72		mg/L						
SM 4500 Cl- E MS	400-176914-2	Chloride	78.1		mg/L	1.00	576	73-120			4
Batch ID: 459681 Date: 10/02/2019 09:53											
SM 4500 F C	400-176914-2	Fluoride	0.71		mg/L						
SM 4500 F C MS	400-176914-2	Fluoride	1.78		mg/L	1.00	107	75-125			
Batch ID: 459205 Date: 09/28/2019 11:05											
SM 4500 SO4 E	400-176914-2	Sulfate	8.0		mg/L						
SM 4500 SO4 E MS	400-176914-2	Sulfate	17.8		mg/L	10.0	98	77-128			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

5-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 459103 Date: 09/27/2019 22:52											
SM 4500 Cl- E	400-176914-2 MSD	Chloride	78.7		mg/L	1.00	636	73-120	1	8	4
Batch ID: 459681 Date: 10/02/2019 09:56											
SM 4500 F C	400-176914-2 MSD	Fluoride	1.78		mg/L	1.00	107	75-125	0	4	
Batch ID: 459205 Date: 09/28/2019 11:05											
SM 4500 SO4 E	400-176914-2 MSD	Sulfate	17.8		mg/L	10.0	98	77-128	0	5	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

6-IN
DUPLICATE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Matrix: Water

Method	Client Sample ID	Lab Sample ID	Analyte	Result	Unit	RPD	RPD Limit	Qual
Batch ID: 459540 Date: 10/01/2019 11:07								
SM 2320B	AES-MW2-092319	400-176914-2	Alkalinity, Total	590	mg/L			
SM 2320B	AES-MW2-092319	400-176914-2 DU	Alkalinity, Total	604	mg/L	2	20	
SM 2320B	AES-MW2-092319	400-176914-2	Bicarbonate Alkalinity as CaCO3	590	mg/L			
SM 2320B	AES-MW2-092319	400-176914-2 DU	Bicarbonate Alkalinity as CaCO3	604	mg/L	2	20	
SM 2320B	AES-MW2-092319	400-176914-2	Carbonate Alkalinity as CaCO3	0.98	mg/L			U
SM 2320B	AES-MW2-092319	400-176914-2 DU	Carbonate Alkalinity as CaCO3	0.98	mg/L	NC	20	U
Batch ID: 459540 Date: 10/01/2019 12:37								
SM 2320B	AES-MW5-092319	400-176914-6	Alkalinity, Total	500	mg/L			
SM 2320B	AES-MW5-092319	400-176914-6 DU	Alkalinity, Total	504	mg/L	0.6	20	
SM 2320B	AES-MW5-092319	400-176914-6	Bicarbonate Alkalinity as CaCO3	500	mg/L			
SM 2320B	AES-MW5-092319	400-176914-6 DU	Bicarbonate Alkalinity as CaCO3	504	mg/L	0.6	20	
SM 2320B	AES-MW5-092319	400-176914-6	Carbonate Alkalinity as CaCO3	0.98	mg/L			U
SM 2320B	AES-MW5-092319	400-176914-6 DU	Carbonate Alkalinity as CaCO3	0.98	mg/L	NC	20	U

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

7A-IN
LAB CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 459540	Date: 10/01/2019 10:40										
						LCS Source: ALK-ICV-W_00085					
SM 2320B	LCS 400-459540/5	Alkalinity, Total	106		mg/L	100	106	80-120			
Batch ID: 458839	Date: 09/26/2019 14:38										
						LCS Source: GTDS-LCS-W_00105					
SM 2540C	LCS 400-458839/2	Total Dissolved Solids	300		mg/L	293	102	78-122			
Batch ID: 459103	Date: 09/27/2019 21:52										
						LCS Source: CL-ICV-W_00056					
SM 4500 Cl- E	LCS 400-459103/7	Chloride	31.5		mg/L	30.0	105	90-110			
Batch ID: 459681	Date: 10/02/2019 09:12										
						LCS Source: FL-LCS-S_00013					
SM 4500 F C	LCS 400-459681/4	Fluoride	4.26		mg/L	4.00	107	90-110			
Batch ID: 459205	Date: 09/28/2019 11:04										
						LCS Source: SO4-ICV-W_00063					
SM 4500 SO4 E	LCS 400-459205/7	Sulfate	14.3		mg/L	15.0	95	90-110			
Batch ID: 459675	Date: 10/01/2019 17:40										
						LCS Source: SO4-ICV-W_00064					
SM 4500 SO4 E	LCS 400-459675/22	Sulfate	15.1		mg/L	15.0	101	90-110			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

7A-IN
METHOD REPORTING LIMIT CHECK
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 459103	Date: 09/27/2019 21:52										
						LCS Source: CL-CCVL-2ppm_00030					
SM 4500 Cl- E	MRL 400-459103/3	Chloride	2.15		mg/L	2.00	108	50-150			
Batch ID: 459205	Date: 09/28/2019 11:04										
						LCS Source: SO4-CCVL-W_00038					
SM 4500 SO4 E	MRL 400-459205/3	Sulfate	5.27		mg/L	5.00	105	50-150			
Batch ID: 459675	Date: 10/01/2019 16:39										
						LCS Source: SO4-CCVL-W_00039					
SM 4500 SO4 E	MRL 400-459675/3	Sulfate	4.78	J	mg/L	5.00	96	50-150			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 2320B MDL Date: 09/23/2011 09:10

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Alkalinity, Total		1	0.98
Bicarbonate Alkalinity as CaCO3		1	0.98
Carbonate Alkalinity as CaCO3		1	0.98

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 2320B XMDL Date: 09/23/2011 09:11

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Alkalinity, Total		1	0.98
Bicarbonate Alkalinity as CaCO3		1	0.98
Carbonate Alkalinity as CaCO3		1	0.98

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: Balance 1

Method: SM 2540C MDL Date: 04/09/2012 08:46

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Total Dissolved Solids		5	3.4

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: Balance 1

Method: SM 2540C XMDL Date: 04/09/2012 08:46

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Total Dissolved Solids		5	3.4

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 Cl- E MDL Date: 08/22/2018 14:09

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Chloride		2	1.4

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 Cl- E XMDL Date: 10/31/2012 11:00

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Chloride		2	0.6

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 4500 F C MDL Date: 03/03/2015 14:05

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Fluoride		0.1	0.032

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: AUTOTITRATOR

Method: SM 4500 F C XMDL Date: 04/22/2015 09:30

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Fluoride		0.1	0.032

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 SO4 E MDL Date: 11/03/2010 15:08

Analyte	Wavelength/ Mass	RL (mg/L)	MDL (mg/L)
Sulfate		5	1.4

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job Number: 400-176914-1

SDG Number:

Matrix: Water Instrument ID: KONELAB-M

Method: SM 4500 SO4 E XMDL Date: 11/03/2010 15:09

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Sulfate		5	1.4

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Instrument ID: AUTOTITRATOR Analysis Method: SM 2320B

Start Date: 10/01/2019 10:31 End Date: 10/01/2019 13:29

Lab Sample Id	D/F	Type	Time	Analytes																										
				Alk	BALKCC	CarAlk																								
ZZZZZZ			10:31																											
MB 400-459540/4	1	T	10:33	X	X	X																								
LCS 400-459540/5	1	T	10:40	X	X	X																								
CCV 400-459540/6	1		10:49	X	X	X																								
400-176914-2	1	T	10:57	X	X	X																								
400-176914-2 DU	1	T	11:07	X	X	X																								
ZZZZZZ			11:16																											
ZZZZZZ			11:20																											
ZZZZZZ			11:30																											
400-176914-1	1	T	11:37	X	X	X																								
400-176914-3	1	T	11:46	X	X	X																								
400-176914-4	1	T	11:56	X	X	X																								
400-176914-5	1	T	12:06	X	X	X																								
400-176914-7	1	T	12:11	X	X	X																								
CCV 400-459540/17	1		12:18	X	X	X																								
CCB 400-459540/18	1		12:21	X	X	X																								
400-176914-6	1	T	12:29	X	X	X																								
400-176914-6 DU	1	T	12:37	X	X	X																								
ZZZZZZ			12:45																											
ZZZZZZ			12:51																											
ZZZZZZ			12:57																											
ZZZZZZ			13:03																											
ZZZZZZ			13:12																											
ZZZZZZ			13:18																											
CCV 400-459540/1	1		13:26	X	X	X																								
CCB 400-459540/2	1		13:29	X	X	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Instrument ID: Balance 1 Analysis Method: SM 2540C

Start Date: 09/26/2019 14:38 End Date: 09/26/2019 14:38

Lab Sample Id	D/F	Type	Time	Analytes																								
				TDS																								
MB 400-458839/1	1	T	14:38	X																								
LCS 400-458839/2	1	T	14:38	X																								
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
400-176914-2	1	T	14:38	X																								
400-176914-1	1	T	14:38	X																								
400-176914-6	1	T	14:38	X																								
400-176914-3	1	T	14:38	X																								
400-176914-5	1	T	14:38	X																								
400-176914-4	1	T	14:38	X																								
400-176914-7	1	T	14:38	X																								
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
CCV 400-458839/14	1		14:38	X																								
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
ZZZZZZ			14:38																									
CCV 400-458839/26			14:38																									

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 09/27/2019 21:51 End Date: 09/27/2019 23:33

Lab Sample Id	D/F	Type	Time	Analytes																								
				CL-																								
CCV 400-459103/1	1		21:51	X																								
CCB 400-459103/2	1		21:51	X																								
MRL 400-459103/3	1	T	21:52	X																								
ICV 400-459103/4	1		21:52	X																								
ICB 400-459103/5	1		21:52	X																								
MB 400-459103/6	1	T	21:52	X																								
LCS 400-459103/7	1	T	21:52	X																								
ZZZZZZ			21:52																									
ZZZZZZ			21:52																									
ZZZZZZ			21:52																									
ZZZZZZ			21:52																									
ZZZZZZ			21:52																									
CCV 400-459103/13	1		21:55	X																								
CCB 400-459103/14	1		21:55	X																								
ZZZZZZ			21:55																									
ZZZZZZ			21:55																									
ZZZZZZ			21:55																									
ZZZZZZ			21:55																									
ZZZZZZ			21:55																									
ZZZZZZ			21:55																									
ZZZZZZ			21:55																									
ZZZZZZ			21:55																									
ZZZZZZ			21:55																									
ZZZZZZ			21:55																									
CCV 400-459103/25			21:59																									
CCB 400-459103/26			21:59																									
CCV 400-459103/27	1		22:21	X																								
CCB 400-459103/28	1		22:21	X																								
ZZZZZZ			22:21																									
ZZZZZZ			22:22																									
ZZZZZZ			22:22																									
400-176914-7	1	T	22:22	X																								
ZZZZZZ			22:22																									
ZZZZZZ			22:22																									
ZZZZZZ			22:22																									
ZZZZZZ			22:22																									
ZZZZZZ			22:22																									
ZZZZZZ			22:22																									
CCV 400-459103/39	1		22:23	X																								
CCB 400-459103/40	1		22:23	X																								
ZZZZZZ			22:23																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 09/27/2019 21:51 End Date: 09/27/2019 23:33

Lab Sample Id	D/F	Type	Time	Analytes																								
				Cl-																								
ZZZZZZ			22:23																									
ZZZZZZ			22:23																									
ZZZZZZ			22:23																									
ZZZZZZ			22:23																									
ZZZZZZ			22:26																									
ZZZZZZ			22:26																									
ZZZZZZ			22:26																									
ZZZZZZ			22:26																									
ZZZZZZ			22:26																									
CCV 400-459103/51			22:31																									
CCB 400-459103/52			22:31																									
CCV 400-459103/53	1		22:46	X																								
CCB 400-459103/54	1		22:46	X																								
ZZZZZZ			22:46																									
ZZZZZZ			22:49																									
ZZZZZZ			22:49																									
ZZZZZZ			22:49																									
ZZZZZZ			22:49																									
ZZZZZZ			22:49																									
400-176914-2	2	T	22:49	X																								
400-176914-2 MS	2	T	22:52	X																								
400-176914-2 MSD	2	T	22:52	X																								
400-176914-1	10	T	22:52	X																								
CCV 400-459103/65	1		22:52	X																								
CCB 400-459103/66	1		22:52	X																								
ZZZZZZ			22:52																									
ZZZZZZ			22:58																									
ZZZZZZ			22:58																									
ZZZZZZ			22:58																									
CCV 400-459103/71			22:59																									
CCB 400-459103/72			22:59																									
CCV 400-459103/73	1		23:13	X																								
CCB 400-459103/74	1		23:13	X																								
400-176914-3	80	T	23:13	X																								
ZZZZZZ			23:13																									
ZZZZZZ			23:13																									
400-176914-6	80	T	23:13	X																								
CCV 400-459103/79	1		23:14	X																								
CCB 400-459103/80	1		23:14	X																								
CCV 400-459103/81	1		23:32	X																								
CCB 400-459103/82	1		23:32	X																								

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 Cl- E

Start Date: 09/27/2019 21:51 End Date: 09/27/2019 23:33

Lab Sample Id	D/F	Type	Time	Analytes																								
				Cl-																								
400-176914-4	80	T	23:32	X																								
400-176914-5	80	T	23:32	X																								
CCV 400-459103/85	1		23:33	X																								
CCB 400-459103/86	1		23:33	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Instrument ID: AUTOTITRATOR Analysis Method: SM 4500 F C

Start Date: 10/02/2019 09:09 End Date: 10/02/2019 10:18

Lab Sample Id	D/F	Type	Time	Analytes																								
				F																								
MB 400-459681/3	1	T	09:09	X																								
LCS 400-459681/4	1	T	09:12	X																								
CCV 400-459681/5	1		09:14	X																								
CCVL 400-459681/6	1		09:17	X																								
ZZZZZZ			09:21																									
ZZZZZZ			09:23																									
ZZZZZZ			09:25																									
ZZZZZZ			09:27																									
ZZZZZZ			09:30																									
ZZZZZZ			09:32																									
ZZZZZZ			09:35																									
ZZZZZZ			09:37																									
ZZZZZZ			09:39																									
ZZZZZZ			09:41																									
ZZZZZZ			09:43																									
CCV 400-459681/18	1		09:46	X																								
CCB 400-459681/19	1		09:49	X																								
400-176914-2	1	T	09:51	X																								
400-176914-2 MS	1	T	09:53	X																								
400-176914-2 MSD	1	T	09:56	X																								
ZZZZZZ			09:58																									
400-176914-1	1	T	10:00	X																								
400-176914-3	1	T	10:02	X																								
400-176914-4	1	T	10:05	X																								
400-176914-5	1	T	10:08	X																								
400-176914-6	1	T	10:10	X																								
400-176914-7	1	T	10:13	X																								
CCV 400-459681/16	1		10:15	X																								
CCB 400-459681/2	1		10:18	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 09/28/2019 11:04 End Date: 09/28/2019 12:36

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
CCV 400-459205/1	1		11:04	X																								
CCB 400-459205/2	1		11:04	X																								
MRL 400-459205/3	1	T	11:04	X																								
ICV 400-459205/4	1		11:04	X																								
ICB 400-459205/5	1		11:04	X																								
MB 400-459205/6	1	T	11:04	X																								
LCS 400-459205/7	1	T	11:04	X																								
400-176914-2	1	T	11:04	X																								
400-176914-2 MS	1	T	11:05	X																								
400-176914-2 MSD	1	T	11:05	X																								
CCV 400-459205/11	1		11:11	X																								
CCB 400-459205/12	1		11:11	X																								
ZZZZZZ			11:11																									
ZZZZZZ			11:11																									
ZZZZZZ			11:11																									
ZZZZZZ			11:11																									
ZZZZZZ			11:11																									
ZZZZZZ			11:11																									
ZZZZZZ			11:11																									
ZZZZZZ			11:11																									
CCV 400-459205/21	1		11:16	X																								
CCB 400-459205/22	1		11:16	X																								
ZZZZZZ			11:16																									
ZZZZZZ			11:16																									
400-176914-7	1	T	11:16	X																								
CCV 400-459205/26	1		11:17	X																								
CCB 400-459205/27	1		11:17	X																								
CCV 400-459205/28			11:31																									
CCB 400-459205/29			11:31																									
ZZZZZZ			11:31																									
ZZZZZZ			11:31																									
ZZZZZZ			11:31																									
ZZZZZZ			11:31																									
CCV 400-459205/34	1		11:36	X																								
CCB 400-459205/35	1		11:36	X																								
ZZZZZZ			11:36																									
400-176914-1	20	T	11:36	X																								
CCV 400-459205/38	1		11:39	X																								
CCB 400-459205/39	1		11:39	X																								
CCV 400-459205/40			11:41																									
CCB 400-459205/41			11:41																									

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 09/28/2019 11:04 End Date: 09/28/2019 12:36

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
CCV 400-459205/42	1		12:35	X																								
CCB 400-459205/43	1		12:35	X																								
400-176914-3	100	T	12:35	X																								
ZZZZZZ			12:35																									
ZZZZZZ			12:35																									
400-176914-6	100	T	12:35	X																								
CCV 400-459205/48	1		12:36	X																								
CCB 400-459205/49	1		12:36	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 10/01/2019 16:39 End Date: 10/01/2019 17:41

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
CCV 400-459675/1	1		16:39	X																								
CCB 400-459675/2	1		16:39	X																								
MRL 400-459675/3	1	T	16:39	X																								
ICV 400-459675/4	1		16:39	X																								
ICB 400-459675/5	1		16:39	X																								
MB 400-459675/6	1	T	16:39	X																								
ZZZZZZ			16:39																									
ZZZZZZ			16:39																									
ZZZZZZ			16:39																									
CCV 400-459675/10	1		16:42	X																								
CCB 400-459675/11	1		16:42	X																								
400-176914-4	300	T	16:42	X																								
400-176914-5	300	T	16:42	X																								
CCV 400-459675/14	1		16:45	X																								
CCB 400-459675/15	1		16:45	X																								
CCV 400-459675/16	1		17:02	X																								
CCB 400-459675/17	1		17:02	X																								
CCV 400-459675/18	1		17:03	X																								
CCB 400-459675/19	1		17:03	X																								
CCV 400-459675/20	1		17:40	X																								
CCB 400-459675/21	1		17:40	X																								
LCS 400-459675/22	1	T	17:40	X																								
CCV 400-459675/23	1		17:41	X																								
CCB 400-459675/24	1		17:41	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Pensacola Job No.: 400-176914-1

SDG No.:

Instrument ID: KONELAB-M Analysis Method: SM 4500 SO4 E

Start Date: 10/02/2019 15:14 End Date: 10/02/2019 15:28

Lab Sample Id	D/F	Type	Time	Analytes																								
				SO4																								
CCV 400-459750/1			15:14																									
CCB 400-459750/2			15:14																									
CCV 400-459750/3			15:15																									
CCB 400-459750/4			15:15																									
CCV 400-459750/5	1		15:27	X																								
CCB 400-459750/6	1		15:27	X																								
ZZZZZZ			15:27																									
ZZZZZZ			15:27																									
ZZZZZZ			15:27																									
CCV 400-459750/10	1		15:28	X																								
CCB 400-459750/11	1		15:28	X																								

Prep Types:
=

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 459540 Batch Start Date: 10/01/19 10:31 Batch Analyst: Brooks, Barbara A

Batch Method: SM 2320B Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	CalcMsg	FinalAmount	ALK-CCV-W 00069	ALK-ICV-W 00085		
CCV 400-459540/1		SM 2320B		InitialAmount is blank	25 mL	25 mL			
CCB 400-459540/2		SM 2320B		InitialAmount is blank	25 mL				
MB 400-459540/4		SM 2320B		InitialAmount is blank	25 mL				
LCS 400-459540/5		SM 2320B		InitialAmount is blank	25 mL		25 mL		
CCV 400-459540/6		SM 2320B		InitialAmount is blank	25 mL	25 mL			
400-176914-A-2	AES-MW2-092319	SM 2320B	T	InitialAmount is blank	25 mL				
400-176914-A-2 DU	AES-MW2-092319	SM 2320B	T	InitialAmount is blank	25 mL				
400-176914-A-1	AES-MW1-092319	SM 2320B	T	InitialAmount is blank	25 mL				
400-176914-A-3	AES-MW3-092319	SM 2320B	T	InitialAmount is blank	25 mL				
400-176914-A-4	AES-MW4-092319	SM 2320B	T	InitialAmount is blank	25 mL				
400-176914-A-5	AES-MW4-DUP-092319	SM 2320B	T	InitialAmount is blank	25 mL				
400-176914-A-7	AES-FB-092319	SM 2320B	T	InitialAmount is blank	25 mL				
CCV 400-459540/17		SM 2320B		InitialAmount is blank	25 mL	25 mL			
CCB 400-459540/18		SM 2320B		InitialAmount is blank	25 mL				
400-176914-A-6	AES-MW5-092319	SM 2320B	T	InitialAmount is blank	25 mL				
400-176914-A-6 DU	AES-MW5-092319	SM 2320B	T	InitialAmount is blank	25 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 459540 Batch Start Date: 10/01/19 10:31 Batch Analyst: Brooks, Barbara A

Batch Method: SM 2320B Batch End Date:

Batch Notes	
Acid ID	3751787 fisher
pH Buffer 1 ID	4407041
pH Buffer 2 ID	4562107
pH Buffer 3 ID	4453529
pH Buffer 4 ID	4085344
pH Buffer 5 ID	4326727
Probe ID	VWYI-1925
Normality of First Titrant	0.0213470 N
Titrant Standardization Date	09/14/2018

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 458839 Batch Start Date: 09/26/19 14:38 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 09/30/19 17:43

Lab Sample ID	Client Sample ID	Method Chain	Basis	Conductivity	CrucibleID	InitialAmount	TareWeight	Weight1	Weight2
MB 400-458839/1		SM 2540C			75	50 mL	62.8664 g	62.8662 g	62.8662 g
LCS 400-458839/2		SM 2540C			193	50 mL	69.0811 g	69.0963 g	69.0961 g
400-176914-A-2	AES-MW2-092319	SM 2540C	T	1016 umhos/cm	s3	25 mL	61.2396 g	61.2567 g	61.2564 g
400-176914-A-1	AES-MW1-092319	SM 2540C	T	2018 umhos/cm	77	10 mL	71.6133 g	71.6280 g	71.6276 g
400-176914-A-6	AES-MW5-092319	SM 2540C	T	12170 umhos/cm	416	2 mL	53.2496 g	53.2707 g	53.2702 g
400-176914-A-3	AES-MW3-092319	SM 2540C	T	11590 umhos/cm	7	2 mL	61.4001 g	61.4191 g	61.4186 g
400-176914-A-5	AES-MW4-DUP-092319	SM 2540C	T	26490 umhos/cm	356	0.25 mL	64.3003 g	64.3063 g	64.3061 g
400-176914-A-4	AES-MW4-092319	SM 2540C	T	26290 umhos/cm	21	0.25 mL	64.9263 g	64.9343 g	64.9340 g
400-176914-A-7	AES-FB-092319	SM 2540C	T	3.93 umhos/cm	100	50 mL	63.2975 g	63.2976 g	63.2974 g
CCV 400-458839/14		SM 2540C			302	50 mL	58.7575 g	58.7735 g	58.7736 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Weight3	Weight4	WeightOne%Diff	WeightTwo%Diff	Weight4OK	Residue
MB 400-458839/1		SM 2540C		0 g	0 g	Pass	N/A	N/A	-0.0002 g
LCS 400-458839/2		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.0152 g
400-176914-A-2	AES-MW2-092319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0171 g
400-176914-A-1	AES-MW1-092319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0147 g
400-176914-A-6	AES-MW5-092319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0211 g
400-176914-A-3	AES-MW3-092319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.019 g
400-176914-A-5	AES-MW4-DUP-092319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.006 g
400-176914-A-4	AES-MW4-092319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.008 g
400-176914-A-7	AES-FB-092319	SM 2540C	T	0 g	0 g	Pass	N/A	N/A	0.0001 g
CCV 400-458839/14		SM 2540C		0 g	0 g	Pass	N/A	N/A	0.016 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Residue2	Residue3	Residue4	FinalAmount	CalcMsg	GTDS-LCS-W 00105
MB 400-458839/1		SM 2540C		-0.0002 g	N/A g	N/A g	50 mL	OK	
LCS 400-458839/2		SM 2540C		0.015 g	N/A g	N/A g	50 mL	OK	50 mL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 458839 Batch Start Date: 09/26/19 14:38 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 09/30/19 17:43

Lab Sample ID	Client Sample ID	Method Chain	Basis	Residue2	Residue3	Residue4	FinalAmount	CalcMsg	GTDS-LCS-W 00105
400-176914-A-2	AES-MW2-092319	SM 2540C	T	0.0168 g	N/A g	N/A g	50 mL	OK	
400-176914-A-1	AES-MW1-092319	SM 2540C	T	0.0143 g	N/A g	N/A g	50 mL	OK	
400-176914-A-6	AES-MW5-092319	SM 2540C	T	0.0206 g	N/A g	N/A g	50 mL	OK	
400-176914-A-3	AES-MW3-092319	SM 2540C	T	0.0185 g	N/A g	N/A g	50 mL	OK	
400-176914-A-5	AES-MW4-DUP-092319	SM 2540C	T	0.0058 g	N/A g	N/A g	50 mL	OK	
400-176914-A-4	AES-MW4-092319	SM 2540C	T	0.0077 g	N/A g	N/A g	50 mL	OK	
400-176914-A-7	AES-FB-092319	SM 2540C	T	-0.0001 g	N/A g	N/A g	50 mL	OK	
CCV 400-458839/14		SM 2540C		0.0161 g	N/A g	N/A g	50 mL	OK	50 mL

Batch Notes	
Balance ID	denver
Conductivity Meter ID	10k100742
Date/Time - In - CW (WT2)	09/30/2019 10:42
Date/Time - Out - CW (WT2)	09/30/2019 13:44
Temperature - Start - CW (WT2) - Correct	180.0 Celsius
Temperature - End - CW (WT2) - Correct	180.0 Celsius
Temperature - Start-CW(WT2) -Uncorrected	180.0 Celsius
Temperature - End-CW(WT2) -Uncorrected	180.0 Celsius
Filter ID	16932903
Nominal Amount Used	50 mL
Oven ID	In035
Thermometer ID	a43-0035
Weight(WT1) Start Date/Time	09/26/2019 16:08
Weight(WT1) Date/Time Out	09/30/2019 09:36
Weight(WT1) Start Temp	98.0 Celsius
Weight(WT1) Temp Out	180.0 Celsius
Uncorrected Weight(WT1) Start Temp	98.0 Celsius
Uncorrected Weight(WT1) Temp Out	180.0 Celsius

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 458839 Batch Start Date: 09/26/19 14:38 Batch Analyst: Brannon, Cheyenne L

Batch Method: SM 2540C Batch End Date: 09/30/19 17:43

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 459103 Batch Start Date: 09/27/19 21:51 Batch Analyst: Schroeder, Hans E

Batch Method: SM 4500 Cl- E Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CL-CCV-35ppm 00032	CL-CCV-S 00017	CL-CCVL-2ppm 00030	CL-ICV-W 00056
CCV 400-459103/1		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-459103/2		SM 4500 Cl- E		10 mL	10 mL				
MRL 400-459103/3		SM 4500 Cl- E		10 mL	10 mL			10 mL	
ICV 400-459103/4		SM 4500 Cl- E		10 mL	10 mL				10 mL
ICB 400-459103/5		SM 4500 Cl- E		10 mL	10 mL				
MB 400-459103/6		SM 4500 Cl- E		10 mL	10 mL				
LCS 400-459103/7		SM 4500 Cl- E		10 mL	10 mL				10 mL
CCV 400-459103/13		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-459103/14		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-459103/27		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-459103/28		SM 4500 Cl- E		10 mL	10 mL				
400-176914-A-7	AES-FB-092319	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-459103/39		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-459103/40		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-459103/53		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-459103/54		SM 4500 Cl- E		10 mL	10 mL				
400-176914-A-7	AES-FB-092319	SM 4500 Cl- E	T	10 mL	10 mL				
400-176914-A-2	AES-MW2-092319	SM 4500 Cl- E	T	10 mL	10 mL				
400-176914-A-2 MS	AES-MW2-092319	SM 4500 Cl- E	T	10 mL	10 mL		0.005 mL		
400-176914-A-2 MSD	AES-MW2-092319	SM 4500 Cl- E	T	10 mL	10 mL		0.005 mL		
400-176914-A-1	AES-MW1-092319	SM 4500 Cl- E	T	10 mL	10 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 459103 Batch Start Date: 09/27/19 21:51 Batch Analyst: Schroeder, Hans E

Batch Method: SM 4500 Cl- E Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CL-CCV-35ppm 00032	CL-CCV-S 00017	CL-CCVL-2ppm 00030	CL-ICV-W 00056
CCV 400-459103/65		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-459103/66		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-459103/73		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-459103/74		SM 4500 Cl- E		10 mL	10 mL				
400-176914-A-3	AES-MW3-092319	SM 4500 Cl- E	T	10 mL	10 mL				
400-176914-A-6	AES-MW5-092319	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-459103/79		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-459103/80		SM 4500 Cl- E		10 mL	10 mL				
CCV 400-459103/81		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-459103/82		SM 4500 Cl- E		10 mL	10 mL				
400-176914-A-4	AES-MW4-092319	SM 4500 Cl- E	T	10 mL	10 mL				
400-176914-A-5	AES-MW4-DUP-092319	SM 4500 Cl- E	T	10 mL	10 mL				
CCV 400-459103/85		SM 4500 Cl- E		10 mL	10 mL	10 mL			
CCB 400-459103/86		SM 4500 Cl- E		10 mL	10 mL				

Batch Notes	

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 459681 Batch Start Date: 10/02/19 09:09 Batch Analyst: Brooks, Barbara A

Batch Method: SM 4500 F C Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	FL-CCV-S 00008	FL-LCS-S 00013	TISAB 00023		
CCB 400-459681/2		SM 4500 F C					10 mL		
MB 400-459681/3		SM 4500 F C					10 mL		
LCS 400-459681/4		SM 4500 F C		100 mL		4 mL	10 mL		
CCV 400-459681/5		SM 4500 F C		100 mL	5 mL		10 mL		
CCVL 400-459681/6		SM 4500 F C		100 mL	0.5 mL		10 mL		
CCV 400-459681/16		SM 4500 F C		100 mL	5 mL		10 mL		
CCV 400-459681/18		SM 4500 F C		100 mL	5 mL		10 mL		
CCB 400-459681/19		SM 4500 F C					10 mL		
400-176914-A-2	AES-MW2-092319	SM 4500 F C	T				10 mL		
400-176914-A-2 MS	AES-MW2-092319	SM 4500 F C	T	10 mL	0.1 mL		10 mL		
400-176914-A-2 MSD	AES-MW2-092319	SM 4500 F C	T	10 mL	0.1 mL		10 mL		
400-176914-A-1	AES-MW1-092319	SM 4500 F C	T				10 mL		
400-176914-A-3	AES-MW3-092319	SM 4500 F C	T				10 mL		
400-176914-A-4	AES-MW4-092319	SM 4500 F C	T				10 mL		
400-176914-A-5	AES-MW4-DUP-092319	SM 4500 F C	T				10 mL		
400-176914-A-6	AES-MW5-092319	SM 4500 F C	T				10 mL		
400-176914-A-7	AES-FB-092319	SM 4500 F C	T				10 mL		

Batch Notes	
Probe ID	27502-19

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 459205 Batch Start Date: 09/28/19 11:04 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-C-S 00016	SO4-CCV-W 00033	SO4-CCVL-W 00038	SO4-ICV-W 00063
CCV 400-459205/1		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-459205/2		SM 4500 SO4 E		10 mL	10 mL				
MRL 400-459205/3		SM 4500 SO4 E		10 mL	10 mL			10 mL	
ICV 400-459205/4		SM 4500 SO4 E		10 mL	10 mL				10 mL
ICB 400-459205/5		SM 4500 SO4 E		10 mL	10 mL				
MB 400-459205/6		SM 4500 SO4 E		10 mL	10 mL				
LCS 400-459205/7		SM 4500 SO4 E		10 mL	10 mL				10 mL
400-176914-A-2	AES-MW2-092319	SM 4500 SO4 E	T	10 mL	10 mL				
400-176914-A-2 MS	AES-MW2-092319	SM 4500 SO4 E	T	10 mL	10 mL	0.1 mL			
400-176914-A-2 MSD	AES-MW2-092319	SM 4500 SO4 E	T	10 mL	10 mL	0.1 mL			
CCV 400-459205/11		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-459205/12		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-459205/21		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-459205/22		SM 4500 SO4 E		10 mL	10 mL				
400-176914-A-7	AES-FB-092319	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-459205/26		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-459205/27		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-459205/34		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-459205/35		SM 4500 SO4 E		10 mL	10 mL				
400-176914-A-1	AES-MW1-092319	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-459205/38		SM 4500 SO4 E		10 mL	10 mL		10 mL		

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 459205 Batch Start Date: 09/28/19 11:04 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-C-S 00016	SO4-CCV-W 00033	SO4-CCVL-W 00038	SO4-ICV-W 00063
CCB 400-459205/39		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-459205/42		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-459205/43		SM 4500 SO4 E		10 mL	10 mL				
400-176914-A-3	AES-MW3-092319	SM 4500 SO4 E	T	10 mL	10 mL				
400-176914-A-6	AES-MW5-092319	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-459205/48		SM 4500 SO4 E		10 mL	10 mL		10 mL		
CCB 400-459205/49		SM 4500 SO4 E		10 mL	10 mL				

Batch Notes	

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 459675 Batch Start Date: 10/01/19 16:39 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-W 00034	SO4-CCVL-W 00039	SO4-ICV-W 00064	
CCV 400-459675/1		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-459675/2		SM 4500 SO4 E		10 mL	10 mL				
MRL 400-459675/3		SM 4500 SO4 E		10 mL	10 mL		10 mL		
ICV 400-459675/4		SM 4500 SO4 E		10 mL	10 mL			10 mL	
ICB 400-459675/5		SM 4500 SO4 E		10 mL	10 mL				
MB 400-459675/6		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-459675/10		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-459675/11		SM 4500 SO4 E		10 mL	10 mL				
400-176914-A-4	AES-MW4-092319	SM 4500 SO4 E	T	10 mL	10 mL				
400-176914-A-5	AES-MW4-DUP-092319	SM 4500 SO4 E	T	10 mL	10 mL				
CCV 400-459675/14		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-459675/15		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-459675/16		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-459675/17		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-459675/18		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-459675/19		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-459675/20		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-459675/21		SM 4500 SO4 E		10 mL	10 mL				
LCS 400-459675/22		SM 4500 SO4 E		10 mL	10 mL			10 mL	
CCV 400-459675/23		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-459675/24		SM 4500 SO4 E		10 mL	10 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 459675 Batch Start Date: 10/01/19 16:39 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date:

Batch Notes	

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Pensacol Job No.: 400-176914-1

SDG No.:

Batch Number: 459750 Batch Start Date: 10/02/19 15:14 Batch Analyst: Chandler, Rebecca R

Batch Method: SM 4500 SO4 E Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SO4-CCV-W 00034			
CCV 400-459750/5		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-459750/6		SM 4500 SO4 E		10 mL	10 mL				
CCV 400-459750/10		SM 4500 SO4 E		10 mL	10 mL	10 mL			
CCB 400-459750/11		SM 4500 SO4 E		10 mL	10 mL				

Batch Notes	

Basis	Basis Description

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

PC-TitratION PLUS

Calibration Report

459469

Calibration Record # 2354

1st

BAB

10-1-19

Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	09/30/2019
Channel	1	Time	6:57 AM
Probe Type	pH	Temperature	295.82 K 22.67 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-62.126	CorrCoeff	0.9997
Intercept	10.755	Equation: Y = (-62.126) X + (10.755)	

Calibration Validity **True** Operator

	Result	Minimum	Maximum
Slope	-62.126	-65.00	-53.00
Intercept	10.755	-100.00	100.00
Correlation Coefficient	0.9997	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	199.95
	7.01	4.51
	10.03	-174.68

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TestAmerica-Pensacola

ALKALINITY METHOD EPA 310.1/ SM2320B
FLUORIDE METHOD EPA 340.2, SW846-9056/ SM4500-F-C
pH METHOD EPA 150.1, SW846-9040C, SW846-9045D

Run Number 9160 **Order Number** 20190930-2 N H2S04 -1.00000

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
09/30/2019	7:25 AM	PH9 LOT126024	25.00	8.96	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	.00	-1.000
09/30/2019	7:18 AM	PH 4 LOT 131596	25.00	3.96	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-221.39	-1.000
09/30/2019	7:19 AM	PH7 LOT 132908	25.00	7.11	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-.16	-1.000
09/30/2019	7:22 AM	PH10 LOT130972	25.00	9.95	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	.00	-1.000
09/30/2019	7:23 AM	PH5 LOT 126312	25.00	5.21	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	-12.31	-1.000

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Analyst Signature: _____

TestAmerica-Pensacola

ALKALINITY METHOD EPA 310.1/ SM2320B
FLUORIDE METHOD EPA 340.2, SW846-9056/ SM4500-F-C
pH METHOD EPA 150.1, SW846-9040C, SW846-9045D

Run Number 9163 **Order Number** 20190930-5 N H2S04 0.02135

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
09/30/2019	7:25 PM	ccv	25.00	9.59	0.650	2.453	2.545	104.75	.00	55.50	49.25	27.75	.03	-1.000
09/30/2019	7:27 PM	ccb	25.00	4.00	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
09/30/2019	3:31 PM	ALK-WASH	25.00	8.21	0.000	0.121	0.188	2.26	.00	.00	2.26	.00	.03	-1.000
09/30/2019	3:33 PM	MB	25.00	3.94	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
09/30/2019	3:41 PM	LCS	25.00	9.90	0.899	2.472	2.626	105.55	.00	76.77	28.78	38.39	.01	-1.000
09/30/2019	3:49 PM	CCV	25.00	9.91	0.929	2.391	2.487	102.07	.00	79.36	22.71	39.68	.01	-1.000
09/30/2019	3:56 PM	400-176565-G-8	25.00	7.55	0.000	6.226	6.345	265.81	.00	.00	265.81	.00	14.98	-1.000
09/30/2019	4:03 PM	400-176565-G-8-du	25.00	7.59	0.000	6.167	6.301	263.31	.00	.00	263.31	.00	13.66	-1.000
09/30/2019	4:10 PM	400-176565-G-7	25.00	6.86	0.000	9.146	9.351	390.48	.00	.00	390.48	.00	107.62	-1.000
09/30/2019	4:20 PM	400-176565-G-9	25.00	7.35	0.000	15.799	16.079	674.54	.00	.00	674.54	.00	60.51	-1.000
09/30/2019	4:27 PM	400-176565-G-10	25.00	6.85	0.000	8.335	8.445	355.86	.00	.00	355.86	.00	101.63	-1.000
09/30/2019	4:34 PM	400-176565-G-11	25.00	7.94	0.000	6.817	6.964	291.03	.00	.00	291.03	.00	6.65	-1.000
09/30/2019	4:47 PM	400-176565-G-12	25.00	7.49	0.000	24.589	24.915	1,049.82	.00	.00	1,049.82	.00	68.16	-1.000
09/30/2019	4:57 PM	400-177008-J-1	25.00	7.16	0.000	18.830	19.156	803.91	.00	.00	803.91	.00	111.28	-1.000
09/30/2019	5:07 PM	400-177008-J-2	25.00	7.47	0.000	14.942	15.203	637.94	.00	.00	637.94	.00	43.16	-1.000
09/30/2019	5:14 PM	400-177008-J-3	25.00	7.94	0.000	5.057	5.203	215.89	.00	.00	215.89	.00	4.93	-1.000
09/30/2019	5:21 PM	ccv	25.00	9.92	0.813	2.508	2.688	107.10	.00	69.41	37.69	34.70	.01	-1.000
09/30/2019	5:25 PM	ccb	25.00	4.02	0.000	0.000	0.000	.00	.00	.00	.00	.00	.00	-1.000
09/30/2019	5:34 PM	400-177008-J-4	25.00	7.34	0.000	14.561	14.824	621.68	.00	.00	621.68	.00	57.42	-1.000
09/30/2019	5:44 PM	400-177008-J-4-du	25.00	7.39	0.000	14.635	14.909	624.82	.00	.00	624.82	.00	50.63	-1.000
09/30/2019	5:53 PM	177008-j5	25.00	10.41	1.083	1.583	1.737	67.60	24.88	42.72	.00	46.24	.00	-1.000
09/30/2019	6:02 PM	400-177008-J-6	25.00	7.45	0.000	14.553	14.806	621.31	.00	.00	621.31	.00	43.78	-1.000
09/30/2019	6:12 PM	400-176724-H-1	25.00	7.75	0.000	17.326	17.576	739.72	.00	.00	739.72	.00	26.10	-1.000

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Analyst Signature: _____

Run Number 9163 **Order Number** 20190930-5 **N H2S04** 0.02135

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
~~09/30/2019~~	~~6:35 PM~~	~~400-176609-C-1~~ BAB 10 1-15	~~25.00~~	~~7.75~~	~~0.000~~	~~56.770~~	~~57.404~~	~~2,423.72~~	~~.00~~	~~.00~~	~~2,423.72~~	~~.00~~	~~86.11~~	~~-1.000~~
09/30/2019	6:45 PM	400-176609-A-2	25.00	9.31	1.767	11.946	12.284	510.01	.00	150.90	359.12	75.45	.35	-1.000
09/30/2019	6:54 PM	400-176609-A-3	25.00	8.04	0.000	12.570	12.762	536.67	.00	.00	536.67	.00	9.77	-1.000
09/30/2019	7:08 PM	400-176609-C-4	25.00	9.15	3.395	34.253	34.727	1,462.39	.00	289.87	1,172.52	144.93	1.66	-1.000
09/30/2019	7:17 PM	400-176736-M-1	25.00	8.76	0.646	10.974	11.143	468.52	.00	55.13	413.39	27.57	1.44	-1.000

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Analyst Signature: _____

ICAL Batch 444026

Calibration results Aquakem 7.2.AQ2 Page: 1

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

6/11/2019 9:59

1st Lev RFC 9.28.19

Test CHLORIDE

Accepted - -

Resp. = A * Conc. ^ 2 + B * Conc. + C
A = 0
B = 0.018
C = 0.024

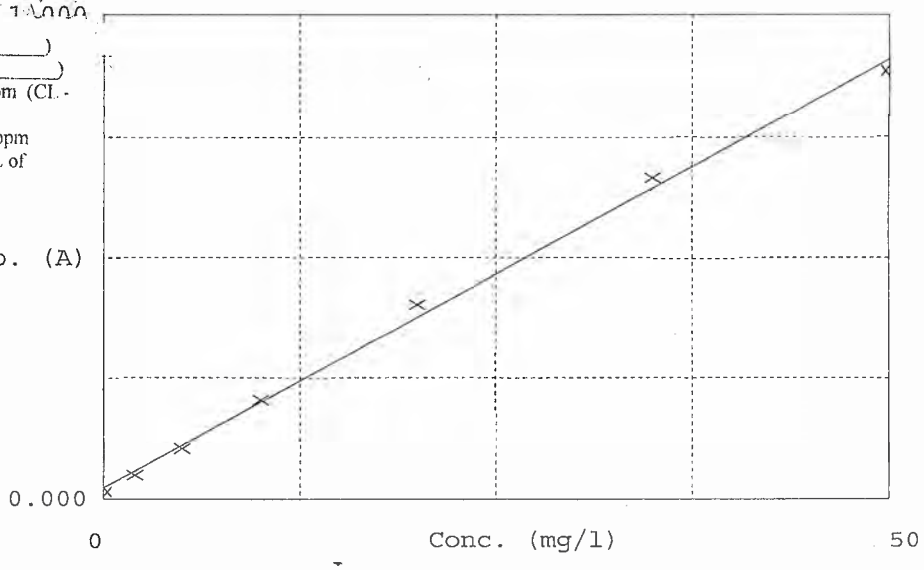
Coeff. of det. 0.997129

Errors QC rule violated

DATE	ICV	ICB	CCV-FIRST	CCV-LAST
9.28.19	105	ND	104	106
BATCH	**LCS**	**MS%R**	**MSD%R**	**RPD**
459103	105	-107	-10	1
		576	636	1

Correlation Coefficient must be ≥0.995 in order to pass

CL CCVH: TV=50ppm (CL -CCV-35ppm_ _____)
CL CCVL: TV= 2.0ppm (CL –CCVL-2ppm_ _____)
CL ICV: *9251 EVERY 10 SAMPLES TV= 30ppm (CL -ICV-W-_____)
MS/MSD: *9251 EVERY 10 SAMPLES TV= 10ppm (0.1mL CL-CCV-S-_____ spiked into 10mL of sample)



	Calibrator	Response	Calc. con.	Conc.	Errors
1	CL-0	0.015	-0.49365	0.00000	
2	CL-2	0.050	1.47476	2.00000	
3	CL-5	0.104	4.55473	5.00000	
4	CL-10	0.205	10.22040	10.00000	
5	CL-20	0.404	21.45605	20.00000	
6	CL-35	0.665	36.16225	35.00000	
7	CL-50	0.886	48.62546	50.00000	
8	CCV-CL(control)	0.650	35.35106	35.00000	
9	ICB-CL(control)	0.021	-0.13289	0.00000	Test limi
10	ICV-CL(control)	0.561	30.33833	30.00000	

CL: AQ LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	73-120%
RPD	8
R.L.	2.0mg/L

CL: NAq LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	75-125%
RPD	20
R.L.	40mg/kg

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

9/27/2019 23:34

Test: CHLORIDE

Sample Id	Result	Dil. 1 +	Response	Errors
CCV-CL	36.4814	0.0	0.670	
CCB-CL	-0.4179	0.0	0.016	Test limit low
MRL CL	2.1511	0.0	0.062	
ICV CL	31.3714	0.0	0.580	
ICB CL	-0.1862	0.0	0.020	Test limit low
MB CL	-0.0337	0.0	0.023	Test limit low
LCS CL	31.4883	0.0	0.582	
400-176889-a-1	281.0095	0.0	5.005	Init abs.
176889-A-1 MS	276.3339	0.0	4.922	Init abs.
176889-A-1 MSD	276.0550	0.0	4.917	Init abs.
400-176889-a-2	293.6907	0.0	5.229	Init abs.
400-177009-a-1	1.9140	0.0	0.058	
CCV-CL	36.5462	0.0	0.672	
CCB-CL	-0.2298	0.0	0.020	Test limit low
400-177009-b-2	7.9252	0.0	0.164	
400-177009-b-3	7.9720	0.0	0.165	
400-177009-b-4	5.4809	0.0	0.121	
400-177009-b-5	15.1134	0.0	0.292	
400-177009-a-6	15.1659	0.0	0.293	
400-177009-a-7	9.9287	0.0	0.200	
400-176981-b-2	539.5056	0.0	9.586	Abs. high, Init abs.
400-176914-a-2	65.3246	0.0	1.182	
176914-A-2 MS	70.0720	0.0	1.266	
176914-A-2 MSD	70.0405	0.0	1.265	
CCV-CL	36.5130	0.0	0.671	
CCB-CL	-0.3938	0.0	0.017	Test limit low
CCV-CL	37.0360	0.0	0.680	
CCB-CL	-1.0107	0.0	0.006	Test limit low, Rule 1 vi
400-176914-a-1	214.9301	0.0	3.833	Init abs.
400-176914-a-3	531.7632	0.0	9.449	Abs. high, Init abs.
400-176914-a-4	532.0969	0.0	9.455	Abs. high, Init abs.
400-176914-a-7	-1.9929	0.0	-0.012	Test limit low
400-176914-a-5	532.1942	0.0	9.457	Abs. high, Init abs.
400-176914-a-6	532.2442	0.0	9.458	Abs. high, Init abs.
400-176914-a-2	66.6519	0.0	1.205	
176914-A-2 MS	71.2265	0.0	1.286	
176914-A-2 MSD	71.6569	0.0	1.294	
400-176914-a-1	202.8846	0.0	3.620	Init abs.
CCV-CL	36.1706	0.0	0.665	
CCB-CL	-2.5959	0.0	-0.022	Test limit low, Rule 1 vi
400-176914-a-3	532.5806	0.0	9.464	Abs. high, Init abs.
400-176914-a-4	532.6135	0.0	9.464	Abs. high, Init abs.
400-176914-a-7	-2.7473	0.0	-0.025	Test limit low
400-176914-a-5	532.7610	0.0	9.467	Abs. high, Init abs.
400-176914-a-6	532.2358	0.0	9.458	Abs. high, Init abs.
400-176889-a-1	664.7478	9.0	1.202	
176889-A-1 MS	654.3295	9.0	1.184	
176889-A-1 MSD	654.0846	9.0	1.183	
400-176889-a-2	684.5176	9.0	1.237	
400-176981-b-2	1174.0358	19.0	1.064	Test limit high
CCV-CL	36.6851	0.0	0.674	
CCB-CL	-1.4795	0.0	-0.002	Test limit low, Rule 1 vi
CCV-CL	37.1113	0.0	0.682	
CCB-CL	-1.0312	0.0	0.005	Test limit low, Rule 1 vi
400-176914-a-7	-1.0947	0.0	0.004	Test limit low

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

9/27/2019 23:34

Test: CHLORIDE

Sample Id	Result	Dil. 1 +	Response	Errors
400-176889-a-1	729.0956	19.0	0.670	
176889-A-1 MS	718.3975	19.0	0.660	
176889-A-1 MSD	728.1130	19.0	0.669	
400-176889-a-2	770.1218	19.0	0.706	
400-176981-b-2	1348.7245	49.0	0.502	Test limit high
400-176914-a-2	72.3163	1.0	0.665	
176914-A-2 MS	78.0720	1.0	0.716	
176914-A-2 MSD	78.6766	1.0	0.721	
400-176914-a-1	359.5702	9.0	0.661	
CCV-CL	37.2699	0.0	0.684	
CCB-CL	-1.0917	0.0	0.004	Test limit low, Rule 1 vi
400-176914-a-3	2547.5432	19.0	2.281	Init abs., Test limit hig
400-176914-a-4	3579.7852	19.0	3.196	Init abs., Test limit hig
400-176914-a-5	3633.8882	19.0	3.244	Init abs., Test limit hig
400-176914-a-6	2555.1592	19.0	2.288	Init abs., Test limit hig
CCV-CL	37.4246	0.0	0.687	
CCB-CL	-1.1909	0.0	0.003	Test limit low, Rule 1 vi
CCV-CL	36.9290	0.0	0.678	
CCB-CL	-1.0302	0.0	0.005	Test limit low, Rule 1 vi
400-176914-a-3	3702.8040	79.0	0.844	Test limit high
400-176914-a-4	5920.1050	79.0	1.335	Test limit high
400-176914-a-5	5969.0991	79.0	1.346	Test limit high
400-176914-a-6	3713.7769	79.0	0.847	Test limit high
CCV-CL	37.1243	0.0	0.682	
CCB-CL	-1.1112	0.0	0.004	Test limit low, Rule 1 vi
CCV-CL	37.0261	0.0	0.680	
CCB-CL	-0.9828	0.0	0.006	Test limit low
176914-A-4 10X	689.9728	79.0	0.177	
176914-A-5 10X	690.2550	79.0	0.177	
CCV-CL	37.1801	0.0	0.683	
CCB-CL	-1.0283	0.0	0.006	Test limit low, Rule 1 vi

N	60
Mean	809.9587
SD	1359.74878
CV%	167.88

Colorimetric Data Review Checklist

LIMS Batch Number:	**Filename:**	**Instrument ID (circle one):** Konelab M
Analyst/1st Reviewer:	**Method (circle):** 375.4 7196A 325.2 375.4 365.1	**QC Type (circle):** Standard
Matrix (circle): Drinking Water Non-potable Water Solid Leachate		**Circle One:** Total Soluble

Review Items	NA	Yes	No	2nd Rev	If No, why is data reportable?
A. Calibration/Instrument Run QC					
1. Number of Points: 1st order: 3 standards 2nd order: 6 standards					
2. Linearity and intercept: $r \geq 0.995$ |x-intercept| < RL or < ½ RL (special projects)					
3. ICV, second source: run before samples 90-110% recovery					
4. CCV: 10% frequency & closing 90-110% recovery					If no, list details:
5. Cadmium Column Efficiency Check (353.2 & 4500NO3-E): 85-115% NO2 recovery					If no, list details:
6. ICB/CCB: run before samples, 10% frequency, & closing Result < RL Result < ½ RL (DoD or special project)					If no, list details:
B. Client Sample and QC Sample Results					
7. Samples with results > linear range diluted and reanalyzed?					Comments:
8. On-instrument response of diluted sample is >10X MB on-instrument response					Comments:
C. Preparation/Matrix QC					
9. Method Blank: one per preparation batch Result < RL Result < ½ RL (DoD or special project) *If no, list blank ID & explain:*					□ No analyte > RL in associated samples □ Sample results >10x blank □ Insufficient sample for reanalysis
10. LCS: one per preparation batch 90-110% recovery *If no, list LCS ID & explain:*					□ Insufficient sample for reanalysis □ LCS %R > QC limits & samples < RL
11. MS/MSD or MS/Dup frequency: A pair per 10 samples (routine) A pair per batch (4500-x) Laboratory derived limits (routine) 90-110% recovery (drinking water) *If no, list QC ID & explain:*					□ Insufficient sample

Review Items	Yes	No	2nd Rev	If No, why is data reportable?
D. Raw Data & TALS Data Entry				
12. Raw Data				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Out of control QC is clearly identified				
d. Any data that has a qualifier tick is commented on with appropriate action taken				
e. The first page of the run includes the filename, instrument, and analyst initials/signature				
13. Run Log				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Analyst initials/signature provided				
14. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct				
b. Method and matrix are correct				
c. Date and time match raw data				
d. Dilutions are correct				
e. Correct suffix designated (where applicable)				
15. TALS Worksheet Tab is complete and correct				
16. TALS Reagent Tab is complete and correct				
17. TALS QC Links Tab is correct				
18. TALS Sample Results Tab				
a. All unused data are marked Rejected or Accepted				
b. All reported analytes are marked Primary or Secondary				
19. TALS Batch Information Screen documentation is complete				
20. TALS Status set to appropriate review level				
E. Final Report and NCMs (2nd level review only)				
21. Were all job/project requirements met?				
22. Results for samples and QC correct on final report?				
23. Are all necessary scanned documents in TALS?				
24. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?				

2nd Reviewer: _____ **Review Date:** _____

Comments: _____

Report Date: 10/02/2019 : 10:19 AM

459681
1st BAG
10-2-19

TestAmerica-Pensacola

ALKALINITY METHOD EPA 310.1/ SM2320B
FLUORIDE METHOD EPA 340.2, SW846-9056/ SM4500-F-C
pH METHOD EPA 150.1, SW846-9040C, SW846-9045D

Run Number 9171 **Order Number** 20191002-3 N H2S04 -1.00000

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
10/02/2019	9:39 AM	660-97463-A-6	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.447
10/02/2019	10:18 AM	ccb	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.033
10/02/2019	9:09 AM	MB	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.032
10/02/2019	9:12 AM	LCS	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	4.263
10/02/2019	9:14 AM	CCV	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	5.358
10/02/2019	9:17 AM	CCVL	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.491
10/02/2019	9:21 AM	mdls	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.112
10/02/2019	9:23 AM	660-97463-A-5	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.331
10/02/2019	9:25 AM	660-97463-A-5 MS	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	2.433
10/02/2019	9:27 AM	660-97463-A-5 MSD	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	2.433
10/02/2019	9:30 AM	660-97463-A-1	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.030
10/02/2019	9:32 AM	660-97463-A-2	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.417
10/02/2019	9:35 AM	660-97463-A-3	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.331
10/02/2019	9:37 AM	660-97463-A-4	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.331
10/02/2019	9:41 AM	660-97463-A-7	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.540
10/02/2019	10:15 AM	ccv	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	5.358
10/02/2019	9:43 AM	660-97492-B-1	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.029
10/02/2019	9:46 AM	ccv	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	5.247
10/02/2019	9:49 AM	ccb	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.030
10/02/2019	9:51 AM	400-176914-A-2	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.714
10/02/2019	9:53 AM	400-176914-A-2-ms	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.781
10/02/2019	9:56 AM	400-176914-A-2-msd	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.781
10/02/2019	9:58 AM	660-97492-B-2	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.699

Copyright Hinterland Software Ltd.

Analyst Signature: _____

Run Number 9171 **Order Number** 20191002-3 N H2S04 -1.00000

RunDate	RunTime	SampleID	svol	pH	mL to 8.3	mL to 4.5	mL to 4.2	Total Alkalinity mg/L as CaCO3	Hydroxide Alkalinity mg/L as OH	Carbonate Alkalinity mg/L as CO3	BiCarbonate Alkalinity mg/L as HC03	palk as CACO3	FCO2	F-ppm
10/02/2019	10:00 AM	400-176914-A-1	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.670
10/02/2019	10:02 AM	400-176914-A-3	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	1.744
10/02/2019	10:05 AM	400-176914-A-4	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.657
10/02/2019	10:08 AM	400-176914-A-5	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.643
10/02/2019	10:10 AM	400-176914-A-6	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.424
10/02/2019	10:13 AM	400-176914-A-7	10.00	-1.00	-1.000	-1.000	-1.000	-1.00	-1.00	-1.00	-1.00	-1.00	0,000,000.(	0.028

Copyright Hinterland Software Ltd.

Analyst Signature: _____

Analysis: 340.2 Analysis Date: 10-2-19

Prep Batch: _____ Analytical Batch: 459681

Item for review	Analyst Yes	Analyst No	Analyst NA	Peer/Sup Yes	Peer/Sup No	Peer/Sup NA	Notes
Calibration:							
Appropriate support calibration verifications preformed AND current (thermometers, etc)	X						
Calibration Curve clearly documented							
Dates of Calibration are accurate							
Corr Coeff is 0.995 – 1.000							
ICV Recovery is within required limits							
ICB is < MDL							
Calibration Verification performed at correct frequency							
Initial and final pH Buffer Checks were performed and were within required limits	X						
Normality Check of Titration is clearly documented			X				
Titration Verification performed			X				
QC:							
Batch contains no greater than 20 samples	X						
Method Blank is < MDL	X						
If not:							
Detections in sample are at least 10 times detection in MB and qualified with 'V'			X				
The exceedances are addressed in NCM							NCM#:
Detections in sample are less than 10 times detection in MB							
Batch was re-analyzed (and passed)							
Batch was re-prepared (and passed), reported re-analysis							
NCM written with corrective actions taken for non-passing MB							NCM#:
Batch was re-prepared/re-analyzed outside of hold							
Reported: Original ☐ Outside of Hold ☐							
NCM written with corrective actions taken							NCM#:
LCS is within acceptance criteria							
If not, NCM written with corrective action taken							NCM#:
Batch contains a Duplicate							
Batch contains a Matrix Spike / Matrix Spike Duplicate							
An NCM was initiated for insufficient sample for MS/MSD							NCM#:
Non-prep method MS/MSD appropriately post-spiked (0.5-25 times target concentration of sample)							
Prep method MS/MSD appropriately spiked for the historical sample range							
MS/MSD within acceptance criteria							
If not:							
All project sample data qualified							
MS/MSD failure was reanalyzed							
Regularly-scheduled MS/MSD analyzed with re-analysis of failing MS/MSD							
Originally analyzed and re-analyzed MS/MSD reported							
NCM written with corrective actions taken							NCM#:
RDP & Recovery limits were added to NCM							
Failing recoveries and RPD were added to NCM							
If hold times were violated, NCM was written with future plan of prevention **and** PM was notified							NCM#:
CCB is < MDL							
CCV Recovery is within required limits							
ICP: QRI analyzed at or below QRL and within ±30%							
ICP: High Std. reanalyzed after calibration and within ±10%							
ICP: Internal Standards within acceptance criteria							
ICP: ICSA analyzed at required frequency and within limits (spiked analytes ±20%)							
ICP: Serial dilution performed							
ICP: Post digestion spike within required limits			X				

Data Documentation:							
The logbooks and raw data are documented correctly	X						
Batch information (date, time, weights, volumes, QC, initials...) entered correctly in TALS							
Prep log, run log, and raw data clearly indicate instrument, method by version, and analyst							
The sample data and QC are recorded in the order in which they were analyzed							
pH and chlorine for samples is checked and documented in TALS							
Data evaluated for anomalies							
Chromatographs are visually inspected							
Unusual analytical conditions have been documented							
All unused portions of the logbook page are z'd out and initialed							
All errors are crossed out with a single line, initialed, and dated							
All data was properly calculated							
All dilutions verified, and data properly calculated							
Data entered correctly in TALS							
Compare raw data to upload data transferred to TALS.							
Analysis and prep times accurately entered into TALS							
MDLs and Control Limits accurate							
Historical results reviewed							
All non-detects are below project-defined MDLs	X						
If not, NCM written with details for discrepancies	X		X				NCM#:
ICP: Were requested analytes and applicable IECs with concentrations >linear range diluted to < linear range			X				
Reporting limits raised where appropriate due to dilutions			X				NCM#:
All reported results bracketed by in control QC			X				
Final sample calculations, including percent recoveries and RPDs, correct	X		X				
Were manual calculations performed? If so, all manual calculations are verified			X				
An NCM was initiated where applicable	X						NCM#:
Spreadsheet:							
Compared to raw data prior to transfer to TALS (any discrepancies between the raw data and the spreadsheet must be corrected prior to this data transfer)	X						
The analyst/reviewer entered data after all errors have been corrected	X						
Additional Documentation:							
Run attached to batch and verified?	X						
Calibrations attached to batch and verified?	X						
Checklist attached to batch?	X						
Documentation attached to Standards & Reagents?	X						

Reviewed by Analyst:_____ Date:_____

Reviewed by Peer/Sup:_____ Date:_____

By signing "Reviewed by" I signify that I have evaluated the items indicated and I acknowledge responsibility for the above referenced data.

ICAL Batch 458823

Calibration results Aquakem 7.2.AQ2 Page: 1

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

9/26/2019 13:44

Test SULFATE

Accepted 9/26/2019 11:01

Resp. = A * Conc. ^ 2 + B * Conc. + C
A = 0
B = 0.008
C = -0.002

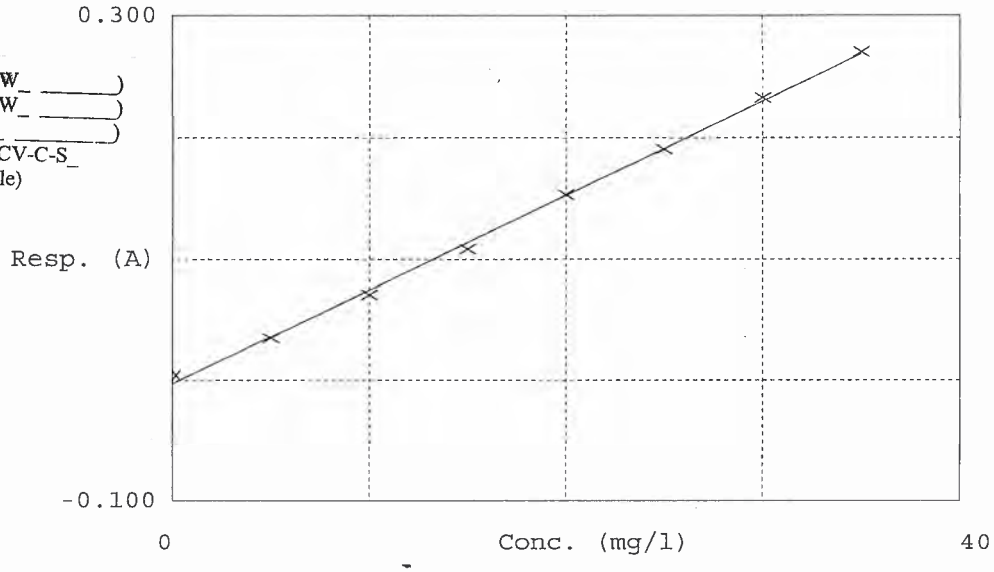
Coeff. of det. 0.998360

Errors

DATE	ICV	ICB	CCV-FIRST	CCV-LAST
9.28.19	97	ND	97	94
BATCH	LCS	MS%R	MSD%R	RPD
459205	95	98	91	0
		106	101	0

Correlation Coefficient must be ≥0.995 in order to pass

SO4 CCVH: TV=15ppm (SO4 -CCV-W_ _____)
SO4 CCVL: TV= 5ppm (SO4-CCVL-W_ _____)
SO4 ICV: TV= 15ppm (SO4 -ICV-W_ _____)
MS/MSD: TV= 10ppm (0.1mL SO4-CCV-C-S_ _____ spiked into 10mL of sample)



	Calibrator	Response	Calc. con.	Conc.	Errors
1	S0	0.004	0.86173	0.00000	
2	S1	0.035	4.83666	5.00000	
3	S2	0.071	9.48650	10.00000	
4	S3	0.108	14.28271	15.00000	
5	S4	0.153	20.06496	20.00000	
6	S5	0.191	24.91548	25.00000	
7	S6	0.233	30.35871	30.00000	
8	S7	0.270	35.19324	35.00000	
9	CCV-SO4 (control	0.107	14.10130	15.00000	
10	ICB-SO4 (control	0.005	0.91221	0.00000	
11	ICV-SO4 (control	0.105	13.80422	15.00000	

SO4: AQ LIMIT

ICV/LCS/CCV	90-110%
CCVL AT RL (5ppm)	50-150%
MS/MSD%R	70-128%
RPD	5
R.L.	5.0mg/L

SO4: NAq LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	59-146%
RPD	20
R.L.	100mg/kg

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

9/28/2019 22:54

Test: SULFATE

Sample Id	Result	Dil.	1 +	Response	Errors
CCV-SO4	14.5044	0.0		0.110	
CCB-SO4	1.0652	0.0		0.006	
MRL SO4	5.2732	0.0		0.038	
ICV SO4	14.5674	0.0		0.110	
ICB SO4	1.0706	0.0		0.006	
MB SO4	1.0444	0.0		0.006	
LCS SO4	14.2785	0.0		0.108	
400-176914-a-2	7.9600	0.0		0.059	
176914-A-2 MS	17.7858	0.0		0.135	
176914-A-2 MSD	17.7601	0.0		0.135	
CCV-SO4	14.6346	0.0		0.111	
CCB-SO4	1.0745	0.0		0.006	
400-176841-f-4	26.3021	0.0		0.201	Init abs.
400-176841-f-7	29.8893	0.0		0.229	
400-176841-f-8	23.4215	0.0		0.179	
400-176841-f-9	12.4447	0.0		0.094	
400-176841-f-10	18.4604	0.0		0.141	
400-176841-f-1	12.7567	0.0		0.096	
176841-F-1 MS	22.7695	0.0		0.174	
176841-F-1 MSD	22.8693	0.0		0.175	
CCV-SO4	14.4297	0.0		0.109	
CCB-SO4	1.0635	0.0		0.006	
400-176739-a-1	6.2193	0.0		0.046	
400-176739-a-2	6.2546	0.0		0.046	
400-176914-a-7	1.6915	0.0		0.011	
CCV-SO4	14.1529	0.0		0.107	
CCB-SO4	1.1238	0.0		0.006	
CCV-SO4	13.9505	0.0		0.106	
CCB-SO4	1.0550	0.0		0.006	
400-176841-f-2	71.5249	4.0		0.108	R Test limit high
400-176841-f-3	63.3415	4.0		0.096	R Test limit high
400-176841-f-5	32.3187	1.0		0.123	R
400-176841-f-6	38.8389	1.0		0.148	R Test limit high
CCV-SO4	14.1897	0.0		0.108	
CCB-SO4	1.0459	0.0		0.006	
400-177058-a-1	302.8287	19.0		0.115	R Test limit high
400-176914-a-1	314.8012	19.0		0.120	R Test limit high
CCV-SO4	13.9404	0.0		0.106	
CCB-SO4	1.0705	0.0		0.006	
CCV-SO4	14.0548	0.0		0.106	
CCB-SO4	1.0696	0.0		0.006	
CCV-SO4	13.9479	0.0		0.106	
CCB-SO4	1.0469	0.0		0.006	
400-176914-a-3	1545.2264	99.0		0.117	R Test limit high
400-176914-a-4	7913.1807	99.0		0.611	R Test limit high
400-176914-a-5	7584.5415	99.0		0.585	R Test limit high
400-176914-a-6	2194.0149	99.0		0.168	R Test limit high
CCV-SO4	14.0400	0.0		0.106	
CCB-SO4	1.1014	0.0		0.006	

9/28/2019 22:54

Test: SULFATE

Sample Id	Result	Dil. 1 +	Response	Ô„

N	29
Mean	700.8082
SD	2011.66089
CV%	287.05

Colorimetric Data Review Checklist

LIMS Batch Number:	**Filename:**	**Instrument ID (circle one):** Konelab M
Analyst/1st Reviewer:	**Method (circle):** 375.4 7196A 325.2 375.4 365.1	**QC Type (circle):** Standard
Matrix (circle): Drinking Water Non-potable Water Solid Leachate		**Circle One:** Total Soluble

Review Items	NA	Yes	No	2nd Rev	If No, why is data reportable?
A. Calibration/Instrument Run QC					
1. Number of Points: 1st order: 3 standards 2nd order: 6 standards					
2. Linearity and intercept: $r \geq 0.995$ |x-intercept| < RL or < ½ RL (special projects)					
3. ICV, second source: run before samples 90-110% recovery					
4. CCV: 10% frequency & closing 90-110% recovery					If no, list details:
5. Cadmium Column Efficiency Check (353.2 & 4500NO3-E): 85-115% NO2 recovery					If no, list details:
6. ICB/CCB: run before samples, 10% frequency, & closing Result < RL Result < ½ RL (DoD or special project)					If no, list details:
B. Client Sample and QC Sample Results					
7. Samples with results > linear range diluted and reanalyzed?					Comments:
8. On-instrument response of diluted sample is >10X MB on-instrument response					Comments:
C. Preparation/Matrix QC					
9. Method Blank: one per preparation batch Result < RL Result < ½ RL (DoD or special project) *If no, list blank ID & explain:*					□ No analyte > RL in associated samples □ Sample results >10x blank □ Insufficient sample for reanalysis
10. LCS: one per preparation batch 90-110% recovery *If no, list LCS ID & explain:*					□ Insufficient sample for reanalysis □ LCS %R > QC limits & samples < RL
11. MS/MSD or MS/Dup frequency: A pair per 10 samples (routine) A pair per batch (4500-x) Laboratory derived limits (routine) 90-110% recovery (drinking water) *If no, list QC ID & explain:*					□ Insufficient sample

Review Items	Yes	No	2nd Rev	If No, why is data reportable?
D Raw Data & TALS Data Entry				
12. Raw Data				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Out of control QC is clearly identified				
d. Any data that has a qualifier tick is commented on with appropriate action taken				
e. The first page of the run includes the filename, instrument, and analyst initials/signature				
13. Run Log				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Analyst initials/signature provided				
14. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct				
b. Method and matrix are correct				
c. Date and time match raw data				
d. Dilutions are correct				
e. Correct suffix designated (where applicable)				
15. TALS Worksheet Tab is complete and correct				
16. TALS Reagent Tab is complete and correct				
17. TALS QC Links Tab is correct				
18. TALS Sample Results Tab				
a. All unused data are marked Rejected or Accepted				
b. All reported analytes are marked Primary or Secondary				
19. TALS Batch Information Screen documentation is complete				
20. TALS Status set to appropriate review level				
E Final Report and NCMs (2nd level review only)				
21. Were all job/project requirements met?				
22. Results for samples and QC correct on final report?				
23. Are all necessary scanned documents in TALS?				
24. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?				

2nd Reviewer: _____ **Review Date:** _____

Comments: _____

ICAL Batch 458823

Calibration results Aquakem 7.2.AQ2 Page: 1

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

9/26/2019 13:44

Test SULFATE

1st Low RPEC 10.02.19

DATE	ICV	ICB	CCV-FIRST	CCV-LAST
10.02.19	96	ND	91	100
BATCH	LCS	MS%R	MSD%R	RPD
459675	101	-165	-160	0

Correlation Coefficient must be ≥0.995 in order to pass

MS/MSD in batch 459750

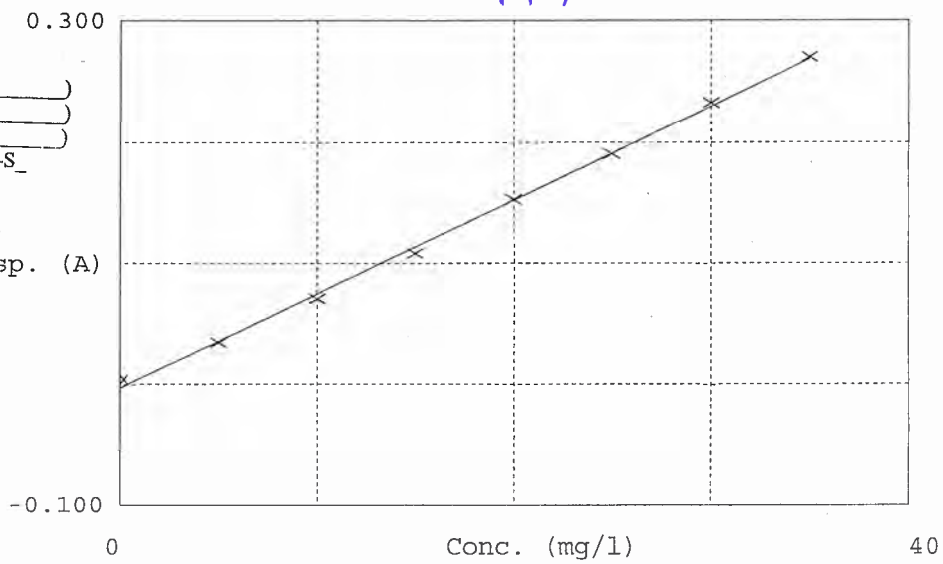
Accepted 9/26/2019 11:01

Resp. = A * Conc. ^ 2 + B * Conc. + C
A = 0
B = 0.008
C = -0.002

Coeff. of det. 0.998360

Errors

SO4 CCVH: TV=15ppm (SO4 -CCV-W_ _____)
SO4 CCVL: TV= 5ppm (SO4-CCVL-W_ _____)
SO4 ICV: TV= 15ppm (SO4 -ICV-W_ _____)
MS/MSD: TV= 10ppm (0.1mL SO4-CCV-C-S_ _____ spiked into 10mL of sample)



	Calibrator	Response	Calc. con.	Conc.	Errors
1	S0	0.004	0.86173	0.00000	
2	S1	0.035	4.83666	5.00000	
3	S2	0.071	9.48650	10.00000	
4	S3	0.108	14.28271	15.00000	
5	S4	0.153	20.06496	20.00000	
6	S5	0.191	24.91548	25.00000	
7	S6	0.233	30.35871	30.00000	
8	S7	0.270	35.19324	35.00000	
9	CCV-SO4 (control	0.107	14.10130	15.00000	
10	ICB-SO4 (control	0.005	0.91221	0.00000	
11	ICV-SO4 (control	0.105	13.80422	15.00000	

SO4: AQ LIMIT

ICV/LCS/CCV	90-110%
CCVL AT RL (5ppm)	50-150%
MS/MSD%R	70-128%
RPD	5
R.L.	5.0mg/L

SO4: NAq LIMIT

ICV/LCS/CCV	90-110%
MS/MSD%R	59-146%
RPD	20
R.L.	100mg/kg

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

10/2/2019 8:12

Test: SULFATE

X=Rejected RMC 10.07.19

Sample Id	Result	Dil. 1 +	Response	Errors
CCV-SO4	13.6689	0.0	0.103	
CCB-SO4	0.9124	0.0	0.005	
MRL SO4	4.7786	0.0	0.035	
ICV SO4	13.5441	0.0	0.102	
ICB SO4	0.9288	0.0	0.005	
MB SO4	0.8950	0.0	0.004	
X 00-177058-c-1	183.2673	0.0	1.418	Test limit high
X 177058-C-1 MS	179.8291	0.0	1.391	Test limit high
X 177058-C-1 MSD	177.6861	0.0	1.374	Test limit high
CCV-SO4	13.7423	0.0	0.104	
CCB-SO4	0.9418	0.0	0.005	
176914-A-4	8162.6460	29.0	0.208	Test limit high
176914-A-5	8539.2471	29.0	0.218	Test limit high
CCV-SO4	13.6225	0.0	0.103	
CCB-SO4	0.8805	0.0	0.004	
CCV-SO4	15.1329	0.0	0.115	
CCB-SO4	1.8740	0.0	0.012	
CCV-SO4	14.9655	0.0	0.114	
CCB-SO4	1.8223	0.0	0.012	
CCV-SO4	15.1543	0.0	0.115	
CCB-SO4	1.7919	0.0	0.011	
LCS SO4	15.1094	0.0	0.115	R
CCV-SO4	15.0306	0.0	0.114	
CCB-SO4	1.7759	0.0	0.011	

N	10
Mean	1727.7932
SD	3492.73486
CV%	202.15

TestAmerica Pensacola Konelab M
BB LS SH CM ST CC KR JH

10/2/2019 15:39

Test: SULFATE

Sample Id	Result	Dil. 1 +	Response	Errors
CCV-SO4	14.7096	0.0	0.112	
CCB-SO4	1.4778	0.0	0.009	
CCV-SO4	14.7991	0.0	0.112	
CCB-SO4	1.5526	0.0	0.010	
CCV-SO4	14.8968	0.0	0.113	
CCB-SO4	1.5982	0.0	0.010	
177058-C-1	331.8555	9.0	0.255	R Test limit high
177058-C-1 MS	315.3538	9.0	0.242	R Test limit high
177058-C-1 MSD	315.8459	9.0	0.242	R Test limit high
CCV-SO4	14.5906	0.0	0.111	
CCB-SO4	1.4315	0.0	0.009	

N	3
Mean	321.0184
SD	9.38841
CV%	2.92

Colorimetric Data Review Checklist

LIMS Batch Number:	**Filename:**	**Instrument ID (circle one):** Konelab M
Analyst/1st Reviewer:	**Method (circle):** 375.4 7196A 325.2 375.4 365.1	**QC Type (circle):** Standard
Matrix (circle): Drinking Water Non-potable Water Solid Leachate		**Circle One:** Total Soluble

Review Items	NA	Yes	No	2nd Rev	If No, why is data reportable?
A. Calibration/Instrument Run QC					
1. Number of Points: 1st order: 3 standards 2nd order: 6 standards					
2. Linearity and intercept: $r \geq 0.995$ |x-intercept| < RL or < ½ RL (special projects)					
3. ICV, second source: run before samples 90-110% recovery					
4. CCV: 10% frequency & closing 90-110% recovery					If no, list details:
5. Cadmium Column Efficiency Check (353.2 & 4500NO3-E): 85-115% NO2 recovery					If no, list details:
6. ICB/CCB: run before samples, 10% frequency, & closing Result < RL Result < ½ RL (DoD or special project)					If no, list details:
B. Client Sample and QC Sample Results					
7. Samples with results > linear range diluted and reanalyzed?					Comments:
8. On-instrument response of diluted sample is >10X MB on-instrument response					Comments:
C. Preparation/Matrix QC					
9. Method Blank: one per preparation batch Result < RL Result < ½ RL (DoD or special project) *If no, list blank ID & explain:*					□ No analyte > RL in associated samples □ Sample results >10x blank □ Insufficient sample for reanalysis
10. LCS: one per preparation batch 90-110% recovery *If no, list LCS ID & explain:*					□ Insufficient sample for reanalysis □ LCS %R > QC limits & samples < RL
11. MS/MSD or MS/Dup frequency: A pair per 10 samples (routine) A pair per batch (4500-x) Laboratory derived limits (routine) 90-110% recovery (drinking water) *If no, list QC ID & explain:*					□ Insufficient sample

Review Items	Yes	No	2nd Rev	If No, why is data reportable?
D. Raw Data & TALS Data Entry				
12. Raw Data				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Out of control QC is clearly identified				
d. Any data that has a qualifier tick is commented on with appropriate action taken				
e. The first page of the run includes the filename, instrument, and analyst initials/signature				
13. Run Log				
a. Unused data is clearly identified				
b. All crossed out data is initialed and dated				
c. Analyst initials/signature provided				
14. TALS Samples Tab				
a. LIMS Sample IDs / Containers are correct				
b. Method and matrix are correct				
c. Date and time match raw data				
d. Dilutions are correct				
e. Correct suffix designated (where applicable)				
15. TALS Worksheet Tab is complete and correct				
16. TALS Reagent Tab is complete and correct				
17. TALS QC Links Tab is correct				
18. TALS Sample Results Tab				
a. All unused data are marked Rejected or Accepted				
b. All reported analytes are marked Primary or Secondary				
19. TALS Batch Information Screen documentation is complete				
20. TALS Status set to appropriate review level				
E. Final Report and NCMs (2nd level review only)				
21. Were all job/project requirements met?				
22. Results for samples and QC correct on final report?				
23. Are all necessary scanned documents in TALS?				
24. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?				

2nd Reviewer: _____ **Review Date:** _____

Comments: _____

Shipping and Receiving Documents

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

400-176914 COC

eurofins

Client Information	Sampler: VICENTE PEREZ	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-87191-32598.1
Client Contact: Alberto Melendez	Phone: 787-209-6386	E-Mail: eric.lang@testamericainc.com		Page: Page 1 of 1
Company: DNA-Environment, LLC				Job #:
Address: 35 Calle Juan C Borbon Ste 67-227	Due Date Requested:			
City: Guaynabo	TAT Requested (days): 10 Days (Regular TAT)			
State, Zip: PR, 00969-5375				
Phone: 787-209-6386	PO #: 555			
Email: alberto.melendez@dnaenv.com	WO #:			
Project Name: CCR Groundwater Monitoring	Project #: 40008317			
Site: AES Puerto Rico LP, Guayama, PR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Radium-226 & Radium-228	SM4500_Cl_E-Chloride, Field pH, SM4500_SO4_E-Sulfate, 4500_F_C - Fluoride, SM2540C - TDS, SM2320B - Alkalinity	6020 - Total Metals (As, Ba, B, Ca, Co, Li, Mo, Se, Fe, Mg, Mn, K, Na)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
AES-MW1-092319	9/23/19	0910	G	Water	N		X	X	X	3	pH= 6.59
AES-MW2-092319	9/23/19	1035	G	Water	N		X	X	X	3	pH= 6.31
AES-MW2-092319 MS	9/23/19	1055	G	Water	N	Y	X	X	X	3	
AES-MW2-092319 MSD	9/23/19	1116	G	Water	N	Y	X	X	X	3	
AES-MW3-092319	9/23/19	1310	G	Water	N		X	X	X	3	pH= 6.54
AES-MW4-092319	9/23/19	1450	G	Water	N		X	X	X	3	pH= 6.58
AES-MW4-DUP-092319	9/23/19	1520	G	Water	N		X	X	X	3	
AES-MW5-092319	9/23/19	1710	G	Water	N		X	X	X	3	pH= 6.03
AES-FB-092319	9/23/19	1735	G	Water	N		X	X	X	3	
											NOTE: FIELD pH

Possible Hazard Identification
[X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ] Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify): LEVEL IV

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	9-24-2019/1130	DNA		9/25/19 852	TALGN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.2 C IR8 RADS 29.4 IR8

Eurofins TestAmerica, Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone: 850-474-1001 Fax: 850-478-2671

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-226347.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eric.lang@testamericainc.com	State of Origin: Puerto Rico	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Florida		Job #: 400-176914-1
Address: 2417 Bond Street, ,	Due Date Requested: 10/9/2019			
City: University Park 400-176914 COC	TAT Requested (days):			
State, Zip: IL, 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR GW Monitoring, AES Puerto Rico, LP	Project #: 40008317			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020/3005A (MOD) Priority Pollutants List metals w	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
AES-MW1-092319 (400-176914-1)	9/23/19	09:10 Atlantic		Water			X	1	
AES-MW2-092319 (400-176914-2)	9/23/19	10:35 Atlantic		Water			X	1	
AES-MW2-092319 (400-176914-2MS)	9/23/19	10:55 Atlantic	MS	Water			X	1	
AES-MW2-092319 (400-176914-2MSD)	9/23/19	11:16 Atlantic	MSD	Water			X	1	
AES-MW3-092319 (400-176914-3)	9/23/19	13:10 Atlantic		Water			X	1	
AES-MW4-092319 (400-176914-4)	9/23/19	14:50 Atlantic		Water			X	1	
AES-MW4-DUP-092319 (400-176914-5)	9/23/19	15:20 Atlantic		Water			X	1	
AES-MW5-092319 (400-176914-6)	9/23/19	17:10 Atlantic		Water			X	1	
AES-FB-092319 (400-176914-7)	9/23/19	17:35 Atlantic		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kathy R Ave	10-29-19 1630	ETA	[signature]	10/30/19 0930	TA-CHT

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.4-7/4

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-176914-1

Login Number: 176914
List Number: 1
Creator: Perez, Trina M

List Source: Eurofins TestAmerica, Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.2°C IR-8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-176914-1

Login Number: 176914
List Number: 3
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago
List Creation: 10/30/19 12:45 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.4 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Daliz Estades Santaliz

Licensed Chemist

To Whom It May Concern:

I, Daliz M. Estades Santaliz, in my capacity as Puerto Rico Certified Chemist, hereby certify the attached Analytical Results from CCR GW Monitoring AES-PR (Job ID:400-176914-2) Project and ID Numbers:

400-176914-1
400-176914-2
400-176914-3
400-176914-4
400-176914-5
400-176914-6
400-176914-7

ESTADO LIBRE ASOCIADO DE PUERTO RICO
Daliz Estades Santaliz
A 1939895

Lcda. Daliz M. Estades Santaliz

PO Box 727
Dorado, PR 00646-0727

ANALYTICAL REPORT

Job Number: 400-176914-2

Job Description: CCR GW Monitoring, AES Puerto Rico, LP

For:
DNA-Environment, LLC
35 Calle Juan C Borbon
Ste 67-227
Guaynabo, PR 00969-5375

Attention: Alberto Melendez



Approved for release.
Eric A. Lang
Manager of Project Management
1/10/2020 1:03 PM

Eric A. Lang, Manager of Project Management
2417 Bond Street, University Park, IL, 60484
(708)534-5200
eric.lang@testamericainc.com
01/10/2020

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Definitions/Glossary

Client: DNA-Environment, LLC Job ID: 400-176914-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job Narrative
400-176914-2

Comments
No additional comments.

Receipt
The samples were received on 9/25/2019 8:52 AM; the samples arrived in good condition and properly preserved.

RAD
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: AES-MW1-092319

Date Collected: 09/23/19 09:10
Date Received: 09/25/19 08:52

Lab Sample ID: 400-176914-1
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00313	U	0.0714	0.0714	1.00	0.140	pCi/L	09/30/19 07:20	10/23/19 16:23	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.7		40 - 110	09/30/19 07:20	10/23/19 16:23	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.447	U	0.303	0.306	1.00	0.471	pCi/L	09/30/19 12:15	10/15/19 16:51	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.7		40 - 110	09/30/19 12:15	10/15/19 16:51	1
Y Carrier	87.9		40 - 110	09/30/19 12:15	10/15/19 16:51	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.450	U	0.311	0.314	5.00	0.471	pCi/L		10/25/19 08:29	1

Client Sample ID: AES-MW2-092319

Date Collected: 09/23/19 10:35
Date Received: 09/25/19 08:52

Lab Sample ID: 400-176914-2
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0386	U	0.0776	0.0777	1.00	0.139	pCi/L	09/30/19 07:20	10/23/19 16:23	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	86.2		40 - 110	09/30/19 07:20	10/23/19 16:23	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.191	U	0.271	0.272	1.00	0.454	pCi/L	09/30/19 12:15	10/15/19 16:51	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	86.2		40 - 110	09/30/19 12:15	10/15/19 16:51	1
Y Carrier	86.7		40 - 110	09/30/19 12:15	10/15/19 16:51	1

Client Sample ID: AES-MW2-092319

Lab Sample ID: 400-176914-2
Matrix: Water

Date Collected: 09/23/19 10:35
Date Received: 09/25/19 08:52

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.230	U	0.282	0.283	5.00	0.454	pCi/L		10/25/19 08:29	1

Client Sample ID: AES-MW3-092319

Lab Sample ID: 400-176914-3
Matrix: Water

Date Collected: 09/23/19 13:10
Date Received: 09/25/19 08:52

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.101	U	0.0966	0.0971	1.00	0.153	pCi/L	09/30/19 07:20	10/23/19 16:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.3*		*40 - 110*	*09/30/19 07:20*	*10/23/19 16:23*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.124	U	0.261	0.261	1.00	0.482	pCi/L	09/30/19 12:15	10/15/19 16:52	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.3*		*40 - 110*	*09/30/19 12:15*	*10/15/19 16:52*	*1*
Y Carrier	*89.0*		*40 - 110*	*09/30/19 12:15*	*10/15/19 16:52*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0238	U	0.278	0.278	5.00	0.482	pCi/L		10/25/19 08:29	1

Client Sample ID: AES-MW4-092319

Lab Sample ID: 400-176914-4
Matrix: Water

Date Collected: 09/23/19 14:50
Date Received: 09/25/19 08:52

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00708	U	0.0744	0.0744	1.00	0.152	pCi/L	09/30/19 07:20	10/23/19 16:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.3*		*40 - 110*	*09/30/19 07:20*	*10/23/19 16:23*	*1*

Client Sample ID: AES-MW4-092319

Lab Sample ID: 400-176914-4
Matrix: Water

Date Collected: 09/23/19 14:50
Date Received: 09/25/19 08:52

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0400	U	0.281	0.281	1.00	0.508	pCi/L	09/30/19 12:15	10/15/19 16:52	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.3*		*40 - 110*	*09/30/19 12:15*	*10/15/19 16:52*	*1*
Y Carrier	*84.1*		*40 - 110*	*09/30/19 12:15*	*10/15/19 16:52*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0471	U	0.291	0.291	5.00	0.508	pCi/L		10/25/19 08:29	1

Client Sample ID: AES-MW4-DUP-092319

Lab Sample ID: 400-176914-5
Matrix: Water

Date Collected: 09/23/19 15:20
Date Received: 09/25/19 08:52

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0836	U	0.0977	0.0980	1.00	0.160	pCi/L	09/30/19 07:20	10/23/19 16:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.1*		*40 - 110*	*09/30/19 07:20*	*10/23/19 16:23*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0988	U	0.339	0.339	1.00	0.615	pCi/L	09/30/19 12:15	10/15/19 16:47	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.1*		*40 - 110*	*09/30/19 12:15*	*10/15/19 16:47*	*1*
Y Carrier	*82.6*		*40 - 110*	*09/30/19 12:15*	*10/15/19 16:47*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0153	U	0.353	0.353	5.00	0.615	pCi/L		10/25/19 08:29	1

Client Sample Results

Job ID: 400-176914-2

Client: DNA-Environment, LLC
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW5-092319

Lab Sample ID: 400-176914-6
Matrix: Water

Date Collected: 09/23/19 17:10
Date Received: 09/25/19 08:52

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00914	U	0.0737	0.0737	1.00	0.143	pCi/L	09/30/19 07:20	10/23/19 18:52	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.1		40 - 110	09/30/19 07:20	10/23/19 18:52	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.714		0.318	0.325	1.00	0.459	pCi/L	09/30/19 12:15	10/15/19 16:47	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	81.1		40 - 110	09/30/19 12:15	10/15/19 16:47	1
Y Carrier	92.3		40 - 110	09/30/19 12:15	10/15/19 16:47	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.723		0.326	0.333	5.00	0.459	pCi/L		10/25/19 08:29	1

Client Sample ID: AES-FB-092319

Lab Sample ID: 400-176914-7
Matrix: Water

Date Collected: 09/23/19 17:35
Date Received: 09/25/19 08:52

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0132	U	0.0795	0.0795	1.00	0.150	pCi/L	09/30/19 07:20	10/23/19 18:52	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.0		40 - 110	09/30/19 07:20	10/23/19 18:52	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.156	U	0.239	0.240	1.00	0.402	pCi/L	09/30/19 12:15	10/15/19 16:47	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.0		40 - 110	09/30/19 12:15	10/15/19 16:47	1
Y Carrier	90.8		40 - 110	09/30/19 12:15	10/15/19 16:47	1

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Dany M. Estades Santaliz
Lic. 4026
QUIMICO LICENCIADO

Client Sample Results

Job ID: 400-176914-2

Client: DNA-Environment, LLC
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-FB-092319
Date Collected: 09/23/19 17:35
Date Received: 09/25/19 08:52

Lab Sample ID: 400-176914-7
Matrix: Water

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.169	U	0.252	0.253	5.00	0.402	pCi/L		10/25/19 08:29	1



Tracer/Carrier Summary

Client: DNA-Environment, LLC
Job ID: 400-176914-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Method: 9315 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)
400-176914-1	AES-MW1-092319	84.7
400-176914-2	AES-MW2-092319	86.2
400-176914-2 MS	AES-MW2-092319	84.7
400-176914-2 MSD	AES-MW2-092319	86.7
400-176914-3	AES-MW3-092319	89.3
400-176914-4	AES-MW4-092319	83.3
400-176914-5	AES-MW4-DUP-092319	77.1
400-176914-6	AES-MW5-092319	81.1
400-176914-7	AES-FB-092319	91.0
LCS 160-444531/1-A	Lab Control Sample	74.3
MB 160-444531/18-A	Method Blank	74.9

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 9320 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits) Ba Carrier (40-110)	Y Carrier (40-110)
400-176914-1	AES-MW1-092319	84.7	87.9
400-176914-2	AES-MW2-092319	86.2	86.7
400-176914-2 MS	AES-MW2-092319	84.7	89.3
400-176914-2 MSD	AES-MW2-092319	86.7	82.2
400-176914-3	AES-MW3-092319	89.3	89.0
400-176914-4	AES-MW4-092319	83.3	84.1
400-176914-5	AES-MW4-DUP-092319	77.1	82.6
400-176914-6	AES-MW5-092319	81.1	92.3
400-176914-7	AES-FB-092319	91.0	90.8
LCS 160-444558/1-A	Lab Control Sample	74.3	86.7
MB 160-444558/18-A	Method Blank	74.9	88.6

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-444531/18-A
Matrix: Water
Analysis Batch: 447440

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 444531

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1233	U	0.107	0.107	1.00	0.163	pCi/L	09/30/19 07:20	10/23/19 18:53	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.9*		*40 - 110*	*09/30/19 07:20*	*10/23/19 18:53*	*1*

Lab Sample ID: LCS 160-444531/1-A
Matrix: Water
Analysis Batch: 447440

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 444531

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.4	9.370		1.03	1.00	0.154	pCi/L	83	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*74.3*		*40 - 110*

Lab Sample ID: 400-176914-2 MS
Matrix: Water
Analysis Batch: 447440

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA
Prep Batch: 444531

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	0.0386	U	11.3	9.430		1.02	1.00	0.136	pCi/L	83	75 - 138

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*84.7*		*40 - 110*

Lab Sample ID: 400-176914-2 MSD
Matrix: Water
Analysis Batch: 447440

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA
Prep Batch: 444531

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.0386	U	11.3	9.765		1.04	1.00	0.136	pCi/L	86	75 - 138	0.16	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*86.7*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-444558/18-A
Matrix: Water
Analysis Batch: 446357

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 444558

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1693	U	0.282	0.282	1.00	0.477	pCi/L	09/30/19 12:15	10/15/19 16:47	1

Method: 9320 - Radium-228 (GFPC) (Continued)

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	74.9		40 - 110	09/30/19 12:15	10/15/19 16:47	1
Y Carrier	88.6		40 - 110	09/30/19 12:15	10/15/19 16:47	1

Lab Sample ID: LCS 160-444558/1-A
Matrix: Water
Analysis Batch: 446271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 444558

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	9.49	11.22		1.36	1.00	0.633	pCi/L	118	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	74.3		40 - 110
Y Carrier	86.7		40 - 110

Lab Sample ID: 400-176914-2 MS
Matrix: Water
Analysis Batch: 446271

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA
Prep Batch: 444558

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	0.191	U	9.49	9.075		1.11	1.00	0.469	pCi/L	94	45 - 150

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	84.7		40 - 110
Y Carrier	89.3		40 - 110

Lab Sample ID: 400-176914-2 MSD
Matrix: Water
Analysis Batch: 446271

Client Sample ID: AES-MW2-092319
Prep Type: Total/NA
Prep Batch: 444558

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	0.191	U	9.49	10.61		1.26	1.00	0.496	pCi/L	110	45 - 150	0.65	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	86.7		40 - 110
Y Carrier	82.2		40 - 110

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Lic 4026

QC Association Summary

Client: DNA-Environment, LLC
Job ID: 400-176914-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Rad

Prep Batch: 444531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total/NA	Water	PrecSep-21	
400-176914-2	AES-MW2-092319	Total/NA	Water	PrecSep-21	
400-176914-3	AES-MW3-092319	Total/NA	Water	PrecSep-21	
400-176914-4	AES-MW4-092319	Total/NA	Water	PrecSep-21	
400-176914-5	AES-MW4-DUP-092319	Total/NA	Water	PrecSep-21	
400-176914-6	AES-MW5-092319	Total/NA	Water	PrecSep-21	
400-176914-7	AES-FB-092319	Total/NA	Water	PrecSep-21	
MB 160-444531/18-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-444531/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-176914-2 MS	AES-MW2-092319	Total/NA	Water	PrecSep-21	
400-176914-2 MSD	AES-MW2-092319	Total/NA	Water	PrecSep-21	

Prep Batch: 444558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-176914-1	AES-MW1-092319	Total/NA	Water	PrecSep_0	
400-176914-2	AES-MW2-092319	Total/NA	Water	PrecSep_0	
400-176914-3	AES-MW3-092319	Total/NA	Water	PrecSep_0	
400-176914-4	AES-MW4-092319	Total/NA	Water	PrecSep_0	
400-176914-5	AES-MW4-DUP-092319	Total/NA	Water	PrecSep_0	
400-176914-6	AES-MW5-092319	Total/NA	Water	PrecSep_0	
400-176914-7	AES-FB-092319	Total/NA	Water	PrecSep_0	
MB 160-444558/18-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-444558/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-176914-2 MS	AES-MW2-092319	Total/NA	Water	PrecSep_0	
400-176914-2 MSD	AES-MW2-092319	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: DNA-Environment, LLC
Job ID: 400-176914-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW1-092319
Lab Sample ID: 400-176914-1
Date Collected: 09/23/19 09:10
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			444531	09/30/19 07:20	EJQ	TAL SL
Total/NA	Analysis	9315		1	447440	10/23/19 16:23	SCB	TAL SL
Total/NA	Prep	PrecSep_0			444558	09/30/19 12:15	EJQ	TAL SL
Total/NA	Analysis	9320		1	446271	10/15/19 16:51	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	447648	10/25/19 08:29	SMP	TAL SL

Client Sample ID: AES-MW2-092319
Lab Sample ID: 400-176914-2
Date Collected: 09/23/19 10:35
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			444531	09/30/19 07:20	EJQ	TAL SL
Total/NA	Analysis	9315		1	447440	10/23/19 16:23	SCB	TAL SL
Total/NA	Prep	PrecSep_0			444558	09/30/19 12:15	EJQ	TAL SL
Total/NA	Analysis	9320		1	446271	10/15/19 16:51	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	447648	10/25/19 08:29	SMP	TAL SL

Client Sample ID: AES-MW3-092319
Lab Sample ID: 400-176914-3
Date Collected: 09/23/19 13:10
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			444531	09/30/19 07:20	EJQ	TAL SL
Total/NA	Analysis	9315		1	447440	10/23/19 16:23	SCB	TAL SL
Total/NA	Prep	PrecSep_0			444558	09/30/19 12:15	EJQ	TAL SL
Total/NA	Analysis	9320		1	446271	10/15/19 16:52	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	447648	10/25/19 08:29	SMP	TAL SL

Client Sample ID: AES-MW4-092319
Lab Sample ID: 400-176914-4
Date Collected: 09/23/19 14:50
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			444531	09/30/19 07:20	EJQ	TAL SL
Total/NA	Analysis	9315		1	447440	10/23/19 16:23	SCB	TAL SL
Total/NA	Prep	PrecSep_0			444558	09/30/19 12:15	EJQ	TAL SL
Total/NA	Analysis	9320		1	446271	10/15/19 16:52	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	447648	10/25/19 08:29	SMP	TAL SL

Lab Chronicle

Client: DNA-Environment, LLC
Job ID: 400-176914-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Client Sample ID: AES-MW4-DUP-092319
Lab Sample ID: 400-176914-5

Date Collected: 09/23/19 15:20
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			444531	09/30/19 07:20	EJQ	TAL SL
Total/NA	Analysis	9315		1	447440	10/23/19 16:23	SCB	TAL SL
Total/NA	Prep	PrecSep_0			444558	09/30/19 12:15	EJQ	TAL SL
Total/NA	Analysis	9320		1	446357	10/15/19 16:47	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	447648	10/25/19 08:29	SMP	TAL SL

Client Sample ID: AES-MW5-092319
Lab Sample ID: 400-176914-6

Date Collected: 09/23/19 17:10
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			444531	09/30/19 07:20	EJQ	TAL SL
Total/NA	Analysis	9315		1	447440	10/23/19 18:52	SCB	TAL SL
Total/NA	Prep	PrecSep_0			444558	09/30/19 12:15	EJQ	TAL SL
Total/NA	Analysis	9320		1	446357	10/15/19 16:47	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	447648	10/25/19 08:29	SMP	TAL SL

Client Sample ID: AES-FB-092319
Lab Sample ID: 400-176914-7

Date Collected: 09/23/19 17:35
Matrix: Water
Date Received: 09/25/19 08:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			444531	09/30/19 07:20	EJQ	TAL SL
Total/NA	Analysis	9315		1	447440	10/23/19 18:52	SCB	TAL SL
Total/NA	Prep	PrecSep_0			444558	09/30/19 12:15	EJQ	TAL SL
Total/NA	Analysis	9320		1	446357	10/15/19 16:47	JCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	447648	10/25/19 08:29	SMP	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: DNA-Environment, LLC Job ID: 400-176914-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Laboratory: Eurofins TestAmerica, Pensacola

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Florida	NELAP	E81010	06-30-20

Laboratory: Eurofins TestAmerica, St. Louis

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Florida	NELAP	E87689	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9315	PrecSep-21	Water	Radium-226
Ra226_Ra228		Water	Combined Radium 226 + 228

Method Summary

Client: DNA-Environment, LLC
Job ID: 400-176914-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: DNA-Environment, LLC
Job ID: 400-176914-2
Project/Site: CCR GW Monitoring, AES Puerto Rico, LP

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
400-176914-1	AES-MW1-092319	Water	09/23/19 09:10	09/25/19 08:52	
400-176914-2	AES-MW2-092319	Water	09/23/19 10:35	09/25/19 08:52	
400-176914-3	AES-MW3-092319	Water	09/23/19 13:10	09/25/19 08:52	
400-176914-4	AES-MW4-092319	Water	09/23/19 14:50	09/25/19 08:52	
400-176914-5	AES-MW4-DUP-092319	Water	09/23/19 15:20	09/25/19 08:52	
400-176914-6	AES-MW5-092319	Water	09/23/19 17:10	09/25/19 08:52	
400-176914-7	AES-FB-092319	Water	09/23/19 17:35	09/25/19 08:52	

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 400-176914-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
Ba Carrier_00045	12/18/19	CPI, Lot 10079154-4			(Purchased Reagent)		Ba Carrier	20000 ug/mL
Ra-226_00025	04/30/20	12/08/16	0.1M HCl, Lot N/A	100 mL	Ra-226_00024	4.9774 g	Ra	8409.79 dpm/mL
							Radium-226	8409.79 dpm/mL
							Rn-222	8409.79 dpm/mL
							Total Alpha Emitting Radium Isotopes	8409.79 dpm/mL
.Ra-226_00024	12/05/66	Eckert & Ziegler, Lot 104858			(Purchased Reagent)		Ra	2815.99 Bq/g
							Radium-226	2815.99 Bq/g
							Rn-222	2815.99 Bq/g
							Total Alpha Emitting Radium Isotopes	2815.99 Bq/g
Ra-226_00029	04/30/20	04/10/19	0.1M HCl, Lot N/A	1000 mL	Ra-226_00025	3 mL	Ra	25.2294 dpm/mL
							Radium-226	25.2294 dpm/mL
							Rn-222	25.2294 dpm/mL
							Total Alpha Emitting Radium Isotopes	25.2294 dpm/mL
.Ra-226_00025	04/30/20	12/08/16	0.1M HCl, Lot N/A	100 mL	Ra-226_00024	4.9774 g	Ra	8409.79 dpm/mL
							Radium-226	8409.79 dpm/mL
							Rn-222	8409.79 dpm/mL
							Total Alpha Emitting Radium Isotopes	8409.79 dpm/mL
..Ra-226_00024	12/05/66	Eckert & Ziegler, Lot 104858			(Purchased Reagent)		Ra	2815.99 Bq/g
							Radium-226	2815.99 Bq/g
							Rn-222	2815.99 Bq/g
							Total Alpha Emitting Radium Isotopes	2815.99 Bq/g
Ra-228_00037	07/11/20	06/06/19	0.1M HCl, Lot N/A	100 mL	Ra-228_00035	4.984 g	Radium-228	221.287 dpm/mL
.Ra-228_00035	07/11/20	Eckert & Ziegler, Lot D-K-19023-01-00			(Purchased Reagent)		Radium-228	73.999 Bq/g
Sr-90_00004	09/17/59	06/21/11	0.1M HCL, Lot 0	100 mL	Sr-90_00001	5.0139 g	Gross Beta	45120.6 dpm/mL
							Sr	22560.3 dpm/mL
							Sr-90	22560.3 dpm/mL
.Sr-90_00001	09/17/59	Eckert & Ziegler, Lot 80573-334			(Purchased Reagent)		Gross Beta	14998.5 Bq/g
							Sr	7499.25 Bq/g
							Sr-90	7499.25 Bq/g

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 400-176914-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
Sr-90_00018	04/19/20	11/28/12	0.1M HCL, Lot 0	100 mL	Sr-90_00017	4.9997 g	Gross Beta	44774.2 dpm/mL
							Sr-90	22387.1 dpm/mL
.Sr-90_00017	11/29/62	Analytics, Lot 92352			(Purchased Reagent)		Gross Beta	14925.6 Bq/g
							Sr-90	7462.82 Bq/g
Th-230_00016	11/29/62	11/28/12	0.5M HNO3, Lot 0	100 mL	Th-230_00015	5.0489 g	Gross Alpha	2374.49 dpm/mL
							Th-230	2374.49 dpm/mL
.Th-230_00015	11/29/62	Analytics, Lot 92523			(Purchased Reagent)		Gross Alpha	783.829 Bq/g
							Th-230	783.829 Bq/g
Th-230_00019	10/03/20	08/13/13	1M HNO3, Lot n/a	100 mL	Th-230_00018	5.0731 mL	Gross Alpha	2228.23 dpm/mL
							Th-230	2228.23 dpm/mL
.Th-230_00018	08/08/63	Eckert & Ziegler Analytics, Lot 92776			(Purchased Reagent)		Gross Alpha	43922.5 dpm/g
							Th-230	43922.5 dpm/g
Y Carrier_00038	07/29/20	CPI, Lot 10064660-8			(Purchased Reagent)		Y Carrier	50000 mg/L

Reagent

Ba Carrier_00045

1643431
ID: Ba Carrier_00046
Exp:12/18/19 Prpd:CLP Opn:12/18/18
Barium Carrier

REPORT OF ANALYSIS

Single-Element Aqueous RM

Custom Barium Standard

Matrix: 2% HNO_3

Product #: 4400-132859

Lot #: 10079154-5

Element	Certified Concentration
Ba	20,000 µg/mL

Intended Use: This solution is intended for use as a reference material (RM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This RM was manufactured, processed, and/or certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO Guide 34**, and **ISO/IEC 17025**. This RM was prepared to a nominal concentration of 20,000 µg/mL by gravimetric methods using single-element concentrate dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this RM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration was determined based upon gravimetric procedures. Secondary verification of the certified concentration was performed using ICP-OES and is traceable to **NIST SRM 3104a**. The uncertainty associated with the certified concentration is ±0.5% relative, which is the sum of the estimated errors due to the purity of the raw materials, the gravimetric preparation of the solution, and transpiration through the container. This represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the RM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original RM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

December 4, 2018
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Standardization of Carrier

Ba Carrier_00045

Carrier Reagent ID: _____
ID from TALS or lot number

#	Tare Wght (g)	Gross Wght (g)	Net Wght (g)	Z Score
1	8.6367	8.6725	**0.0358**	**0.8216**
2	8.6119	8.6477	**0.0358**	**0.8216**
3	8.6016	8.6370	**0.0354**	**0.0357**
4	8.6506	8.6852	**0.0346**	**1.7504**
5	8.6583	8.6935	**0.0352**	**0.4644**
6	8.7082	8.7439	**0.0357**	**0.6073**

Average: 0.0354 Standardized value
StDev: 0.0005
StDev %: 1.32%

Record the Reagent IDs of all chemicals used to create this carrier in the spaces below.

Reagent ID: _____
Reagent ID: _____
Reagent ID: _____
Reagent ID: _____
Reagent ID: _____
Reagent ID: _____
Reagent ID: _____

SOP Reference: ST-RC-0040 Mod (Direct precipitation)
SOP reference containing prep procedure must be documented

Minimum Criteria:

- Z Score must be within 3 sigma (**2.58**) and no more than one score outside of 2 sigma (**1.96**)
- 4 points required
- Any criteria stipulated in the above referenced SOP must be satisfied in addition.

Carrier: Ba Carrier_00045 ***Standardized Value:*** 0.0354 Carrier Reagent or Lot ID: ***ID Required for Approval***

Approved By: *TJ Romanko* Date Approved: ***5/3/2019***

Rad Worksheet

Batch Number: 160-426501
Method: PrecSep_0
Analyst: Romanko, Terry J

Date Open: May 02 2019 1:24PM
Batch End: May 03 2019 9:39AM

Lab ID	Client ID	Method Chain	Basis	Initial weight/volume of sample	Tare Weight of Barium Planchette	Gross Weight of Barium Planchette	Barium Mass Added	Ingrowth/Decay Date1	Native Ba Mass
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL	8.6367 g	8.6725 g	0.0354 g	5/2/2019 13:00	0 g
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL	8.6119 g	8.6477 g	0.0354 g	5/2/2019 13:00	0 g
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL	8.6016 g	8.6370 g	0.0354 g	5/2/2019 13:00	0 g
MB~160-426501/4				1 mL	8.6506 g	8.6852 g	0.0354 g		0 g
MB~160-426501/5				1 mL	8.6583 g	8.6935 g	0.0354 g		0 g
MB~160-426501/6				1 mL	8.7082 g	8.7439 g	0.0354 g		0 g



Rad Worksheet

Batch Number: 160-426501
Method: PrecSep_0
Analyst: Romanko, Terry J

Date Open: May 02 2019 1:24PM
Batch End: May 03 2019 9:39AM

Lab ID	Client ID	Method Chain	Basis	Ra-226_00029
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	1 mL
MB~160-426501/4				
MB~160-426501/5				
MB~160-426501/6				

Balance ID: 0034150037
Analyst ID - Reagent Drop: TJR
Analyst ID - Reagent Drop Witness: NA
Palette ID: RAD112
SOP Number: ST-RC-0040 Mod

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Rad Worksheet

Batch Number: 160-426501
Method: PrecSep_0
Analyst: Romanko, Terry J

Date Open: May 02 2019 1:24PM
Batch End: May 03 2019 9:39AM

Comments

Lab ID	Client ID	Method Chain	Basis	Analysis comment
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	H2SO4_00118
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	H2SO4_00118
160-33859-A-1	Ra-226_00029	PrecSep_0, 903.0_TAR	T	H2SO4_00118
MB~160-426501/4				
MB~160-426501/5				
MB~160-426501/6				

Batch Comment: Direct H2SO4 precip

PrecSep_0 Prep Worksheet

(Used for Collecting Prep Info)

Batch Number: 160-426501 Analyst: Romanko, Terry J Batch Open: 5/2/2019 1:24:00PM

Batch End: 5/3/2019 9:39:39AM

Preparation, Precipitate Separation

	Input Sample Lab ID	Input Sample Lab ID (Analytical Method)	SDG	Matrix	Initial Amount	Final Amount	Due Date	Analytical TAT	Dlv Rank	Comments
1		160-33859-A-1 (903.0_TAR)	N/A	Water	1 mL		5/21/19	18_Days	N/A	H2SO4_00118
2		160-33859-A-1 (903.0_TAR)	N/A	Water	1 mL		5/21/19	18_Days	N/A	H2SO4_00118
3		160-33859-A-1 (903.0_TAR)	N/A	Water	1 mL		5/21/19	18_Days	N/A	H2SO4_00118
4		MB~160-426501/4 N/A	N/A		1 mL		N/A	N/A	N/A	
		MB~160-426501/5 N/A	N/A		1 mL		N/A	N/A	N/A	
		MB~160-426501/6 N/A	N/A		1 mL		N/A	N/A	N/A	TPR 4/3/19

PrecSep_0 Prep Worksheet

(Used for Collecting Prep Info)

Batch Number: 160-426501 Analyst: Romanko, Terry J Batch Open: 5/2/2019 1:24:00PM

Batch End: 5/3/2019 9:39:39AM

Batch Notes

Manually Enter Results? (0=NO, 1=YES)	Yes
EiChrom Used (Y/N)?	N
Radium Batch (Y/N)?	Y
Balance ID	0034150037
Analyst ID - Reagent Drop	TJR
Analyst ID - Reagent Drop Witness	NA
Pipette ID	RAD112
SOP Number	ST-RC-0040 Mod
Carrier ID for Barium	Ba Carrier_00045
Strontium Carrier ID	
Yttrium Carrier ID	
Batch Comment	Direct H2SO4 precip

Comments

PrecSep_0 Prep Worksheet

(Used for Collecting Prep Info)

Batch Number: 160-426501 Analyst: Romanko, Terry J Batch Open: 5/2/2019 1:24:00PM

Batch End: 5/3/2019 9:39:39AM

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			
MB 160-426501/4	Ba Carrier_00045	1 mL			
MB 160-426501/5	Ba Carrier_00045	1 mL			
MB 160-426501/6	Ba Carrier_00045	1 mL			

PrecSep_0 Prep Worksheet

(Used for Collecting Prep Info)

Batch Number: 160-426501 Analyst: Romanko, Terry J Batch Open: 5/2/2019 1:24:00PM

Batch End: 5/3/2019 9:39:39AM

Other Reagents:

Reagent	Amount/Units	Lot#:

Reagent

Ra-226_00024

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404 352 8677
Fax 404 352 2837
www.ezag.com

CERTIFICATE OF CALIBRATION
Standard Reference Source

SRS Number: 104858
Source Description: 5 mL Liquid in Flame Sealed Vial
Product Code: 8226
Customer: TestAmerica St. Louis
P.O. Number: 2665998, Item 1

This standard radionuclide source was prepared gravimetrically from a master solution calibrated by Eckert & Ziegler Analytics (EZA) using a germanium gamma-ray spectrometer system. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. EZA maintains traceability to the National Institute of Standards and Technology (NIST) through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST."

Reference Date: 05-December-2016 12:00 PM EST

Isotope	Half-Life, d	Activity, Bq	Uncertainty u_A, %	Uncertainty u_B, %	Uncertainty U, %*	Calibration Method**
Ra-226	5.844E+05	1.408E+04	1.0	2.1	4.7	HPGe

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results." ****Calibration Methods:** 4π LS - 4π Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber.

(Certificate continued on reverse side)

SRS Number: 104858

Comments:
5.00002 g 0.1 M HCl solution with approximately 30 µg/g Ba carrier.

Impurities:
γ-impurities (other than decay products) < 0.1%

This source was wipe tested in its inactive areas with leak test results < 185 Bq (5 nCi) of removable activity per ISO 9978:1992.

Source Prepared by: _____
Z. Dimitrova, Radiochemist

QC Approved by: _____ Date: 05-Dec-16
J. Lahr, Spectroscopist

Reagent

Ra-226_00025

SRS Number: 104858

Comments:

5.00002 g 0.1 M HCl solution with approximately 30 µg/g Ba carrier.

Impurities:

γ-impurities (other than decay products) < 0.1%

This source was wipe tested in its inactive areas with leak test results < 185 Bq (5 nCi) of removable activity per ISO 9978:1992.

Source Prepared by: _____

Z. Dimitrova, Radiochemist

QC Approved by: _____ Date: 05-DEC-16

J. Lahr, Spectroscopist

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404-352-8677
Fax 404-352-2837
www.ezag.com

CERTIFICATE OF CALIBRATION
Standard Reference Source

SRS Number: 104858
Source Description: 5 mL Liquid in Flame Sealed Vial
Product Code: 8226
Customer: TestAmerica St. Louis
P.O. Number: 2665998, Item 1

This standard radionuclide source was prepared gravimetrically from a master solution calibrated by Eckert & Ziegler Analytics (EZA) using a germanium gamma-ray spectrometer system. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. EZA maintains traceability to the National Institute of Standards and Technology (NIST) through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST."

Reference Date: 05-December-2016 12:00 PM EST

Isotope	Half-Life, d	Activity, Bq	Uncertainty u_A, %	Uncertainty u_B, %	Uncertainty U, %*	Calibration Method**
Ra-226	5.844E+05	1.408E+04	1.0	2.1	4.7	HPGe

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results." ****Calibration Methods:** 4π LS - 4π Liquid Scintillation Counting, HPGe - High Purity Germanium Gamma-Ray Spectrometer, IC - Ionization Chamber.

(Certificate continued on reverse side)

Reagent

Ra-226_00029

Standard ID Number: Ra-226_00029
True Value = 11353 pCi/L or g
Date Analyzed: 4/30/2019

Radionuclide: Ra-226

	Replicates	
#1	10640	pCi/L or g
#2	11650	pCi/L or g
#3	11150	pCi/L or g

Mean = 11146.667

1 sigma = 505.00825 1.96 sigma = 989.8162

True Value minus 5% = 10785.35 (True Value - 5%)
True Value plus 5% = 11920.65 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DoD/DOE Consolidated QSM and LANL Statements of Work

1st Reviewed By/Date: TJR 5/3/2019

2nd Reviewed By/Date: gw 5/3/19

Decay Calculations

Raw Sample/Standard Information

Initial Date/Time (t_0):	12/5/2016 0:00		
Decayto Date/Time (t):	4/30/19 0:00		
Initial Activity (A_0):	25.23 dpm		
Initial Aliquot:	1 mL		
Initial Conc:	25.229 dpm/mL		
***Soln. Density:**	1 g/mL		
Nuclide:	Ra-226		
Half-Life (days):	584400	decay days	fraction
****Decay Factor:**	0.9990	876.00	0.00150
Decay Corr Activity:	2.5203E+01 dpm		
Decay Corr Conc:	2.5203E+01 dpm/mL		

Conversion/Calculations

Final Activity Unit:	pCi
Activity Unit Factor:	0.45045
Final Volume Unit:	L
Volume Unit Factor:	0.001
Final Concentration:	1.1353E+04 pCi/L
Aliquot Volume:	1.0000E+00 L
Final Activity (A):	1.1353E+04 pCi

** Uses basic decay equation: $A = A_0 * \exp(-\ln(2)*(t-t_0)/(\text{half-life})$

* Soln. Density to be used when converting from liquid expressed in mass (g) units to liquid units (mL), and is only applied in that case.

eurofins Environment Testing TestAmerica

Analysis Report for Total Alpha-Emitting Radium

Batch: 425512 **Operator:**

SampID	WRKNO	Aliquot	Ba Mass	Ba Yield	Trunc Yield	Ingrowth	Ba Precip Time	InstrID	Eff	Cal Type	Cnt Date Time	Sigma
Analyte	Ts	Tb	Cs	Cb	CPMs	CPMb	Activity	UncCount	UncTotal	MDA	DLC	MQO	
160-33859-A-1-A	160-33859-A-1-	1.0000mL		0.0295	83.33%	False	1.4639	4/29/19 16:30	Orange9	0.1986	2	4/30/19 13:54	1.00
Total Alpha	100.00	1000.00	578	56	5.78	0.06	**1.064E+004**pCi/L	4.472E+002	6.552E+002	2.076E+002	7.590E+001	655.1927	
160-33859-A-1-B	160-33859-A-1-	1.0000mL		0.0225	63.56%	False	1.4639	4/29/19 16:30	Orange11	0.2097	2	4/30/19 13:54	1.00
Total Alpha	100.00	1000.00	515	104	5.15	0.10	**1.165E+004**pCi/L	5.245E+002	7.416E+002	3.262E+002	1.285E+002	741.6337	
160-33859-A-1-C	160-33859-A-1-	1.0000mL		0.0301	85.03%	False	1.4640	4/29/19 16:30	Orange12	0.1964	2	4/30/19 13:54	1.00
Total Alpha	100.00	1000.00	614	85	6.14	0.09	**1.115E+004**pCi/L	4.568E+002	6.787E+002	2.406E+002	9.267E+001	678.7122	

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

SampID	SampDupID	Analyte	Activity	DupActivity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	WRKNO	Analyte	Activity	MSActivity	StdAdded	Recovery	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-425512

Analyst: Mazariegos, Chelsea M

Batch Open: 4/25/2019 11:21:00AM

Batch End:

Preparation, Precipitate Separation

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	Matrix	Initial Amount	Final Amount	Due Date	Analytical TAT	Dlv Rank	Comments Orange	Output Sample Lab ID
1	160-33859-A-1 (903.0_TAR)	N/A (160-33859-1)	Water	1 mL		5/21/19	18_Days	2	9	160-33859-A-1-A
2	160-33859-A-1 (903.0_TAR)	N/A (160-33859-1)	Water	1 mL		5/21/19	18_Days	2	11	160-33859-A-1-B
3	160-33859-A-1 (903.0_TAR)	N/A (160-33859-1)	Water	1 mL		5/21/19	18_Days	2	12	160-33859-A-1-C

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-425512 Analyst: Mazariegos, Chelsea M Batch Open: 4/25/2019 11:21:00AM

Batch End:

Total Alpha Radium (GFPC)

	Input Sample Lab ID (Analytical Method)	(Sub-List)	Analytes
1	160-33859-A-1 (903.0_TAR)	(Standard Target List)	Ba, Total Alpha Emitting Radium Isotopes
2	160-33859-A-1 (903.0_TAR)	(Standard Target List)	Ba, Total Alpha Emitting Radium Isotopes
3	160-33859-A-1 (903.0_TAR)	(Standard Target List)	Ba, Total Alpha Emitting Radium Isotopes

Analytes that are not being reported with be displayed in [...] brackets. Analytes that are not being reported but are on the spike list with be displayed in (...) parentheses.

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-425512 Analyst: Mazariegos, Chelsea M Batch Open: 4/25/2019 11:21:00AM

Batch End:

Batch Notes

Manually Enter Results? (0=NO, 1=YES)	No
EiChrom Used (Y/N)?	N
Radium Batch (Y/N)?	Y
Balance ID	1122021820, 1125330898
Analyst ID - Reagent Drop	HET per LMA
Analyst ID - Reagent Drop Witness	LMA
Pipette ID	Rad 112, Rad 038
SOP Number	ST-RC-0002, ST-RC-0040
Carrier ID for Barium	Ba
Strontium Carrier ID	
Yttrium Carrier ID	
Batch Comment	In- CPR, OUT-PMS

Comments

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-425512 Analyst: Mazariegos, Chelsea M Batch Open: 4/25/2019 11:21:00AM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			
160-33859-A-1	Ba Carrier_00045	1 mL			
160-33859-A-1	Ra-226_00029	1 mL			

Other Reagents:

Reagent	Amount/Units	Lot#:

CHECKLIST FOR TOTAL ALPHA RADIUM – LIQUIDS & SOLIDS

BATCH NUMBER
(TAR) 425512

# SAMPS	# LCS
9	3

DUE DATE
ASAP

REAGENTS	CHECK	INITIALS	VERIFIED BY	DATE OF SPIKES
A. METHYL ORANGE INDICATOR	✓			
B. ADD HNO3 to MB/LCS/LCSD	✓			
C. BARIUM STD CARRIER 1.0 mL	✓	HET	N/A	4/26/2019
D. SPIKE LCS x3	✓	HET	N/A	
E. ~~SPIKE MS~~			mm 4/25/19	
F. 1M CITRIC ACID 5.0 mL/L	✓			
G. 15 mg/mL LEAD CARRIER 2.5 mL	✓			
MIX THEN HEAT	✓			
H. 15N AMMONIUM HYDROXIDE	✓			
I. 18N SULFURIC ACID, 10.0 mL	✓			
J. AMMONIUM SULFATE 5.0 mL	✓			
LEAD CLEANUP	✓			

Ra-226_00029 verification

	TIME (T)	DATE
T 1	12:26	04/29/2019
T 3	16:30	04/29/2019

	BARIUM CARRIER TRACER	RADIUM-226 SPIKE
STANDARD SOLUTION NUMBER	Ba Carrier_00045	Ra-226_00028
VOLUME (mL)	1.0	1.0
REF. ACTIVITY / CONCENTRATION	0.0339 g	25.229 dpm/mL
ACTIVITY REFERENCE DATE	N/A	12/05/2016

RE-EXTRACT ?	YES / (NO)
NCM NUMBER (IF APPLICABLE)	

K. LEAD CARRIER 1.5 mg/ml 1.0 mL	CPR

Batch Reagent/Chemical IDs

Batch number: 425572 Radium Waters

Date: _____

Analyst: _____

Reagent IDs used:

01	Concentrated Nitric Acid	1502038, 1714321
02	Methyl Orange Indicator	1701455
03	Citric Acid	1713835
04	15 mg/mL Lead Carrier	1704868
05	~~10 mg/mL Strontium Carrier~~	~~1707215~~ CPR 4/29/19
06	~~9 mg/mL Yttrium Carrier~~	~~1715459~~ CPR 4/29/19
07	15N Ammonium Hydroxide	1709964
08	18N Sulfuric Acid	1708031
09	200 mg/mL Ammonium sulfate	1708030, 1710775
10	~~Strontium/Yttrium Mixed Carrier~~	~~1711121~~ CPR 4/29/19
11	EDTA	1694178
12	17.4N Glacial Acetic Acid	1710760
13	Ammonium Sulfide	1702595
14	10N Sodium Hydroxide	1714294
15	1.5 mg/mL Lead Carrier	1622245
16	~~Sodium Hydroxide Pellets (18N NaOH)~~	PMS 04/29/19
17	6N Nitric Acid	
18	2N Nitric Acid	
19	5% Ammonium Oxalate	
20	~~pH strip lot~~	
21	syringr filter lot	16919151
22	centrifuge tube lot	35018162

Reagent

Ra-228_00035

#2

Eckert & Ziegler Analytics, Inc.
1380 Seaboard Industrial Blvd.
Atlanta, GA 30318, USA
Tel 1-404-352-8677
Fax 1-404-352-2837

Eckert & Ziegler
Analytics

akkreditiert durch die / *accredited by the*

Deutsche Akkreditierungsstelle GmbH

DAkkS
Deutsche Akkreditierungsstelle
D-K-19023-01-00

als Kalibrierlaboratorium im / *as calibration laboratory in the*

Deutschen Kalibrierdienst DKD

Kalibrierschein
Calibration certificate

Kalibrierzeichen
Calibration mark

000891
D-K-19023-01-00
2019-05

Gegenstand *Object*	**5 mL Liquid in Flame Sealed Ampoule**
Hersteller *Manufacturer*	**Eckert & Ziegler Analytics, Inc.**
Typ *Type*	**8328-5FSA-370BQ-D**
Fabrikat/Serien-Nr. *Serial number*	**112495**
Auftraggeber *Customer*	**TestAmerica Laboratories - St. Louis**
Auftragsnummer *Order No.*	**42950**
Anzahl der Seiten des Kalibrierscheines *Number of pages of the certificate*	**2**
Datum der Kalibrierung *Date of calibration*	**20-May-2019 1200 EST (1700 UTC)**

Dieser Kalibrierschein dokumentiert die Rückführung auf nationale Normale zur Darstellung der Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI).
Die DAkkS ist Unterzeichner der multilateralen Übereinkommen der European co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine.
Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.
This calibration certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI).
The DAkkS is signatory to the multilateral agreements of the European co-operation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates.
The user is obliged to have the object recalibrated at appropriate intervals.

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung sowohl der Deutschen Akkreditierungsstelle GmbH als auch des ausstellenden Kalibrierlaboratoriums. Kalibrierscheine ohne Unterschrift haben keine Gültigkeit.

This calibration certificate may not be reproduced other than in full except with the permission of both the Deutsche Akkreditierungsstelle GmbH and the issuing laboratory. Calibration certificates without signature are not valid.

Datum *Date*	Stellv. Leiter des Kalibrierlaboratoriums *Deputy Head of the calibration laboratory*	Bearbeiter *Person in charge*
16-May-19	Jeffrey Lahr	Anthony Chirillo

000891
D-K-19023-01-00
2019-05

- **Customer Purchase Order No.:**
  3033290, Item 1

- **Calibration Results:**

Nuclide	Half-Life, d	Activity, Bq	Uncertainty, %	Calibration Method
Ra-228	2.100E+03	3.706E+02	4.9	HPGe

- **Calibration Method(s):**
  This standard radionuclide source was prepared gravimetrically from a master solution calibrated by Eckert & Ziegler Analytics using a germanium gamma-ray spectrometer system (HPGe).

- **Uncertainty:**
  The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor $k = 2$. It has been determined in accordance with DAkkS-DKD-3. The value of the measurand lies within the assigned range of values with a probability of approximately 95%. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

- **Traceability:**
  Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST."

- **Impurities:**
  γ-impurities (other than decay products) < 0.1 %

- **Expiration Date:**
  No expiration date has been given for this source.

- **Wipe Test:**
  This source was wipe tested in its inactive areas with leak test results < 185 Bq (5 nCi) of removable activity per ISO 9978:1992.

- **Additional Information:**
  - 5.00817 g of 0.1 M HCl solution with approximately 30 µg/g Ba carrier.
  - Separation date: 01-March-2018
  - Date of Calibration corresponds to Reference Date for this source.
  - Expiration Date refers to useful life of this source.

End of Certificate

Reagent

Ra-228_00037

Standard ID Number: Ra-228_00037
True Value = 97982 DPM/L
Date Analyzed: 7/11/2019

Radionuclide: Ra-228

	Replicates	
#1	96390	pCi/L or g
#2	98490	pCi/L or g
#3	91950	pCi/L or g

Mean = 95610

1 sigma = 3339.04178

1.96 sigma = 6544.522

True Value minus 5% = 93082.9 (True Value - 5%)
True Value plus 5% = 102881.1 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? Yes **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? Yes **(Acceptance Criteria)**

Standard Reverification Acceptable? Yes

Note: Criteria for reverification of radiological standards is taken from the DoD/DOE Consolidated QSM and LANL Statements of Work

1st Reviewed By/Date: Jody Watson ~~11/7/19~~ cmm 9/17/19 date swap 7/11/19

2nd Reviewed By/Date: cmm 09/17/19

eurofins Environment Testing TestAmerica

Analysis Report for Radium 228

Batch: 434091 **Operator:**

SampID / Analyte	WRKNO	Aliquot / SampCntD	TruncYields: BkgCntDur / SampCnt	BaYield / BkgCnt	YYield / Activity	InstrID	Eff / UncCount	Y Ingrowth Time / UncTotal	Y Precip Time / MDA	DLC	CountDateTime / MQO	Sigma	CalType
160-34818-A-1-A	160-34818-A-1-A	0.1000mL	False	99.15%	73.64%	Orange0	0.4495	7/9/19 11:56	7/11/19 10:10		7/11/19 12:48	1.00	1
Ra-228		200.00	1000.00 903	424	9.121E+004 pCi/L		3.381E+003	5.389E+003	4.034E+003	1.850E+003	5388.6219		
160-34818-A-1-B	160-34818-A-1-B	0.1000mL	False	104.52%	84.86%	Orange1	0.4386	7/9/19 11:56	7/11/19 10:10		7/11/19 12:48	1.00	1
Ra-228		200.00	1000.00 981	338	8.594E+004 pCi/L		2.967E+003	4.943E+003	3.070E+003	1.394E+003	4942.6783		
160-34818-A-1-C	160-34818-A-1-C	0.1000mL	False	94.35%	78.88%	Orange2	0.4424	7/9/19 11:56	7/11/19 10:10		7/11/19 12:48	1.00	1
Ra-228		200.00	1000.00 854	326	8.769E+004 pCi/L		3.273E+003	5.195E+003	3.569E+003	1.618E+003	5194.8180		
160-34818-A-2-A	160-34818-A-2-A	0.1000mL	False	98.31%	80.75%	Orange3	0.4417	7/9/19 11:56	7/11/19 10:10		7/11/19 12:48	1.00	1
Ra-228		200.00	1000.00 1032	545	9.639E+004 pCi/L		3.390E+003	5.582E+003	4.243E+003	1.965E+003	5581.6979		
160-34818-A-2-B	160-34818-A-2-B	0.1000mL	False	81.92%	80.75%	Orange5	0.4352	7/9/19 11:56	7/11/19 10:10		7/11/19 12:49	1.00	1
Ra-228		200.00	1000.00 850	378	9.849E+004 pCi/L		3.741E+003	5.876E+003	4.367E+003	1.993E+003	5875.5255		
160-34818-A-2-C	160-34818-A-2-C	0.1000mL	True	107.91%	74.77%	Orange6	0.4429	7/9/19 11:56	7/11/19 10:10		7/11/19 12:49	1.00	1
Ra-228		200.00	1000.00 913	408	9.195E+004 pCi/L		3.371E+003	5.409E+003	3.932E+003	1.800E+003	5408.8934		

Laboratory Control Sample Information

SampID	WRKNO	ComponentName	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

SampID	SampDupID	Analyte	Activity	DupActivity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery %	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

Decay Calculations

Raw Sample/Standard Information

Initial Date/Time (t_0):	5/20/2019 0:00		
Decayto Date/Time (t):	7/11/19 0:00		
Initial Activity (A_0):	221.29 dpm		
Initial Aliquot:	1 mL		
Initial Conc:	221.2866 dpm/mL		
***Soln. Density:**	1 g/mL		
Nuclide:	Ra-228		
Half-Life (days):	2100.1875	decay days	fraction
****Decay Factor:**	0.9830	52.00	0.02476
Decay Corr Activity:	2.1752E+02 dpm		
Decay Corr Conc:	2.1752E+02 dpm/mL		

Conversion/Calculations

Final Activity Unit:	pCi
Activity Unit Factor:	0.45045
Final Volume Unit:	L
Volume Unit Factor:	0.001
Final Concentration:	9.7982E+04 pCi/L
Aliquot Volume:	1.0000E+00 L
Final Activity (A):	9.7982E+04 pCi

** Uses basic decay equation: $A = A_0 * \exp(-\ln(2)*(t-t_0)/(\text{half-life})$

* Soln. Density to be used when converting from liquid expressed in mass (g) units to liquid units (mL), and is only applied in that case.

eurofins Environment Testing TestAmerica

Analysis Report for Radium 228

Batch: 434091 **Operator:**

SampID	WRKNO	Aliquot	TruncYields		BaYield	YYield	InstrID	Eff	Y Ingrowth Time	Y Precip Time		CountDateTime	Sigma	CalType
	Analyte	SampCntD	BkgCntDur	SampCnt	BkgCnt	Activity		UncCount	UncTotal	MDA	DLC	MQO		
160-34818-A-1-A	160-34818-A-1-A	0.1000mL	False		99.15%	73.64%	Orange0	0.4495	7/9/19 11:56	7/11/19 10:10		7/11/19 12:48	1.00	1
	Ra-228	200.00	1000.00	903	424	9.121E+004	pCi/L	3.381E+003	5.389E+003	4.034E+003	1.850E+003	5388.6219		
160-34818-A-1-B	160-34818-A-1-B	0.1000mL	False		104.52%	84.86%	Orange1	0.4386	7/9/19 11:56	7/11/19 10:10		7/11/19 12:48	1.00	1
	Ra-228	200.00	1000.00	981	338	8.594E+004	pCi/L	2.967E+003	4.943E+003	3.070E+003	1.394E+003	4942.6783		
160-34818-A-1-C	160-34818-A-1-C	0.1000mL	False		94.35%	78.88%	Orange2	0.4424	7/9/19 11:56	7/11/19 10:10		7/11/19 12:48	1.00	1
	Ra-228	200.00	1000.00	854	326	8.769E+004	pCi/L	3.273E+003	5.195E+003	3.569E+003	1.618E+003	5194.8180		
160-34818-A-2-A	160-34818-A-2-A	0.1000mL	False		98.31%	80.75%	Orange3	0.4417	7/9/19 11:56	7/11/19 10:10		7/11/19 12:48	1.00	1
	Ra-228	200.00	1000.00	1032	545	9.639E+004	pCi/L	3.390E+003	5.582E+003	4.243E+003	1.965E+003	5581.6979		
160-34818-A-2-B	160-34818-A-2-B	0.1000mL	False		81.92%	80.75%	Orange5	0.4352	7/9/19 11:56	7/11/19 10:10		7/11/19 12:49	1.00	1
	Ra-228	200.00	1000.00	850	378	9.849E+004	pCi/L	3.741E+003	5.876E+003	4.367E+003	1.993E+003	5875.5255		
160-34818-A-2-C	160-34818-A-2-C	0.1000mL	False		107.91%	74.77%	Orange6	0.4429	7/9/19 11:56	7/11/19 10:10		7/11/19 12:49	1.00	1
	Ra-228	200.00	1000.00	913	408	8.521E+004	pCi/L	3.124E+003	5.012E+003	3.644E+003	1.668E+003	5012.4300		

Laboratory Control Sample Information

SampID	WRKNO	ComponentName	Activity	StdAdded	Recovery	LCL	UCL	ZFactor
					%			

Sample Duplicate Information

SampID	SampDupID	Analyte	Activity	DupActivity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery	ZFactor
						%	

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-434091

Analyst: Mazariegos, Chelsea M

Batch Open: 7/8/2019 12:35:00PM

Batch End: 7/11/2019 12:21:00PM

Preparation, Precipitate Separation

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	Matrix	Initial Amount	Final Amount	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	160-34818-A-1 (904.0)	(160-34818-1)	Water	0.1 mL		8/1/19	18_Days	2	Orange 0	160-34818-A-1-A
2	160-34818-A-1 (904.0)	(160-34818-1)	Water	0.1 mL		8/1/19	18_Days	2	1	160-34818-A-1-B
3	160-34818-A-1 (904.0)	(160-34818-1)	Water	0.1 mL		8/1/19	18_Days	2	2	160-34818-A-1-C
4	160-34818-A-2 (904.0)	(160-34818-1)	Water	0.1 mL		8/1/19	18_Days	2	3	160-34818-A-2-A
	160-34818-A-2 (904.0)	(160-34818-1)	Water	0.1 mL		8/1/19	18_Days	2	5	160-34818-A-2-B
	160-34818-A-2 (904.0)	(160-34818-1)	Water	0.1 mL		8/1/19	18_Days	2	6	160-34818-A-2-C

CR-
weare out
of spike need
results ASAP!!

INTO IG
7/9
TOCK
7/10

TR In TALS, Results Reviewed

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-434091

Analyst: Mazariegos, Chelsea M

Batch Open: 7/8/2019 12:35:00PM

Batch End: 7/11/2019 12:21:00PM

Radium-228 (GFPC)

	Input Sample Lab ID (Analytical Method)	(Sub-List)	Analytes
1	160-34818-A-1 (904.0)	(Standard Target List)	Ba, Ra-228, Y
2	160-34818-A-1 (904.0)	(Standard Target List)	Ba, Ra-228, Y
3	160-34818-A-1 (904.0)	(Standard Target List)	Ba, Ra-228, Y
4	160-34818-A-2 (904.0)	(Standard Target List)	Ba, Ra-228, Y
5	160-34818-A-2 (904.0)	(Standard Target List)	Ba, Ra-228, Y
6	160-34818-A-2 (904.0)	(Standard Target List)	Ba, Ra-228, Y

Analytes that are not being reported with be displayed in [...] brackets. Analytes that are not being reported but are on the spike list with be displayed in (...) parentheses.

(To Accompany Samples to Instruments)

Batch Number: 160-434091

Analyst: Mazariegos, Chelsea M

Batch Open: 7/8/2019 12:35:00PM

Batch End: 7/11/2019 12:21:00PM

Batch Notes

Manually Enter Results? (0=NO, 1=YES)	No
EiChrom Used (Y/N)?	N
Radium Batch (Y/N)?	Y
Balance ID	1121470622, 1125330898
Analyst ID - Reagent Drop	JLC Per KAW, CPR
Analyst ID - Reagent Drop Witness	KAW, SEC per CPR
Pipette ID	RAD038, SEP005
SOP Number	ST-RC-0002, ST-RC-0041
Carrier ID for Barium	Ba
Strontium Carrier ID	
Yttrium Carrier ID	Y
Batch Comment	In CPR, OUT-PMS

Comments

PrecSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-434091

Analyst: Mazariegos, Chelsea M

Batch Open: 7/8/2019 12:35:00PM

Batch End: 7/11/2019 12:21:00PM

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
160-34818-A-1	Ba Carrier_00045	1 mL			
160-34818-A-1	Ra-228_00036	0.1 mL			
160-34818-A-1	Y Carrier_00037	0.2 mL			
160-34818-A-1	Ba Carrier_00045	1 mL			
160-34818-A-1	Ra-228_00036	0.1 mL			
160-34818-A-1	Y Carrier_00037	0.2 mL			
160-34818-A-1	Ba Carrier_00045	1 mL			
160-34818-A-1	Ra-228_00036	0.1 mL			
160-34818-A-1	Y Carrier_00037	0.2 mL			
160-34818-A-2	Ba Carrier_00045	1 mL			
160-34818-A-2	Ra-228_00037	0.1 mL			
160-34818-A-2	Y Carrier_00037	0.2 mL			
160-34818-A-2	Ba Carrier_00045	1 mL			
160-34818-A-2	Ra-228_00037	0.1 mL			
160-34818-A-2	Y Carrier_00037	0.2 mL			
160-34818-A-2	Ba Carrier_00045	1 mL			
160-34818-A-2	Ra-228_00037	0.1 mL			

PreeSep_0 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 160-434091

Analyst: Mazariegos, Chelsea M

Batch Open: 7/8/2019 12:35:00PM

Batch End: 7/11/2019 12:21:00PM

160-34818-A-2	Y Carrier_00037	0.2 mL			

Other Reagents:

Reagent	Amount/Units	Lot#:

Rad Worksheet

Batch Number: 160-434091
Method: PrecSep_0
Analyst: Mazariegos, Chelsea M

Date Open: Jul 08 2019 12:35PM
Batch End: Jul 11 2019 12:21PM

Lab ID	Client ID	Method Chain	Basis	Initial weight/volume of sample	Tare Weight of Barium Planchette	Barium Mass Added	Tare Weight of Yttrium Planchette	Gross Weight of Yttrium Planchette	Yttrium Mass added
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	0.1 mL	8.7377 g	0.0354 g	8.7528 g	8.7725 g	0.0268 g
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	0.1 mL	8.7779 g	0.0354 g	8.7501 g	8.7728 g	0.0268 g
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	0.1 mL	8.6946 g	0.0354 g	8.7399 g	8.7610 g	0.0268 g
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	0.1 mL	8.7474 g	0.0354 g	8.7290 g	8.7506 g	0.0268 g
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	0.1 mL	8.7033 g	0.0354 g	8.6996 g	8.7212 g	0.0268 g
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	0.1 mL	8.6726 g	0.0354 g	8.6931 g	8.7131 g	0.0268 g

Rad Worksheet

Batch Number: 160-434091
Method: PrecSep_0
Analyst: Mazariegos, Chelsea M

Date Open: Jul 08 2019 12:35PM
Batch End: Jul 11 2019 12:21PM

Lab ID	Client ID	Method Chain	Basis	Ingrowth/Decay Date1	Ingrowth/Decay Date2	Native Y Mass	Ba Carrier_00045	Ra-228_00036	Ra-228_00037
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	07/09/2019 11:56	07/11/2019 10:10	0 g	1 mL	0.1 mL	
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	07/09/2019 11:56	07/11/2019 10:10	0 g	1 mL	0.1 mL	
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	07/09/2019 11:56	07/11/2019 10:10	0 g	1 mL	0.1 mL	
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	07/09/2019 11:56	07/11/2019 10:10	0 g	1 mL		0.1 mL
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	07/09/2019 11:56	07/11/2019 10:10	0 g	1 mL		0.1 mL
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	07/09/2019 11:56	07/11/2019 10:10	0 g	1 mL		0.1 mL

Rad Worksheet

Batch Number: 160-434091
Method: PrecSep_0
Analyst: Mazariegos, Chelsea M

Date Open: Jul 08 2019 12:35PM
Batch End: Jul 11 2019 12:21PM

Lab ID	Client ID	Method Chain	Basis	Y Carrier_00037
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	0.2 mL
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	0.2 mL
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	0.2 mL
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	0.2 mL
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	0.2 mL
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	0.2 mL

Balance ID: 1121470622, 1125330898
Analyst ID - Reagent Drop: JLC Per KAW, CPR
Analyst ID - Reagent Drop Witness: KAW, SEC per CPR
Pipette ID: RAD038, SEP005
SOP Number: ST-RC-0002, ST-RC-0041

Rad Worksheet

Batch Number: 160-434091
Method: PrecSep_0
Analyst: Mazariegos, Chelsea M

Date Open: Jul 08 2019 12:35PM
Batch End: Jul 11 2019 12:21PM

Lab ID	Client ID	Method Chain	Basis	Comments Analysis comment
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	
160-34818-A-1	Ra-228 STD Verify 1	PrecSep_0, 904.0	T	
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	
160-34818-A-2	Ra-228 STD Verify 2	PrecSep_0, 904.0	T	

Batch Comment: In CPR, OUT-PMS

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Radiochemistry Data Review Checklist

Batch: 434091 **Analysis:** Radium-228

Review Item	Yes	No	N/A	2 Rvw
Rad Prep				
1 Are all samples on batch sheet present or removed from batch?	☑	☐	☐	☐
2 Are all samples, QC and methods in compliance with client requirements?	☑	☐	☐	☐
3 Were forms checked for transcription errors?	☑	☐	☐	☐
4 Are all TALS entries complete? (End Dates and appropriate worksheet fields completed)	☑	☐	☐	☐
5 Are all problems and deviations documented? (NCM printed and attached with paperwork)	☐	☐	☑	☐
6 Does this batch contain re-extracts?	☐	☑	☐	☐
Sample Analysis				
1 Are carrier/tracer yields within acceptance limits?	☐	☐	☐	☐
2 Were all sample holding times met?	☐	☐	☐	☐
3 If alpha or LSC, were samples analyzed using normal ROI's, and were spectra evaluated for interferences?	☐	☐	☐	☐
QC Samples				
1 Is the blank activity </= MDA	☐	☐	☐	☐
2 Is the blank activity </= client CRDL?	☐	☐	☐	☐
3 If blank activity exceeds limit, is sample activity >/= 5X blank activity?	☐	☐	☐	☐
4 Is LCS recovery within acceptance limits?	☐	☐	☐	☐
5 Is duplicate precision (e.g. RPD/RER/DER/z-score) within acceptance limits?	☐	☐	☐	☐
6 Is MS/MSD recovery within acceptance limits?	☐	☐	☐	☐
7 Do samples meet CRDL?	☐	☐	☐	☐
8 Is the absolute value of any negative result < 3sigma uncert.?	☐	☐	☐	☐
Other				
1 Are all nonconformances documented and noted?	☐	☐	☐	☐
2 Were data entries checked?	☐	☐	☐	☐
3 Were manual calculations checked?	☐	☐	☐	☐
4 Were forms checked for transcription errors?	☐	☐	☐	☐
5 Are reporting units correct?	☐	☐	☐	☐
Data Packaging				
1 Run logs included?	☐	☐	☐	☐
2 Daily checks included?	☐	☐	☐	☐
3 Backgrounds included?	☐	☐	☐	☐
4 Calibrations included?	☐	☐	☐	☐

Lot Number	Analytical Due Date
160-34818-A-1-A	
160-34818-A-1-B	
160-34818-A-1-C	
160-34818-A-2-A	
160-34818-A-2-B	
160-34818-A-2-C	

Batch: 434091 **Analysis:** Radium-228

Comments:

Prep Analyst: PMS Date: 07/11/2019

Analyst: _____ Date: _____

Second Level Reviewer _____ Date: _____

Date Uploaded: _____

Date Verified: _____

Date Review Released: _____

CHECKLIST FOR RADIUM 226 / 228 – LIQUIDS & SOLIDS

REAGENTS	CHECK
A. METHYL ORANGE INDICATOR	✓
B. ADD HNO3 to MB, LCS, and LCSD	✓
C. BARIUM STD CARRIER 1.0 mL	✓
D. SPIKE LCS	✓
E. SPIKE MS	
F. 1M CITRIC ACID 5.0 mL/L	✓
G. 15 mg/mL LEAD CARRIER 2.5 mL	✓
H. 9 mg/mL Sr CARRIER 2.0 mL	✓
I. 9mg/mL Y CARRIER 1.0 mL	✓
MIX THEN HEAT	✓
J. NH4OH TO YELLOW ENDPOINT	✓
K. 18 N SULFURIC ACID, 10.0 mL	✓
L. AMMONIUM SULFATE, 5.0 mL	✓
LEAD CLEANUP	✓

BATCH NUMBERS
(228) 434091
~~(226)~~
JLC 7/8/19

# SAMPS	# LCS
6	0

DUE DATE
ASAP

INITIALS	VERIFIED BY	DATE OF SPIKE
JLC	[illegible]	07/08/2019
JLC	[illegible]	JLC 7/8/19

DATE OUT OF INGROWTH
07 / 11 / 2019

DAYS IN INGROWTH	2	14	21

Ra-228_00036
Ra-228_00037

	TIME (T)	DATE
T 1	11:56	07/09/2019
T 2	10:10	07/11/2019
T 3		

	BARIUM CARRIER STD	RADIUM-226 SPIKE	RADIUM-228 SPIKE	Y CARRIER STD
STANDARD ID	Ba Carrier_00045	Ra-226_00029	Ra-228_00031	Y Carrier_00037
VOLUME (mL)	1.0	1.0	0.1	0.2
REF. ACTIVITY OR MASS	0.0354	25.229 dpm/mL	229.5014 dpm/mL	0.02675
ACTIVITY REFERENCE DATE	N/A	12/05/2016	05/29/2018	N/A

	INITIALS	Verified By	DATE
M. Y STD CARRIER	CPR	[illegible]	7/9/19
N. LEAD CARRIER 1.5 mg/ml 1.0 mL	CPR		

RE-EXTRACT ?	YES / NO
NCM NUMBER (IF APPLICABLE)	

Batch number: 439091 Radium Waters

Date:

Analyst: PMS

Reagent IDs used:

01	Concentrated Nitric Acid	173,2777, 17607O5
02	Methyl Orange Indicator	1757906
03	Citric Acid	1745445
04	15 mg/mL Lead Carrier	1732808
05	10 mg/mL Strontium Carrier	1732807
06	9 mg/mL Yttrium Carrier	1732812
07	15N Ammonium Hydroxide	1752057
08	18N Sulfuric Acid	1751128
09	200 mg/mL Ammonium sulfate	1753834
10	Strontium/Yttrium Mixed Carrier	1711121
11	EDTA	1756831
12	17.4N Glacial Acetic Acid	1756822
13	Ammonium Sulfide	1728052
14	10N Sodium Hydroxide	1726499
15	1.5 mg/mL Lead Carrier	1755176
16	Sodium Hydroxide Pellets (18N NaOH)	1762870
17	6N Nitric Acid	1718025
18	2N Nitric Acid	1684237
19	5% Ammonium Oxalate	1762871
~~20~~	~~pH strip lot~~	PMS 6/11/2019
21	syringr filter lot	16919151
22	centrifuge tube lot	02119093

Reagent

Sr-90_00001

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404·352·8677
Fax 404·352·2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

80573-334
5 mL Liquid in Flame Sealed Vial

Customer: Test America St. Louis
P.O. No.: 2324797, Item 1

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated by liquid scintillation counting. Radionuclide purity and calibration were checked by germanium gamma-ray spectrometry and liquid scintillation counting. The nuclear decay rate and assay date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 1, February, 1979, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, % Type u_A	u_B	U	Reference Date (12:00 PM EST)
Sr-90	10515.5	3.782E+04	0.1	0.9	1.8	09/17/2009

*Uncertainty: U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: γ-impurities <0.1%. 5.04317 grams 0.1M HCl solution with approximately 30 microg/g each of Sr and Y carriers. NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total beta emission rate for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

Source Prepared by: _____
W. Mao, Radiochemist

QA Approved: _____ Date: 9-22-09
D. M. Montgomery, QA Manager

ACCREDITED SOURCE CALIBRATION LABORATORY
HEALTH PHYSICS SOCIETY
FOUNDED 1956

Corporate Office
Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia 30318

Reagent

Sr-90_00017

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

92352

Sr-90 5 mL Liquid in Flame Sealed Vial

Customer: TestAmerica St. Louis
P.O. No.: 2502682, Item 1 Product Code: 8090-5FSA-37kBq

This standard radionuclide source was prepared gravimetrically from a master solution, calibrated by Eckert & Ziegler Analytics. The master solution was calibrated by liquid scintillation counting. Radionuclide calibration and purity were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, % Type u_A	u_B	U	Reference Date (12:00 PM EST)
Sr-90	1.052E+04	3.749E+04	0.1	0.9	1.8	11/29/2012

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: γ-impurities<0.1%.
5.02357 g 0.1M HCl solution with approximately 30 µg/g each Sr and Y carriers.

NOTE: This source also contains Y-90 in secular equilibrium with Sr-90. The Y-90 activity is equal to the Sr-90 activity. Since Sr-90 and Y-90 both decay 100% by beta emission, the total activity for the source is twice the certified Sr-90 activity. The half-life for Y-90 is 64.08 hours.

Source Prepared by: _____
Z. Dimitrova, Radiochemist

QA Approved: _____ Date: 26 Nov 12
J.D. McCorvey, Counting Room Manager

RAD12-0042
Sr-90
hursts
None
Prep/Opened: 11/28/2012
Exp(1): 11/29/2062
Exp(2): 11/29/2062

51511
ID Sr-90_00017
Sr-90 Ampoule

ACCREDITED SOURCE CALIBRATION LABORATORY — HEALTH PHYSICS SOCIETY — FOUNDED 1956

Single Isotope Certificate Rev 3, 23 August 2012

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

Reagent

Sr-90_00018

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING



Reagent ID: Sr-90_00018

		Expiration Date:	11/29/2062
Description:	Sr-90 Calibration STD	Laboratory:	TestAmerica St. Louis
No. of Bottles:	1	Prepared By:	Hurst, Sarah
Storage Location:	RAD Separations Reagents - 1	Solvent:	0.1M HCL
Reagent Volume:	100.000 mL	Solvent Lot:	0
Creation Date:	11/28/2012		
Container(s):	51512		
Comment:	Rad12-0043		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
Gross Beta	Sr-90_00017	11/29/2062	14925.64000	Bq/g	44774.23338	dpm/mL
Sr-90	Sr-90_00017	11/29/2062	7462.82000	Bq/g	22387.11669	dpm/mL

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
Sr-90_00017	Sr-90 Ampoule	ASTD	11/29/62	Analytics	92352		4.99970	g

St. Louis Radiological Standard Reverification Form

Standard ID Number: Sr-90_00018 (51512)
True Value = 1976.75 pCi/sample or g
Date Analyzed: 2/10/2014

Radionuclide: Sr-90 (Low mass)

	Replicates	
#1	1935	pCi/sample or g
#2	1941	pCi/sample or g
#3	1924	pCi/sample or g

Mean = 1933.333

1 sigma = 8.621678 1.96 sigma = 16.89849

True Value minus 5% = 1877.913 (True Value - 5%)
True Value plus 5% = 2075.588 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DOE QSAS and LANL Statements of Work

Reviewed By/Date: Jody Watson 2/10/14

SOP Reference: STL-QA-0002, Current Revision

St. Louis Radiological Standard Reverification Form

Standard ID Number: Sr-90_00018 (51512)
True Value = 1948.75 pCi/sample or g
Date Analyzed: 2/10/2014

Radionuclide: Sr-90 (Medium mass)

	Replicates	
#1	1911	pCi/sample or g
#2	1945	pCi/sample or g
#3	1893	pCi/sample or g

Mean = 1916.333

1 sigma = 26.40707 1.96 sigma = 51.75786

True Value minus 5% = 1851.313 (True Value - 5%)
True Value plus 5% = 2046.188 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DOE QSAS and LANL Statements of Work

Reviewed By/Date: Jody Watson 2/10/14

SOP Reference: STL-QA-0002, Current Revision

St. Louis Radiological Standard Reverification Form

Standard ID Number: Sr-90_00018 (51512)
True Value = 1992 pCi/sample or g
Date Analyzed: 2/10/2014

Radionuclide: Sr-90 (High mass)

Replicates		
#1	1907	pCi/sample or g
#2	1930	pCi/sample or g
#3	1937	pCi/sample or g

Mean = 1924.667

1 sigma = 15.69501 1.96 sigma = 30.76222

True Value minus 5% = 1892.4 (True Value - 5%)
True Value plus 5% = 2091.6 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DOE QSAS and LANL Statements of Work

Reviewed By/Date: Jody Watson 2/10/14

SOP Reference: STL-QA-0002, Current Revision

Protean Beta ICV-ACV recoveries from March 2013			
Protean Detector	**Low** pCi/sample	**Medium** pCi/sample	**High** pCi/sample
0	1962	1945	1971
1	2003	1947	1995
2	1960	1965	1998
3	1988	1942	1995
4	1977	1940	1997
5	1969	1949	2013
6	1986	1938	1986
7	1969	1964	1981
Average pCi/sample	1976.75	1948.75	1992

Protean Beta ICV-ACV recoveries from February 2014			
Protean Detector	**Low** pCi/sample	**Medium** pCi/sample	**High** pCi/sample
4	1935	1911	1907
5	1941	1945	1930
6	1924	1893	1937
Average pCi/sample	1933.33	1916.33	1924.67

Standard ID
Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Gross Alpha/Beta

Batch: M122640 **Operator:** 63903

Sample ID	WRKNO	Aliquot		Mass	Instr ID	CountTime		Ts	Tb	Dilution	Sigma	
	Analyte	Cs	Cb	XT	CPMs	CPMb	Eff	Activity	UncTot	UncCnt	MDA	DLC
ICVABT-51512;B1	NA	1.000E+000sample		0.0513 g	Protean4	2/10/14 22:54		5.00	1000.00	1.00	2.00	
	Gross Alpha	0	49	0.00	0.000E+000	4.900E-002	0.1157	**-1.908E-001**pCi/sample	5.869E-002	5.452E-002	3.382E+000	8.968E-001
	Gross Beta	9072	417	0.00	1.814E+003	4.170E-001	0.4224	**1.935E+003**pCi/sample	1.977E+002	4.063E+001	1.594E+000	7.165E-001
ICVABT-51512;B2	NA	1.000E+000sample		0.1114 g	Protean4	2/10/14 23:19		5.00	1000.00	1.00	2.00	
	Gross Alpha	1	49	0.00	2.000E-001	4.900E-002	0.0830	**8.194E-001**pCi/sample	2.174E+000	2.172E+000	4.713E+000	1.250E+000
	Gross Beta	8432	417	0.00	1.686E+003	4.170E-001	0.3973	**1.911E+003**pCi/sample	1.956E+002	4.164E+001	1.694E+000	7.616E-001
ICVABT-51512;B3	NA	1.000E+000sample		0.1813 g	Protean4	2/10/14 23:04		5.00	1000.00	1.00	2.00	
	Gross Alpha	1	49	0.00	2.000E-001	4.900E-002	0.0540	**1.260E+000**pCi/sample	3.343E+000	3.340E+000	7.248E+000	1.922E+000
	Gross Beta	8054	417	0.00	1.611E+003	4.170E-001	0.3804	**1.907E+003**pCi/sample	1.954E+002	4.251E+001	1.770E+000	7.956E-001

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery	LCL	UCL	ZFactor
					%			

Sample Duplicate Information

Sample ID	Dup Sample ID	Analyte	Sample Activity	Dup Activity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery	ZFactor
						%	

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

RadCapture, version 4.2.06, released 2/9/2012

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Gross Alpha/Beta

Batch: M122640 **Operator:** 63903

Sample ID	WRKNO	Aliquot		Mass		Instr ID	CountTime		Ts	Tb	Dilution	Sigma	
	Analyte	Cs	Cb	XT		CPMs	CPMb	Eff	Activity	UncTot	UncCnt	MDA	DLC
ICVABT-51512;B1	NA	1.000E+000	sample	0.0513	g	Protean5	2/10/14 23:04		5.00	1000.00	1.00	2.00	
	Gross Alpha	0	43	0.00		0.000E+000	4.300E-002	0.1145	**-1.692E-001** pCi/sample	5.510E-002	5.161E-002	3.337E+000	8.490E-001
	Gross Beta	9111	398	0.00		1.822E+003	3.980E-001	0.4228	**1.941E+003** pCi/sample	1.983E+002	4.068E+001	1.569E+000	6.992E-001
ICVABT-51512;B2	NA	1.000E+000	sample	0.1114	g	Protean5	2/10/14 22:54		5.00	1000.00	1.00	2.00	
	Gross Alpha	0	43	0.00		0.000E+000	4.300E-002	0.0823	**-2.353E-001** pCi/sample	7.661E-002	7.176E-002	4.639E+000	1.180E+000
	Gross Beta	8552	398	0.00		1.710E+003	3.980E-001	0.3960	**1.945E+003** pCi/sample	1.990E+002	4.207E+001	1.675E+000	7.465E-001
ICVABT-51512;B3	NA	1.000E+000	sample	0.1813	g	Protean5	2/10/14 23:19		5.00	1000.00	1.00	2.00	
	Gross Alpha	2	43	0.00		4.000E-001	4.300E-002	0.0532	**3.022E+000** pCi/sample	4.802E+000	4.790E+000	7.178E+000	1.826E+000
	Gross Beta	8046	398	0.00		1.609E+003	3.980E-001	0.3755	**1.930E+003** pCi/sample	1.977E+002	4.304E+001	1.766E+000	7.873E-001

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

Sample ID	Dup Sample ID	Analyte	Sample Activity	Dup Activity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery %	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

RadCapture, version 4.2.06, released 2/9/2012

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Gross Alpha/Beta

Batch: M122640 **Operator:** 63903

Sample ID	WRKNO / Analyte	Aliquot Cs	Cb	Mass XT	Instr ID CPMs	CPMb	CountTime Eff	Activity	Ts	Tb UncTot	Dilution UncCnt	Sigma MDA	DLC
ICVABT-51512;B1	NA	1.000E+000 sample		0.0513 g	Protean6	2/10/14 23:19			5.00	1000.00	1.00	2.00	
	Gross Alpha	0	87	0.00	0.000E+000	8.700E-002	0.1165	**-3.362E-001** pCi/sample		8.166E-002	7.210E-002	3.776E+000	1.186E+000
	Gross Beta	8992	520	0.00	1.798E+003	5.200E-001	0.4209	**1.924E+003** pCi/sample		1.966E+002	4.059E+001	1.718E+000	8.029E-001
ICVABT-51512;B2	NA	1.000E+000 sample		0.1114 g	Protean6	2/10/14 23:04			5.00	1000.00	1.00	2.00	
	Gross Alpha	0	87	0.00	0.000E+000	8.700E-002	0.0842	**-4.657E-001** pCi/sample		1.131E-001	9.985E-002	5.230E+000	1.642E+000
	Gross Beta	8356	520	0.00	1.671E+003	5.200E-001	0.3976	**1.893E+003** pCi/sample		1.937E+002	4.142E+001	1.819E+000	8.499E-001
ICVABT-51512;B3	NA	1.000E+000 sample		0.1813 g	Protean6	2/10/14 22:54			5.00	1000.00	1.00	2.00	
	Gross Alpha	0	87	0.00	0.000E+000	8.700E-002	0.0559	**-7.014E-001** pCi/sample		1.703E-001	1.504E-001	7.877E+000	2.474E+000
	Gross Beta	8127	520	0.00	1.625E+003	5.200E-001	0.3778	**1.937E+003** pCi/sample		1.985E+002	4.300E+001	1.914E+000	8.945E-001

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

Sample ID	Dup Sample ID	Analyte	Sample Activity	Dup Activity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery %	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

RadCapture, version 4.2.06, released 2/9/2012

TestAmerica St. Louis

Standards Preparation Logbook Record

Nov-28-2012

Logbook: \\Qstlmo01\Stdslog\RAD_STD.std

RAD12-0042, Sr-90 Sr-90_00017 #51511 Analyst: hursts

Vendor: Analytics Lot No.: 92352
Solvent: None
Date Prep./Opened: 11-28-2012
Date Expires(1): 11-29-2062 (50 Years)
Date Expires(2): 11-29-2062 (50 Years)
Cert: 92352 Activity: 37490Bq Mass: 5.02357 Ref. Date: 11/29/12

Component	Initial Conc (dpm/g)	Final Conc (dpm/g)
Sr-90	447,769	447,769

RAD12-0043, Sr-90 Calibration STD Sr-90_00018 #51512 Analyst: hursts

Solvent: None Volume (ml): 100.00
Date Prep./Opened: 11-28-2012
Date Expires(1): 11-29-2062 (50 Years)
Date Expires(2): 11-29-2062 (50 Years)

Parent Std No.: RAD12-0042, Sr-90 Aliquot Amount (g): 4.9997
Parent Date Expires(1): 11-29-2062 Parent Date Expires(2): 11-29-2062

Component	Initial Conc (dpm/g)	Final Conc (dpm/mL)
Sr-90	447,769	22,387

Reviewed By: SRO

Page 1 of 1

St. Louis Radiological Standard Reverification Form

Standard ID Number: Rad12-0043
True Value = 2016.7 pCi/L or g
Date Analyzed: 11/30/2012

Radionuclide: Sr90

	Replicates	
#1	1964	pCi/L or g
#2	1958	pCi/L or g
#3	2015	pCi/L or g

Mean = 1979

1 sigma = 31.32092 1.96 sigma = 61.389

True Value minus 5% = 1915.865 (True Value - 5%)
True Value plus 5% = 2117.535 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DOE QSAS and LANL Statements of Work

Reviewed By/Date: 11/30/12

SOP Reference: STL-QA-0002, Current Revision

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Gross Alpha/Beta

Batch: M122629 **Operator:** 63903

Sample ID	WRKNO	*Aliquot*		*Mass*		*Instr ID*	*CountTime*		*Ts*	*Tb*	*Dilution*	*Sigma*	
	Analyte	Cs	Cb	XT		CPMs	CPMb	Eff	Activity	UncTot	UncCnt	MDA	DLC
verification-1b	NA	*1.000E+000sample*		*0.0536*	*g*	*Purple16*	*11/30/12 10:42*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	123	175	0.00	1.538E+001	1.750E-001	0.4314	**1.587E+001**pCi/sample		1.707E+000	1.448E+000	8.638E-001	3.593E-001
	Gross Beta	14954	485	0.00	1.869E+003	4.850E-001	0.4285	**1.964E+003**pCi/sample		9.953E+001	1.607E+001	1.211E+000	6.021E-001
verification-2b	NA	*1.000E+000sample*		*0.0529*	*g*	*Purple17*	*11/30/12 10:43*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	53	87	0.00	6.625E+000	8.700E-002	0.1306	**2.254E+001**pCi/sample		3.391E+000	3.138E+000	2.356E+000	8.365E-001
	Gross Beta	15152	362	0.00	1.894E+003	3.620E-001	0.4356	**1.958E+003**pCi/sample		9.919E+001	1.591E+001	1.077E+000	5.117E-001
verification-3b	NA	*1.000E+000sample*		*0.0528*	*g*	*Purple18*	*11/30/12 10:43*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	85	62	0.00	1.063E+001	6.200E-002	0.1313	**3.624E+001**pCi/sample		4.462E+000	3.954E+000	2.160E+000	7.027E-001
	Gross Beta	15378	395	0.00	1.922E+003	3.950E-001	0.4296	**2.015E+003**pCi/sample		1.020E+002	1.625E+001	1.125E+000	5.420E-001

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery	LCL	UCL	ZFactor
					%			

Sample Duplicate Information

Sample ID	Dup Sample ID	Analyte	Sample Activity	Dup Activity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery	ZFactor
						%	

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Prep Report for Gross Alpha/Beta

Batch: M122629 **Prep Analyst:** 250

SampID	WRKNO	Aliquot		Gross	Tare	Mass	Dilution
verification-1b	NA	1.000E+000	sample	8.7067 g	8.6531 g	0.0536 g	1.00
verification-2b	NA	1.000E+000	sample	8.6615 g	8.6086 g	0.0529 g	1.00
verification-3b	NA	1.000E+000	sample	8.6935 g	8.6407 g	0.0528 g	1.00

purple 16 17 18

Spike Information

Sample ID	Standard ID	Analyte	Std Conc	Aliquot	Ref Date	StdAdded
	Rad12-0043	SR-90	22.387 dpm/mL	0.1 mL	11-29-12	

MS — Spiked By

LM — Spike Verified By

11-28-12 — Spike Date

Standard Operating Procedures

SOPNumber	Title	Revision
☐		

Reviewed By — 11/30/12 Review Date

MS — Analyst/Relenquished By — 11/28/12 Release Date

Received By — 11/28/12 Receipt Date

MS 11-30-12 ~~112~~ 112343897/MS/11-28-12

Balance ID / Initials / Date

Reagent

Th-230_00015

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

92523

Th-230 5 mL Liquid in Flame Sealed Vial

Customer: TestAmerica St. Louis
P.O. No.: 2502650, Item 2 Product Code: 8230-5FSA-4kBq

This standard radionuclide source was prepared gravimetrically from a master solution, calibrated by Eckert & Ziegler Analytics. The master solution was calibrated by liquid scintillation counting. Radionuclide calibration and purity were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

			Uncertainty*, % Type			
Isotope	Half-Life, Days	Activity (Bq)	u_A	u_B	U	Reference Date (12:00 PM EST)
Th-230	2.753E+07	3.979E+03	0.1	0.9	1.8	11/29/2012

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: α-impurities 1.5915 Bq; γ-impurities (other than decay products)<0.1%.
5.07636 g 0.5M HNO3 solution. Carrier free.

Source Prepared by: M. I. Taskaeva, Radiochemist

QA Approved: J.D. McCorvey, Counting Room Manager Date: 27 Nov 12

51464
ID Th-230_00015
Th-230 Ampoule

RAD12-0040
Th-230 Ampoule
hursts
None
Prep/Opened: 11/28/2012
Exp(1): 11/28/2062
Exp(2): 11/28/2062

Single Isotope Certificate Rev 3, 23 August 2012

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

Reagent

Th-230_00016

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION
Standard Radionuclide Source

92523

Th-230 5 mL Liquid in Flame Sealed Vial

Customer: TestAmerica St. Louis
P.O. No.: 2502650, Item 2 Product Code: 8230-5FSA-4kBq

This standard radionuclide source was prepared gravimetrically from a master solution, calibrated by Eckert & Ziegler Analytics. The master solution was calibrated by liquid scintillation counting. Radionuclide calibration and purity were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty*, % Type u_A	u_B	U	Reference Date (12:00 PM EST)
Th-230	2.753E+07	3.979E+03	0.1	0.9	1.8	11/29/2012

*Uncertainty: U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: α-impurities 1.5915 Bq; γ-impurities (other than decay products)<0.1%.
5.07636 g 0.5M HNO3 solution. Carrier free.

Source Prepared by: M. I. Taskaeva, Radiochemist

QA Approved: J.D. McCorvey, Counting Room Manager Date: 27 NOV 12

51464
ID Th-230_00015
Th-230 Ampoule

RAD12-0040
Th-230 Ampoule
hursts
None
Prep/Opened: 11/28/2012
Exp(1): 11/28/2062
Exp(2): 11/28/2062

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1958

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

TestAmerica St. Louis

Standards Preparation Logbook Record

Nov-28-2012

Logbook: \\Qstlmo01\Stdslog\RAD_STD.std

RAD12-0040, Th-230 Ampoule Th-230_00015 # 51464 Analyst: hursts

Vendor: Analytics Lot No.: 92523
Solvent: None
Date Prep./Opened: 11-28-2012 Date Consumed: 11-28-2012
Date Expires(1): 11-28-2062 (50 Years)
Date Expires(2): 11-28-2062 (50 Years)
Cert: 92523 Activity: 3979Bq Reference Date: 11/29/12 Mass: 5.07636

Component	Initial Conc (dpm/g)	Final Conc (dpm/g)
Th-230	47,030	47,030

RAD12-0041, Th-230 Calibration Standard Th-230_00016 # 51465 Analyst: hursts

Solvent: 0.5M HNO3 Volume (ml): 100.00
Date Prep./Opened: 11-28-2012
Date Expires(1): 11-29-2062 (50 Years)
Date Expires(2): 11-29-2062 (50 Years)

Parent Std No.: RAD12-0040, Th-230 Ampoule Aliquot Amount (g): 5.0489
Parent Date Expires(1): 11-28-2062 Parent Date Expires(2): 11-28-2062

Component	Initial Conc (dpm/g)	Final Conc (dpm/mL)
Th-230	47,030	2,374.5

Reviewed By: SH

St. Louis Radiological Standard Reverification Form

Standard ID Number: Rad12-0041
True Value = 1069.59 pCi/mL
Date Analyzed: 11/30/2012

Radionuclide: Th-230 Gross Alpha

	Replicates	
#1	1071	pCi/mL
#2	1027	pCi/mL
#3	1085	pCi/mL

Mean = 1061

1 sigma = 30.26549 1.96 sigma = 59.32036

True Value minus 5% = 1016.111 (True Value - 5%)
True Value plus 5% = 1123.07 (True Value + 5%)

Accuracy:
Mean value within 5% of Certified (True) Value? **Yes** **(Acceptance Criteria)**

Precision:
1.96 sigma Value Within 10% of Mean Value? **Yes** **(Acceptance Criteria)**

Standard Reverification Acceptable? **Yes**

Note: Criteria for reverification of radiological standards is taken from the DOE QSAS and LANL Statements of Work

Reviewed By/Date: JL 11/30/12

SOP Reference: STL-QA-0002, Current Revision

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Analysis Report for Gross Alpha/Beta

Batch: M122628 **Operator:** 63903

Sample ID	WRKNO	*Aliquot*		*Mass*	*Instr ID*	*CountTime*		*Ts*	*Tb*	*Dilution*	*Sigma*	
	Analyte	Cs	Cb	XT	CPMs	CPMb	Eff	Activity	UncTot	UncCnt	MDA	DLC
verification 1a	NA	*1.000E+000mL*		*0.0546 g*	*Purple16*	*11/30/12 13:03*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	2528	175	0.00	3.160E+002	1.750E-001	0.1328	**1.071E+006**pCi/L	6.469E+004	2.132E+004	2.807E+003	1.167E+003
	Gross Beta	792	485	0.00	9.900E+001	4.850E-001	0.4280	**1.037E+005**pCi/L	6.370E+003	3.702E+003	1.212E+003	6.028E+002
verification 2a	NA	*1.000E+000mL*		*0.0536 g*	*Purple17*	*11/30/12 13:03*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	2364	87	0.00	2.955E+002	8.700E-002	0.1295	**1.027E+006**pCi/L	6.225E+004	2.113E+004	2.376E+003	8.436E+002
	Gross Beta	764	362	0.00	9.550E+001	3.620E-001	0.4353	**9.846E+004**pCi/L	6.084E+003	3.576E+003	1.078E+003	5.121E+002
verification 3a	NA	*1.000E+000mL*		*0.0531 g*	*Purple18*	*11/30/12 13:04*		*8.00*	*1000.00*	*1.00*	*1.00*	
	Gross Alpha	2521	62	0.00	3.151E+002	6.200E-002	0.1308	**1.085E+006**pCi/L	6.551E+004	2.161E+004	2.168E+003	7.052E+002
	Gross Beta	788	395	0.00	9.850E+001	3.950E-001	0.4295	**1.029E+005**pCi/L	6.325E+003	3.680E+003	1.125E+003	5.421E+002

Laboratory Control Sample Information

SampID	WRKNO	Analyte	Activity	StdAdded	Recovery %	LCL	UCL	ZFactor

Sample Duplicate Information

Sample ID	Dup Sample ID	Analyte	Sample Activity	Dup Activity	RPD	RER	DER	ZFactor

Matrix Spike Information

SampID	SampMSID	Analyte	Sample Activity	MS Activity	StdAdded	MSRecovery %	ZFactor

Blanks Information

SampID	WRKNO	Analyte	Activity	UncTotal	ZFactor

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Prep Report for Gross Alpha/Beta

Batch: M122628 **Prep Analyst:** 250

SampID	WRKNO	Aliquot	Gross	Tare	Mass	Dilution
verification 1a	NA	6.500E-001 mL	8.6982 g	8.6436 g	0.0546 g	1.00
		Orange 5	protean 14		16	
verification 2a	NA	6.500E-001 mL	8.6698 g	8.6162 g	0.0536 g	1.00
		7	15		17	
verification 3a	NA	6.500E-001 mL	8.6466 g	8.5935 g	0.0531 g	1.00
		8			18	

Spike Information

Sample ID	Standard ID	Analyte	Std Conc	Aliquot	Ref Date	StdAdded
	Rad12-0041	Th-230	2374.5 dpm/mL	1.00 mL	11-29-12	

MS — Spiked By

LM per MS — Spike Verified By

11-28-12 — Spike Date

Standard Operating Procedures

SOPNumber	Title	Revision
☐		

JN — Reviewed By

11/30/12 — Review Date

MS — Analyst/Relenquished By

11-28-12 — Release Date

Unn — Received By

11/28/12 — Receipt Date

1123433897/MS/11-28-12

Balance ID / Initials / Date

Reagent

Th-230_00019

TestAmerica St. Louis

Standards Preparation Logbook Record

Aug-13-2013

Logbook: \\Qstlmo01\Stdslog\RAD_STD.std

RAD13-0028, Th-230 Ampoule — Analyst: marrss

Vendor: Analytics Lot No.: 92776
Solvent: None
Date Prep./Opened: 08-13-2013
Date Expires(1): 08-08-2063 (50 Years)
Date Expires(2): 08-08-2063 (50 Years)
Activity: 3.728 E+03 Bq, Ref date: 08/08/2013, Solution mass: 5.09261g, Source ID: 92776

Component	Initial Conc (dpm/g)	Final Conc (dpm/g)
Th-230	43,922	43,922

Th-230-00019 #181198

RAD13-0029, Th-230 Parent — Analyst: marrss

Solvent: ~~None~~ 1M HNO3 SUB 8/13/13 Volume (ml): 100.00
Date Prep./Opened: 08-13-2013
Date Expires(1): 08-08-2063 (50 Years)
Date Expires(2): 08-08-2063 (50 Years)

Parent Std No.: RAD13-0028, Th-230 Ampoule Aliquot Amount (g): 5.0731
Parent Date Expires(1): 08-08-2063 Parent Date Expires(2): 08-08-2063

Component	Initial Conc (dpm/g)	Final Conc (dpm/mL)
Th-230	43,922	2,228.2

Reviewed By: SUB

Th-230 Parent

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING



Reagent ID: Th-230_00019

		Expiration Date:	08/08/2063
Description:	Th-230 Parent	Laboratory:	TestAmerica St. Louis
No. of Bottles:	1	Prepared By:	Bernsen, Sarah C
Storage Location:	RAD Actinide STDs	Solvent:	1M HNO3
Reagent Volume:	100.000 mL	Solvent Lot:	n/a
Creation Date:	08/13/2013		
Container(s):	181198		
Comment:			

Reagent Analyte Information

Analyte	Source ID	Source Expiration Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
Th-230	Th-230_00018	08/08/2063	43922.46	dpm/g	2228.23072	dpm/mL

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
Th-230_00018	Th-230 Ampoule	ASTD	08/08/63	Eckert & Ziegler	92776		5.07310	mL

Eckert & Ziegler
Analytics

1380 Seaboard Industrial Blvd.
Atlanta, Georgia 30318
Tel 404•352•8677
Fax 404•352•2837
www.analyticsinc.com

CERTIFICATE OF CALIBRATION

Standard Radionuclide Source

92776

Th-230 5 mL Liquid in Flame Sealed Vial

Customer: TestAmerica
P.O. No.: 2532686, Item 1 Product Code: 8230-5FSA-4kBq

This standard radionuclide source was prepared gravimetrically from a master solution, calibrated by Eckert & Ziegler Analytics. The master solution was calibrated by liquid scintillation counting. Radionuclide calibration and purity were checked by germanium gamma-ray spectrometry, liquid scintillation counting, and/or alpha spectrometry, as applicable. The nuclear decay rate and reference date for this source are given below. Eckert & Ziegler Analytics (EZA) maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Revision 2, July 2007, and compliance with ANSI N42.22-1995, "Traceability of Radioactive Sources to NIST." EZA is accredited by the Health Physics Society (HPS) for the production of NIST-traceable sources, and this source was produced in accordance with the HPS accreditation requirements. Customers may report any concerns with the accreditation program to the HPS Secretariat, 1313 Dolley Madison Blvd., Ste. 402, McLean, VA 22101.

Isotope	Half-Life, Days	Activity (Bq)	Uncertainty* , % Type u_A	u_B	U	Reference Date (12:00 PM EST)
Th-230	2.753E+07	3.728E+03	0.1	0.9	1.8	08/08/2013

***Uncertainty:** U - Relative expanded uncertainty, k = 2. See NIST Technical Note 1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results."

Comments:
Impurities: α-impurities 0.04%; γ-impurities (other than decay products)<0.1%.
5.09261 g 0.5M HNO3 solution. Carrier free.

Source Prepared by: R. Ormsby
R. Ormsby, Radiochemist

QA Approved:
J.D. McCorvey, Counting Room Manager

Date: 6AUG13

RAD13-0029
Th-230 Parent
marrss
None
Prep/Opened: 8/13/2013
Exp(1): 8/8/2063
Exp(2): 8/8/2063

181198
ID: Th-230_00019
Exp: 08/08/63 Prpd: SH Cal. 08/13/13
Th-230 Parent

ACCREDITED SOURCE CALIBRATION LABORATORY HEALTH PHYSICS SOCIETY FOUNDED 1956

Single Isotope Certificate Rev 3, 23 August 2012

Corporate Office
24937 Avenue Tibbitts Valencia, California 91355

Laboratory
1380 Seaboard Industrial Blvd. Atlanta, Georgia, 30318

Reagent

Y Carrier_00038

REPORT OF ANALYSIS

Single-Element Aqueous RM

Yttrium Oxide Product #: Z-067074-05-1L

Matrix: 10% HNO_3 Lot #: 10064660-9

Analyte	Certified Concentration
Y_2O_3	50,000 µg/mL

Intended Use: This solution is intended for use as a reference material (RM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This RM was manufactured, processed, and/or certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO Guide 34**, and **ISO/IEC 17025**. This RM was prepared to a nominal concentration of 50,000 µg/mL by gravimetric methods using single-element concentrate dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this RM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration was determined based upon gravimetric procedures. Secondary verification of the certified concentration was performed using ICP-OES and is traceable to **NIST SRM 3167a**. The uncertainty associated with the certified concentration is ±0.5% relative, which is the sum of the estimated errors due to the purity of the raw materials, the gravimetric preparation of the solution, and transpiration through the container. This represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the RM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original RM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

June 19, 2019
Certification Date

CPI International waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

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F: 707.545.7901

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REPORT OF ANALYSIS

Single-Element Aqueous RM

Yttrium Oxide

Product #: Z-067074-05-1L

Matrix: 10% HNO_3

Lot #: 10064660-9

Analyte	Certified Concentration
Y_2O_3	50,000 µg/mL

Intended Use: This solution is intended for use as a reference material (RM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This RM was manufactured, processed, and/or certified under a quality management system that is registered/accredited to **ISO 9001**, **ISO Guide 34**, and **ISO/IEC 17025.** This RM was prepared to a nominal concentration of 50,000 µg/mL by gravimetric methods using single-element concentrate dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this RM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration was determined based upon gravimetric procedures. Secondary verification of the certified concentration was performed using ICP-OES and is traceable to **NIST SRM 3167a**. The uncertainty associated with the certified concentration is ±0.5% relative, which is the sum of the estimated errors due to the purity of the raw materials, the gravimetric preparation of the solution, and transpiration through the container. This represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the RM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original RM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

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GAS FLOW PROPORTIONAL COUNTER

Method 9315

Radium-226 (GFPC) by Method 9315

Prep Batch: 444531

Preparation, Precipitate Separation (21-Day In-Growth)

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 444531

Lab Id: LCS 160-444531/1-A | Analyzed: 10/23/19 16:21 | Decay Corrected: No | Ts: 100
Client ID: | Detector: Blue2 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	LCS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	9.370	0.588	1.03		pCi/L	1.00	0.154	1051	165	.	1.	0.20245	3.3067	1.	447440

Carrier	LCS Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.02630				g		0.0354	74.3	40 - 110

Lab Id: 400-176914-1 | Analyzed: 10/23/19 16:23 | Decay Corrected: No | Ts: 100
Client ID: AES-MW1-092319 | Detector: Blue13 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.00313	0.0714	0.0714	U	pCi/L	1.00	0.140	19	186	.	1.	0.20544	3.3068	1.	447440

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0300				g		0.0354	84.7	40 - 110

Lab Id: 400-176914-2 | Analyzed: 10/23/19 16:23 | Decay Corrected: No | Ts: 100
Client ID: AES-MW2-092319 | Detector: Blue14 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.0386	0.0776	0.0777	U	pCi/L	1.00	0.139	19	145	.	1.	0.18412	3.3068	1.	447440

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0305				g		0.0354	86.2	40 - 110

Lab Id: 400-176914-2 MS | Analyzed: 10/23/19 16:23 | Decay Corrected: No | Ts: 100
Client ID: AES-MW2-092319 | Detector: Blue15 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	MS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	9.430	0.571	1.02		pCi/L	1.00	0.136	1120	142	.	1.	0.18842	3.3068	1.	447440

Carrier	MS Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03000				g		0.0354	84.7	40 - 110

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 444531

Lab Id: 400-176914-2 MSD | Analyzed: 10/23/19 16:23 | Decay Corrected: No | Ts: 100
Client ID: AES-MW2-092319 | Detector: Blue17 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	MSD Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	9.765	0.559	1.04		pCi/L	1.00	0.136	1255	169	.	1.	0.19910	3.3068	1.	447440

Carrier	MSD Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03070				g		0.0354	86.7	40 - 110

Lab Id: 400-176914-3 | Analyzed: 10/23/19 16:23 | Decay Corrected: No | Ts: 100
Client ID: AES-MW3-092319 | Detector: Blue19 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.101	0.0966	0.0971	U	pCi/L	1.00	0.153	35	223	.	1.	0.19259	3.3069	1.	447440

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0316				g		0.0354	89.3	40 - 110

Lab Id: 400-176914-4 | Analyzed: 10/23/19 16:23 | Decay Corrected: No | Ts: 100
Client ID: AES-MW4-092319 | Detector: Blue20 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	-0.00708	0.0744	0.0744	U	pCi/L	1.00	0.152	16	168	.	1.	0.18457	3.3069	1.	447440

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0295				g		0.0354	83.3	40 - 110

Lab Id: 400-176914-5 | Analyzed: 10/23/19 16:23 | Decay Corrected: No | Ts: 100
Client ID: AES-MW4-DUP-092319 | Detector: Blue22 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.0836	0.0977	0.0980	U	pCi/L	1.00	0.160	26	170	.	1.	0.19024	3.3069	1.	447440

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0273				g		0.0354	77.1	40 - 110

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 444531

Lab Id: 400-176914-6 Analyzed: 10/23/19 18:52 Decay Corrected: No Ts: 100
Client ID: AES-MW5-092319 Detector: Blue17 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.00914	0.0737	0.0737	U	pCi/L	1.00	0.143	18	169	.	1.	0.20140	3.3198	1.	447440

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0287				g		0.0354	81.1	40 - 110

Lab Id: 400-176914-7 Analyzed: 10/23/19 18:52 Decay Corrected: No Ts: 100
Client ID: AES-FB-092319 Detector: Blue19 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 2

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.0132	0.0795	0.0795	U	pCi/L	1.00	0.150	24	223	.	1.	0.19208	3.3198	1.	447440

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0322				g		0.0354	91.0	40 - 110

Lab Id: MB 160-444531/18-A Analyzed: 10/23/19 18:53 Decay Corrected: No Ts: 100
Client ID: Detector: Blue22 Yield Truncated: No Tb: 1000
Sigma: 2 Dil Fac: 1 Calibration Type: 2

Analyte	MB Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-226	0.1233	0.107	0.107	U	pCi/L	1.00	0.163	30	170	.	1.	0.19117	3.3198	1.	447440

Carrier	MB Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.02650				g		0.0354	74.9	40 - 110

Quality Control Summary

Method Blank ID:	Analyte	Parent Result	Spike Added	MB Result	Qualifier	Unit	% Rec	% Rec Limits	RPD	RER	DER	RER Limit	Z Factor
MB 160-444531/18-A	Radium-226			0.1233	U	pCi/L							2.2966
Lab Control Sample ID:	**Analyte**	**Parent Result**	**Spike Added**	**LCS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
LCS 160-444531/1-A	Radium-226		11.4	9.370		pCi/L	83	75 - 125					-3.3401
Matrix Spike ID:	**Analyte**	**Parent Result**	**Spike Added**	**MS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
400-176914-2	Radium-226	0.0386	11.3	9.430		pCi/L	83	75 - 138	3				-3.3012
Matrix Spike Duplicate ID:	**Analyte**	**Parent Result**	**Spike Added**	**MSD Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
400-176914-2	Radium-226	0.0386	11.3	9.765		pCi/L	86	75 - 138	3	0.16	0.46	1	.4592

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 444531

Glossary:

- Ts = Count Duration, Sample
- Tb = Count Duration, Background
- Cs = Total Counts, Sample
- Cb = Total Counts, Background
- X Talk = Crosstalk
- Decay = Decay Factor
- Eff = Efficiency
- I = Ingrowth Factor
- A = Abundance

GAS FLOW PROPORTIONAL COUNTER BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 400-176914-2

SDG No.:

Batch Number: 444531 Batch Start Date: 09/30/19 07:20 Batch Analyst: Quinn, Erin J

Batch Method: PrecSep-21 Batch End Date: 10/15/19 18:07

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	Ba_TareWt	Ba_GrossWt	Ba_Mass	IngDecDate1	IngDecDate2
LCS 160-444531/1		PrecSep-21, 9315		1000 mL	8.7654 g	8.7917 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15
400-176914-C-1	AES-MW1-092319	PrecSep-21, 9315	T	1000.90 mL	8.7899 g	8.8199 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15
400-176914-C-2	AES-MW2-092319	PrecSep-21, 9315	T	1000.58 mL	8.7693 g	8.7998 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15
400-176914-C-2 MS	AES-MW2-092319	PrecSep-21, 9315	T	1000.40 mL	8.7911 g	8.8211 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15
400-176914-C-2 MSD	AES-MW2-092319	PrecSep-21, 9315	T	1000.28 mL	8.8061 g	8.8368 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15
400-176914-C-3	AES-MW3-092319	PrecSep-21, 9315	T	1000.56 mL	8.8387 g	8.8703 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15
400-176914-C-4	AES-MW4-092319	PrecSep-21, 9315	T	1000.48 mL	8.7416 g	8.7711 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15
400-176914-C-5	AES-MW4-DUP-092319	PrecSep-21, 9315	T	1000.03 mL	8.7740 g	8.8013 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15
400-176914-C-6	AES-MW5-092319	PrecSep-21, 9315	T	1000.43 mL	8.7744 g	8.8031 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15
400-176914-C-7	AES-FB-092319	PrecSep-21, 9315	T	1000.37 mL	8.8150 g	8.8472 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15
MB 160-444531/18		PrecSep-21, 9315		1000 mL	8.8069 g	8.8334 g	0.0354 g	10/02/2019 10:00	10/15/2019 15:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	IngDecDate3	Ba Carrier 00045	Ra-226 00029			
LCS 160-444531/1		PrecSep-21, 9315		10/23/2019	1 mL	1 mL			
400-176914-C-1	AES-MW1-092319	PrecSep-21, 9315	T	10/23/2019	1 mL				
400-176914-C-2	AES-MW2-092319	PrecSep-21, 9315	T	10/23/2019	1 mL				
400-176914-C-2 MS	AES-MW2-092319	PrecSep-21, 9315	T	10/23/2019	1 mL	1 mL			
400-176914-C-2 MSD	AES-MW2-092319	PrecSep-21, 9315	T	10/23/2019	1 mL	1 mL			
400-176914-C-3	AES-MW3-092319	PrecSep-21, 9315	T	10/23/2019	1 mL				
400-176914-C-4	AES-MW4-092319	PrecSep-21, 9315	T	10/23/2019	1 mL				
400-176914-C-5	AES-MW4-DUP-092319	PrecSep-21, 9315	T	10/23/2019	1 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAS FLOW PROPORTIONAL COUNTER BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 400-176914-2

SDG No.:

Batch Number: 444531 Batch Start Date: 09/30/19 07:20 Batch Analyst: Quinn, Erin J

Batch Method: PrecSep-21 Batch End Date: 10/15/19 18:07

Lab Sample ID	Client Sample ID	Method Chain	Basis	IngDecDate3	Ba Carrier 00045	Ra-226 00029			
400-176914-C-6	AES-MW5-092319	PrecSep-21, 9315	T	10/23/2019	1 mL				
400-176914-C-7	AES-FB-092319	PrecSep-21, 9315	T	10/23/2019	1 mL				
MB 160-444531/18		PrecSep-21, 9315		10/23/2019	1 mL				

Batch Notes	
Balance ID	1122021820, 11125330898
Batch Comment	In SEC, OUT-PMS
Pipette ID	RAD112, RAD038
Analyst ID - Reagent Drop Witness	JLC per EJQ
Analyst ID - Reagent Drop	EJQ
SOP Number	ST-RC-0002, ST-RC-0041

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID LCS 160-444531/1-A

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 4:21:46 PM

Count Ended 10/23/2019 6:01:59 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.165	1,051	10.510	10.345
sd	0.000			0.013	32.419	0.324	0.324
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.515	2,048	20.480	19.965
sd	0.000			0.023	45.255	0.453	0.453

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID 400-176914-C-1-B

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 4:23:16 PM

Collection Date 1 1/1/1900

Half Life 0.00 ***days***

Count Ended 10/23/2019 6:03:33 PM

Collection Date 2 1/1/1900

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.186	19	0.190	0.004
sd	0.000			0.014	4.359	0.044	0.046
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.369	41	0.410	0.041
sd	0.000			0.019	6.403	0.064	0.067

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID 400-176914-C-2-D

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 4:23:25 PM

Count Ended 10/23/2019 6:03:43 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.145	19	0.190	0.045
sd	0.000			0.012	4.359	0.044	0.045
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.411	38	0.380	-0.031
sd	0.000			0.020	6.164	0.062	0.070

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID 400-176914-C-2-E MS

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 4:23:29 PM

Count Ended 10/23/2019 6:03:50 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.142	1,120	11.200	11.058
sd	0.000			0.012	33.466	0.335	0.335
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.447	2,212	22.120	21.673
sd	0.000			0.021	47.032	0.470	0.471

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID 400-176914-C-2-F MSD

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 4:23:36 PM

Count Ended 10/23/2019 6:03:50 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.169	1,255	12.550	12.381
sd	0.000			0.013	35.426	0.354	0.354
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.360	2,268	22.680	22.320
sd	0.000			0.019	47.624	0.476	0.477

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID 400-176914-C-3-B

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 4:23:44 PM

Count Ended 10/23/2019 6:03:56 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.223	35	0.350	0.127
sd	0.000			0.015	5.916	0.059	0.061
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	75	0.750	0.141
sd	0.000			0.025	8.660	0.087	0.090

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID 400-176914-C-4-B

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 4:23:52 PM

Count Ended 10/23/2019 6:04:03 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.168	16	0.160	-0.008
sd	0.000			0.013	4.000	0.040	0.044
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.440	54	0.540	0.100
sd	0.000			0.021	7.348	0.073	0.076

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID 400-176914-C-5-B

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 4:23:56 PM

Count Ended 10/23/2019 6:04:17 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	26	0.260	0.090
sd	0.000			0.013	5.099	0.051	0.053
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.379	65	0.650	0.271
sd	0.000			0.019	8.062	0.081	0.083

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID 400-176914-C-6-B

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 6:52:54 PM

Count Ended 10/23/2019 8:33:07 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.169	18	0.180	0.011
sd	0.000			0.013	4.243	0.042	0.044
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.360	64	0.640	0.280
sd	0.000			0.019	8.000	0.080	0.082

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID 400-176914-C-7-B

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 6:52:59 PM

Count Ended 10/23/2019 8:33:14 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.223	24	0.240	0.017
sd	0.000			0.015	4.899	0.049	0.051
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	63	0.630	0.021
sd	0.000			0.025	7.937	0.079	0.083

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID MB 160-444531/18-A

Repeat 1

Carrier No. 0

Batch ID 444531

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/23/2019 6:53:10 PM

Count Ended 10/23/2019 8:33:34 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 100.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	30	0.300	0.130
sd	0.000			0.013	5.477	0.055	0.056
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.379	43	0.430	0.051
sd	0.000			0.019	6.557	0.066	0.068

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Method 9320

Radium-228 (GFPC) by Method 9320

Prep Batch: 444558

Preparation, Precipitate Separation

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 444558

Lab Id: LCS 160-444558/1-A | Analyzed: 10/15/19 16:50 | Decay Corrected: No | Ts: 200
Client ID: | Detector: Protean0 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	LCS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	11.22	0.882	1.36		pCi/L	1.00	0.633	902	637	.	.6639	0.43594	.8336	1.	446271

Carrier	LCS Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.02630				g		0.0354	74.3	40 - 110
Y Carrier	0.02320				g		0.0268	86.7	40 - 110

Lab Id: 400-176914-1 | Analyzed: 10/15/19 16:51 | Decay Corrected: No | Ts: 200
Client ID: AES-MW1-092319 | Detector: Protean8 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	0.447	0.303	0.306	U	pCi/L	1.00	0.471	122	436	.	.6622	0.42635	.8336	1.	446271

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0300				g		0.0354	84.7	40 - 110
Y Carrier	0.0235				g		0.0268	87.9	40 - 110

Lab Id: 400-176914-2 | Analyzed: 10/15/19 16:51 | Decay Corrected: No | Ts: 200
Client ID: AES-MW2-092319 | Detector: Protean9 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	0.191	0.271	0.272	U	pCi/L	1.00	0.454	97	410	.	.662	0.42840	.8336	1.	446271

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0305				g		0.0354	86.2	40 - 110
Y Carrier	0.0232				g		0.0268	86.7	40 - 110

Lab Id: 400-176914-2 MS | Analyzed: 10/15/19 16:51 | Decay Corrected: No | Ts: 200
Client ID: AES-MW2-092319 | Detector: Protean10 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	MS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	9.075	0.724	1.11		pCi/L	1.00	0.469	815	456	.	.6619	0.42978	.8336	1.	446271

Carrier	MS Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03000				g		0.0354	84.7	40 - 110
Y Carrier	0.02390				g		0.0268	89.3	40 - 110

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 444558

Lab Id: 400-176914-2 MSD | Analyzed: 10/15/19 16:51 | Decay Corrected: No | Ts: 200
Client ID: AES-MW2-092319 | Detector: Protean11 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	MSD Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	10.61	0.803	1.26		pCi/L	1.00	0.496	882	447	.	.6617	0.42738	.8336	1.	446271

Carrier	MSD Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.03070				g		0.0354	86.7	40 - 110
Y Carrier	0.02200				g		0.0268	82.2	40 - 110

Lab Id: 400-176914-3 | Analyzed: 10/15/19 16:52 | Decay Corrected: No | Ts: 200
Client ID: AES-MW3-092319 | Detector: Protean13 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	-0.124	0.261	0.261	U	pCi/L	1.00	0.482	101	558	.	.6615	0.43812	.8336	1.	446271

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0316				g		0.0354	89.3	40 - 110
Y Carrier	0.0238				g		0.0268	89.0	40 - 110

Lab Id: 400-176914-4 | Analyzed: 10/15/19 16:52 | Decay Corrected: No | Ts: 200
Client ID: AES-MW4-092319 | Detector: Protean14 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	-0.0400	0.281	0.281	U	pCi/L	1.00	0.508	92	475	.	.6614	0.43692	.8336	1.	446271

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0295				g		0.0354	83.3	40 - 110
Y Carrier	0.0225				g		0.0268	84.1	40 - 110

Lab Id: 400-176914-5 | Analyzed: 10/15/19 16:47 | Decay Corrected: No | Ts: 200
Client ID: AES-MW4-DUP-092319 | Detector: Blue7 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	-0.0988	0.339	0.339	U	pCi/L	1.00	0.615	112	594	.	.6676	0.43701	.8336	1.	446357

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0273				g		0.0354	77.1	40 - 110
Y Carrier	0.0221				g		0.0268	82.6	40 - 110

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 444558

Lab Id: 400-176914-6 | Analyzed: 10/15/19 16:47 | Decay Corrected: No | Ts: 200
Client ID: AES-MW5-092319 | Detector: Blue15 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	0.714	0.318	0.325		pCi/L	1.00	0.459	147	447	.	.6673	0.43628	.8336	1.	446357

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0287				g		0.0354	81.1	40 - 110
Y Carrier	0.0247				g		0.0268	92.3	40 - 110

Lab Id: 400-176914-7 | Analyzed: 10/15/19 16:47 | Decay Corrected: No | Ts: 200
Client ID: AES-FB-092319 | Detector: Blue21 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	0.156	0.239	0.240	U	pCi/L	1.00	0.402	96	411	.	.667	0.43442	.8336	1.	446357

Carrier	Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.0322				g		0.0354	91.0	40 - 110
Y Carrier	0.0243				g		0.0268	90.8	40 - 110

Lab Id: MB 160-444558/18-A | Analyzed: 10/15/19 16:47 | Decay Corrected: No | Ts: 200
Client ID: | Detector: Blue22 | Yield Truncated: No | Tb: 1000
Sigma: 2 | Dil Fac: 1 | Calibration Type: 1

Analyte	MB Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Cs	Cb	X Talk	Decay	Eff	I	A	Anly Batch
Radium-228	0.1693	0.282	0.282	U	pCi/L	1.00	0.477	88	379	.	.6667	0.44040	.8336	1.	446357

Carrier	MB Result	Count Unc	Total Unc	Qualifier	Unit	MDC	Spike Added	% Rec	% Rec Limits
Ba Carrier	0.02650				g		0.0354	74.9	40 - 110
Y Carrier	0.02370				g		0.0268	88.6	40 - 110

Quality Control Summary

Method Blank ID:	Analyte	Parent Result	Spike Added	MB Result	Qualifier	Unit	% Rec	% Rec Limits	RPD	RER	DER	RER Limit	Z Factor
MB 160-444558/18-A	Radium-228			0.1693	U	pCi/L							1.1993
Lab Control Sample ID:	**Analyte**	**Parent Result**	**Spike Added**	**LCS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
LCS 160-444558/1-A	Radium-228		9.49	11.22		pCi/L	118	75 - 125					2.1051
Matrix Spike ID:	**Analyte**	**Parent Result**	**Spike Added**	**MS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
400-176914-2	Radium-228	0.191	9.49	9.075		pCi/L	94	45 - 150	16				-.8196
Matrix Spike Duplicate ID:	**Analyte**	**Parent Result**	**Spike Added**	**MSD Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**RER Limit**	**Z Factor**
400-176914-2	Radium-228	0.191	9.49	10.61		pCi/L	110	45 - 150	16	0.65	1.83	1	1.8315

Gas Flow Proportional Counter Analysis Detail Report
Prep Batch: 444558

Glossary:

- Ts = Count Duration, Sample
- Tb = Count Duration, Background
- Cs = Total Counts, Sample
- Cb = Total Counts, Background
- X Talk = Crosstalk
- Decay = Decay Factor
- Eff = Efficiency
- I = Ingrowth Factor
- A = Abundance

GAS FLOW PROPORTIONAL COUNTER BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 400-176914-2

SDG No.:

Batch Number: 444558 Batch Start Date: 09/30/19 12:15 Batch Analyst: Quinn, Erin J

Batch Method: PrecSep_0 Batch End Date: 10/15/19 15:59

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	Ba_TareWt	Ba_GrossWt	Ba_Mass	Y_TareWt	Y_GrossWt
LCS 160-444558/1		PrecSep_0, 9320		1000 mL	8.7654 g	8.7917 g	0.0354 g	8.8052 g	8.8284 g
400-176914-C-1	AES-MW1-092319	PrecSep_0, 9320	T	1000.90 mL	8.7899 g	8.8199 g	0.0354 g	8.8360 g	8.8595 g
400-176914-C-2	AES-MW2-092319	PrecSep_0, 9320	T	1000.58 mL	8.7693 g	8.7998 g	0.0354 g	8.7761 g	8.7993 g
400-176914-C-2 MS	AES-MW2-092319	PrecSep_0, 9320	T	1000.40 mL	8.7911 g	8.8211 g	0.0354 g	8.7724 g	8.7963 g
400-176914-C-2 MSD	AES-MW2-092319	PrecSep_0, 9320	T	1000.28 mL	8.8061 g	8.8368 g	0.0354 g	8.7580 g	8.7800 g
400-176914-C-3	AES-MW3-092319	PrecSep_0, 9320	T	1000.56 mL	8.8387 g	8.8703 g	0.0354 g	8.8208 g	8.8446 g
400-176914-C-4	AES-MW4-092319	PrecSep_0, 9320	T	1000.48 mL	8.7416 g	8.7711 g	0.0354 g	8.7462 g	8.7687 g
400-176914-C-5	AES-MW4-DUP-092319	PrecSep_0, 9320	T	1000.03 mL	8.7740 g	8.8013 g	0.0354 g	8.8027 g	8.8248 g
400-176914-C-6	AES-MW5-092319	PrecSep_0, 9320	T	1000.43 mL	8.7744 g	8.8031 g	0.0354 g	8.7370 g	8.7617 g
400-176914-C-7	AES-FB-092319	PrecSep_0, 9320	T	1000.37 mL	8.8150 g	8.8472 g	0.0354 g	8.7810 g	8.8053 g
MB 160-444558/18		PrecSep_0, 9320		1000 mL	8.8069 g	8.8334 g	0.0354 g	8.7572 g	8.7809 g

Lab Sample ID	Client Sample ID	Method Chain	Basis	Y_Mass	IngDecDate1	IngDecDate2	NativeMassBa	NativeMassY	Ba Carrier 00045
LCS 160-444558/1		PrecSep_0, 9320		0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL
400-176914-C-1	AES-MW1-092319	PrecSep_0, 9320	T	0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL
400-176914-C-2	AES-MW2-092319	PrecSep_0, 9320	T	0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL
400-176914-C-2 MS	AES-MW2-092319	PrecSep_0, 9320	T	0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL
400-176914-C-2 MSD	AES-MW2-092319	PrecSep_0, 9320	T	0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL
400-176914-C-3	AES-MW3-092319	PrecSep_0, 9320	T	0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL
400-176914-C-4	AES-MW4-092319	PrecSep_0, 9320	T	0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL
400-176914-C-5	AES-MW4-DUP-092319	PrecSep_0, 9320	T	0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAS FLOW PROPORTIONAL COUNTER BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 400-176914-2

SDG No.:

Batch Number: 444558 Batch Start Date: 09/30/19 12:15 Batch Analyst: Quinn, Erin J

Batch Method: PrecSep_0 Batch End Date: 10/15/19 15:59

Lab Sample ID	Client Sample ID	Method Chain	Basis	Y_Mass	IngDecDate1	IngDecDate2	NativeMassBa	NativeMassY	Ba Carrier 00045
400-176914-C-6	AES-MW5-092319	PrecSep_0, 9320	T	0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL
400-176914-C-7	AES-FB-092319	PrecSep_0, 9320	T	0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL
MB 160-444558/18		PrecSep_0, 9320		0.02675 g	10/02/2019 10:00	10/15/2019 13:12	0 g	0 g	1 mL

Lab Sample ID	Client Sample ID	Method Chain	Basis	Ra-228 00037	Y Carrier 00038				
LCS 160-444558/1		PrecSep_0, 9320		0.1 mL	0.2 mL				
400-176914-C-1	AES-MW1-092319	PrecSep_0, 9320	T		0.2 mL				
400-176914-C-2	AES-MW2-092319	PrecSep_0, 9320	T		0.2 mL				
400-176914-C-2 MS	AES-MW2-092319	PrecSep_0, 9320	T	0.1 mL	0.2 mL				
400-176914-C-2 MSD	AES-MW2-092319	PrecSep_0, 9320	T	0.1 mL	0.2 mL				
400-176914-C-3	AES-MW3-092319	PrecSep_0, 9320	T		0.2 mL				
400-176914-C-4	AES-MW4-092319	PrecSep_0, 9320	T		0.2 mL				
400-176914-C-5	AES-MW4-DUP-092319	PrecSep_0, 9320	T		0.2 mL				
400-176914-C-6	AES-MW5-092319	PrecSep_0, 9320	T		0.2 mL				
400-176914-C-7	AES-FB-092319	PrecSep_0, 9320	T		0.2 mL				
MB 160-444558/18		PrecSep_0, 9320			0.2 mL				

Batch Notes	
Balance ID	1122021820, 1125330898
Batch Comment	In SEC, OUT-PMS
Pipette ID	RAD112, RAD038, SEP005
Analyst ID - Reagent Drop Witness	JLC per EJQ, CPR per SEC
Analyst ID - Reagent Drop	EJQ, SEC
SOP Number	ST-RC-0002, ST-RC-0041

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAS FLOW PROPORTIONAL COUNTER BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 400-176914-2

SDG No.:

Batch Number: 444558 Batch Start Date: 09/30/19 12:15 Batch Analyst: Quinn, Erin J

Batch Method: PrecSep_0 Batch End Date: 10/15/19 15:59

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Alpha/Beta Count Results

Sample Activity Report

Protean 0-3 - A

Addr: 0

Sample ID LCS 160-444558/1-A

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 10/15/2019 4:50:09 PM

Count Ended 10/15/2019 8:10:20 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.112	36	0.180	0.068
sd	0.011	6.000	0.030	0.032
Beta	0.637	902	4.510	3.873
sd	0.025	30.033	0.150	0.152

Alpha/Beta Count Results

Sample Activity Report

Protean 8-11 - A

Addr: 8

Sample ID 400-176914-C-1-C

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 10/15/2019 4:51:27 PM

Count Ended 10/15/2019 8:11:38 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.197	36	0.180	-0.017
sd	0.014	6.000	0.030	0.036
Beta	0.436	122	0.610	0.174
sd	0.021	11.045	0.055	0.059

Alpha/Beta Count Results

Sample Activity Report

Protean 8-11 - B

Addr: 9

Sample ID 400-176914-C-2-G

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 10/15/2019 4:51:36 PM

Count Ended 10/15/2019 8:11:48 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.204	26	0.130	-0.074
sd	0.014	5.099	0.025	0.040
Beta	0.410	97	0.485	0.075
sd	0.020	9.849	0.049	0.053

Alpha/Beta Count Results

Sample Activity Report

Protean 8-11 - C

Addr: 10

Sample ID 400-176914-C-2-H MS

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 10/15/2019 4:51:44 PM

Count Ended 10/15/2019 8:11:57 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.276	54	0.270	-0.006
sd	0.017	7.348	0.037	0.041
Beta	0.456	815	4.075	3.619
sd	0.021	28.548	0.143	0.144

Alpha/Beta Count Results

Sample Activity Report

Protean 8-11 - D

Addr: 11

Sample ID 400-176914-C-2-I MSD

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 10/15/2019 4:51:51 PM

Count Ended 10/15/2019 8:12:03 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.222	48	0.240	0.018
sd	0.015	6.928	0.035	0.038
Beta	0.447	882	4.410	3.963
sd	0.021	29.698	0.148	0.150

Alpha/Beta Count Results

Sample Activity Report

Protean 12-15 - B

Addr: 13

Sample ID 400-176914-C-3-C

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 10/15/2019 4:52:02 PM

Count Ended 10/15/2019 8:12:14 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.346	46	0.230	-0.116
sd	0.019	6.782	0.034	0.052
Beta	0.558	101	0.505	-0.053
sd	0.024	10.050	0.050	0.060

Alpha/Beta Count Results

Sample Activity Report

Protean 12-15 - C

Addr: 14

Sample ID 400-176914-C-4-C

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Count Began 10/15/2019 4:52:07 PM

Count Ended 10/15/2019 8:12:18 PM

Sample Count Time 200.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.258	32	0.160	-0.098
sd	0.016	5.657	0.028	0.045
Beta	0.475	92	0.460	-0.015
sd	0.022	9.592	0.048	0.054

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID 400-176914-C-5-C

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/15/2019 4:47:10 PM

Count Ended 10/15/2019 8:07:24 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 200.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.285	46	0.230	-0.055
sd	0.000			0.017	6.782	0.034	0.045
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.594	112	0.560	-0.034
sd	0.000			0.024	10.583	0.053	0.061

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID 400-176914-C-6-C

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/15/2019 4:47:25 PM

Count Ended 10/15/2019 8:07:44 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 200.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.142	23	0.115	-0.027
sd	0.000			0.012	4.796	0.024	0.031
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.447	147	0.735	0.288
sd	0.000			0.021	12.124	0.061	0.064

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID 400-176914-C-7-C

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/15/2019 4:47:40 PM

Count Ended 10/15/2019 8:07:54 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 200.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.231	35	0.175	-0.056
sd	0.000			0.015	5.916	0.030	0.041
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.411	96	0.480	0.069
sd	0.000			0.020	9.798	0.049	0.053

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID MB 160-444558/18-A

Repeat 1

Carrier No. 0

Batch ID 444558

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 10/15/2019 4:47:51 PM

Count Ended 10/15/2019 8:08:04 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 200.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.170	37	0.185	0.015
sd	0.000			0.013	6.083	0.030	0.033
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.379	88	0.440	0.061
sd	0.000			0.019	9.381	0.047	0.051

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Daily Checks

APPROVED
By Kody Saulters at 9:45 am, Oct 15, 2019

eurofins | Environment Testing TestAmerica

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
10/14/2019 12:35:00 AM	11444.79	11634.85	349.05	-190.06	Pass	4330.00	4399.43	55.45	-69.425	Pass
10/15/2019 1:32:00 AM	11522.86	11634.85	349.05	-111.99	Pass	4390.00	4399.43	55.45	-9.425	Pass
Detector 1										
10/14/2019 12:35:00 AM	12565.57	12605.08	378.15	-39.51	Pass	4588.50	4615.83	65.86	-27.325	Pass
10/15/2019 1:33:00 AM	12571.12	12605.08	378.15	-33.95	Pass	4591.00	4615.83	65.86	-24.825	Pass
Detector 2										
10/14/2019 12:35:00 AM	12664.12	12794.55	383.84	-130.43	Pass	4656.50	4785.95	82.34	-129.450	Pass
10/15/2019 1:33:00 AM	12450.13	12794.55	383.84	-344.42	Pass	4664.50	4785.95	82.34	-121.450	Pass
Detector 3										
10/14/2019 12:35:00 AM	12639.00	12736.15	382.08	-97.15	Pass	4444.50	4624.40	187.70	-179.900	Pass
10/15/2019 1:33:00 AM	12554.54	12736.15	382.08	-181.61	Pass	4447.50	4624.40	187.70	-176.900	Pass
Detector 4										
10/14/2019 12:35:00 AM	15592.68	15722.05	471.66	-129.37	Pass	6210.00	6248.73	137.22	-38.725	Pass
10/15/2019 1:32:00 AM	15604.25	15722.05	471.66	-117.80	Pass	6259.50	6248.73	137.22	10.775	Pass
Detector 5										
10/14/2019 12:35:00 AM	16041.71	16098.73	482.96	-57.02	Pass	5865.00	5891.80	176.47	-26.800	Pass
10/15/2019 1:32:00 AM	16367.35	16098.73	482.96	268.62	Pass	5867.50	5891.80	176.47	-24.300	Pass
Detector 6										
10/14/2019 12:35:00 AM	14455.80	14639.35	439.18	-183.55	Pass	5333.50	5398.90	71.52	-65.400	Pass
10/15/2019 1:32:00 AM	14532.88	14639.35	439.18	-106.47	Pass	5393.50	5398.90	71.52	-5.400	Pass
Detector 7										
10/14/2019 12:35:00 AM	14548.43	13937.83	418.13	610.60	**FAIL**	5317.50	7297.30	8522.82	-1979.800	Pass
10/15/2019 1:32:00 AM	14657.01	13937.83	418.13	719.19	**FAIL**	5362.00	7297.30	8522.82	-1935.300	Pass
Detector 8										
10/14/2019 12:38:00 AM	11377.80	11519.60	345.59	-141.80	Pass	4305.50	4390.58	54.07	-85.075	Pass
10/15/2019 1:37:00 AM	11381.85	11519.60	345.59	-137.75	Pass	4300.00	4390.58	54.07	-90.575	Pass
Detector 9										
10/14/2019 12:38:00 AM	12430.46	12491.53	374.75	-61.06	Pass	4659.00	4759.53	53.45	-100.525	Pass
10/15/2019 1:37:00 AM	12444.02	12491.53	374.75	-47.50	Pass	4643.50	4759.53	53.45	-116.025	**WARNING**
Detector 10										
10/14/2019 12:38:00 AM	12822.54	12948.10	388.44	-125.56	Pass	4809.00	4825.35	63.39	-16.350	Pass
10/15/2019 1:37:00 AM	12822.59	12948.10	388.44	-125.51	Pass	4797.50	4825.35	63.39	-27.850	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 11										
10/14/2019 12:38:00 AM	12594.59	12655.38	379.66	-60.78	Pass	4709.00	4752.83	70.27	-43.825	Pass
10/15/2019 1:37:00 AM	12563.64	12655.38	379.66	-91.73	Pass	4683.00	4752.83	70.27	-69.825	Pass
Detector 12										
10/14/2019 12:38:00 AM	15464.56	15299.38	458.98	165.19	Pass	6500.50	6843.40	120.09	-342.900	**WARNING**
10/15/2019 1:36:00 AM	15376.11	15299.38	458.98	76.74	Pass	6461.50	6843.40	120.09	-381.900	**DOEF**
Detector 13										
10/14/2019 12:38:00 AM	16658.81	16835.10	505.05	-176.29	Pass	5297.50	5373.65	69.76	-76.150	Pass
10/15/2019 1:37:00 AM	16840.92	16835.10	505.05	5.82	Pass	5403.50	5373.65	69.76	29.850	Pass
Detector 14										
10/14/2019 12:39:00 AM	13969.35	13766.13	412.98	203.23	Pass	5874.00	6204.05	341.98	-330.050	Pass
10/15/2019 1:37:00 AM	13792.38	13766.13	412.98	26.25	Pass	5869.50	6204.05	341.98	-334.550	Pass
Detector 15										
10/14/2019 12:39:00 AM	14174.38	14023.28	420.70	151.10	Pass	5894.50	6072.43	170.71	-177.925	Pass
10/15/2019 1:37:00 AM	14107.93	14023.28	420.70	84.65	Pass	5892.50	6072.43	170.71	-179.925	Pass
Detector 16										
10/14/2019 12:41:00 AM	11552.24	11642.83	349.28	-90.58	Pass	4198.50	4481.93	104.14	-283.425	**WARNING**
10/15/2019 1:40:00 AM	11712.83	11642.83	349.28	70.00	Pass	4282.00	4481.93	104.14	-199.925	Pass
Detector 17										
10/14/2019 12:41:00 AM	12603.48	12666.83	380.00	-63.35	Pass	4690.50	4682.73	74.80	7.775	Pass
10/15/2019 1:41:00 AM	12572.02	12666.83	380.00	-94.80	Pass	4572.50	4682.73	74.80	-110.225	Pass
Detector 18										
10/14/2019 12:42:00 AM	12823.49	13053.00	391.59	-229.51	Pass	4561.00	4683.18	80.93	-122.175	Pass
10/15/2019 1:41:00 AM	13121.11	13053.00	391.59	68.11	Pass	4555.50	4683.18	80.93	-127.675	Pass
Detector 19										
10/14/2019 12:42:00 AM	12542.90	12614.20	378.43	-71.30	Pass	4668.00	4719.30	125.53	-51.300	Pass
10/15/2019 1:41:00 AM	12575.96	12614.20	378.43	-38.24	Pass	4748.00	4719.30	125.53	28.700	Pass
Detector 20										
10/14/2019 12:42:00 AM	15598.32	15313.50	459.41	284.82	Pass	6707.50	7076.00	198.00	-368.500	Pass
10/15/2019 1:41:00 AM	15582.39	15313.50	459.41	268.89	Pass	6714.00	7076.00	198.00	-362.000	Pass
Detector 21										
10/14/2019 12:42:00 AM	15644.29	15610.30	468.31	33.99	Pass	6275.50	6538.13	138.19	-262.625	Pass
10/15/2019 1:41:00 AM	15682.37	15610.30	468.31	72.07	Pass	6284.00	6538.13	138.19	-254.125	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 22										
10/14/2019 12:42:00 AM	13918.70	13911.20	417.34	7.50	Pass	6212.00	6409.40	171.83	-197.400	Pass
10/15/2019 1:41:00 AM	14035.28	13911.20	417.34	124.08	Pass	5997.50	6409.40	171.83	-411.900	**WARNING**
Detector 23										
10/14/2019 12:42:00 AM	14254.20	14050.90	421.53	203.30	Pass	6376.00	6546.38	122.11	-170.375	Pass
10/15/2019 1:41:00 AM	14183.25	14050.90	421.53	132.35	Pass	6239.50	6546.38	122.11	-306.875	**WARNING**

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
10/14/2019 12:12:00 AM	50040.67	50552.05	1516.56	-511.38	Pass	NA	NA	NA	NA	NA
10/15/2019 1:25:00 AM	50197.18	50552.05	1516.56	-354.87	Pass	NA	NA	NA	NA	NA
Detector 1										
10/14/2019 12:12:00 AM	48564.08	47641.23	1429.24	922.85	Pass	NA	NA	NA	NA	NA
10/15/2019 1:25:00 AM	48679.18	47641.23	1429.24	1037.95	Pass	NA	NA	NA	NA	NA
Detector 2										
10/14/2019 12:12:00 AM	50031.64	49734.44	1492.03	297.20	Pass	NA	NA	NA	NA	NA
10/15/2019 1:25:00 AM	49940.30	49734.44	1492.03	205.86	Pass	NA	NA	NA	NA	NA
Detector 3										
10/14/2019 12:12:00 AM	59417.97	60167.98	1805.04	-750.01	Pass	NA	NA	NA	NA	NA
10/15/2019 1:25:00 AM	59720.98	60167.98	1805.04	-446.99	Pass	NA	NA	NA	NA	NA
Detector 4										
10/14/2019 12:12:00 AM	54080.75	55277.35	1658.32	-1196.60	Pass	NA	NA	NA	NA	NA
10/15/2019 1:25:00 AM	53776.88	55277.35	1658.32	-1500.47	Pass	NA	NA	NA	NA	NA
Detector 5										
10/14/2019 12:13:00 AM	54771.40	55004.03	1650.12	-232.63	Pass	NA	NA	NA	NA	NA
10/15/2019 1:25:00 AM	54763.51	55004.03	1650.12	-240.51	Pass	NA	NA	NA	NA	NA
Detector 6										
10/14/2019 12:13:00 AM	51437.75	52072.68	1562.18	-634.92	Pass	NA	NA	NA	NA	NA
10/15/2019 1:26:00 AM	51835.18	52072.68	1562.18	-237.49	Pass	NA	NA	NA	NA	NA
Detector 7										
10/14/2019 12:13:00 AM	45272.07	44302.58	1329.08	969.49	Pass	NA	NA	NA	NA	NA
10/15/2019 1:26:00 AM	45165.38	44302.58	1329.08	862.80	Pass	NA	NA	NA	NA	NA
Detector 8										
10/14/2019 12:15:00 AM	49821.14	49959.33	1498.78	-138.18	Pass	NA	NA	NA	NA	NA
10/15/2019 1:30:00 AM	49949.91	49959.33	1498.78	-9.41	Pass	NA	NA	NA	NA	NA
Detector 9										
10/14/2019 12:15:00 AM	49070.46	47696.08	1430.88	1374.38	Pass	NA	NA	NA	NA	NA
10/15/2019 1:30:00 AM	48579.59	47696.08	1430.88	883.52	Pass	NA	NA	NA	NA	NA
Detector 10										
10/14/2019 12:15:00 AM	49858.04	50136.65	1504.10	-278.61	Pass	NA	NA	NA	NA	NA
10/15/2019 1:30:00 AM	50196.48	50136.65	1504.10	59.83	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
10/14/2019 12:15:00 AM	60116.67	59951.55	1798.55	165.12	Pass	NA	NA	NA	NA	NA
10/15/2019 1:31:00 AM	59788.62	59951.55	1798.55	-162.93	Pass	NA	NA	NA	NA	NA
Detector 12										
10/14/2019 12:16:00 AM	56033.44	56070.40	1682.11	-36.96	Pass	NA	NA	NA	NA	NA
10/15/2019 1:31:00 AM	56067.17	56070.40	1682.11	-3.23	Pass	NA	NA	NA	NA	NA
Detector 13										
10/14/2019 12:16:00 AM	55032.89	55607.20	1668.22	-574.31	Pass	NA	NA	NA	NA	NA
10/15/2019 1:31:00 AM	55255.53	55607.20	1668.22	-351.67	Pass	NA	NA	NA	NA	NA
Detector 14										
10/14/2019 12:17:00 AM	51041.86	50580.03	1517.40	461.84	Pass	NA	NA	NA	NA	NA
10/15/2019 1:31:00 AM	50836.59	50580.03	1517.40	256.56	Pass	NA	NA	NA	NA	NA
Detector 15										
10/14/2019 12:17:00 AM	45003.72	45674.43	1370.23	-670.71	Pass	NA	NA	NA	NA	NA
10/15/2019 1:31:00 AM	45554.65	45674.43	1370.23	-119.77	Pass	NA	NA	NA	NA	NA
Detector 16										
10/14/2019 12:26:00 AM	50081.69	49653.23	1489.60	428.47	Pass	NA	NA	NA	NA	NA
10/15/2019 1:33:00 AM	50261.76	49653.23	1489.60	608.54	Pass	NA	NA	NA	NA	NA
Detector 17										
10/14/2019 12:26:00 AM	48581.38	48166.13	1444.98	415.25	Pass	NA	NA	NA	NA	NA
10/15/2019 1:33:00 AM	48598.18	48166.13	1444.98	432.06	Pass	NA	NA	NA	NA	NA
Detector 18										
10/14/2019 12:26:00 AM	50188.99	49957.23	1498.72	231.77	Pass	NA	NA	NA	NA	NA
10/15/2019 1:33:00 AM	50224.08	49957.23	1498.72	266.85	Pass	NA	NA	NA	NA	NA
Detector 19										
10/14/2019 12:26:00 AM	60160.06	59167.80	1775.03	992.26	Pass	NA	NA	NA	NA	NA
10/15/2019 1:33:00 AM	59723.26	59167.80	1775.03	555.46	Pass	NA	NA	NA	NA	NA
Detector 20										
10/14/2019 12:25:00 AM	56897.76	57321.08	1719.63	-423.32	Pass	NA	NA	NA	NA	NA
10/15/2019 1:33:00 AM	57008.48	57321.08	1719.63	-312.59	Pass	NA	NA	NA	NA	NA
Detector 21										
10/14/2019 12:25:00 AM	54911.93	55281.80	1658.45	-369.87	Pass	NA	NA	NA	NA	NA
10/15/2019 1:33:00 AM	54890.01	55281.80	1658.45	-391.79	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 22										
10/14/2019 12:25:00 AM	52082.48	52477.75	1574.33	-395.27	Pass	NA	NA	NA	NA	NA
10/15/2019 1:33:00 AM	52569.54	52477.75	1574.33	91.79	Pass	NA	NA	NA	NA	NA
Detector 23										
10/14/2019 12:25:00 AM	45892.30	46160.75	1384.82	-268.45	Pass	NA	NA	NA	NA	NA
10/15/2019 1:33:00 AM	45892.20	46160.75	1384.82	-268.55	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
10/14/2019 4:37:00 AM	0.23	0.17	0.03	0.06	Pass	0.65	0.54	0.10	0.108	Pass
10/15/2019 5:17:00 AM	0.19	0.17	0.03	0.02	Pass	0.53	0.54	0.10	-0.007	Pass
Detector 1										
10/14/2019 4:37:00 AM	0.26	0.22	0.06	0.04	Pass	0.59	0.48	0.08	0.115	Pass
10/15/2019 5:17:00 AM	0.24	0.22	0.06	0.02	Pass	0.53	0.48	0.08	0.055	Pass
Detector 2										
10/14/2019 4:37:00 AM	0.14	0.20	0.03	-0.06	Pass	0.62	0.51	0.09	0.105	Pass
10/15/2019 5:17:00 AM	0.16	0.20	0.03	-0.05	Pass	0.54	0.51	0.09	0.025	Pass
Detector 3										
10/14/2019 4:37:00 AM	0.26	0.18	0.06	0.07	Pass	0.62	0.50	0.08	0.111	Pass
10/15/2019 5:17:00 AM	0.24	0.18	0.06	0.06	Pass	0.53	0.50	0.08	0.021	Pass
Detector 4										
10/14/2019 4:36:00 AM	0.19	0.11	0.04	0.07	Pass	0.55	0.40	0.08	0.150	Pass
10/15/2019 5:17:00 AM	0.24	0.11	0.04	0.12	Pass	0.57	0.40	0.08	0.170	Pass
Detector 5										
10/14/2019 4:36:00 AM	0.27	0.20	0.04	0.07	Pass	0.46	0.46	0.06	0.002	Pass
10/15/2019 5:17:00 AM	0.23	0.20	0.04	0.02	Pass	0.53	0.46	0.06	0.072	Pass
Detector 6										
10/14/2019 4:37:00 AM	0.33	0.19	0.05	0.14	Pass	0.47	0.48	0.09	-0.008	Pass
10/15/2019 5:17:00 AM	0.16	0.19	0.05	-0.03	Pass	0.42	0.48	0.09	-0.058	Pass
Detector 7										
10/14/2019 4:37:00 AM	0.31	0.21	0.08	0.09	Pass	0.50	0.54	0.08	-0.037	Pass
10/15/2019 5:17:00 AM	0.41	0.21	0.08	0.19	Pass	0.55	0.54	0.08	0.013	Pass
Detector 8										
10/14/2019 4:37:00 AM	0.22	0.14	0.04	0.07	Pass	0.59	0.47	0.07	0.124	Pass
10/15/2019 5:17:00 AM	0.13	0.14	0.04	-0.01	Pass	0.38	0.47	0.07	-0.091	Pass
Detector 9										
10/14/2019 4:36:00 AM	0.13	0.16	0.03	-0.03	Pass	0.54	0.40	0.06	0.132	Pass
10/15/2019 5:17:00 AM	0.15	0.16	0.03	-0.01	Pass	0.38	0.40	0.06	-0.023	Pass
Detector 10										
10/14/2019 4:36:00 AM	0.22	0.17	0.04	0.04	Pass	0.34	0.39	0.08	-0.048	Pass
10/15/2019 5:18:00 AM	0.11	0.17	0.04	-0.06	Pass	0.35	0.39	0.08	-0.038	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 11										
10/14/2019 4:36:00 AM	0.17	0.15	0.04	0.02	Pass	0.61	0.49	0.08	0.120	Pass
10/15/2019 5:18:00 AM	0.17	0.15	0.04	0.02	Pass	0.70	0.49	0.08	0.210	Pass
Detector 12										
10/14/2019 4:37:00 AM	0.44	0.16	0.06	0.28	FAIL	0.79	0.45	0.08	0.342	FAIL
10/14/2019 9:10:00 AM	0.38	0.16	0.06	0.22	FAIL	0.78	0.45	0.08	0.327	FAIL
10/15/2019 5:18:00 AM	0.29	0.16	0.06	0.13	Pass	0.50	0.45	0.08	0.052	Pass
Detector 13										
10/14/2019 4:37:00 AM	0.22	0.19	0.04	0.03	Pass	0.48	0.42	0.08	0.051	Pass
10/15/2019 5:18:00 AM	0.22	0.19	0.04	0.03	Pass	0.29	0.42	0.08	-0.134	Pass
Detector 14										
10/14/2019 4:37:00 AM	0.18	0.17	0.05	0.01	Pass	0.48	0.42	0.07	0.061	Pass
10/15/2019 5:18:00 AM	0.25	0.17	0.05	0.08	Pass	0.55	0.42	0.07	0.131	Pass
Detector 15										
10/14/2019 4:37:00 AM	0.25	0.17	0.04	0.08	Pass	0.43	0.47	0.07	-0.041	Pass
10/15/2019 5:18:00 AM	0.29	0.17	0.04	0.12	Pass	0.64	0.47	0.07	0.164	Pass
Detector 16										
10/14/2019 5:11:00 AM	0.17	0.17	0.03	-0.01	Pass	2.24	3.95	1.65	-1.720	Pass
10/15/2019 5:18:00 AM	0.21	0.17	0.03	0.03	Pass	1.48	3.95	1.65	-2.475	Pass
Detector 17										
10/14/2019 5:11:00 AM	0.32	0.22	0.08	0.10	Pass	0.87	0.45	0.08	0.412	FAIL
10/14/2019 9:11:00 AM	0.23	0.22	0.08	0.01	Pass	0.57	0.45	0.08	0.112	Pass
10/15/2019 5:18:00 AM	0.23	0.22	0.08	0.01	Pass	0.57	0.45	0.08	0.117	Pass
Detector 18										
10/14/2019 5:11:00 AM	0.96	0.97	0.08	-0.01	Pass	1.27	1.27	0.14	-0.002	Pass
10/15/2019 5:18:00 AM	1.04	0.97	0.08	0.07	Pass	1.31	1.27	0.14	0.038	Pass
Detector 19										
10/14/2019 5:11:00 AM	0.22	0.21	0.05	0.00	Pass	0.63	0.54	0.07	0.092	Pass
10/15/2019 5:18:00 AM	0.26	0.21	0.05	0.05	Pass	0.46	0.54	0.07	-0.078	Pass
Detector 20										
10/14/2019 5:10:00 AM	0.29	0.18	0.04	0.11	Pass	0.67	0.49	0.07	0.183	Pass
10/15/2019 5:18:00 AM	0.21	0.18	0.04	0.02	Pass	0.67	0.49	0.07	0.178	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 21										
10/14/2019 5:11:00 AM	0.29	0.21	0.06	0.07	Pass	0.52	0.44	0.08	0.084	Pass
10/15/2019 5:18:00 AM	0.26	0.21	0.06	0.05	Pass	0.37	0.44	0.08	-0.066	Pass
Detector 22										
10/14/2019 5:11:00 AM	0.26	0.19	0.06	0.06	Pass	0.49	0.48	0.11	0.009	Pass
10/15/2019 5:18:00 AM	0.28	0.19	0.06	0.09	Pass	0.47	0.48	0.11	-0.011	Pass
Detector 23										
10/14/2019 5:11:00 AM	0.58	0.43	0.10	0.15	Pass	0.86	0.77	0.12	0.085	Pass
10/15/2019 5:18:00 AM	0.60	0.43	0.10	0.17	Pass	0.93	0.77	0.12	0.160	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Kody Saulters at 12:18 pm, Oct 16, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
10/15/2019 1:32:00 AM	11522.86	11634.85	349.05	-111.99	Pass	4390.00	4399.43	55.45	-9.425	Pass
10/16/2019 12:38:00 AM	11509.41	11634.85	349.05	-125.44	Pass	4328.50	4399.43	55.45	-70.925	Pass
Detector 1										
10/15/2019 1:33:00 AM	12571.12	12605.08	378.15	-33.95	Pass	4591.00	4615.83	65.86	-24.825	Pass
10/16/2019 12:38:00 AM	12390.14	12605.08	378.15	-214.94	Pass	4530.50	4615.83	65.86	-85.325	Pass
Detector 2										
10/15/2019 1:33:00 AM	12450.13	12794.55	383.84	-344.42	Pass	4664.50	4785.95	82.34	-121.450	Pass
10/16/2019 12:38:00 AM	12633.73	12794.55	383.84	-160.82	Pass	4731.50	4785.95	82.34	-54.450	Pass
Detector 3										
10/15/2019 1:33:00 AM	12554.54	12736.15	382.08	-181.61	Pass	4447.50	4624.40	187.70	-176.900	Pass
10/16/2019 12:38:00 AM	12455.57	12736.15	382.08	-280.58	Pass	4622.00	4624.40	187.70	-2.400	Pass
Detector 4										
10/15/2019 1:32:00 AM	15604.25	15722.05	471.66	-117.80	Pass	6259.50	6248.73	137.22	10.775	Pass
10/16/2019 12:35:00 AM	15496.30	15722.05	471.66	-225.75	Pass	6421.00	6248.73	137.22	172.275	Pass
Detector 5										
10/15/2019 1:32:00 AM	16367.35	16098.73	482.96	268.62	Pass	5867.50	5891.80	176.47	-24.300	Pass
10/16/2019 12:35:00 AM	16030.85	16098.73	482.96	-67.88	Pass	5830.00	5891.80	176.47	-61.800	Pass
Detector 6										
10/15/2019 1:32:00 AM	14532.88	14639.35	439.18	-106.47	Pass	5393.50	5398.90	71.52	-5.400	Pass
10/16/2019 12:35:00 AM	14524.94	14639.35	439.18	-114.41	Pass	5364.50	5398.90	71.52	-34.400	Pass
Detector 7										
10/15/2019 1:32:00 AM	14657.01	13937.83	418.13	719.19	FAIL	5362.00	7297.30	8522.82	-1935.300	Pass
10/16/2019 12:35:00 AM	14617.07	13937.83	418.13	679.24	FAIL	5332.50	7297.30	8522.82	-1964.800	Pass
Detector 8										
10/15/2019 1:37:00 AM	11381.85	11519.60	345.59	-137.75	Pass	4300.00	4390.58	54.07	-90.575	Pass
10/16/2019 12:41:00 AM	11265.38	11519.60	345.59	-254.22	Pass	4362.50	4390.58	54.07	-28.075	Pass
Detector 9										
10/15/2019 1:37:00 AM	12444.02	12491.53	374.75	-47.50	Pass	4643.50	4759.53	53.45	-116.025	**WARNING**
10/16/2019 12:41:00 AM	12462.58	12491.53	374.75	-28.95	Pass	4720.00	4759.53	53.45	-39.525	Pass
Detector 10										
10/15/2019 1:37:00 AM	12822.59	12948.10	388.44	-125.51	Pass	4797.50	4825.35	63.39	-27.850	Pass
10/16/2019 12:41:00 AM	12967.18	12948.10	388.44	19.08	Pass	4762.50	4825.35	63.39	-62.850	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 11										
10/15/2019 1:37:00 AM	12563.64	12655.38	379.66	-91.73	Pass	4683.00	4752.83	70.27	-69.825	Pass
10/16/2019 12:41:00 AM	12656.22	12655.38	379.66	0.84	Pass	4675.00	4752.83	70.27	-77.825	Pass
Detector 12										
10/15/2019 1:36:00 AM	15376.11	15299.38	458.98	76.74	Pass	6461.50	6843.40	120.09	-381.900	**DOEF**
10/16/2019 12:39:00 AM	15309.17	15299.38	458.98	9.79	Pass	6625.00	6843.40	120.09	-218.400	Pass
Detector 13										
10/15/2019 1:37:00 AM	16840.92	16835.10	505.05	5.82	Pass	5403.50	5373.65	69.76	29.850	Pass
10/16/2019 12:39:00 AM	16783.49	16835.10	505.05	-51.61	Pass	5300.00	5373.65	69.76	-73.650	Pass
Detector 14										
10/15/2019 1:37:00 AM	13792.38	13766.13	412.98	26.25	Pass	5869.50	6204.05	341.98	-334.550	Pass
10/16/2019 12:39:00 AM	13861.95	13766.13	412.98	95.83	Pass	6014.50	6204.05	341.98	-189.550	Pass
Detector 15										
10/15/2019 1:37:00 AM	14107.93	14023.28	420.70	84.65	Pass	5892.50	6072.43	170.71	-179.925	Pass
10/16/2019 12:39:00 AM	14085.98	14023.28	420.70	62.71	Pass	5843.00	6072.43	170.71	-229.425	Pass
Detector 16										
10/15/2019 1:40:00 AM	11712.83	11642.83	349.28	70.00	Pass	4282.00	4481.93	104.14	-199.925	Pass
10/16/2019 12:43:00 AM	11671.37	11642.83	349.28	28.54	Pass	4250.00	4481.93	104.14	-231.925	**WARNING**
Detector 17										
10/15/2019 1:41:00 AM	12572.02	12666.83	380.00	-94.80	Pass	4572.50	4682.73	74.80	-110.225	Pass
10/16/2019 12:43:00 AM	12664.60	12666.83	380.00	-2.23	Pass	4553.50	4682.73	74.80	-129.225	Pass
Detector 18										
10/15/2019 1:41:00 AM	13121.11	13053.00	391.59	68.11	Pass	4555.50	4683.18	80.93	-127.675	Pass
10/16/2019 12:43:00 AM	13020.15	13053.00	391.59	-32.85	Pass	4573.00	4683.18	80.93	-110.175	Pass
Detector 19										
10/15/2019 1:41:00 AM	12575.96	12614.20	378.43	-38.24	Pass	4748.00	4719.30	125.53	28.700	Pass
10/16/2019 12:43:00 AM	12759.55	12614.20	378.43	145.35	Pass	4684.50	4719.30	125.53	-34.800	Pass
Detector 20										
10/15/2019 1:41:00 AM	15582.39	15313.50	459.41	268.89	Pass	6714.00	7076.00	198.00	-362.000	Pass
10/16/2019 12:41:00 AM	15411.93	15313.50	459.41	98.43	Pass	6843.00	7076.00	198.00	-233.000	Pass
Detector 21										
10/15/2019 1:41:00 AM	15682.37	15610.30	468.31	72.07	Pass	6284.00	6538.13	138.19	-254.125	Pass
10/16/2019 12:41:00 AM	15824.46	15610.30	468.31	214.16	Pass	6404.50	6538.13	138.19	-133.625	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 22										
10/15/2019 1:41:00 AM	14035.28	13911.20	417.34	124.08	Pass	5997.50	6409.40	171.83	-411.900	**WARNING**
10/16/2019 12:41:00 AM	14080.84	13911.20	417.34	169.64	Pass	6140.50	6409.40	171.83	-268.900	Pass
Detector 23										
10/15/2019 1:41:00 AM	14183.25	14050.90	421.53	132.35	Pass	6239.50	6546.38	122.11	-306.875	**WARNING**
10/16/2019 12:41:00 AM	14147.31	14050.90	421.53	96.41	Pass	6417.50	6546.38	122.11	-128.875	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
10/15/2019 1:25:00 AM	50197.18	50552.05	1516.56	-354.87	Pass	NA	NA	NA	NA	NA
10/16/2019 12:29:00 AM	50115.78	50552.05	1516.56	-436.27	Pass	NA	NA	NA	NA	NA
Detector 1										
10/15/2019 1:25:00 AM	48679.18	47641.23	1429.24	1037.95	Pass	NA	NA	NA	NA	NA
10/16/2019 12:29:00 AM	48651.02	47641.23	1429.24	1009.79	Pass	NA	NA	NA	NA	NA
Detector 2										
10/15/2019 1:25:00 AM	49940.30	49734.44	1492.03	205.86	Pass	NA	NA	NA	NA	NA
10/16/2019 12:29:00 AM	49888.69	49734.44	1492.03	154.25	Pass	NA	NA	NA	NA	NA
Detector 3										
10/15/2019 1:25:00 AM	59720.98	60167.98	1805.04	-446.99	Pass	NA	NA	NA	NA	NA
10/16/2019 12:29:00 AM	59688.85	60167.98	1805.04	-479.13	Pass	NA	NA	NA	NA	NA
Detector 4										
10/15/2019 1:25:00 AM	53776.88	55277.35	1658.32	-1500.47	Pass	NA	NA	NA	NA	NA
10/16/2019 12:29:00 AM	54316.92	55277.35	1658.32	-960.43	Pass	NA	NA	NA	NA	NA
Detector 5										
10/15/2019 1:25:00 AM	54763.51	55004.03	1650.12	-240.51	Pass	NA	NA	NA	NA	NA
10/16/2019 12:29:00 AM	54979.94	55004.03	1650.12	-24.08	Pass	NA	NA	NA	NA	NA
Detector 6										
10/15/2019 1:26:00 AM	51835.18	52072.68	1562.18	-237.49	Pass	NA	NA	NA	NA	NA
10/16/2019 12:29:00 AM	51932.18	52072.68	1562.18	-140.49	Pass	NA	NA	NA	NA	NA
Detector 7										
10/15/2019 1:26:00 AM	45165.38	44302.58	1329.08	862.80	Pass	NA	NA	NA	NA	NA
10/16/2019 12:29:00 AM	45142.89	44302.58	1329.08	840.31	Pass	NA	NA	NA	NA	NA
Detector 8										
10/15/2019 1:30:00 AM	49949.91	49959.33	1498.78	-9.41	Pass	NA	NA	NA	NA	NA
10/16/2019 12:32:00 AM	49862.75	49959.33	1498.78	-96.57	Pass	NA	NA	NA	NA	NA
Detector 9										
10/15/2019 1:30:00 AM	48579.59	47696.08	1430.88	883.52	Pass	NA	NA	NA	NA	NA
10/16/2019 12:32:00 AM	48981.25	47696.08	1430.88	1285.17	Pass	NA	NA	NA	NA	NA
Detector 10										
10/15/2019 1:30:00 AM	50196.48	50136.65	1504.10	59.83	Pass	NA	NA	NA	NA	NA
10/16/2019 12:32:00 AM	50370.78	50136.65	1504.10	234.13	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
10/15/2019 1:31:00 AM	59788.62	59951.55	1798.55	-162.93	Pass	NA	NA	NA	NA	NA
10/16/2019 12:32:00 AM	60038.85	59951.55	1798.55	87.30	Pass	NA	NA	NA	NA	NA
Detector 12										
10/15/2019 1:31:00 AM	56067.17	56070.40	1682.11	-3.23	Pass	NA	NA	NA	NA	NA
10/16/2019 12:32:00 AM	56076.05	56070.40	1682.11	5.65	Pass	NA	NA	NA	NA	NA
Detector 13										
10/15/2019 1:31:00 AM	55255.53	55607.20	1668.22	-351.67	Pass	NA	NA	NA	NA	NA
10/16/2019 12:32:00 AM	55209.87	55607.20	1668.22	-397.33	Pass	NA	NA	NA	NA	NA
Detector 14										
10/15/2019 1:31:00 AM	50836.59	50580.03	1517.40	256.56	Pass	NA	NA	NA	NA	NA
10/16/2019 12:32:00 AM	50824.37	50580.03	1517.40	244.35	Pass	NA	NA	NA	NA	NA
Detector 15										
10/15/2019 1:31:00 AM	45554.65	45674.43	1370.23	-119.77	Pass	NA	NA	NA	NA	NA
10/16/2019 12:32:00 AM	45387.19	45674.43	1370.23	-287.23	Pass	NA	NA	NA	NA	NA
Detector 16										
10/15/2019 1:33:00 AM	50261.76	49653.23	1489.60	608.54	Pass	NA	NA	NA	NA	NA
10/16/2019 12:35:00 AM	49999.92	49653.23	1489.60	346.69	Pass	NA	NA	NA	NA	NA
Detector 17										
10/15/2019 1:33:00 AM	48598.18	48166.13	1444.98	432.06	Pass	NA	NA	NA	NA	NA
10/16/2019 12:35:00 AM	48678.78	48166.13	1444.98	512.66	Pass	NA	NA	NA	NA	NA
Detector 18										
10/15/2019 1:33:00 AM	50224.08	49957.23	1498.72	266.85	Pass	NA	NA	NA	NA	NA
10/16/2019 12:35:00 AM	50002.39	49957.23	1498.72	45.16	Pass	NA	NA	NA	NA	NA
Detector 19										
10/15/2019 1:33:00 AM	59723.26	59167.80	1775.03	555.46	Pass	NA	NA	NA	NA	NA
10/16/2019 12:35:00 AM	60334.80	59167.80	1775.03	1167.00	Pass	NA	NA	NA	NA	NA
Detector 20										
10/15/2019 1:33:00 AM	57008.48	57321.08	1719.63	-312.59	Pass	NA	NA	NA	NA	NA
10/16/2019 12:36:00 AM	56918.32	57321.08	1719.63	-402.76	Pass	NA	NA	NA	NA	NA
Detector 21										
10/15/2019 1:33:00 AM	54890.01	55281.80	1658.45	-391.79	Pass	NA	NA	NA	NA	NA
10/16/2019 12:36:00 AM	54720.01	55281.80	1658.45	-561.79	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 22										
10/15/2019 1:33:00 AM	52569.54	52477.75	1574.33	91.79	Pass	NA	NA	NA	NA	NA
10/16/2019 12:36:00 AM	52187.34	52477.75	1574.33	-290.41	Pass	NA	NA	NA	NA	NA
Detector 23										
10/15/2019 1:33:00 AM	45892.20	46160.75	1384.82	-268.55	Pass	NA	NA	NA	NA	NA
10/16/2019 12:36:00 AM	45928.09	46160.75	1384.82	-232.66	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
10/15/2019 5:17:00 AM	0.19	0.17	0.03	0.02	Pass	0.53	0.54	0.10	-0.007	Pass
10/16/2019 4:21:00 AM	0.10	0.17	0.03	-0.07	Pass	0.63	0.54	0.10	0.088	Pass
Detector 1										
10/15/2019 5:17:00 AM	0.24	0.19	0.03	0.05	Pass	0.53	0.44	0.08	0.091	Pass
10/16/2019 4:21:00 AM	0.18	0.19	0.03	-0.01	Pass	0.43	0.44	0.08	-0.014	Pass
Detector 2										
10/15/2019 5:17:00 AM	0.16	0.19	0.03	-0.04	Pass	0.54	0.51	0.09	0.028	Pass
10/16/2019 4:21:00 AM	0.17	0.19	0.03	-0.02	Pass	0.42	0.51	0.09	-0.097	Pass
Detector 3										
10/15/2019 5:17:00 AM	0.24	0.17	0.04	0.07	Pass	0.53	0.51	0.09	0.020	Pass
10/16/2019 4:21:00 AM	0.20	0.17	0.04	0.03	Pass	0.59	0.51	0.09	0.080	Pass
Detector 4										
10/15/2019 5:17:00 AM	0.24	0.11	0.04	0.12	Pass	0.57	0.40	0.08	0.170	Pass
10/16/2019 4:21:00 AM	0.28	0.11	0.04	0.16	**FAIL**	0.60	0.40	0.08	0.195	Pass
10/16/2019 9:29:00 AM	0.25	0.11	0.04	0.13	**FAIL**	0.31	0.40	0.08	-0.090	Pass
Detector 5										
10/15/2019 5:17:00 AM	0.23	0.18	0.04	0.04	Pass	0.53	0.45	0.06	0.083	Pass
10/16/2019 4:21:00 AM	0.29	0.18	0.04	0.11	Pass	0.46	0.45	0.06	0.007	Pass
Detector 6										
10/15/2019 5:17:00 AM	0.16	0.17	0.03	-0.01	Pass	0.42	0.46	0.06	-0.040	Pass
10/16/2019 4:21:00 AM	0.24	0.17	0.03	0.07	Pass	0.33	0.46	0.06	-0.135	Pass
Detector 7										
10/15/2019 5:17:00 AM	0.41	0.18	0.05	0.22	**FAIL**	0.55	0.53	0.08	0.021	Pass
10/16/2019 4:21:00 AM	0.31	0.18	0.05	0.13	Pass	0.43	0.53	0.08	-0.104	Pass
Detector 8										
10/15/2019 5:17:00 AM	0.13	0.14	0.03	-0.01	Pass	0.38	0.46	0.07	-0.089	Pass
10/16/2019 4:20:00 AM	0.21	0.14	0.03	0.07	Pass	0.65	0.46	0.07	0.181	Pass
Detector 9										
10/15/2019 5:17:00 AM	0.15	0.16	0.03	-0.01	Pass	0.38	0.40	0.06	-0.023	Pass
10/16/2019 4:20:00 AM	0.17	0.16	0.03	0.01	Pass	0.39	0.40	0.06	-0.018	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 10										
10/15/2019 5:18:00 AM	0.11	0.17	0.04	-0.06	Pass	0.35	0.39	0.08	-0.038	Pass
10/16/2019 4:20:00 AM	0.16	0.17	0.04	-0.01	Pass	0.39	0.39	0.08	-0.003	Pass
Detector 11										
10/15/2019 5:18:00 AM	0.17	0.15	0.04	0.02	Pass	0.70	0.49	0.08	0.210	Pass
10/16/2019 4:20:00 AM	0.15	0.15	0.04	0.00	Pass	0.53	0.49	0.08	0.040	Pass
Detector 12										
10/15/2019 5:18:00 AM	0.29	0.15	0.05	0.14	**FAIL**	0.50	0.44	0.07	0.056	Pass
10/16/2019 4:20:00 AM	0.36	0.15	0.05	0.21	**FAIL**	0.53	0.44	0.07	0.087	Pass
10/16/2019 8:57:00 AM	0.38	0.15	0.05	0.23	**FAIL**	0.44	0.44	0.07	-0.009	Pass
Detector 13										
10/15/2019 5:18:00 AM	0.22	0.18	0.03	0.03	Pass	0.29	0.43	0.08	-0.137	Pass
10/16/2019 4:21:00 AM	0.15	0.18	0.03	-0.03	Pass	0.44	0.43	0.08	0.008	Pass
Detector 14										
10/15/2019 5:18:00 AM	0.25	0.16	0.04	0.08	Pass	0.55	0.41	0.07	0.141	Pass
10/16/2019 4:21:00 AM	0.22	0.16	0.04	0.05	Pass	0.48	0.41	0.07	0.071	Pass
Detector 15										
10/15/2019 5:18:00 AM	0.29	0.17	0.04	0.12	**FAIL**	0.64	0.47	0.07	0.166	Pass
10/16/2019 4:21:00 AM	0.22	0.17	0.04	0.05	Pass	0.49	0.47	0.07	0.016	Pass
Detector 16										
10/15/2019 5:18:00 AM	0.21	0.17	0.03	0.03	Pass	1.48	3.95	1.65	-2.475	Pass
10/16/2019 4:21:00 AM	0.17	0.17	0.03	-0.01	Pass	1.44	3.95	1.65	-2.515	Pass
Detector 17										
10/15/2019 5:18:00 AM	0.23	0.20	0.05	0.03	Pass	0.57	0.46	0.08	0.113	Pass
10/16/2019 4:21:00 AM	0.14	0.20	0.05	-0.06	Pass	0.51	0.46	0.08	0.053	Pass
Detector 18										
10/15/2019 5:18:00 AM	1.04	0.06	0.03	0.98	**FAIL**	1.31	0.70	0.12	0.610	**FAIL**
10/16/2019 4:21:00 AM	0.90	0.06	0.03	0.84	**FAIL**	1.34	0.70	0.12	0.640	**FAIL**
Detector 19										
10/15/2019 5:18:00 AM	0.26	0.19	0.04	0.07	Pass	0.46	0.54	0.07	-0.081	Pass
10/16/2019 4:21:00 AM	0.26	0.19	0.04	0.07	Pass	0.59	0.54	0.07	0.050	Pass
Detector 20										
10/15/2019 5:18:00 AM	0.21	0.18	0.04	0.02	Pass	0.67	0.49	0.07	0.178	Pass
10/16/2019 4:21:00 AM	0.17	0.18	0.04	-0.01	Pass	0.59	0.49	0.07	0.098	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 21										
10/15/2019 5:18:00 AM	0.26	0.21	0.05	0.06	Pass	0.37	0.43	0.08	-0.055	Pass
10/16/2019 4:21:00 AM	0.23	0.21	0.05	0.03	Pass	0.48	0.43	0.08	0.050	Pass
Detector 22										
10/15/2019 5:18:00 AM	0.28	0.19	0.06	0.09	Pass	0.47	0.48	0.11	-0.015	Pass
10/16/2019 4:21:00 AM	0.28	0.19	0.06	0.09	Pass	0.45	0.48	0.11	-0.030	Pass
Detector 23										
10/15/2019 5:18:00 AM	0.60	0.05	0.02	0.55	FAIL	0.93	0.35	0.09	0.585	FAIL
10/16/2019 4:21:00 AM	0.39	0.05	0.02	0.34	FAIL	0.62	0.35	0.09	0.270	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Kody Saulters at 6:13 am, Oct 24, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
10/22/2019 1:21:00 AM	11651.74	11634.85	349.05	16.89	Pass	4346.50	4399.43	55.45	-52.925	Pass
10/23/2019 12:50:00 AM	11516.76	11634.85	349.05	-118.09	Pass	4235.00	4399.43	55.45	-164.425	**WARNING**
Detector 1										
10/22/2019 1:21:00 AM	12498.49	12605.08	378.15	-106.58	Pass	4435.50	4615.83	65.86	-180.325	**WARNING**
10/23/2019 12:50:00 AM	12516.05	12605.08	378.15	-89.03	Pass	4418.50	4615.83	65.86	-197.325	**WARNING**
Detector 2										
10/22/2019 1:21:00 AM	12712.58	12794.55	383.84	-81.97	Pass	4677.50	4785.95	82.34	-108.450	Pass
10/23/2019 12:50:00 AM	12466.07	12794.55	383.84	-328.48	Pass	4615.50	4785.95	82.34	-170.450	**WARNING**
Detector 3										
10/22/2019 1:21:00 AM	12509.41	12736.15	382.08	-226.74	Pass	4471.00	4624.40	187.70	-153.400	Pass
10/23/2019 12:50:00 AM	12531.47	12736.15	382.08	-204.68	Pass	4445.00	4624.40	187.70	-179.400	Pass
Detector 4										
10/22/2019 1:21:00 AM	15512.21	15722.05	471.66	-209.84	Pass	6333.50	6248.73	137.22	84.775	Pass
10/23/2019 12:50:00 AM	15239.21	15722.05	471.66	-482.84	**FAIL**	6364.00	6248.73	137.22	115.275	Pass
10/23/2019 1:13:00 AM	15423.76	15722.05	471.66	-298.29	Pass	6100.00	6248.73	137.22	-148.725	Pass
10/23/2019 1:15:00 AM	15722.33	15722.05	471.66	0.28	Pass	6120.50	6248.73	137.22	-128.225	Pass
Detector 5										
10/22/2019 1:21:00 AM	16227.82	16098.73	482.96	129.09	Pass	5713.50	5891.80	176.47	-178.300	Pass
10/23/2019 12:50:00 AM	16260.89	16098.73	482.96	162.17	Pass	5812.00	5891.80	176.47	-79.800	Pass
Detector 6										
10/22/2019 1:21:00 AM	14482.82	14639.35	439.18	-156.53	Pass	5336.00	5398.90	71.52	-62.900	Pass
10/23/2019 12:50:00 AM	14610.41	14639.35	439.18	-28.94	Pass	5202.50	5398.90	71.52	-196.400	**WARNING**
Detector 7										
10/22/2019 1:21:00 AM	14782.49	13937.83	418.13	844.67	**FAIL**	5376.00	7297.30	8522.82	-1921.300	Pass
10/23/2019 12:50:00 AM	14635.52	13937.83	418.13	697.70	**FAIL**	5277.50	7297.30	8522.82	-2019.800	Pass
Detector 8										
10/22/2019 1:23:00 AM	11359.70	11519.60	345.59	-159.90	Pass	4328.50	4390.58	54.07	-62.075	Pass
10/23/2019 12:52:00 AM	11413.26	11519.60	345.59	-106.34	Pass	4342.50	4390.58	54.07	-48.075	Pass
Detector 9										
10/22/2019 1:23:00 AM	12363.38	12491.53	374.75	-128.14	Pass	4681.50	4759.53	53.45	-78.025	Pass
10/23/2019 12:52:00 AM	12360.44	12491.53	374.75	-131.09	Pass	4689.50	4759.53	53.45	-70.025	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 10										
10/22/2019 1:23:00 AM	12767.47	12948.10	388.44	-180.63	Pass	4705.00	4825.35	63.39	-120.350	Pass
10/23/2019 12:53:00 AM	12758.53	12948.10	388.44	-189.57	Pass	4686.00	4825.35	63.39	-139.350	**WARNING**
Detector 11										
10/22/2019 1:23:00 AM	12559.53	12655.38	379.66	-95.85	Pass	4748.00	4752.83	70.27	-4.825	Pass
10/23/2019 12:53:00 AM	12574.09	12655.38	379.66	-81.29	Pass	4611.50	4752.83	70.27	-141.325	**WARNING**
Detector 12										
10/22/2019 1:24:00 AM	15654.65	15299.38	458.98	355.28	Pass	6491.00	6843.40	120.09	-352.400	**WARNING**
10/23/2019 12:53:00 AM	15445.17	15299.38	458.98	145.80	Pass	6518.00	6843.40	120.09	-325.400	**WARNING**
Detector 13										
10/22/2019 1:24:00 AM	16959.47	16835.10	505.05	124.37	Pass	5353.00	5373.65	69.76	-20.650	Pass
10/23/2019 12:53:00 AM	16858.52	16835.10	505.05	23.42	Pass	5102.00	5373.65	69.76	-271.650	**DOEF**
Detector 14										
10/22/2019 1:24:00 AM	13885.32	13766.13	412.98	119.20	Pass	5963.50	6204.05	341.98	-240.550	Pass
10/23/2019 12:53:00 AM	13898.89	13766.13	412.98	132.76	Pass	5817.00	6204.05	341.98	-387.050	Pass
Detector 15										
10/22/2019 1:24:00 AM	14086.35	14023.28	420.70	63.08	Pass	5819.00	6072.43	170.71	-253.425	Pass
10/23/2019 12:53:00 AM	14155.93	14023.28	420.70	132.66	Pass	5766.50	6072.43	170.71	-305.925	Pass
Detector 16										
10/22/2019 1:26:00 AM	11688.18	11642.83	349.28	45.35	Pass	4321.50	4481.93	104.14	-160.425	Pass
10/23/2019 12:55:00 AM	11501.69	11642.83	349.28	-141.14	Pass	4231.50	4481.93	104.14	-250.425	**WARNING**
Detector 17										
10/22/2019 1:26:00 AM	12849.97	12666.83	380.00	183.15	Pass	4588.00	4682.73	74.80	-94.725	Pass
10/23/2019 12:55:00 AM	12620.48	12666.83	380.00	-46.35	Pass	4503.50	4682.73	74.80	-179.225	**WARNING**
Detector 18										
10/22/2019 1:26:00 AM	13205.03	13053.00	391.59	152.03	Pass	4585.50	4683.18	80.93	-97.675	Pass
10/23/2019 12:55:00 AM	13012.54	13053.00	391.59	-40.46	Pass	4547.00	4683.18	80.93	-136.175	Pass
Detector 19										
10/22/2019 1:26:00 AM	12651.86	12614.20	378.43	37.66	Pass	4709.50	4719.30	125.53	-9.800	Pass
10/23/2019 12:55:00 AM	12552.90	12614.20	378.43	-61.30	Pass	4632.00	4719.30	125.53	-87.300	Pass
Detector 20										
10/22/2019 1:27:00 AM	15608.37	15313.50	459.41	294.87	Pass	6808.50	7076.00	198.00	-267.500	Pass
10/23/2019 12:55:00 AM	15642.94	15313.50	459.41	329.44	Pass	6699.50	7076.00	198.00	-376.500	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 21										
10/22/2019 1:27:00 AM	15805.87	15610.30	468.31	195.57	Pass	6177.50	6538.13	138.19	-360.625	**WARNING**
10/23/2019 12:55:00 AM	16024.48	15610.30	468.31	414.18	Pass	6168.50	6538.13	138.19	-369.625	**WARNING**
Detector 22										
10/22/2019 1:27:00 AM	14147.23	13911.20	417.34	236.03	Pass	6143.50	6409.40	171.83	-265.900	Pass
10/23/2019 12:55:00 AM	14161.79	13911.20	417.34	250.59	Pass	6024.50	6409.40	171.83	-384.900	**WARNING**
Detector 23										
10/22/2019 1:27:00 AM	14354.22	14050.90	421.53	303.32	Pass	6375.00	6546.38	122.11	-171.375	Pass
10/23/2019 12:55:00 AM	14416.79	14050.90	421.53	365.89	Pass	6051.00	6546.38	122.11	-495.375	**DOEF**

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
10/22/2019 1:11:00 AM	50414.46	50552.05	1516.56	-137.59	Pass	NA	NA	NA	NA	NA
10/23/2019 12:40:00 AM	50161.45	50552.05	1516.56	-390.60	Pass	NA	NA	NA	NA	NA
Detector 1										
10/22/2019 1:11:00 AM	48693.84	47641.23	1429.24	1052.61	Pass	NA	NA	NA	NA	NA
10/23/2019 12:40:00 AM	48564.70	47641.23	1429.24	923.47	Pass	NA	NA	NA	NA	NA
Detector 2										
10/22/2019 1:12:00 AM	49689.26	49734.44	1492.03	-45.18	Pass	NA	NA	NA	NA	NA
10/23/2019 12:40:00 AM	49758.46	49734.44	1492.03	24.02	Pass	NA	NA	NA	NA	NA
Detector 3										
10/22/2019 1:12:00 AM	59398.62	60167.98	1805.04	-769.35	Pass	NA	NA	NA	NA	NA
10/23/2019 12:40:00 AM	59925.71	60167.98	1805.04	-242.27	Pass	NA	NA	NA	NA	NA
Detector 4										
10/22/2019 1:12:00 AM	54212.38	55277.35	1658.32	-1064.97	Pass	NA	NA	NA	NA	NA
10/23/2019 12:40:00 AM	53840.87	55277.35	1658.32	-1436.48	Pass	NA	NA	NA	NA	NA
Detector 5										
10/22/2019 1:12:00 AM	54754.83	55004.03	1650.12	-249.20	Pass	NA	NA	NA	NA	NA
10/23/2019 12:40:00 AM	54719.73	55004.03	1650.12	-284.29	Pass	NA	NA	NA	NA	NA
Detector 6										
10/22/2019 1:12:00 AM	51654.76	52072.68	1562.18	-417.92	Pass	NA	NA	NA	NA	NA
10/23/2019 12:40:00 AM	51642.57	52072.68	1562.18	-430.11	Pass	NA	NA	NA	NA	NA
Detector 7										
10/22/2019 1:12:00 AM	45318.35	44302.58	1329.08	1015.78	Pass	NA	NA	NA	NA	NA
10/23/2019 12:41:00 AM	45371.27	44302.58	1329.08	1068.70	Pass	NA	NA	NA	NA	NA
Detector 8										
10/22/2019 1:15:00 AM	50276.40	49959.33	1498.78	317.07	Pass	NA	NA	NA	NA	NA
10/23/2019 12:43:00 AM	50022.34	49959.33	1498.78	63.02	Pass	NA	NA	NA	NA	NA
Detector 9										
10/22/2019 1:15:00 AM	48770.49	47696.08	1430.88	1074.42	Pass	NA	NA	NA	NA	NA
10/23/2019 12:43:00 AM	48411.17	47696.08	1430.88	715.10	Pass	NA	NA	NA	NA	NA
Detector 10										
10/22/2019 1:15:00 AM	50299.72	50136.65	1504.10	163.07	Pass	NA	NA	NA	NA	NA
10/23/2019 12:43:00 AM	50100.59	50136.65	1504.10	-36.06	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
10/22/2019 1:15:00 AM	60182.96	59951.55	1798.55	231.41	Pass	NA	NA	NA	NA	NA
10/23/2019 12:43:00 AM	60024.76	59951.55	1798.55	73.21	Pass	NA	NA	NA	NA	NA
Detector 12										
10/22/2019 1:15:00 AM	55948.07	56070.40	1682.11	-122.33	Pass	NA	NA	NA	NA	NA
10/23/2019 12:44:00 AM	55946.07	56070.40	1682.11	-124.33	Pass	NA	NA	NA	NA	NA
Detector 13										
10/22/2019 1:15:00 AM	55097.27	55607.20	1668.22	-509.93	Pass	NA	NA	NA	NA	NA
10/23/2019 12:44:00 AM	55385.46	55607.20	1668.22	-221.74	Pass	NA	NA	NA	NA	NA
Detector 14										
10/22/2019 1:15:00 AM	51008.60	50580.03	1517.40	428.57	Pass	NA	NA	NA	NA	NA
10/23/2019 12:44:00 AM	51393.13	50580.03	1517.40	813.11	Pass	NA	NA	NA	NA	NA
Detector 15										
10/22/2019 1:15:00 AM	45535.43	45674.43	1370.23	-138.99	Pass	NA	NA	NA	NA	NA
10/23/2019 12:44:00 AM	45639.41	45674.43	1370.23	-35.02	Pass	NA	NA	NA	NA	NA
Detector 16										
10/22/2019 1:18:00 AM	49880.34	49653.23	1489.60	227.11	Pass	NA	NA	NA	NA	NA
10/23/2019 12:46:00 AM	50215.50	49653.23	1489.60	562.27	Pass	NA	NA	NA	NA	NA
Detector 17										
10/22/2019 1:18:00 AM	48682.38	48166.13	1444.98	516.25	Pass	NA	NA	NA	NA	NA
10/23/2019 12:46:00 AM	48445.99	48166.13	1444.98	279.86	Pass	NA	NA	NA	NA	NA
Detector 18										
10/22/2019 1:18:00 AM	50353.07	49957.23	1498.72	395.85	Pass	NA	NA	NA	NA	NA
10/23/2019 12:46:00 AM	50227.69	49957.23	1498.72	270.46	Pass	NA	NA	NA	NA	NA
Detector 19										
10/22/2019 1:18:00 AM	60030.21	59167.80	1775.03	862.41	Pass	NA	NA	NA	NA	NA
10/23/2019 12:46:00 AM	59695.71	59167.80	1775.03	527.91	Pass	NA	NA	NA	NA	NA
Detector 20										
10/22/2019 1:18:00 AM	57111.58	57321.08	1719.63	-209.49	Pass	NA	NA	NA	NA	NA
10/23/2019 12:47:00 AM	57128.40	57321.08	1719.63	-192.67	Pass	NA	NA	NA	NA	NA
Detector 21										
10/22/2019 1:18:00 AM	55025.45	55281.80	1658.45	-256.35	Pass	NA	NA	NA	NA	NA
10/23/2019 12:47:00 AM	55230.44	55281.80	1658.45	-51.36	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 22										
10/22/2019 1:18:00 AM	52019.80	52477.75	1574.33	-457.95	Pass	NA	NA	NA	NA	NA
10/23/2019 12:47:00 AM	52159.32	52477.75	1574.33	-318.43	Pass	NA	NA	NA	NA	NA
Detector 23										
10/22/2019 1:18:00 AM	45790.30	46160.75	1384.82	-370.45	Pass	NA	NA	NA	NA	NA
10/23/2019 12:47:00 AM	45705.15	46160.75	1384.82	-455.60	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
10/22/2019 5:13:00 AM	0.15	0.17	0.03	-0.02	Pass	0.47	0.54	0.10	-0.072	Pass
10/23/2019 4:36:00 AM	0.20	0.17	0.03	0.03	Pass	0.64	0.54	0.10	0.098	Pass
Detector 1										
10/22/2019 5:13:00 AM	0.26	0.19	0.03	0.07	Pass	0.51	0.44	0.08	0.066	Pass
10/23/2019 4:36:00 AM	0.26	0.19	0.03	0.07	Pass	0.56	0.44	0.08	0.121	Pass
Detector 2										
10/22/2019 5:13:00 AM	0.22	0.19	0.03	0.02	Pass	0.51	0.51	0.09	-0.007	Pass
10/23/2019 4:36:00 AM	0.23	0.19	0.03	0.03	Pass	0.57	0.51	0.09	0.058	Pass
Detector 3										
10/22/2019 5:13:00 AM	0.26	0.17	0.04	0.09	Pass	0.60	0.51	0.09	0.090	Pass
10/23/2019 4:36:00 AM	0.20	0.17	0.04	0.03	Pass	0.61	0.51	0.09	0.100	Pass
Detector 4										
10/22/2019 5:13:00 AM	0.28	0.11	0.04	0.17	**FAIL**	0.47	0.40	0.08	0.065	Pass
10/22/2019 9:22:00 AM	0.18	0.11	0.04	0.06	Pass	0.57	0.40	0.08	0.165	Pass
10/23/2019 4:36:00 AM	0.17	0.11	0.04	0.05	Pass	0.66	0.40	0.08	0.260	**FAIL**
10/23/2019 9:25:00 AM	0.28	0.11	0.04	0.16	**FAIL**	0.54	0.40	0.08	0.135	Pass
Detector 5										
10/22/2019 5:13:00 AM	0.26	0.18	0.04	0.08	Pass	0.50	0.45	0.06	0.052	Pass
10/23/2019 4:36:00 AM	0.22	0.18	0.04	0.04	Pass	0.50	0.45	0.06	0.047	Pass
Detector 6										
10/22/2019 5:13:00 AM	0.16	0.17	0.03	-0.02	Pass	0.47	0.46	0.06	0.005	Pass
10/23/2019 4:36:00 AM	0.25	0.17	0.03	0.07	Pass	0.59	0.46	0.06	0.125	Pass
Detector 7										
10/22/2019 5:13:00 AM	0.28	0.18	0.05	0.09	Pass	0.68	0.53	0.08	0.151	Pass
10/23/2019 4:37:00 AM	0.32	0.18	0.05	0.13	Pass	0.54	0.53	0.08	0.006	Pass
Detector 8										
10/22/2019 5:14:00 AM	0.11	0.14	0.03	-0.03	Pass	0.64	0.46	0.07	0.176	Pass
10/23/2019 4:37:00 AM	0.22	0.14	0.03	0.08	Pass	0.55	0.46	0.07	0.081	Pass
Detector 9										
10/22/2019 5:14:00 AM	0.13	0.16	0.03	-0.03	Pass	0.53	0.40	0.06	0.122	Pass
10/23/2019 4:37:00 AM	0.17	0.16	0.03	0.01	Pass	0.42	0.40	0.06	0.017	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 10										
10/22/2019 5:14:00 AM	0.22	0.17	0.04	0.05	Pass	0.47	0.39	0.08	0.083	Pass
10/23/2019 4:37:00 AM	0.15	0.17	0.04	-0.02	Pass	0.32	0.39	0.08	-0.068	Pass
Detector 11										
10/22/2019 5:14:00 AM	0.16	0.15	0.04	0.01	Pass	0.69	0.49	0.08	0.200	Pass
10/23/2019 4:37:00 AM	0.14	0.15	0.04	-0.01	Pass	0.70	0.49	0.08	0.215	Pass
Detector 12										
10/22/2019 5:14:00 AM	0.31	0.15	0.05	0.16	**FAIL**	0.42	0.44	0.07	-0.024	Pass
10/23/2019 4:38:00 AM	0.31	0.15	0.05	0.16	**FAIL**	0.68	0.44	0.07	0.237	**FAIL**
Detector 13										
10/22/2019 5:14:00 AM	0.18	0.18	0.03	-0.01	Pass	0.53	0.43	0.08	0.103	Pass
10/23/2019 4:38:00 AM	0.21	0.18	0.03	0.02	Pass	0.58	0.43	0.08	0.148	Pass
Detector 14										
10/22/2019 5:14:00 AM	0.28	0.16	0.04	0.11	Pass	0.37	0.41	0.07	-0.039	Pass
10/23/2019 4:38:00 AM	0.31	0.16	0.04	0.15	**FAIL**	0.51	0.41	0.07	0.096	Pass
10/23/2019 9:25:00 AM	0.25	0.16	0.04	0.08	Pass	0.40	0.41	0.07	-0.014	Pass
Detector 15										
10/22/2019 5:14:00 AM	0.22	0.17	0.04	0.05	Pass	0.69	0.47	0.07	0.221	**FAIL**
10/22/2019 9:22:00 AM	0.26	0.17	0.04	0.09	Pass	0.55	0.47	0.07	0.076	Pass
10/23/2019 4:38:00 AM	0.26	0.17	0.04	0.09	Pass	0.55	0.47	0.07	0.076	Pass
Detector 16										
10/22/2019 5:14:00 AM	0.24	0.17	0.03	0.06	Pass	1.39	3.95	1.65	-2.570	Pass
10/23/2019 4:38:00 AM	0.12	0.17	0.03	-0.06	Pass	1.18	3.95	1.65	-2.780	Pass
Detector 17										
10/22/2019 5:14:00 AM	0.20	0.20	0.05	0.00	Pass	0.37	0.46	0.08	-0.087	Pass
10/23/2019 4:38:00 AM	0.18	0.20	0.05	-0.02	Pass	0.44	0.46	0.08	-0.017	Pass
Detector 18										
10/22/2019 5:15:00 AM	1.18	0.06	0.03	1.12	**FAIL**	1.24	0.70	0.12	0.540	**FAIL**
10/23/2019 4:38:00 AM	1.01	0.06	0.03	0.95	**FAIL**	1.28	0.70	0.12	0.575	**FAIL**
Detector 19										
10/22/2019 5:15:00 AM	0.31	0.19	0.04	0.12	Pass	0.67	0.54	0.07	0.130	Pass
10/23/2019 4:38:00 AM	0.36	0.19	0.04	0.17	**FAIL**	0.66	0.54	0.07	0.120	Pass
10/23/2019 9:25:00 AM	0.29	0.19	0.04	0.10	Pass	0.66	0.54	0.07	0.120	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 20										
10/22/2019 5:15:00 AM	0.19	0.18	0.04	0.00	Pass	0.61	0.49	0.07	0.118	Pass
10/23/2019 4:39:00 AM	0.24	0.18	0.04	0.05	Pass	0.66	0.49	0.07	0.168	Pass
Detector 21										
10/22/2019 5:15:00 AM	0.29	0.21	0.05	0.08	Pass	0.47	0.43	0.08	0.045	Pass
10/23/2019 4:39:00 AM	0.34	0.21	0.05	0.14	Pass	0.43	0.43	0.08	0.000	Pass
Detector 22										
10/22/2019 5:15:00 AM	0.29	0.19	0.06	0.09	Pass	0.40	0.48	0.11	-0.080	Pass
10/23/2019 4:39:00 AM	0.37	0.19	0.06	0.17	**FAIL**	0.50	0.48	0.11	0.020	Pass
10/23/2019 9:25:00 AM	0.26	0.19	0.06	0.06	Pass	0.43	0.48	0.11	-0.050	Pass
Detector 23										
10/22/2019 5:15:00 AM	0.40	0.05	0.02	0.35	**FAIL**	0.82	0.35	0.09	0.475	**FAIL**
10/23/2019 4:39:00 AM	0.48	0.05	0.02	0.43	**FAIL**	0.74	0.35	0.09	0.395	**FAIL**

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Kody Saulters at 12:06 pm, Oct 24, 2019

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
10/23/2019 12:50:00 AM	11516.76	11634.85	349.05	-118.09	Pass	4235.00	4399.43	55.45	-164.425	**WARNING**
10/24/2019 1:09:00 AM	11456.30	11634.85	349.05	-178.55	Pass	4275.00	4399.43	55.45	-124.425	**WARNING**
Detector 1										
10/23/2019 12:50:00 AM	12516.05	12605.08	378.15	-89.03	Pass	4418.50	4615.83	65.86	-197.325	**WARNING**
10/24/2019 1:09:00 AM	12482.10	12605.08	378.15	-122.98	Pass	4499.50	4615.83	65.86	-116.325	Pass
Detector 2										
10/23/2019 12:50:00 AM	12466.07	12794.55	383.84	-328.48	Pass	4615.50	4785.95	82.34	-170.450	**WARNING**
10/24/2019 1:09:00 AM	12611.17	12794.55	383.84	-183.38	Pass	4738.50	4785.95	82.34	-47.450	Pass
Detector 3										
10/23/2019 12:50:00 AM	12531.47	12736.15	382.08	-204.68	Pass	4445.00	4624.40	187.70	-179.400	Pass
10/24/2019 1:09:00 AM	12771.08	12736.15	382.08	34.93	Pass	4519.00	4624.40	187.70	-105.400	Pass
Detector 4										
10/23/2019 12:50:00 AM	15239.21	15722.05	471.66	-482.84	**FAIL**	6364.00	6248.73	137.22	115.275	Pass
10/23/2019 1:13:00 AM	15423.76	15722.05	471.66	-298.29	Pass	6100.00	6248.73	137.22	-148.725	Pass
10/23/2019 1:15:00 AM	15722.33	15722.05	471.66	0.28	Pass	6120.50	6248.73	137.22	-128.225	Pass
10/24/2019 1:08:00 AM	15433.33	15722.05	471.66	-288.72	Pass	6395.50	6248.73	137.22	146.775	Pass
Detector 5										
10/23/2019 12:50:00 AM	16260.89	16098.73	482.96	162.17	Pass	5812.00	5891.80	176.47	-79.800	Pass
10/24/2019 1:08:00 AM	16077.42	16098.73	482.96	-21.30	Pass	5795.50	5891.80	176.47	-96.300	Pass
Detector 6										
10/23/2019 12:50:00 AM	14610.41	14639.35	439.18	-28.94	Pass	5202.50	5398.90	71.52	-196.400	**WARNING**
10/24/2019 1:08:00 AM	14469.94	14639.35	439.18	-169.41	Pass	5373.00	5398.90	71.52	-25.900	Pass
Detector 7										
10/23/2019 12:50:00 AM	14635.52	13937.83	418.13	697.70	**FAIL**	5277.50	7297.30	8522.82	-2019.800	Pass
10/24/2019 1:08:00 AM	14457.04	13937.83	418.13	519.22	**FAIL**	5395.50	7297.30	8522.82	-1901.800	Pass
Detector 8										
10/23/2019 12:52:00 AM	11413.26	11519.60	345.59	-106.34	Pass	4342.50	4390.58	54.07	-48.075	Pass
10/24/2019 1:12:00 AM	11419.81	11519.60	345.59	-99.79	Pass	4287.00	4390.58	54.07	-103.575	Pass
Detector 9										
10/23/2019 12:52:00 AM	12360.44	12491.53	374.75	-131.09	Pass	4689.50	4759.53	53.45	-70.025	Pass
10/24/2019 1:12:00 AM	12276.47	12491.53	374.75	-215.05	Pass	4734.00	4759.53	53.45	-25.525	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 10										
10/23/2019 12:53:00 AM	12758.53	12948.10	388.44	-189.57	Pass	4686.00	4825.35	63.39	-139.350	**WARNING**
10/24/2019 1:12:00 AM	12743.58	12948.10	388.44	-204.52	Pass	4736.00	4825.35	63.39	-89.350	Pass
Detector 11										
10/23/2019 12:53:00 AM	12574.09	12655.38	379.66	-81.29	Pass	4611.50	4752.83	70.27	-141.325	**WARNING**
10/24/2019 1:12:00 AM	12556.14	12655.38	379.66	-99.24	Pass	4717.50	4752.83	70.27	-35.325	Pass
Detector 12										
10/23/2019 12:53:00 AM	15445.17	15299.38	458.98	145.80	Pass	6518.00	6843.40	120.09	-325.400	**WARNING**
10/24/2019 1:12:00 AM	15475.25	15299.38	458.98	175.87	Pass	6448.50	6843.40	120.09	-394.900	**DOEF**
Detector 13										
10/23/2019 12:53:00 AM	16858.52	16835.10	505.05	23.42	Pass	5102.00	5373.65	69.76	-271.650	**DOEF**
10/24/2019 1:12:00 AM	17020.63	16835.10	505.05	185.53	Pass	5244.00	5373.65	69.76	-129.650	Pass
Detector 14										
10/23/2019 12:53:00 AM	13898.89	13766.13	412.98	132.76	Pass	5817.00	6204.05	341.98	-387.050	Pass
10/24/2019 1:12:00 AM	13935.46	13766.13	412.98	169.33	Pass	5873.50	6204.05	341.98	-330.550	Pass
Detector 15										
10/23/2019 12:53:00 AM	14155.93	14023.28	420.70	132.66	Pass	5766.50	6072.43	170.71	-305.925	Pass
10/24/2019 1:12:00 AM	14133.49	14023.28	420.70	110.21	Pass	5789.00	6072.43	170.71	-283.425	Pass
Detector 16										
10/23/2019 12:55:00 AM	11501.69	11642.83	349.28	-141.14	Pass	4231.50	4481.93	104.14	-250.425	**WARNING**
10/24/2019 1:14:00 AM	11484.23	11642.83	349.28	-158.59	Pass	4314.00	4481.93	104.14	-167.925	Pass
Detector 17										
10/23/2019 12:55:00 AM	12620.48	12666.83	380.00	-46.35	Pass	4503.50	4682.73	74.80	-179.225	**WARNING**
10/24/2019 1:14:00 AM	12613.53	12666.83	380.00	-53.29	Pass	4535.00	4682.73	74.80	-147.725	Pass
Detector 18										
10/23/2019 12:55:00 AM	13012.54	13053.00	391.59	-40.46	Pass	4547.00	4683.18	80.93	-136.175	Pass
10/24/2019 1:14:00 AM	12930.08	13053.00	391.59	-122.92	Pass	4511.50	4683.18	80.93	-171.675	**WARNING**
Detector 19										
10/23/2019 12:55:00 AM	12552.90	12614.20	378.43	-61.30	Pass	4632.00	4719.30	125.53	-87.300	Pass
10/24/2019 1:14:00 AM	12710.99	12614.20	378.43	96.79	Pass	4694.00	4719.30	125.53	-25.300	Pass
Detector 20										
10/23/2019 12:55:00 AM	15642.94	15313.50	459.41	329.44	Pass	6699.50	7076.00	198.00	-376.500	Pass
10/24/2019 1:15:00 AM	15468.98	15313.50	459.41	155.48	Pass	6769.00	7076.00	198.00	-307.000	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 21										
10/23/2019 12:55:00 AM	16024.48	15610.30	468.31	414.18	Pass	6168.50	6538.13	138.19	-369.625	**WARNING**
10/24/2019 1:15:00 AM	15873.02	15610.30	468.31	262.72	Pass	6266.50	6538.13	138.19	-271.625	Pass
Detector 22										
10/23/2019 12:55:00 AM	14161.79	13911.20	417.34	250.59	Pass	6024.50	6409.40	171.83	-384.900	**WARNING**
10/24/2019 1:15:00 AM	14030.33	13911.20	417.34	119.13	Pass	6077.50	6409.40	171.83	-331.900	Pass
Detector 23										
10/23/2019 12:55:00 AM	14416.79	14050.90	421.53	365.89	Pass	6051.00	6546.38	122.11	-495.375	**DOEF**
10/24/2019 1:15:00 AM	14259.33	14050.90	421.53	208.43	Pass	6244.50	6546.38	122.11	-301.875	**WARNING**

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
10/23/2019 12:40:00 AM	50161.45	50552.05	1516.56	-390.60	Pass	NA	NA	NA	NA	NA
10/24/2019 12:58:00 AM	50083.14	50552.05	1516.56	-468.91	Pass	NA	NA	NA	NA	NA
Detector 1										
10/23/2019 12:40:00 AM	48564.70	47641.23	1429.24	923.47	Pass	NA	NA	NA	NA	NA
10/24/2019 12:58:00 AM	48466.93	47641.23	1429.24	825.71	Pass	NA	NA	NA	NA	NA
Detector 2										
10/23/2019 12:40:00 AM	49758.46	49734.44	1492.03	24.02	Pass	NA	NA	NA	NA	NA
10/24/2019 12:59:00 AM	50097.12	49734.44	1492.03	362.68	Pass	NA	NA	NA	NA	NA
Detector 3										
10/23/2019 12:40:00 AM	59925.71	60167.98	1805.04	-242.27	Pass	NA	NA	NA	NA	NA
10/24/2019 12:59:00 AM	59583.31	60167.98	1805.04	-584.67	Pass	NA	NA	NA	NA	NA
Detector 4										
10/23/2019 12:40:00 AM	53840.87	55277.35	1658.32	-1436.48	Pass	NA	NA	NA	NA	NA
10/24/2019 12:59:00 AM	53909.82	55277.35	1658.32	-1367.53	Pass	NA	NA	NA	NA	NA
Detector 5										
10/23/2019 12:40:00 AM	54719.73	55004.03	1650.12	-284.29	Pass	NA	NA	NA	NA	NA
10/24/2019 12:59:00 AM	54697.19	55004.03	1650.12	-306.84	Pass	NA	NA	NA	NA	NA
Detector 6										
10/23/2019 12:40:00 AM	51642.57	52072.68	1562.18	-430.11	Pass	NA	NA	NA	NA	NA
10/24/2019 12:59:00 AM	51907.61	52072.68	1562.18	-165.06	Pass	NA	NA	NA	NA	NA
Detector 7										
10/23/2019 12:41:00 AM	45371.27	44302.58	1329.08	1068.70	Pass	NA	NA	NA	NA	NA
10/24/2019 12:59:00 AM	45235.40	44302.58	1329.08	932.82	Pass	NA	NA	NA	NA	NA
Detector 8										
10/23/2019 12:43:00 AM	50022.34	49959.33	1498.78	63.02	Pass	NA	NA	NA	NA	NA
10/24/2019 1:02:00 AM	49998.96	49959.33	1498.78	39.64	Pass	NA	NA	NA	NA	NA
Detector 9										
10/23/2019 12:43:00 AM	48411.17	47696.08	1430.88	715.10	Pass	NA	NA	NA	NA	NA
10/24/2019 1:02:00 AM	48500.69	47696.08	1430.88	804.62	Pass	NA	NA	NA	NA	NA
Detector 10										
10/23/2019 12:43:00 AM	50100.59	50136.65	1504.10	-36.06	Pass	NA	NA	NA	NA	NA
10/24/2019 1:02:00 AM	50549.11	50136.65	1504.10	412.46	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
10/23/2019 12:43:00 AM	60024.76	59951.55	1798.55	73.21	Pass	NA	NA	NA	NA	NA
10/24/2019 1:02:00 AM	59945.01	59951.55	1798.55	-6.54	Pass	NA	NA	NA	NA	NA
Detector 12										
10/23/2019 12:44:00 AM	55946.07	56070.40	1682.11	-124.33	Pass	NA	NA	NA	NA	NA
10/24/2019 1:02:00 AM	55950.80	56070.40	1682.11	-119.60	Pass	NA	NA	NA	NA	NA
Detector 13										
10/23/2019 12:44:00 AM	55385.46	55607.20	1668.22	-221.74	Pass	NA	NA	NA	NA	NA
10/24/2019 1:02:00 AM	55305.51	55607.20	1668.22	-301.69	Pass	NA	NA	NA	NA	NA
Detector 14										
10/23/2019 12:44:00 AM	51393.13	50580.03	1517.40	813.11	Pass	NA	NA	NA	NA	NA
10/24/2019 1:02:00 AM	50894.33	50580.03	1517.40	314.31	Pass	NA	NA	NA	NA	NA
Detector 15										
10/23/2019 12:44:00 AM	45639.41	45674.43	1370.23	-35.02	Pass	NA	NA	NA	NA	NA
10/24/2019 1:02:00 AM	45635.62	45674.43	1370.23	-38.81	Pass	NA	NA	NA	NA	NA
Detector 16										
10/23/2019 12:46:00 AM	50215.50	49653.23	1489.60	562.27	Pass	NA	NA	NA	NA	NA
10/24/2019 1:06:00 AM	49844.79	49653.23	1489.60	191.56	Pass	NA	NA	NA	NA	NA
Detector 17										
10/23/2019 12:46:00 AM	48445.99	48166.13	1444.98	279.86	Pass	NA	NA	NA	NA	NA
10/24/2019 1:06:00 AM	48330.42	48166.13	1444.98	164.30	Pass	NA	NA	NA	NA	NA
Detector 18										
10/23/2019 12:46:00 AM	50227.69	49957.23	1498.72	270.46	Pass	NA	NA	NA	NA	NA
10/24/2019 1:06:00 AM	50608.82	49957.23	1498.72	651.59	Pass	NA	NA	NA	NA	NA
Detector 19										
10/23/2019 12:46:00 AM	59695.71	59167.80	1775.03	527.91	Pass	NA	NA	NA	NA	NA
10/24/2019 1:06:00 AM	60040.75	59167.80	1775.03	872.95	Pass	NA	NA	NA	NA	NA
Detector 20										
10/23/2019 12:47:00 AM	57128.40	57321.08	1719.63	-192.67	Pass	NA	NA	NA	NA	NA
10/24/2019 1:06:00 AM	56918.11	57321.08	1719.63	-402.96	Pass	NA	NA	NA	NA	NA
Detector 21										
10/23/2019 12:47:00 AM	55230.44	55281.80	1658.45	-51.36	Pass	NA	NA	NA	NA	NA
10/24/2019 1:06:00 AM	55131.31	55281.80	1658.45	-150.49	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 22										
10/23/2019 12:47:00 AM	52159.32	52477.75	1574.33	-318.43	Pass	NA	NA	NA	NA	NA
10/24/2019 1:06:00 AM	52163.29	52477.75	1574.33	-314.46	Pass	NA	NA	NA	NA	NA
Detector 23										
10/23/2019 12:47:00 AM	45705.15	46160.75	1384.82	-455.60	Pass	NA	NA	NA	NA	NA
10/24/2019 1:06:00 AM	45873.05	46160.75	1384.82	-287.70	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
10/23/2019 4:36:00 AM	0.20	0.17	0.03	0.03	Pass	0.64	0.54	0.10	0.098	Pass
10/24/2019 4:59:00 AM	0.19	0.17	0.03	0.02	Pass	0.52	0.54	0.10	-0.022	Pass
Detector 1										
10/23/2019 4:36:00 AM	0.26	0.19	0.03	0.07	Pass	0.56	0.44	0.08	0.121	Pass
10/24/2019 4:59:00 AM	0.23	0.19	0.03	0.04	Pass	0.43	0.44	0.08	-0.014	Pass
Detector 2										
10/23/2019 4:36:00 AM	0.23	0.19	0.03	0.03	Pass	0.57	0.51	0.09	0.058	Pass
10/24/2019 4:59:00 AM	0.17	0.19	0.03	-0.03	Pass	0.58	0.51	0.09	0.068	Pass
Detector 3										
10/23/2019 4:36:00 AM	0.20	0.17	0.04	0.03	Pass	0.61	0.51	0.09	0.100	Pass
10/24/2019 4:59:00 AM	0.29	0.17	0.04	0.12	Pass	0.61	0.51	0.09	0.100	Pass
Detector 4										
10/23/2019 4:36:00 AM	0.17	0.11	0.04	0.05	Pass	0.66	0.40	0.08	0.260	FAIL
10/23/2019 9:25:00 AM	0.28	0.11	0.04	0.16	FAIL	0.54	0.40	0.08	0.135	Pass
10/24/2019 4:59:00 AM	0.28	0.11	0.04	0.17	FAIL	0.51	0.40	0.08	0.110	Pass
10/24/2019 8:46:00 AM	0.21	0.11	0.04	0.10	Pass	0.42	0.40	0.08	0.015	Pass
Detector 5										
10/23/2019 4:36:00 AM	0.22	0.18	0.04	0.04	Pass	0.50	0.45	0.06	0.047	Pass
10/24/2019 4:59:00 AM	0.21	0.18	0.04	0.03	Pass	0.47	0.45	0.06	0.018	Pass
Detector 6										
10/23/2019 4:36:00 AM	0.25	0.17	0.03	0.07	Pass	0.59	0.46	0.06	0.125	Pass
10/24/2019 4:59:00 AM	0.20	0.17	0.03	0.02	Pass	0.41	0.46	0.06	-0.055	Pass
Detector 7										
10/23/2019 4:37:00 AM	0.32	0.18	0.05	0.13	Pass	0.54	0.53	0.08	0.006	Pass
10/24/2019 5:00:00 AM	0.40	0.18	0.05	0.21	FAIL	0.62	0.53	0.08	0.086	Pass
Detector 8										
10/23/2019 4:37:00 AM	0.22	0.14	0.03	0.08	Pass	0.55	0.46	0.07	0.081	Pass
10/24/2019 5:00:00 AM	0.16	0.14	0.03	0.02	Pass	0.56	0.46	0.07	0.091	Pass
Detector 9										
10/23/2019 4:37:00 AM	0.17	0.16	0.03	0.01	Pass	0.42	0.40	0.06	0.017	Pass
10/24/2019 5:00:00 AM	0.19	0.16	0.03	0.03	Pass	0.52	0.40	0.06	0.112	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 10										
10/23/2019 4:37:00 AM	0.15	0.17	0.04	-0.02	Pass	0.32	0.39	0.08	-0.068	Pass
10/24/2019 5:00:00 AM	0.17	0.17	0.04	0.00	Pass	0.48	0.39	0.08	0.088	Pass
Detector 11										
10/23/2019 4:37:00 AM	0.14	0.15	0.04	-0.01	Pass	0.70	0.49	0.08	0.215	Pass
10/24/2019 5:00:00 AM	0.22	0.15	0.04	0.07	Pass	0.47	0.49	0.08	-0.015	Pass
Detector 12										
10/23/2019 4:38:00 AM	0.31	0.15	0.05	0.16	FAIL	0.68	0.44	0.07	0.237	FAIL
10/24/2019 5:00:00 AM	0.34	0.15	0.05	0.18	FAIL	0.59	0.44	0.07	0.142	Pass
Detector 13										
10/23/2019 4:38:00 AM	0.21	0.18	0.03	0.02	Pass	0.58	0.43	0.08	0.148	Pass
10/24/2019 5:00:00 AM	0.26	0.18	0.03	0.07	Pass	0.54	0.43	0.08	0.113	Pass
Detector 14										
10/23/2019 4:38:00 AM	0.31	0.16	0.04	0.15	FAIL	0.51	0.41	0.07	0.096	Pass
10/23/2019 9:25:00 AM	0.25	0.16	0.04	0.08	Pass	0.40	0.41	0.07	-0.014	Pass
10/24/2019 5:00:00 AM	0.24	0.16	0.04	0.07	Pass	0.56	0.41	0.07	0.151	Pass
Detector 15										
10/23/2019 4:38:00 AM	0.26	0.17	0.04	0.09	Pass	0.55	0.47	0.07	0.076	Pass
10/24/2019 5:00:00 AM	0.16	0.17	0.04	-0.01	Pass	0.49	0.47	0.07	0.021	Pass
Detector 16										
10/23/2019 4:38:00 AM	0.12	0.17	0.03	-0.06	Pass	1.18	3.95	1.65	-2.780	Pass
10/24/2019 5:00:00 AM	0.19	0.17	0.03	0.01	Pass	1.06	3.95	1.65	-2.895	Pass
Detector 17										
10/23/2019 4:38:00 AM	0.18	0.20	0.05	-0.02	Pass	0.44	0.46	0.08	-0.017	Pass
10/24/2019 5:00:00 AM	0.26	0.20	0.05	0.06	Pass	0.47	0.46	0.08	0.013	Pass
Detector 18										
10/23/2019 4:38:00 AM	1.01	0.06	0.03	0.95	FAIL	1.28	0.70	0.12	0.575	FAIL
10/24/2019 5:00:00 AM	0.82	0.06	0.03	0.76	FAIL	1.37	0.70	0.12	0.670	FAIL
Detector 19										
10/23/2019 4:38:00 AM	0.36	0.19	0.04	0.17	FAIL	0.66	0.54	0.07	0.120	Pass
10/23/2019 9:25:00 AM	0.29	0.19	0.04	0.10	Pass	0.66	0.54	0.07	0.120	Pass
10/24/2019 5:00:00 AM	0.26	0.19	0.04	0.07	Pass	0.66	0.54	0.07	0.115	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 20										
10/23/2019 4:39:00 AM	0.24	0.18	0.04	0.05	Pass	0.66	0.49	0.07	0.168	Pass
10/24/2019 5:00:00 AM	0.16	0.18	0.04	-0.02	Pass	0.69	0.49	0.07	0.203	Pass
Detector 21										
10/23/2019 4:39:00 AM	0.34	0.21	0.05	0.14	Pass	0.43	0.43	0.08	0.000	Pass
10/24/2019 5:00:00 AM	0.33	0.21	0.05	0.13	Pass	0.52	0.43	0.08	0.095	Pass
Detector 22										
10/23/2019 4:39:00 AM	0.37	0.19	0.06	0.17	FAIL	0.50	0.48	0.11	0.020	Pass
10/23/2019 9:25:00 AM	0.26	0.19	0.06	0.06	Pass	0.43	0.48	0.11	-0.050	Pass
10/24/2019 5:00:00 AM	0.27	0.19	0.06	0.08	Pass	0.61	0.48	0.11	0.131	Pass
Detector 23										
10/23/2019 4:39:00 AM	0.48	0.05	0.02	0.43	FAIL	0.74	0.35	0.09	0.395	FAIL
10/24/2019 5:01:00 AM	0.54	0.05	0.02	0.49	FAIL	0.86	0.35	0.09	0.515	FAIL

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

APPROVED
By Kody Saulters at 9:42 am, Oct 15, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
10/14/2019 1:28:00 AM	11745.39	12429.48	372.88	-684.09	FAIL	4091.00	4217.68	31.15	-126.675	DOEF
10/15/2019 12:11:00 AM	11693.32	12429.48	372.88	-736.16	FAIL	4093.50	4217.68	31.15	-124.175	DOEF
Detector 1										
10/14/2019 1:28:00 AM	12749.62	13515.73	405.47	-766.10	FAIL	4596.00	4578.40	63.08	17.600	Pass
10/15/2019 12:11:00 AM	12747.17	13515.73	405.47	-768.55	FAIL	4488.50	4578.40	63.08	-89.900	Pass
Detector 2										
10/14/2019 1:28:00 AM	12799.26	14068.05	422.04	-1268.79	FAIL	4733.00	4802.25	75.57	-69.250	Pass
10/15/2019 12:11:00 AM	12963.26	14068.05	422.04	-1104.79	FAIL	4663.50	4802.25	75.57	-138.750	Pass
Detector 3										
10/14/2019 1:28:00 AM	12794.75	13271.53	398.15	-476.78	FAIL	4420.00	4349.03	65.64	70.975	Pass
10/15/2019 12:11:00 AM	12680.99	13271.53	398.15	-590.53	FAIL	4474.50	4349.03	65.64	125.475	Pass
Detector 4										
10/14/2019 1:28:00 AM	15774.84	16556.85	496.71	-782.01	FAIL	6054.50	6135.80	62.86	-81.300	Pass
10/15/2019 12:11:00 AM	15811.01	16556.85	496.71	-745.84	FAIL	6144.50	6135.80	62.86	8.700	Pass
Detector 5										
10/14/2019 1:28:00 AM	15076.44	15673.68	470.21	-597.23	FAIL	6343.00	6104.98	888.40	238.025	Pass
10/15/2019 12:11:00 AM	15363.79	15673.68	470.21	-309.89	Pass	6198.50	6104.98	888.40	93.525	Pass
10/15/2019 12:50:00 AM	15382.34	15673.68	470.21	-291.34	Pass	6228.50	6104.98	888.40	123.525	Pass
Detector 6										
10/14/2019 1:28:00 AM	13875.18	14736.55	442.10	-861.37	FAIL	5583.00	5498.28	745.70	84.725	Pass
10/15/2019 12:12:00 AM	14264.30	14736.55	442.10	-472.25	FAIL	5471.50	5498.28	745.70	-26.775	Pass
Detector 7										
10/14/2019 1:28:00 AM	14712.45	15385.65	461.57	-673.20	FAIL	5553.50	5760.05	798.95	-206.550	Pass
10/15/2019 12:12:00 AM	14711.52	15385.65	461.57	-674.13	FAIL	5571.50	5760.05	798.95	-188.550	Pass
Detector 8										
10/14/2019 1:41:00 AM	10972.29	11620.55	348.62	-648.26	FAIL	4088.00	3784.00	489.68	304.000	Pass
10/15/2019 12:17:00 AM	10989.39	11620.55	348.62	-631.16	FAIL	4047.50	3784.00	489.68	263.500	Pass
Detector 9										
10/14/2019 1:41:00 AM	12561.61	13544.15	406.32	-982.54	FAIL	4542.00	4627.50	61.77	-85.500	Pass
10/15/2019 12:17:00 AM	12626.84	13544.15	406.32	-917.31	FAIL	4481.00	4627.50	61.77	-146.500	WARNING

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 10										
10/14/2019 1:41:00 AM	12943.15	13960.33	418.81	-1017.18	**FAIL**	4640.50	4854.78	66.79	-214.275	**DOEF**
10/15/2019 12:17:00 AM	13029.44	13960.33	418.81	-930.89	**FAIL**	4678.50	4854.78	66.79	-176.275	**WARNING**
Detector 11										
10/14/2019 1:41:00 AM	12722.04	13382.03	401.46	-659.98	**FAIL**	4660.00	4646.93	43.88	13.075	Pass
10/15/2019 12:17:00 AM	12844.43	13382.03	401.46	-537.59	**FAIL**	4662.00	4646.93	43.88	15.075	Pass
Detector 12										
10/14/2019 1:41:00 AM	16278.70	16555.28	496.66	-276.57	Pass	5465.50	5593.33	888.56	-127.825	Pass
10/15/2019 12:17:00 AM	16467.29	16555.28	496.66	-87.99	Pass	5407.00	5593.33	888.56	-186.325	Pass
Detector 13										
10/14/2019 1:41:00 AM	16337.36	16489.13	494.67	-151.76	Pass	5767.50	5831.53	819.12	-64.025	Pass
10/15/2019 12:17:00 AM	16278.77	16489.13	494.67	-210.35	Pass	5613.50	5831.53	819.12	-218.025	Pass
Detector 14										
10/14/2019 1:41:00 AM	14216.10	15209.15	456.27	-993.05	**FAIL**	5554.00	5770.45	63.71	-216.450	**DOEF**
10/15/2019 12:17:00 AM	14320.95	15209.15	456.27	-888.20	**FAIL**	5553.50	5770.45	63.71	-216.950	**DOEF**
Detector 15										
10/14/2019 1:41:00 AM	14181.01	14890.68	446.72	-709.67	**FAIL**	5333.50	5361.50	749.04	-28.000	Pass
10/15/2019 12:17:00 AM	14468.35	14890.68	446.72	-422.33	Pass	5351.00	5361.50	749.04	-10.500	Pass
10/15/2019 12:50:00 AM	14538.04	14890.68	446.72	-352.64	Pass	5326.50	5361.50	749.04	-35.000	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
10/14/2019 1:46:00 AM	49651.03	48583.18	1457.50	1067.86	Pass	NA	NA	NA	NA	NA
10/15/2019 12:23:00 AM	49705.08	48583.18	1457.50	1121.90	Pass	NA	NA	NA	NA	NA
Detector 1										
10/14/2019 1:46:00 AM	48591.80	47659.85	1429.80	931.95	Pass	NA	NA	NA	NA	NA
10/15/2019 12:23:00 AM	48179.44	47659.85	1429.80	519.59	Pass	NA	NA	NA	NA	NA
Detector 2										
10/14/2019 1:46:00 AM	50099.00	49887.83	1496.63	211.17	Pass	NA	NA	NA	NA	NA
10/15/2019 12:23:00 AM	50405.85	49887.83	1496.63	518.02	Pass	NA	NA	NA	NA	NA
Detector 3										
10/14/2019 1:46:00 AM	59017.75	59018.83	1770.56	-1.07	Pass	NA	NA	NA	NA	NA
10/15/2019 12:24:00 AM	59266.05	59018.83	1770.56	247.23	Pass	NA	NA	NA	NA	NA
Detector 4										
10/14/2019 1:46:00 AM	55957.56	56572.13	1697.16	-614.57	Pass	NA	NA	NA	NA	NA
10/15/2019 12:24:00 AM	56013.06	56572.13	1697.16	-559.06	Pass	NA	NA	NA	NA	NA
Detector 5										
10/14/2019 1:46:00 AM	53115.60	53786.35	1613.59	-670.75	Pass	NA	NA	NA	NA	NA
10/15/2019 12:24:00 AM	53429.98	53786.35	1613.59	-356.37	Pass	NA	NA	NA	NA	NA
Detector 6										
10/14/2019 1:46:00 AM	50985.01	51221.45	1536.64	-236.44	Pass	NA	NA	NA	NA	NA
10/15/2019 12:24:00 AM	51131.32	51221.45	1536.64	-90.13	Pass	NA	NA	NA	NA	NA
Detector 7										
10/14/2019 1:46:00 AM	45139.37	44749.03	1342.47	390.35	Pass	NA	NA	NA	NA	NA
10/15/2019 12:24:00 AM	44976.98	44749.03	1342.47	227.95	Pass	NA	NA	NA	NA	NA
Detector 8										
10/14/2019 1:49:00 AM	46443.30	46135.45	1384.06	307.85	Pass	NA	NA	NA	NA	NA
10/15/2019 12:33:00 AM	46501.32	46135.45	1384.06	365.87	Pass	NA	NA	NA	NA	NA
Detector 9										
10/14/2019 1:49:00 AM	47907.54	47841.35	1435.24	66.19	Pass	NA	NA	NA	NA	NA
10/15/2019 12:33:00 AM	47965.65	47841.35	1435.24	124.30	Pass	NA	NA	NA	NA	NA
Detector 10										
10/14/2019 1:49:00 AM	49684.55	49376.35	1481.29	308.20	Pass	NA	NA	NA	NA	NA
10/15/2019 12:33:00 AM	49740.17	49376.35	1481.29	363.82	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 11										
10/14/2019 1:49:00 AM	59193.29	59256.13	1777.68	-62.84	Pass	NA	NA	NA	NA	NA
10/15/2019 12:33:00 AM	59072.64	59256.13	1777.68	-183.48	Pass	NA	NA	NA	NA	NA
Detector 12										
10/14/2019 1:49:00 AM	56942.36	57255.23	1717.66	-312.86	Pass	NA	NA	NA	NA	NA
10/15/2019 12:33:00 AM	57218.80	57255.23	1717.66	-36.42	Pass	NA	NA	NA	NA	NA
Detector 13										
10/14/2019 1:49:00 AM	54840.28	54928.25	1647.85	-87.97	Pass	NA	NA	NA	NA	NA
10/15/2019 12:33:00 AM	54475.61	54928.25	1647.85	-452.64	Pass	NA	NA	NA	NA	NA
Detector 14										
10/14/2019 1:49:00 AM	51348.22	51515.98	1545.48	-167.75	Pass	NA	NA	NA	NA	NA
10/15/2019 12:33:00 AM	51160.59	51515.98	1545.48	-355.38	Pass	NA	NA	NA	NA	NA
Detector 15										
10/14/2019 1:49:00 AM	44442.14	45036.85	1351.11	-594.71	Pass	NA	NA	NA	NA	NA
10/15/2019 12:33:00 AM	44882.59	45036.85	1351.11	-154.26	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
10/14/2019 5:35:00 AM	0.25	0.18	0.05	0.07	Pass	0.98	0.72	0.09	0.257	Pass
10/15/2019 4:12:00 AM	0.24	0.18	0.05	0.06	Pass	0.81	0.72	0.09	0.087	Pass
Detector 1										
10/14/2019 5:35:00 AM	0.24	0.17	0.05	0.06	Pass	0.58	0.52	0.06	0.064	Pass
10/15/2019 4:12:00 AM	0.19	0.17	0.05	0.02	Pass	0.71	0.52	0.06	0.194	**FAIL**
10/15/2019 8:59:00 AM	0.14	0.17	0.05	-0.03	Pass	0.76	0.52	0.06	0.244	**FAIL**
Detector 2										
10/14/2019 5:35:00 AM	0.40	0.24	0.06	0.16	Pass	0.77	0.61	0.08	0.164	Pass
10/15/2019 4:12:00 AM	0.35	0.24	0.06	0.11	Pass	0.77	0.61	0.08	0.164	Pass
Detector 3										
10/14/2019 5:35:00 AM	0.26	0.17	0.04	0.10	Pass	0.80	0.68	0.07	0.117	Pass
10/15/2019 4:12:00 AM	0.22	0.17	0.04	0.05	Pass	0.69	0.68	0.07	0.002	Pass
Detector 4										
10/14/2019 5:35:00 AM	0.36	0.25	0.10	0.11	Pass	0.54	0.56	0.06	-0.015	Pass
10/15/2019 4:12:00 AM	0.33	0.25	0.10	0.08	Pass	0.54	0.56	0.06	-0.020	Pass
Detector 5										
10/14/2019 5:35:00 AM	0.23	0.23	0.05	0.00	Pass	0.61	0.53	0.06	0.080	Pass
10/15/2019 4:12:00 AM	0.39	0.23	0.05	0.16	**FAIL**	0.61	0.53	0.06	0.085	Pass
Detector 6										
10/14/2019 5:35:00 AM	0.47	0.31	0.08	0.16	Pass	0.71	0.59	0.09	0.116	Pass
10/15/2019 4:12:00 AM	0.36	0.31	0.08	0.05	Pass	0.62	0.59	0.09	0.026	Pass
Detector 7										
10/14/2019 5:35:00 AM	0.45	0.21	0.06	0.24	**FAIL**	1.17	0.58	0.10	0.582	**FAIL**
10/14/2019 9:17:00 AM	0.32	0.21	0.06	0.11	Pass	0.62	0.58	0.10	0.037	Pass
10/15/2019 4:12:00 AM	0.27	0.21	0.06	0.05	Pass	0.64	0.58	0.10	0.057	Pass
Detector 8										
10/14/2019 5:35:00 AM	0.23	0.20	0.04	0.03	Pass	0.45	0.48	0.07	-0.030	Pass
10/15/2019 4:12:00 AM	0.25	0.20	0.04	0.05	Pass	0.56	0.48	0.07	0.080	Pass
Detector 9										
10/14/2019 5:35:00 AM	0.32	0.18	0.06	0.14	Pass	0.63	0.46	0.05	0.162	**FAIL**
10/14/2019 9:17:00 AM	0.18	0.18	0.06	0.00	Pass	0.48	0.46	0.05	0.012	Pass
10/15/2019 4:12:00 AM	0.24	0.18	0.06	0.06	Pass	0.53	0.46	0.05	0.062	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Protean

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 10										
10/14/2019 5:35:00 AM	0.33	0.20	0.05	0.13	Pass	0.53	0.43	0.05	0.104	Pass
10/15/2019 4:12:00 AM	0.32	0.20	0.05	0.12	Pass	0.56	0.43	0.05	0.129	Pass
Detector 11										
10/14/2019 5:35:00 AM	0.20	0.20	0.07	0.00	Pass	0.48	0.51	0.07	-0.032	Pass
10/15/2019 4:12:00 AM	0.27	0.20	0.07	0.07	Pass	0.58	0.51	0.07	0.073	Pass
Detector 12										
10/14/2019 5:35:00 AM	0.23	0.17	0.04	0.06	Pass	0.72	0.52	0.09	0.199	Pass
10/15/2019 4:12:00 AM	0.20	0.17	0.04	0.03	Pass	0.71	0.52	0.09	0.189	Pass
Detector 13										
10/14/2019 5:35:00 AM	0.52	0.25	0.06	0.27	FAIL	1.03	0.48	0.07	0.547	FAIL
10/14/2019 9:17:00 AM	0.34	0.25	0.06	0.08	Pass	0.52	0.48	0.07	0.032	Pass
10/15/2019 4:12:00 AM	0.32	0.25	0.06	0.07	Pass	0.47	0.48	0.07	-0.014	Pass
Detector 14										
10/14/2019 5:35:00 AM	0.29	0.18	0.06	0.10	Pass	0.61	0.45	0.07	0.156	Pass
10/15/2019 4:12:00 AM	0.30	0.18	0.06	0.11	Pass	0.36	0.45	0.07	-0.094	Pass
Detector 15										
10/14/2019 5:35:00 AM	0.34	0.23	0.04	0.11	Pass	0.76	0.56	0.05	0.197	FAIL
10/14/2019 9:17:00 AM	0.20	0.23	0.04	-0.03	Pass	0.63	0.56	0.05	0.067	Pass
10/15/2019 4:12:00 AM	0.37	0.23	0.04	0.14	FAIL	0.72	0.56	0.05	0.162	FAIL
10/15/2019 9:00:00 AM	0.35	0.23	0.04	0.12	FAIL	0.50	0.56	0.05	-0.058	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

Alpha Beta Calibrations

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Gas Proportional Counter Daily Quality Control Checks

APPROVED
By Kody Saulters at 12:50 pm, May 16, 2018

Wednesday, May 16, 2018

Instrument: ***Blue***

Detector ID	Check Type	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag
Detector 0											
12:39 AM	**Efficiency**	12539.98	12810.43	384.31	-270.44	Pass					
	Background										
	Crosstalk	4428.500	4227.825	65.508	200.675	**DOEF**					
12:43 AM	**Efficiency**						58137.44	50552.05	1516.56	7585.39	**FAIL**
	Background										
	Crosstalk						379.743	347.875	39.589	31.868	Pass
12:50 AM	**Efficiency**						50544.89	50552.05	1516.56	-7.16	Pass
	Background										
	Crosstalk						322.175	347.875	39.589	-25.700	Pass
4:12 AM	**Efficiency**										
	Background	0.105	0.076	0.016	0.030	Pass	0.455	0.412	0.082	0.044	Pass
	Crosstalk										
Detector 1											
12:39 AM	**Efficiency**	13642.46	13581.05	407.43	61.41	Pass					
	Background										
	Crosstalk	4461.500	4345.550	38.640	115.950	**DOEF**					
12:43 AM	**Efficiency**						54999.08	47641.23	1429.24	7357.86	**FAIL**
	Background										
	Crosstalk						391.810	375.000	61.275	16.810	Pass
12:50 AM	**Efficiency**						48641.20	47641.23	1429.24	999.97	Pass
	Background										
	Crosstalk						359.496	375.000	61.275	-15.504	Pass
4:12 AM	**Efficiency**										
	Background	0.165	0.069	0.041	0.096	Pass	0.515	0.348	0.086	0.168	Pass
	Crosstalk										
Detector 2											

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Gas Proportional Counter Daily Quality Control Checks

Wednesday, May 16, 2018

Instrument: Blue

Detector ID	Check Type	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag
12:39 AM	**Efficiency**	14340.77	14524.43	435.73	-183.65	Pass					
	Background										
	Crosstalk	5005.500	4732.575	47.122	272.925	**DOEF**					
12:43 AM	**Efficiency**						52563.70	49734.44	1492.03	2829.26	**FAIL**
	Background										
	Crosstalk						426.144	391.600	62.401	34.544	Pass
12:50 AM	**Efficiency**						50846.53	49734.44	1492.03	1112.09	Pass
	Background										
	Crosstalk						386.256	391.600	62.401	-5.344	Pass
4:12 AM	**Efficiency**										
	Background	0.130	0.071	0.018	0.059	**FAIL**	0.590	0.420	0.081	0.170	Pass
	Crosstalk										
9:12 AM	**Efficiency**										
	Background	0.055	0.071	0.018	-0.016	Pass	0.650	0.420	0.081	0.230	Pass
	Crosstalk										
Detector 3											
12:39 AM	**Efficiency**	13563.93	13572.53	407.18	-8.59	Pass					
	Background										
	Crosstalk	4486.000	4272.975	38.662	213.025	**DOEF**					
12:43 AM	**Efficiency**						46232.33	60167.98	1805.04	-13935.65	**FAIL**
	Background										
	Crosstalk						289.314	416.450	40.691	-127.136	**DOEF**
12:50 AM	**Efficiency**						60636.98	60167.98	1805.04	469.00	Pass
	Background										
	Crosstalk						392.820	416.450	40.691	-23.630	Pass
4:12 AM	**Efficiency**										
	Background	0.120	0.058	0.024	0.062	Pass	0.350	0.396	0.094	-0.046	Pass
	Crosstalk										
Detector 4											

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Gas Proportional Counter Daily Quality Control Checks

Wednesday, May 16, 2018

Instrument: Blue

Detector ID	Check Type	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag
12:39 AM	**Efficiency**	15887.80	16472.18	494.17	-584.38	**FAIL**					
	Background										
	Crosstalk	6781.500	6055.100	216.759	726.400	**DOEF**					
12:43 AM	**Efficiency**						48363.61	55277.35	1658.32	-6913.74	**FAIL**
	Background										
	Crosstalk						1.010	1.225	0.910	-0.215	Pass
12:50 AM	**Efficiency**						55638.04	55277.35	1658.32	360.69	Pass
	Background										
	Crosstalk						0.505	1.225	0.910	-0.720	Pass
4:12 AM	**Efficiency**										
	Background	0.080	0.057	0.021	0.024	Pass	0.340	0.316	0.048	0.024	Pass
	Crosstalk										
Detector 5											
12:39 AM	**Efficiency**	16452.09	16597.30	497.92	-145.21	Pass					
	Background										
	Crosstalk	6321.000	5933.150	70.806	387.850	**DOEF**					
12:43 AM	**Efficiency**						48530.36	55004.03	1650.12	-6473.66	**FAIL**
	Background										
	Crosstalk						1.515	1.675	1.217	-0.160	Pass
12:50 AM	**Efficiency**						54731.01	55004.03	1650.12	-273.02	Pass
	Background										
	Crosstalk						2.525	1.675	1.217	0.850	Pass
4:12 AM	**Efficiency**										
	Background	0.080	0.039	0.019	0.041	Pass	0.490	0.299	0.060	0.191	**FAIL**
	Crosstalk										
Detector 6											
12:39 AM	**Efficiency**	14974.41	15385.25	461.56	-410.84	Pass					
	Background										
	Crosstalk	5832.500	5557.975	84.930	274.525	**DOEF**					

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Wednesday, May 16, 2018

Instrument: Blue

Detector ID	Check Type	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag
12:43 AM	**Efficiency**						50379.38	51042.40	1531.27	-663.02	Pass
	Background										
	Crosstalk						2.525	3.425	1.688	-0.900	Pass
12:50 AM	**Efficiency**						51999.48	51042.40	1531.27	957.08	Pass
	Background										
	Crosstalk						1.515	3.425	1.688	-1.910	Pass
4:12 AM	**Efficiency**										
	Background	0.100	0.051	0.020	0.050	Pass	0.495	0.364	0.060	0.131	Pass
	Crosstalk										
Detector 7											
12:39 AM	**Efficiency**	14476.70	14744.85	442.35	-268.15	Pass					
	Background										
	Crosstalk	6611.500	6171.550	158.707	439.950	**WARNING**					
12:43 AM	**Efficiency**						57680.82	43523.08	1305.69	14157.74	**FAIL**
	Background										
	Crosstalk						3.029	0.500	0.459	2.529	**DOEF**
12:50 AM	**Efficiency**						44130.65	43523.08	1305.69	607.57	Pass
	Background										
	Crosstalk						1.010	0.500	0.459	0.510	Pass
4:12 AM	**Efficiency**										
	Background	0.070	0.037	0.014	0.033	Pass	0.550	0.470	0.098	0.080	Pass
	Crosstalk										
Detector 8											
12:42 AM	**Efficiency**	12686.45	12369.30	371.08	317.15	Pass					
	Background										
	Crosstalk	5227.500	4637.625	82.606	589.875	**DOEF**					
12:47 AM	**Efficiency**						52240.07	49959.33	1498.78	2280.75	**FAIL**
	Background										
	Crosstalk						5.049	5.025	1.963	0.024	Pass

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Wednesday, May 16, 2018

Instrument: Blue

Detector ID	Check Type	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag
4:12 AM	**Efficiency**										
	Background	0.075	0.040	0.017	0.035	Pass	0.460	0.337	0.053	0.124	Pass
	Crosstalk										
Detector 9											
12:42 AM	**Efficiency**	12978.17	13216.48	396.49	-238.30	Pass					
	Background										
	Crosstalk	5395.500	4879.900	47.988	515.600	**DOEF**					
12:47 AM	**Efficiency**						48481.29	47696.08	1430.88	785.22	Pass
	Background										
	Crosstalk						3.534	3.950	2.870	-0.416	Pass
4:12 AM	**Efficiency**										
	Background	0.090	0.058	0.022	0.032	Pass	0.380	0.313	0.066	0.067	Pass
	Crosstalk										
Detector 10											
12:42 AM	**Efficiency**	13684.98	13968.53	419.06	-283.54	Pass					
	Background										
	Crosstalk	5467.500	5032.150	58.657	435.350	**DOEF**					
12:47 AM	**Efficiency**						50533.53	50136.65	1504.10	396.88	Pass
	Background										
	Crosstalk						6.059	3.775	2.447	2.284	Pass
4:12 AM	**Efficiency**										
	Background	0.060	0.052	0.016	0.008	Pass	0.420	0.299	0.077	0.121	Pass
	Crosstalk										
Detector 11											
12:42 AM	**Efficiency**	12976.10	13091.33	392.74	-115.23	Pass					
	Background										
	Crosstalk	5142.500	4821.400	79.982	321.100	**DOEF**					

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Gas Proportional Counter Daily Quality Control Checks

Wednesday, May 16, 2018

Instrument: Blue

Detector ID	Check Type	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag
12:47 AM	**Efficiency**						59702.20	59951.55	1798.55	-249.35	Pass
	Background										
	Crosstalk						5.049	6.900	3.386	-1.851	Pass
4:12 AM	**Efficiency**										
	Background	0.060	0.042	0.021	0.019	Pass	0.365	0.379	0.071	-0.014	Pass
	Crosstalk										
Detector 12											
12:42 AM	**Efficiency**	14729.44	16080.95	482.43	-1351.51	**FAIL**					
	Background										
	Crosstalk	7804.000	6389.275	61.812	1414.725	**DOEF**					
12:47 AM	**Efficiency**						55942.63	56717.58	1701.53	-774.95	Pass
	Background										
	Crosstalk						0.000	1.150	1.077	-1.150	Pass
4:12 AM	**Efficiency**										
	Background	0.045	0.030	0.018	0.016	Pass	0.460	0.422	0.077	0.038	Pass
	Crosstalk										
Detector 13											
12:42 AM	**Efficiency**	16646.27	17265.28	517.96	-619.00	**FAIL**					
	Background										
	Crosstalk	5703.500	5201.400	58.166	502.100	**DOEF**					
12:47 AM	**Efficiency**						55277.17	55315.55	1659.47	-38.38	Pass
	Background										
	Crosstalk						41.403	73.100	12.368	-31.697	**WARNING**
4:12 AM	**Efficiency**										
	Background	0.095	0.050	0.019	0.046	Pass	0.510	0.340	0.057	0.170	**FAIL**
	Crosstalk										
Detector 14											

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Gas Proportional Counter Daily Quality Control Checks

Wednesday, May 16, 2018

Instrument: Blue

Detector ID	Check Type	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag
12:42 AM	**Efficiency**	13178.26	14827.45	444.82	-1649.19	**FAIL**					
	Background										
	Crosstalk	7412.000	5916.450	76.057	1495.550	**DOEF**					
12:47 AM	**Efficiency**						50089.36	51244.60	1537.34	-1155.24	Pass
	Background										
	Crosstalk						0.000	0.550	0.583	-0.550	Pass
4:12 AM	**Efficiency**										
	Background	0.110	0.033	0.020	0.077	**FAIL**	0.470	0.287	0.055	0.183	**FAIL**
	Crosstalk										
Detector 15											
12:42 AM	**Efficiency**	13777.52	15177.88	455.34	-1400.35	**FAIL**					
	Background										
	Crosstalk	7507.000	6234.075	66.251	1272.925	**DOEF**					
12:47 AM	**Efficiency**						45802.59	44601.55	1338.05	1201.04	Pass
	Background										
	Crosstalk						0.505	0.625	0.666	-0.120	Pass
4:12 AM	**Efficiency**										
	Background	0.050	0.037	0.028	0.013	Pass	0.400	0.390	0.086	0.010	Pass
	Crosstalk										
Detector 16											
12:44 AM	**Efficiency**	12218.34	12474.03	374.22	-255.69	Pass					
	Background										
	Crosstalk	4967.000	4621.975	46.894	345.025	**DOEF**					
12:53 AM	**Efficiency**						50122.30	49665.88	1489.98	456.42	Pass
	Background										
	Crosstalk						1.010	1.550	1.347	-0.540	Pass
4:14 AM	**Efficiency**										
	Background	0.100	0.039	0.022	0.061	Pass	0.775	0.520	0.119	0.255	Pass
	Crosstalk										

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Wednesday, May 16, 2018

Instrument: Blue

Detector ID	Check Type	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag
Detector 17											
12:45 AM	**Efficiency**	12976.17	13345.48	400.36	-369.31	Pass					
	Background										
	Crosstalk	5237.000	4862.375	40.239	374.625	**DOEF**					
12:53 AM	**Efficiency**						48272.40	48166.13	1444.98	106.28	Pass
	Background										
	Crosstalk						2.525	2.200	1.490	0.325	Pass
4:14 AM	**Efficiency**										
	Background	0.120	0.069	0.032	0.052	Pass	0.675	0.378	0.196	0.297	Pass
	Crosstalk										
Detector 18											
12:45 AM	**Efficiency**	13956.60	14223.58	426.71	-266.98	Pass					
	Background										
	Crosstalk	5294.500	4941.250	56.316	353.250	**DOEF**					
12:53 AM	**Efficiency**						50015.74	49957.23	1498.72	58.52	Pass
	Background										
	Crosstalk						2.012	2.950	1.953	-0.938	Pass
4:14 AM	**Efficiency**										
	Background	0.790	0.053	0.029	0.738	**FAIL**	1.345	0.621	0.089	0.725	**FAIL**
	Crosstalk										
Detector 19											
12:45 AM	**Efficiency**	12824.50	13007.35	390.22	-182.85	Pass					
	Background										
	Crosstalk	5204.500	4806.200	94.171	398.300	**DOEF**					
12:53 AM	**Efficiency**						58858.29	59167.80	1775.03	-309.51	Pass
	Background										
	Crosstalk						0.505	1.325	0.799	-0.820	Pass

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Instrument: Blue

Detector ID	Check Type	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag
4:14 AM	**Efficiency**										
	Background	0.095	0.140	0.020	-0.045	Pass	0.630	0.460	0.087	0.170	Pass
	Crosstalk										
Detector 20											
12:45 AM	**Efficiency**	14748.44	16303.48	489.10	-1555.03	**FAIL**					
	Background										
	Crosstalk	8442.000	6704.900	45.266	1737.100	**DOEF**					
12:53 AM	**Efficiency**						56931.79	57321.08	1719.63	-389.28	Pass
	Background										
	Crosstalk						0.000	0.800	0.880	-0.800	Pass
4:15 AM	**Efficiency**										
	Background	0.060	0.047	0.027	0.014	Pass	0.500	0.406	0.087	0.094	Pass
	Crosstalk										
Detector 21											
12:45 AM	**Efficiency**	15307.69	16463.53	493.91	-1155.84	**FAIL**					
	Background										
	Crosstalk	7365.500	6239.150	57.121	1126.350	**DOEF**					
12:53 AM	**Efficiency**						54626.43	55281.80	1658.45	-655.37	Pass
	Background										
	Crosstalk						2.509	1.500	0.811	1.009	Pass
4:15 AM	**Efficiency**										
	Background	0.055	0.050	0.021	0.005	Pass	0.460	0.282	0.052	0.178	**FAIL**
	Crosstalk										
Detector 22											
12:45 AM	**Efficiency**	13765.51	15003.85	450.12	-1238.34	**FAIL**					
	Background										
	Crosstalk	7358.500	6128.700	48.095	1229.800	**DOEF**					

TestAmerica
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Gas Proportional Counter Daily Quality Control Checks

Wednesday, May 16, 2018

Instrument: Blue

Detector ID	Check Type	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag
12:53 AM	**Efficiency**						51900.65	52477.75	1574.33	-577.10	Pass
	Background										
	Crosstalk						0.000	0.600	0.503	-0.600	Pass
4:15 AM	**Efficiency**										
	Background	0.080	0.044	0.016	0.036	Pass	0.465	0.312	0.065	0.153	Pass
	Crosstalk										
Detector 23											
12:45 AM	**Efficiency**	14271.23	15423.95	462.72	-1152.72	**FAIL**					
	Background										
	Crosstalk	7600.000	6205.350	60.852	1394.650	**DOEF**					
12:53 AM	**Efficiency**						45376.55	46160.75	1384.82	-784.20	Pass
	Background										
	Crosstalk						1.004	0.875	0.809	0.129	Pass
4:14 AM	**Efficiency**										
	Background	0.145	0.041	0.020	0.104	**FAIL**	0.650	0.560	0.224	0.090	Pass
	Crosstalk										

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha and Beta +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev.

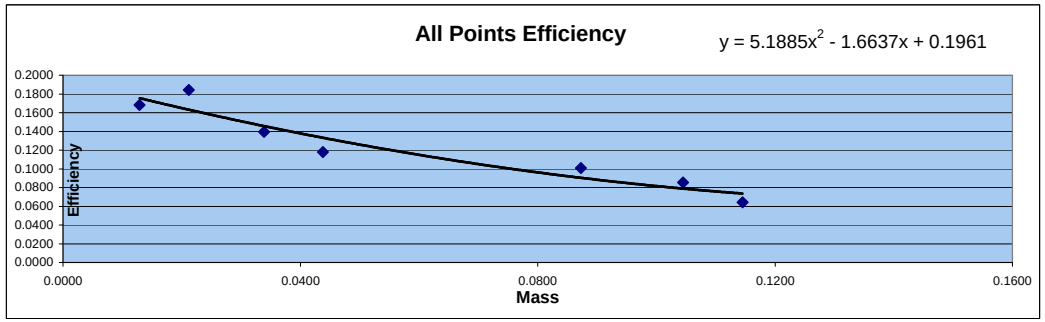
Times shown reflect the end of the count duration.

Curve is for Gross Alpha

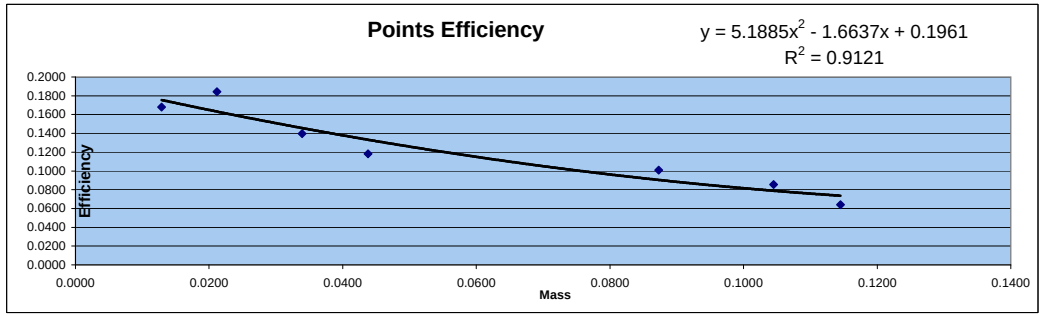
Blue 7

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
7	ICABT-51465;A1	3/29/2017 11:59	50	19959	399.180	2374.5	0.1681	1mL	0.0129
7	ICABT-51465;A2	3/29/2017 10:25	50	21874	437.480	2374.5	0.1842	1mL	0.0212
7	ICABT-51465;A3	3/20/2017 12:46	50	16570	331.400	2374.5	0.1396	1mL	0.0339
7	ICABT-51465;A4	3/20/2017 6:39	50	14017	280.340	2374.5	0.1181	1mL	0.0438
7	ICABT-51465;A6	3/20/2017 4:38	50	23938	478.760	4749.0	0.1008	2mL	0.0873
7	ICABT-51465;A7	3/20/2017 3:37	50	20303	406.060	4749.0	0.0855	2mL	0.1045
7	ICABT-51465;A8	3/19/2017 14:49	50	15250	305.000	4749.0	0.0642	2mL	0.1145

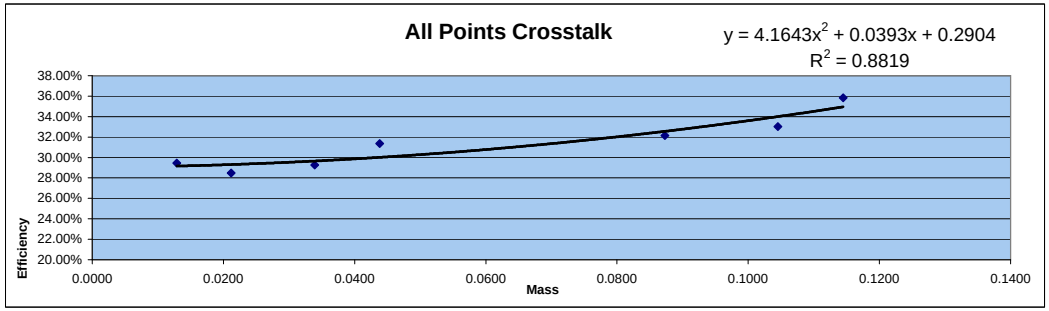
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1681	0.1755	-4.21%
0.0212	0.1842	0.1632	12.92%
0.0339	0.1396	0.1457	-4.19%
0.0438	0.1181	0.1332	-11.35%
0.0873	0.1008	0.0904	11.52%
0.1045	0.0855	0.0789	8.37%
0.1145	0.0642	0.0736	-12.77%



Mass	Efficiency
0.0129	0.1681
0.0212	0.1842
0.0339	0.1396
0.0438	0.1181
0.0873	0.1008
0.1045	0.0855
0.1145	0.0642



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
7	ICABT-51465;A1	0.0129	50	19959	8339	399.18	166.78	29.47%	Min
7	ICABT-51465;A2	0.0212	50	21874	8714	437.48	174.28	28.49%	28.49%
7	ICABT-51465;A3	0.0339	50	16570	6861	331.40	137.22	29.28%	
7	ICABT-51465;A4	0.0438	50	14017	6409	280.34	128.18	31.38%	Max
7	ICABT-51465;A6	0.0873	50	23938	11344	478.76	226.88	32.15%	
7	ICABT-51465;A7	0.1045	50	20303	10013	406.06	200.26	33.03%	Mean
7	ICABT-51465;A8	0.1145	50	15250	8524	305.00	170.48	35.85%	31.38%



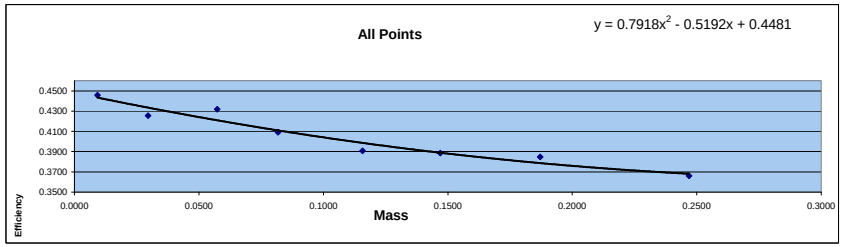
Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Curve is for Gross Beta
Strontium 90
and
Total Strontium

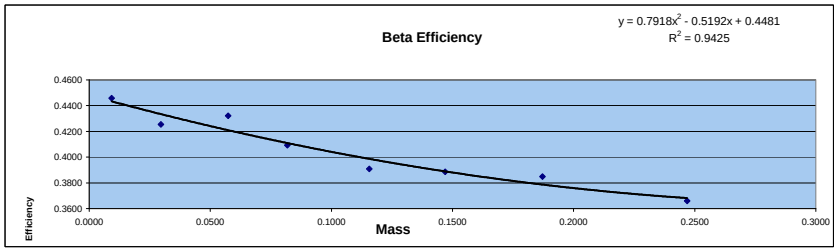
Blue 7

Detector ID	Std ID	Sample Wt	Count Date	Count Time	Beta Counts	DPM 37595.2171 DPM 37592.71382 CPM	Sr-90 Eff	Standard Aliquot
7	B1	0.0093	3/20/2017 0:59	5	83795	16759.000	0.4458	1mL
7	B2	0.0296	3/20/2017 0:37	5	79974	15994.800	0.4255	1mL
7	B3	0.0574	3/20/2017 0:22	5	81204	16240.800	0.4320	1mL
7	B4	0.0818	3/19/2017 14:40	5	76915	15383.000	0.4092	1mL
7	B5	0.1157	3/19/2017 14:30	5	73471	14694.200	0.3909	1mL
7	B6	0.1470	3/19/2017 14:23	5	73064	14612.800	0.3887	1mL
7	B7	0.1871	3/19/2017 14:17	5	72356	14471.200	0.3849	1mL
7	B8	0.2469	3/19/2017 14:10	5	68814	13762.800	0.3661	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4458	0.4433	0.56%
0.0296	0.4255	0.4334	-1.83%
0.0574	0.4320	0.4209	2.64%
0.0818	0.4092	0.4109	-0.43%
0.1157	0.3909	0.3986	-1.95%
0.1470	0.3887	0.3889	-0.05%
0.1871	0.3849	0.3787	1.65%
0.2469	0.3661	0.3682	-0.57%



Mass	Efficiency
0.0093	0.4458
0.0296	0.4255
0.0574	0.4320
0.0818	0.4092
0.1157	0.3909
0.1470	0.3887
0.1871	0.3849
0.2469	0.3661



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/19/2017
Elapsed Time:	2740.000 days
Half Life:	10409.625 days
Exponential Term:	0.833227329
Corrected Activity:	18797.60855 dpm/mL
Decay Activity (Sr/Y-90)	37595.2171 dpm

Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/20/2017
Elapsed Time:	2741.000 days
Half Life:	10409.625 days
Exponential Term:	0.833171849
Corrected Activity:	18796.35691 dpm/mL
Decay Activity (Sr/Y-90)	37592.71382 dpm

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-6322;Beta8 **Repeat** 1

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 2:10:40 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 2:15:48 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	9	1.800	1.800
sd	0.000			0.000	3.000	0.600	0.600
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	68,814	13,762.800	13,762.800
sd	0.000			0.000	262.324	52.465	52.465

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-6322;Beta7

Repeat 2

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:17:29 PM

Count Ended 3/19/2017 2:22:38 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	9	1.800	1.800
sd	0.000			0.000	3.000	0.600	0.600
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	72,356	14,471.200	14,471.200
sd	0.000			0.000	268.991	53.798	53.798

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-6322;Beta6

Repeat 3

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:23:56 PM

Count Ended 3/19/2017 2:29:05 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	9	1.800	1.800
sd	0.000			0.000	3.000	0.600	0.600
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	73,064	14,612.800	14,612.800
sd	0.000			0.000	270.304	54.061	54.061

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-6322;Beta5

Repeat 4

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:30:25 PM

Count Ended 3/19/2017 2:35:36 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	7	1.400	1.400
sd	0.000			0.000	2.646	0.529	0.529
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	73,471	14,694.200	14,694.200
sd	0.000			0.000	271.055	54.211	54.211

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-6322;Beta4 **Repeat** 6

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/19/2017 2:40:41 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/19/2017 2:45:53 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	4	0.800	0.800
sd	0.000			0.000	2.000	0.400	0.400
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	76,915	15,383.000	15,383.000
sd	0.000			0.000	277.336	55.467	55.467

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-51465;A8

Repeat 1

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/19/2017 2:49:31 PM

Count Ended 3/19/2017 3:39:41 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	15,250	305.000	305.000
sd	0.000			0.000	123.491	2.470	2.470
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,524	170.480	170.480
sd	0.000			0.000	92.326	1.847	1.847

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-6322;Beta3 **Repeat** 10

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:22:14 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 12:27:28 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	17	3.400	3.400
sd	0.000			0.000	4.123	0.825	0.825
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	81,204	16,240.800	16,240.800
sd	0.000			0.000	284.963	56.993	56.993

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-6322;Beta2 **Repeat** 11

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:37:28 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 12:42:41 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	19	3.800	3.800
sd	0.000			0.000	4.359	0.872	0.872
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	79,974	15,994.800	15,994.800
sd	0.000			0.000	282.797	56.559	56.559

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-6322;Beta1 **Repeat** 12

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 12:59:33 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 1:04:45 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	19	3.800	3.800
sd	0.000			0.000	4.359	0.872	0.872
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	83,795	16,759.000	16,759.000
sd	0.000			0.000	289.474	57.895	57.895

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-51465;A7 **Repeat** 2

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/20/2017 3:37:28 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/20/2017 4:27:37 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	20,303	406.060	406.060
sd	0.000			0.000	142.489	2.850	2.850
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	10,013	200.260	200.260
sd	0.000			0.000	100.065	2.001	2.001

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-51465;A6

Repeat 3

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 4:38:23 AM

Count Ended 3/20/2017 5:28:31 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	23,938	478.760	478.760
sd	0.000			0.000	154.719	3.094	3.094
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	11,344	226.880	226.880
sd	0.000			0.000	106.508	2.130	2.130

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-51465;A4

Repeat 5

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 6:39:07 AM

Count Ended 3/20/2017 7:29:17 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	14,017	280.340	280.340
sd	0.000			0.000	118.393	2.368	2.368
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	6,409	128.180	128.180
sd	0.000			0.000	80.056	1.601	1.601

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-51465;A3

Repeat 6

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/20/2017 12:46:23 PM

Count Ended 3/20/2017 1:36:32 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	16,570	331.400	331.400
sd	0.000			0.000	128.725	2.574	2.574
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	6,861	137.220	137.220
sd	0.000			0.000	82.831	1.657	1.657

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-51465;A2

Repeat 7

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 3/29/2017 10:25:49 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/29/2017 11:15:59 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	21,874	437.480	437.480
sd	0.000			0.000	147.899	2.958	2.958
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,714	174.280	174.280
sd	0.000			0.000	93.349	1.867	1.867

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICABT-51465;A1

Repeat 8

Carrier No. 0

Batch ID Alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/29/2017 11:59:13 AM

Count Ended 3/29/2017 12:49:22 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time .00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.000	19,959	399.180	399.180
sd	0.000			0.000	141.276	2.826	2.826
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.000	8,339	166.780	166.780
sd	0.000			0.000	91.318	1.826	1.826

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

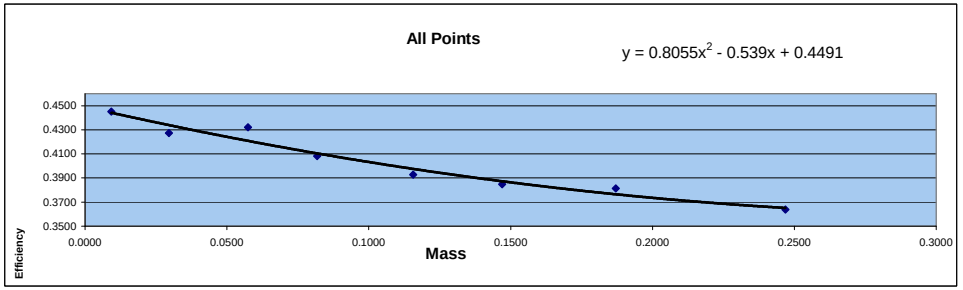
Error = .00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

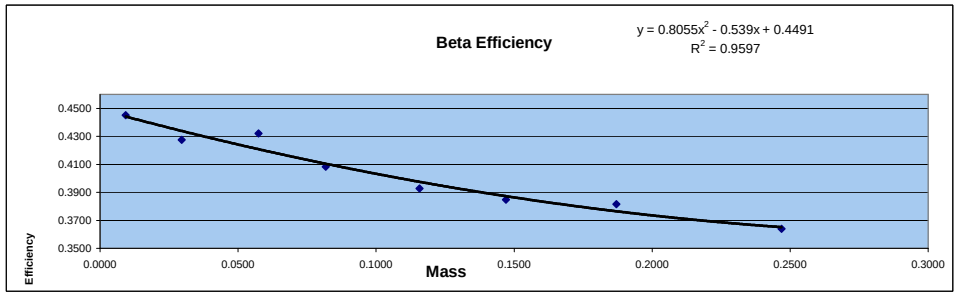
Blue 15

Detector ID	Std ID	Sample Wt	Count Date	Count Time	Beta Counts	DPM 37457.78422 CPM	Sr-90 Eff	Standard Aliquot
15	B1	0.0093	5/13/2017 11:15	5	83356	16671.200	0.4451	1mL
15	B2	0.0296	5/13/2017 11:08	5	80055	16011.000	0.4274	1mL
15	B3	0.0574	5/13/2017 11:01	5	80917	16183.400	0.4320	1mL
15	B4	0.0818	5/13/2017 10:43	5	76459	15291.800	0.4082	1mL
15	B5	0.1157	5/13/2017 11:41	5	73560	14712.000	0.3928	1mL
15	B6	0.1470	5/13/2017 11:34	5	72077	14415.400	0.3848	1mL
15	B7	0.1871	5/13/2017 11:28	5	71441	14288.200	0.3814	1mL
15	B8	0.2469	5/13/2017 11:21	5	68161	13632.200	0.3639	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4451	0.4442	0.20%
0.0296	0.4274	0.4339	-1.48%
0.0574	0.4320	0.4208	2.67%
0.0818	0.4082	0.4104	-0.53%
0.1157	0.3928	0.3975	-1.20%
0.1470	0.3848	0.3873	-0.63%
0.1871	0.3814	0.3765	1.33%
0.2469	0.3639	0.3651	-0.33%



Mass	Efficiency
0.0093	0.4451
0.0296	0.4274
0.0574	0.4320
0.0818	0.4082
0.1157	0.3928
0.1470	0.3848
0.1871	0.3814
0.2469	0.3639



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	5/13/2017
Elapsed Time:	2795.000 days
Half Life:	10409.625 days
Exponential Term:	0.830181388
Corrected Activity:	18728.89211 dpm/mL
Decay Activity (Sr/Y-90)	37457.78422 dpm

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-6322;Beta4 **Repeat** 13

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/13/2017 10:43:52 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/13/2017 10:49:05 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	0	0.000	-0.018
sd	0.000			0.004	0.000	0.000	0.085
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	76,459	15,291.800	15,291.528
sd	0.000			0.016	276.512	55.302	55.302

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-6322;Beta3 **Repeat** 14

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/13/2017 11:01:49 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/13/2017 11:07:03 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	4	0.800	0.782
sd	0.000			0.004	2.000	0.400	0.400
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	80,917	16,183.400	16,183.128
sd	0.000			0.016	284.459	56.892	56.892

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-6322;Beta2 **Repeat** 15

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/13/2017 11:08:39 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/13/2017 11:13:57 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	1	0.200	0.182
sd	0.000			0.004	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	80,055	16,011.000	16,010.728
sd	0.000			0.016	282.940	56.588	56.588

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-6322;Beta1 **Repeat** 16

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/13/2017 11:15:19 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/13/2017 11:20:33 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	2	0.400	0.382
sd	0.000			0.004	1.414	0.283	0.283
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	83,356	16,671.200	16,670.928
sd	0.000			0.016	288.714	57.743	57.743

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-6322;Beta8 **Repeat** 13

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/13/2017 11:21:35 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/13/2017 11:26:45 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	0	0.000	-0.018
sd	0.000			0.004	0.000	0.000	0.085
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	68,161	13,632.200	13,631.928
sd	0.000			0.016	261.077	52.215	52.215

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-6322;Beta7 **Repeat** 14

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/13/2017 11:28:14 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/13/2017 11:33:26 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	1	0.200	0.182
sd	0.000			0.004	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	71,441	14,288.200	14,287.928
sd	0.000			0.016	267.284	53.457	53.457

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-6322;Beta6 **Repeat** 15

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/13/2017 11:34:31 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/13/2017 11:39:45 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	1	0.200	0.182
sd	0.000			0.004	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	72,077	14,415.400	14,415.128
sd	0.000			0.016	268.472	53.694	53.694

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-6322;Beta5

Repeat 16

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/13/2017 11:41:01 AM

Count Ended 5/13/2017 11:46:12 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	3	0.600	0.582
sd	0.000			0.004	1.732	0.346	0.346
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	73,560	14,712.000	14,711.728
sd	0.000			0.016	271.219	54.244	54.244

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

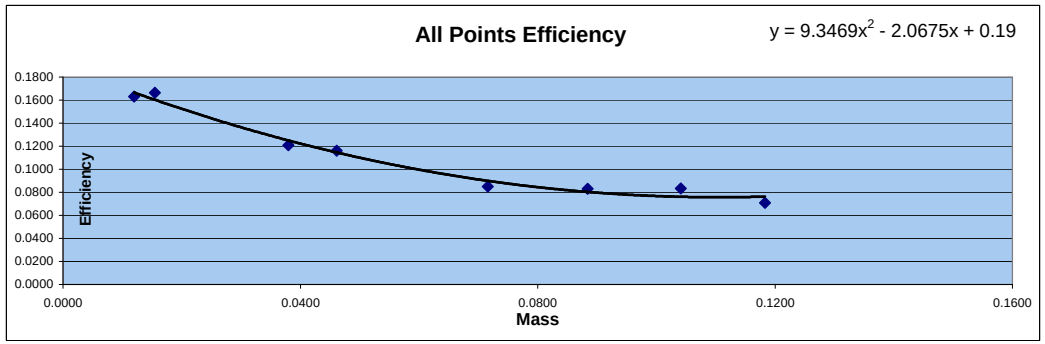
Error = .00 **x sd**

Curve is for Gross Alpha

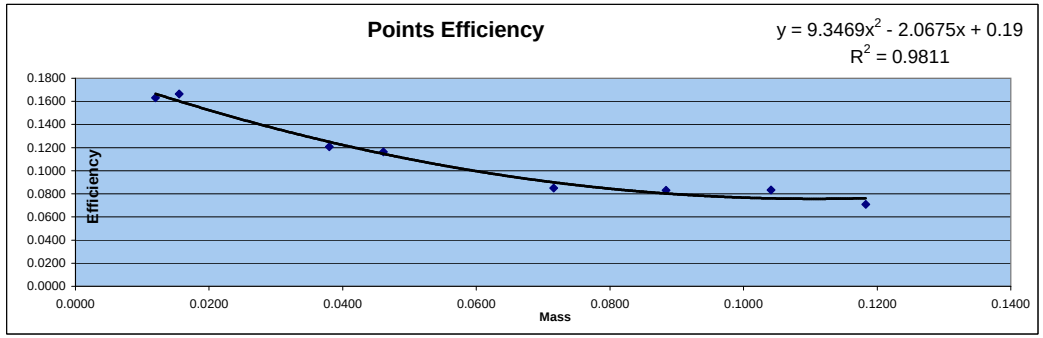
Blue 15

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
15	ICABT-51465;A1	5/15/2018 11:49	50	19359	387.180	2374.5	0.1631	1mL	0.0120
15	ICABT-51465;A2	5/15/2018 10:10	50	19756	395.120	2374.5	0.1664	1mL	0.0155
15	ICABT-51465;A3	5/14/2018 12:36	50	14331	286.620	2374.5	0.1207	1mL	0.0380
15	ICABT-51465;A4	5/15/2018 23:20	50	13800	276.000	2374.5	0.1162	1mL	0.0461
15	ICABT-51465;A5	5/12/2018 18:49	50	20210	404.200	4749.0	0.0851	2mL	0.0716
15	ICABT-51465;A6	5/12/2018 15:26	50	19750	395.000	4749.0	0.0832	2mL	0.0884
15	ICABT-51465;A7	5/12/2018 13:58	50	19795	395.900	4749.0	0.0834	2mL	0.1041
15	ICABT-51465;A8	5/15/2018 18:44	50	16842	336.840	4749.0	0.0709	2mL	0.1183

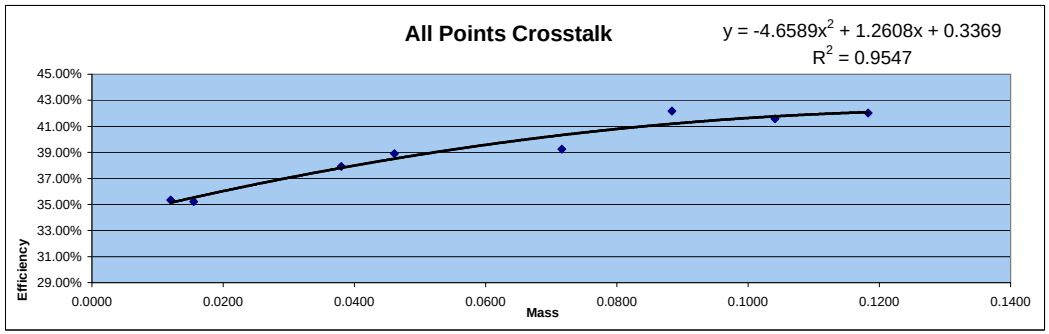
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0120	0.1631	0.1665	-2.09%
0.0155	0.1664	0.1602	3.87%
0.0380	0.1207	0.1249	-3.38%
0.0461	0.1162	0.1146	1.47%
0.0716	0.0851	0.0899	-5.31%
0.0884	0.0832	0.0803	3.61%
0.1041	0.0834	0.0761	9.60%
0.1183	0.0709	0.0762	-6.95%



Mass	Efficiency
0.0120	0.1631
0.0155	0.1664
0.0380	0.1207
0.0461	0.1162
0.0716	0.0851
0.0884	0.0832
0.1041	0.0834
0.1183	0.0709



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
15	ICABT-51465;A1	0.0120	50	19359	10581	387.18	211.62	35.34%	Min
15	ICABT-51465;A2	0.0155	50	19756	10737	395.12	214.74	35.21%	35.21%
15	ICABT-51465;A3	0.0380	50	14331	8750	286.62	175.00	37.91%	
15	ICABT-51465;A4	0.0461	50	13800	8789	276.00	175.78	38.91%	Max
15	ICABT-51465;A5	0.0716	50	20210	13052	404.20	261.04	39.24%	42.17%
15	ICABT-51465;A6	0.0884	50	19750	14401	395.00	288.02	42.17%	
15	ICABT-51465;A7	0.1041	50	19795	14093	395.90	281.86	41.59%	Mean
15	ICABT-51465;A8	0.1183	50	16842	12206	336.84	244.12	42.02%	39.05%



Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-51465;A7

Repeat 2

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/12/2018 1:58:48 PM

Count Ended 5/12/2018 2:49:00 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	19,795	395.900	395.859
sd	0.000			0.006	140.695	2.814	2.814
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	14,093	281.860	281.471
sd	0.000			0.020	118.714	2.374	2.374

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-51465;A6

Repeat 3

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/12/2018 3:26:13 PM

Count Ended 5/12/2018 4:16:22 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	19,750	395.000	394.959
sd	0.000			0.006	140.535	2.811	2.811
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	14,401	288.020	287.631
sd	0.000			0.020	120.004	2.400	2.400

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-51465;A5

Repeat 4

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/12/2018 6:49:41 PM

Count Ended 5/12/2018 7:39:51 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	20,210	404.200	404.159
sd	0.000			0.006	142.162	2.843	2.843
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	13,052	261.040	260.651
sd	0.000			0.020	114.245	2.285	2.285

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-51465;A3

Repeat 5

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/14/2018 12:36:40 PM

Count Ended 5/14/2018 1:26:52 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	14,331	286.620	286.579
sd	0.000			0.006	119.712	2.394	2.394
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	8,750	175.000	174.611
sd	0.000			0.020	93.541	1.871	1.871

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-51465;A2

Repeat 6

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 10:10:22 AM

Count Ended 5/15/2018 11:00:30 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	19,756	395.120	395.079
sd	0.000			0.006	140.556	2.811	2.811
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	10,737	214.740	214.351
sd	0.000			0.020	103.619	2.072	2.072

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-51465;A1

Repeat 6

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 11:49:55 AM

Count Ended 5/15/2018 12:40:07 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	19,359	387.180	387.139
sd	0.000			0.006	139.137	2.783	2.783
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	10,581	211.620	211.231
sd	0.000			0.020	102.864	2.057	2.057

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-51465;A8

Repeat 8

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 6:44:22 PM

Count Ended 5/15/2018 7:34:33 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	16,842	336.840	336.799
sd	0.000			0.006	129.777	2.596	2.596
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	12,206	244.120	243.731
sd	0.000			0.020	110.481	2.210	2.210

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICABT-51465;A4

Repeat 7

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 11:20:12 PM

Count Ended 5/16/2018 12:10:25 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	13,800	276.000	275.959
sd	0.000			0.006	117.473	2.349	2.349
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	8,789	175.780	175.391
sd	0.000			0.020	93.750	1.875	1.875

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

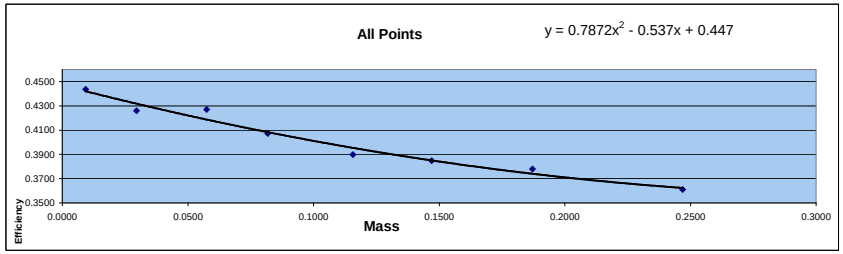
Error = .00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

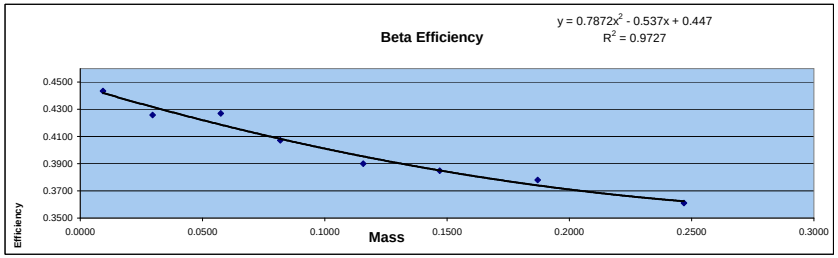
Blue 21

Detector ID	Std ID	Sample Wt	Count Date	Count Time	Beta Counts	DPM 37447.80872 DPM 37445.31526 CPM	Sr-90 Eff	Standard Aliquot
21	B1	0.0093	5/17/2017 21:26	5	83059	16611.800	0.4436	1mL
21	B2	0.0296	5/17/2017 21:32	5	79756	15951.200	0.4260	1mL
21	B3	0.0574	5/17/2017 21:40	5	79966	15993.200	0.4271	1mL
21	B4	0.0818	5/17/2017 21:56	5	76246	15249.200	0.4072	1mL
21	B5	0.1157	5/17/2017 22:04	5	73010	14602.000	0.3899	1mL
21	B6	0.1470	5/17/2017 22:13	5	72046	14409.200	0.3848	1mL
21	B7	0.1871	5/18/2017 0:15	5	70783	14156.600	0.3781	1mL
21	B8	0.2469	5/18/2017 0:48	5	67610	13522.000	0.3611	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4436	0.4421	0.34%
0.0296	0.4260	0.4318	-1.35%
0.0574	0.4271	0.4188	1.98%
0.0818	0.4072	0.4083	-0.28%
0.1157	0.3899	0.3954	-1.39%
0.1470	0.3848	0.3851	-0.08%
0.1871	0.3781	0.3741	1.06%
0.2469	0.3611	0.3624	-0.36%



Mass	Efficiency
0.0093	0.4436
0.0296	0.4260
0.0574	0.4271
0.0818	0.4072
0.1157	0.3899
0.1470	0.3848
0.1871	0.3781
0.2469	0.3611



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	5/17/2017
Elapsed Time:	2799.000 days
Half Life:	10409.625 days
Exponential Term:	0.8299603
Corrected Activity:	18723.90436 dpm/mL
Decay Activity (Sr/Y-90)	37447.80872 dpm

Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	5/18/2017
Elapsed Time:	2800.000 days
Half Life:	10409.625 days
Exponential Term:	0.829905037
Corrected Activity:	18722.65763 dpm/mL

Curve is for Gross Beta
Strontium 90
and
Total Strontium

Decay Activity (Sr/Y-90) 37445.31526 dpm

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-6322;Beta1

Repeat 21

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/17/2017 9:26:50 PM

Count Ended 5/17/2017 9:32:00 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	3	0.600	0.581
sd	0.000			0.004	1.732	0.346	0.346
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	83,059	16,611.800	16,611.599
sd	0.000			0.014	288.200	57.640	57.640

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-6322;Beta2

Repeat 21

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/17/2017 9:32:35 PM

Count Ended 5/17/2017 9:37:45 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	3	0.600	0.581
sd	0.000			0.004	1.732	0.346	0.346
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	79,756	15,951.200	15,950.999
sd	0.000			0.014	282.411	56.482	56.482

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-6322;Beta3

Repeat 21

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/17/2017 9:40:13 PM

Count Ended 5/17/2017 9:45:22 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	2	0.400	0.381
sd	0.000			0.004	1.414	0.283	0.283
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	79,966	15,993.200	15,992.999
sd	0.000			0.014	282.783	56.557	56.557

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-6322;Beta4

Repeat 21

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/17/2017 9:56:49 PM

Count Ended 5/17/2017 10:01:58 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	1	0.200	0.181
sd	0.000			0.004	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	76,246	15,249.200	15,248.999
sd	0.000			0.014	276.127	55.225	55.225

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-6322;Beta5 **Repeat** 22

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***ml*** **sd** 0 ***ml***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/17/2017 10:04:09 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/17/2017 10:09:23 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	0	0.000	-0.019
sd	0.000			0.004	0.000	0.000	0.087
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	73,010	14,602.000	14,601.799
sd	0.000			0.014	270.204	54.041	54.041

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-6322;Beta6 **Repeat** 21

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/17/2017 10:13:34 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/17/2017 10:18:47 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	5	1.000	0.981
sd	0.000			0.004	2.236	0.447	0.447
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	72,046	14,409.200	14,408.999
sd	0.000			0.014	268.414	53.683	53.683

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-6322;Beta7

Repeat 21

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/18/2017 12:15:36 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/18/2017 12:20:45 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	1	0.200	0.181
sd	0.000			0.004	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	70,783	14,156.600	14,156.399
sd	0.000			0.014	266.051	53.210	53.210

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-6322;Beta8

Repeat 21

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/18/2017 12:48:55 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/18/2017 12:54:05 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	0	0.000	-0.019
sd	0.000			0.004	0.000	0.000	0.087
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	67,610	13,522.000	13,521.799
sd	0.000			0.014	260.019	52.004	52.004

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

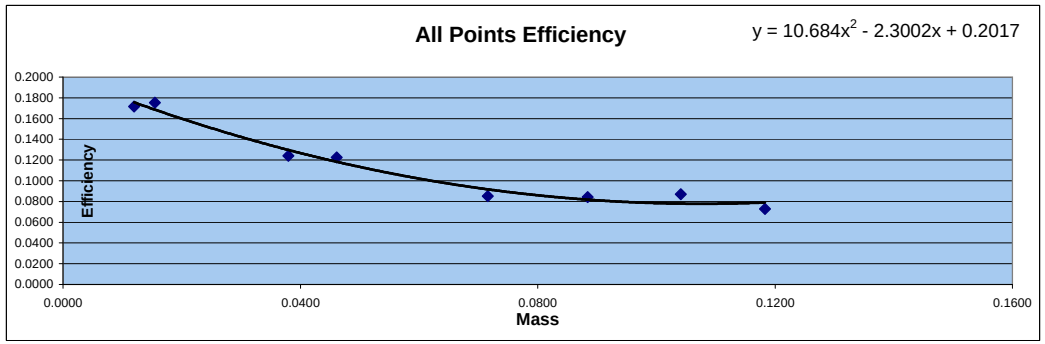
*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Curve is for Gross Alpha

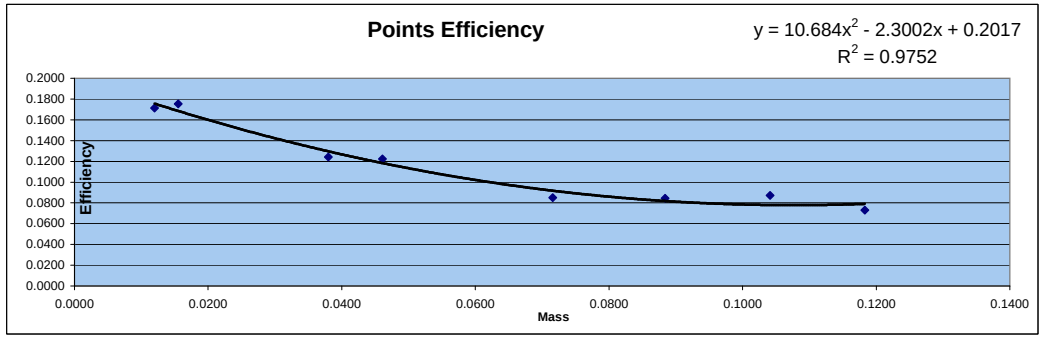
Blue 21

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
21	ICABT-51465;A1	5/12/2018 19:54	50	20359	407.180	2374.5	0.1715	1mL	0.0120
21	ICABT-51465;A2	5/12/2018 18:51	50	20814	416.280	2374.5	0.1753	1mL	0.0155
21	ICABT-51465;A3	5/15/2018 18:43	50	14731	294.620	2374.5	0.1241	1mL	0.0380
21	ICABT-51465;A4	5/16/2018 14:36	50	14541	290.820	2374.5	0.1225	1mL	0.0461
21	ICABT-51465;A5	5/15/2018 10:10	50	20199	403.980	4749.0	0.0851	2mL	0.0716
21	ICABT-51465;A6	5/14/2018 12:37	50	20018	400.360	4749.0	0.0843	2mL	0.0884
21	ICABT-51465;A7	5/15/2018 17:51	50	20672	413.440	4749.0	0.0871	2mL	0.1041
21	ICABT-51465;A8	5/15/2018 11:50	50	17323	346.460	4749.0	0.0730	2mL	0.1183

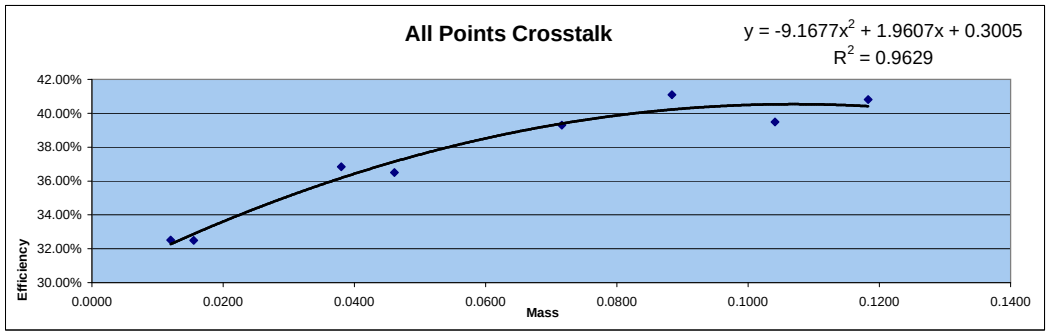
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0120	0.1715	0.1756	-2.37%
0.0155	0.1753	0.1686	3.97%
0.0380	0.1241	0.1297	-4.35%
0.0461	0.1225	0.1184	3.47%
0.0716	0.0851	0.0918	-7.31%
0.0884	0.0843	0.0819	2.99%
0.1041	0.0871	0.0780	11.57%
0.1183	0.0730	0.0791	-7.78%



Mass	Efficiency
0.0120	0.1715
0.0155	0.1753
0.0380	0.1241
0.0461	0.1225
0.0716	0.0851
0.0884	0.0843
0.1041	0.0871
0.1183	0.0730



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
21	ICABT-51465;A1	0.0120	50	20359	9812	407.18	196.24	32.52%	Min
21	ICABT-51465;A2	0.0155	50	20814	10015	416.28	200.30	32.49%	32.49%
21	ICABT-51465;A3	0.0380	50	14731	8593	294.62	171.86	36.84%	
21	ICABT-51465;A4	0.0461	50	14541	8360	290.82	167.20	36.50%	Max
21	ICABT-51465;A5	0.0716	50	20199	13073	403.98	261.46	39.29%	41.08%
21	ICABT-51465;A6	0.0884	50	20018	13959	400.36	279.18	41.08%	
21	ICABT-51465;A7	0.1041	50	20672	13489	413.44	269.78	39.49%	Mean
21	ICABT-51465;A8	0.1183	50	17323	11945	346.46	238.90	40.81%	37.38%



Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-51465;A2

Repeat 3

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/12/2018 6:51:15 PM

Count Ended 5/12/2018 7:41:29 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	20,814	416.280	416.234
sd	0.000			0.007	144.271	2.885	2.885
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	10,015	200.300	199.922
sd	0.000			0.019	100.075	2.001	2.002

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-51465;A1 **Repeat** 3

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/12/2018 7:54:26 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/12/2018 8:44:35 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	20,359	407.180	407.134
sd	0.000			0.007	142.685	2.854	2.854
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	9,812	196.240	195.862
sd	0.000			0.019	99.056	1.981	1.981

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-51465;A6

Repeat 5

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/14/2018 12:37:01 PM

Count Ended 5/14/2018 1:27:14 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	20,018	400.360	400.314
sd	0.000			0.007	141.485	2.830	2.830
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	13,959	279.180	278.802
sd	0.000			0.019	118.148	2.363	2.363

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-51465;A5

Repeat 6

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 10:10:53 AM

Count Ended 5/15/2018 11:01:06 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	20,199	403.980	403.934
sd	0.000			0.007	142.123	2.842	2.842
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	13,073	261.460	261.082
sd	0.000			0.019	114.337	2.287	2.287

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-51465;A8 **Repeat** 6

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/15/2018 11:50:45 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/15/2018 12:40:55 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	17,323	346.460	346.414
sd	0.000			0.007	131.617	2.632	2.632
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	11,945	238.900	238.522
sd	0.000			0.019	109.293	2.186	2.186

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-51465;A7

Repeat 8

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 5:51:50 PM

Count Ended 5/15/2018 6:41:59 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	20,672	413.440	413.394
sd	0.000			0.007	143.778	2.876	2.876
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	13,489	269.780	269.402
sd	0.000			0.019	116.142	2.323	2.323

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-51465;A3 **Repeat** 9

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 6:43:58 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/15/2018 7:34:11 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	14,731	294.620	294.574
sd	0.000			0.007	121.371	2.427	2.427
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	8,593	171.860	171.482
sd	0.000			0.019	92.698	1.854	1.854

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-51465;A4

Repeat 8

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/16/2018 2:36:46 PM

Count Ended 5/16/2018 3:26:59 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	14,541	290.820	290.774
sd	0.000			0.007	120.586	2.412	2.412
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	8,360	167.200	166.822
sd	0.000			0.019	91.433	1.829	1.829

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-51465;A4

Repeat 8

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/16/2018 2:36:46 PM

Count Ended 5/16/2018 3:26:59 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	14,541	290.820	290.774
sd	0.000			0.007	120.586	2.412	2.412
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	8,360	167.200	166.822
sd	0.000			0.019	91.433	1.829	1.829

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICABT-51465;A4 **Repeat** 8

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/16/2018 2:36:46 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/16/2018 3:26:59 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	14,541	290.820	290.774
sd	0.000			0.007	120.586	2.412	2.412
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	8,360	167.200	166.822
sd	0.000			0.019	91.433	1.829	1.829

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

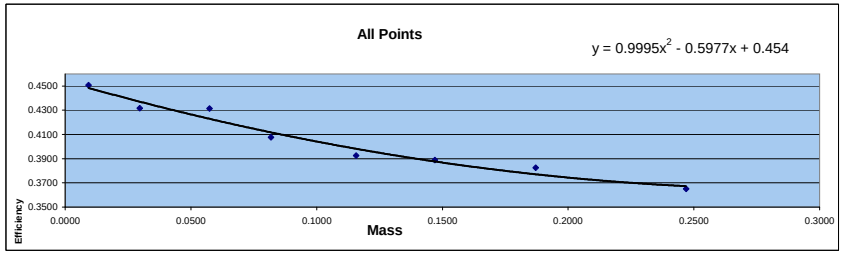
*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

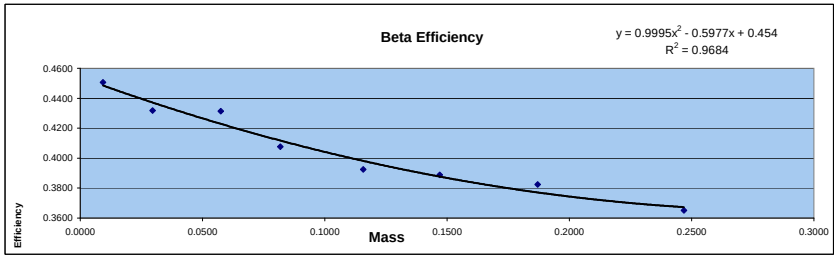
Blue 22

Detector ID	Std ID	Sample Wt	Count Date	Count Time	Beta Counts	DPM 37447.80872 DPM 37445.31526 CPM	Sr-90 Eff	Standard Aliquot
22	B1	0.0093	5/17/2017 22:22	5	84386	16877.200	0.4507	1mL
22	B2	0.0296	5/17/2017 22:32	5	80857	16171.400	0.4318	1mL
22	B3	0.0574	5/17/2017 22:42	5	80776	16155.200	0.4314	1mL
22	B4	0.0818	5/17/2017 22:50	5	76319	15263.800	0.4076	1mL
22	B5	0.1157	5/17/2017 23:02	5	73491	14698.200	0.3925	1mL
22	B6	0.1470	5/18/2017 0:15	5	72822	14564.400	0.3890	1mL
22	B7	0.1871	5/18/2017 0:49	5	71617	14323.400	0.3825	1mL
22	B8	0.2469	5/18/2017 8:56	5	68349	13669.800	0.3651	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4507	0.4485	0.48%
0.0296	0.4318	0.4372	-1.22%
0.0574	0.4314	0.4230	1.99%
0.0818	0.4076	0.4118	-1.02%
0.1157	0.3925	0.3982	-1.44%
0.1470	0.3890	0.3877	0.31%
0.1871	0.3825	0.3772	1.42%
0.2469	0.3651	0.3674	-0.63%



Mass	Efficiency
0.0093	0.4507
0.0296	0.4318
0.0574	0.4314
0.0818	0.4076
0.1157	0.3925
0.1470	0.3890
0.1871	0.3825
0.2469	0.3651



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	5/17/2017
Elapsed Time:	2799.000 days
Half Life:	10409.625 days
Exponential Term:	0.8299603
Corrected Activity:	18723.90436 dpm/mL
Decay Activity (Sr/Y-90)	37447.80872 dpm

Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/17/2009

Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	5/18/2017
Elapsed Time:	2800.000 days
Half Life:	10409.625 days
Exponential Term:	0.829905037
Corrected Activity:	18722.65763 dpm/mL

Curve is for Gross Beta
Strontium 90
and
Total Strontium

Decay Activity (Sr/Y-90) 37445.31526 dpm

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-6322;Beta1

Repeat 22

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/17/2017 10:22:01 PM

Count Ended 5/17/2017 10:27:14 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	1	0.200	0.178
sd	0.000			0.005	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	84,386	16,877.200	16,876.975
sd	0.000			0.015	290.493	58.099	58.099

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-6322;Beta2

Repeat 22

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/17/2017 10:32:14 PM

Count Ended 5/17/2017 10:37:24 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	1	0.200	0.178
sd	0.000			0.005	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	80,857	16,171.400	16,171.175
sd	0.000			0.015	284.354	56.871	56.871

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-6322;Beta3

Repeat 22

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/17/2017 10:42:57 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/17/2017 10:48:08 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	1	0.200	0.178
sd	0.000			0.005	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	80,776	16,155.200	16,154.975
sd	0.000			0.015	284.211	56.842	56.842

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-6322;Beta4

Repeat 22

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/17/2017 10:50:40 PM

Count Ended 5/17/2017 10:55:52 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	2	0.400	0.378
sd	0.000			0.005	1.414	0.283	0.283
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	76,319	15,263.800	15,263.575
sd	0.000			0.015	276.259	55.252	55.252

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-6322;Beta5

Repeat 23

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/17/2017 11:02:49 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/17/2017 11:08:01 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	3	0.600	0.578
sd	0.000			0.005	1.732	0.346	0.346
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	73,491	14,698.200	14,697.975
sd	0.000			0.015	271.092	54.218	54.218

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-6322;Beta6

Repeat 22

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/18/2017 12:15:20 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/18/2017 12:20:32 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	1	0.200	0.178
sd	0.000			0.005	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	72,822	14,564.400	14,564.175
sd	0.000			0.015	269.856	53.971	53.971

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-6322;Beta7

Repeat 22

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/18/2017 12:49:08 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/18/2017 12:54:21 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	0	0.000	-0.022
sd	0.000			0.005	0.000	0.000	0.094
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	71,617	14,323.400	14,323.175
sd	0.000			0.015	267.614	53.523	53.523

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-6322;Beta8

Repeat 22

Carrier No. 0

Batch ID Beta_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***ml***	**sd**	0 ***ml***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/18/2017 8:56:17 AM

Count Ended 5/18/2017 9:01:31 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	1	0.200	0.178
sd	0.000			0.005	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	68,349	13,669.800	13,669.575
sd	0.000			0.015	261.436	52.287	52.287

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

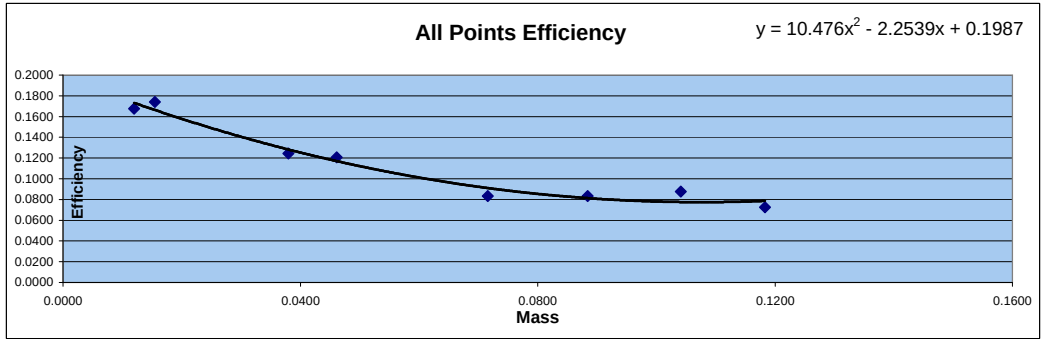
Error = .00 **x sd**

Curve is for Gross Alpha

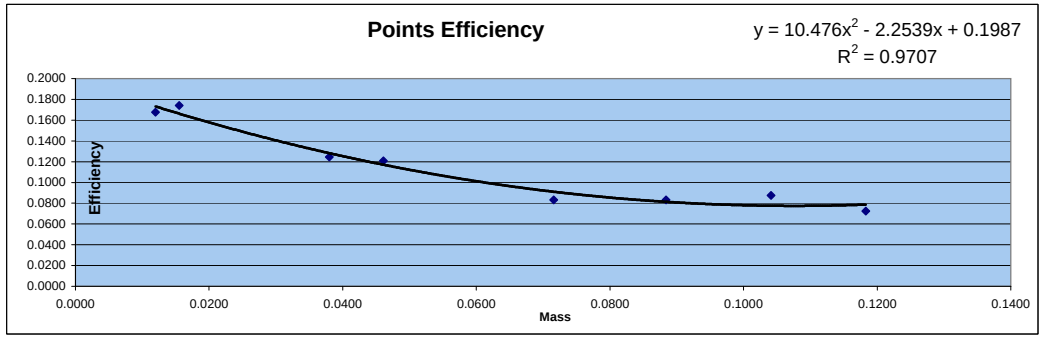
Blue 22

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
22	ICABT-51465;A1	5/15/2018 17:52	50	19890	397.800	2374.5	0.1675	1mL	0.0120
22	ICABT-51465;A2	5/12/2018 19:54	50	20656	413.120	2374.5	0.1740	1mL	0.0155
22	ICABT-51465;A3	5/12/2018 18:51	50	14785	295.700	2374.5	0.1245	1mL	0.0380
22	ICABT-51465;A4	5/15/2018 18:44	50	14344	286.880	2374.5	0.1208	1mL	0.0461
22	ICABT-51465;A5	5/15/2018 11:50	50	19768	395.360	4749.0	0.0833	2mL	0.0716
22	ICABT-51465;A6	5/15/2018 10:11	50	19758	395.160	4749.0	0.0832	2mL	0.0884
22	ICABT-51465;A7	5/14/2018 12:37	50	20796	415.920	4749.0	0.0876	2mL	0.1041
22	ICABT-51465;A8	5/15/2018 21:57	50	17214	344.280	4749.0	0.0725	2mL	0.1183

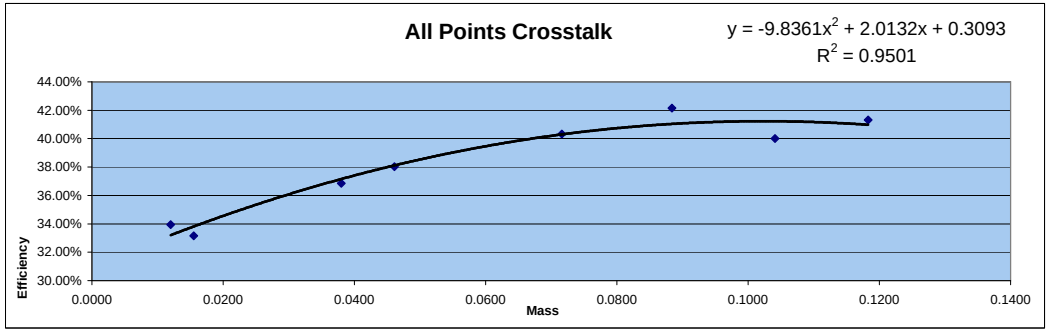
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0120	0.1675	0.1732	-3.25%
0.0155	0.1740	0.1663	4.63%
0.0380	0.1245	0.1282	-2.85%
0.0461	0.1208	0.1171	3.21%
0.0716	0.0833	0.0910	-8.54%
0.0884	0.0832	0.0813	2.32%
0.1041	0.0876	0.0776	12.87%
0.1183	0.0725	0.0787	-7.85%



Mass	Efficiency
0.0120	0.1675
0.0155	0.1740
0.0380	0.1245
0.0461	0.1208
0.0716	0.0833
0.0884	0.0832
0.1041	0.0876
0.1183	0.0725



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
22	ICABT-51465;A1	0.0120	50	19890	10221	397.80	204.42	33.94%	Min
22	ICABT-51465;A2	0.0155	50	20656	10249	413.12	204.98	33.16%	33.16%
22	ICABT-51465;A3	0.0380	50	14785	8631	295.70	172.62	36.86%	
22	ICABT-51465;A4	0.0461	50	14344	8804	286.88	176.08	38.03%	Max
22	ICABT-51465;A5	0.0716	50	19768	13362	395.36	267.24	40.33%	42.16%
22	ICABT-51465;A6	0.0884	50	19758	14401	395.16	288.02	42.16%	
22	ICABT-51465;A7	0.1041	50	20796	13871	415.92	277.42	40.01%	Mean
22	ICABT-51465;A8	0.1183	50	17214	12125	344.28	242.50	41.33%	38.23%



Standard ID
Thorium-230
Th-230_00016
Container#: 51465
Cert #: 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-51465;A3 **Repeat** 3

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/12/2018 6:51:21 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/12/2018 7:41:30 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	14,785	295.700	295.655
sd	0.000			0.007	121.594	2.432	2.432
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	8,631	172.620	172.295
sd	0.000			0.018	92.903	1.858	1.858

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-51465;A2

Repeat 4

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/12/2018 7:54:33 PM

Count Ended 5/12/2018 8:44:42 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	20,656	413.120	413.075
sd	0.000			0.007	143.722	2.874	2.874
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	10,249	204.980	204.655
sd	0.000			0.018	101.237	2.025	2.025

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-51465;A7

Repeat 5

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/14/2018 12:37:09 PM

Count Ended 5/14/2018 1:27:21 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	20,796	415.920	415.875
sd	0.000			0.007	144.208	2.884	2.884
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	13,871	277.420	277.095
sd	0.000			0.018	117.775	2.356	2.356

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-51465;A6

Repeat 6

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 10:11:01 AM

Count Ended 5/15/2018 11:01:14 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	19,758	395.160	395.115
sd	0.000			0.007	140.563	2.811	2.811
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	14,401	288.020	287.695
sd	0.000			0.018	120.004	2.400	2.400

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-51465;A5

Repeat 7

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/15/2018 11:50:53 AM

Count Ended 5/15/2018 12:41:03 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	19,768	395.360	395.315
sd	0.000			0.007	140.599	2.812	2.812
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	13,362	267.240	266.915
sd	0.000			0.018	115.594	2.312	2.312

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-51465;A1

Repeat 7

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 5:52:02 PM

Count Ended 5/15/2018 6:42:15 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	19,890	397.800	397.755
sd	0.000			0.007	141.032	2.821	2.821
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	10,221	204.420	204.095
sd	0.000			0.018	101.099	2.022	2.022

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-51465;A4

Repeat 5

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 6:44:12 PM

Count Ended 5/15/2018 7:34:19 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	14,344	286.880	286.835
sd	0.000			0.007	119.766	2.395	2.395
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	8,804	176.080	175.755
sd	0.000			0.018	93.830	1.877	1.877

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICABT-51465;A8

Repeat 9

Carrier No. 0

Batch ID alpha_IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/15/2018 9:57:30 PM

Count Ended 5/15/2018 10:47:44 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 50.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	17,214	344.280	344.235
sd	0.000			0.007	131.202	2.624	2.624
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	12,125	242.500	242.175
sd	0.000			0.018	110.114	2.202	2.202

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

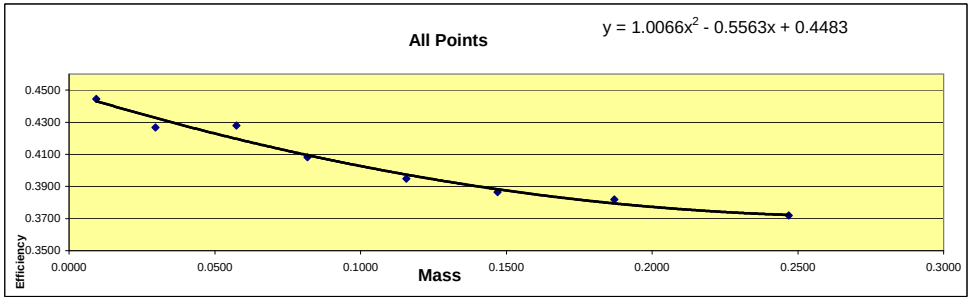
Error = .00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

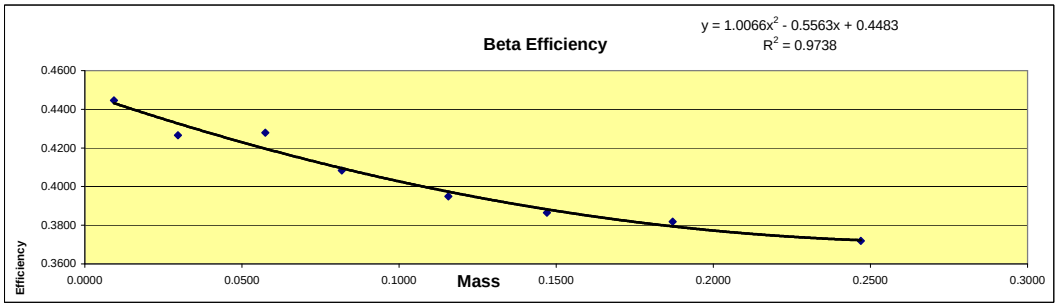
Protean 0

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 41414.371 CPM	Sr-90 Eff	Standard Aliquot
0	B1	3/27/2013 12:24:34 AM	0.0093	1.01	18594	18409.901	0.4445	1mL
0	B2	3/27/2013 9:20:47 AM	0.0296	1.01	17845	17668.317	0.4266	1mL
0	B3	3/27/2013 8:55:13 AM	0.0574	1.01	17895	17717.822	0.4278	1mL
0	B4	3/27/2013 8:50:39 AM	0.0818	1.01	17078	16908.911	0.4083	1mL
0	B5	3/27/2013 2:15:46 AM	0.1157	1.01	16518	16354.455	0.3949	1mL
0	B6	3/27/2013 1:06:53 AM	0.1470	1.01	16166	16005.941	0.3865	1mL
0	B7	3/27/2013 12:52:20 AM	0.1871	1.01	15970	15811.881	0.3818	1mL
0	B8	3/27/2013 12:33:51 AM	0.2469	1.01	15554	15400.000	0.3719	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4445	0.4432	0.30%
0.0296	0.4266	0.4327	-1.41%
0.0574	0.4278	0.4197	1.94%
0.0818	0.4083	0.4095	-0.30%
0.1157	0.3949	0.3974	-0.63%
0.1470	0.3865	0.3883	-0.46%
0.1871	0.3818	0.3795	0.62%
0.2469	0.3719	0.3723	-0.12%



Mass	Efficiency
0.0093	0.4445
0.0296	0.4266
0.0574	0.4278
0.0818	0.4083
0.1157	0.3949
0.1470	0.3865
0.1871	0.3818
0.2469	0.3719



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

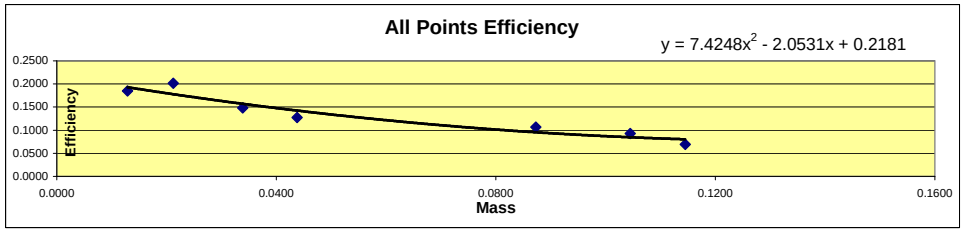
Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/27/2013
Elapsed Time:	1287.000 days
Half Life:	10409.625 days
Exponential Term:	0.91787171
Corrected Activity:	20707.1857 dpm/mL
Decay Activity (Sr/Y-90)	41414.3714 dpm

Curve is for Gross Alpha

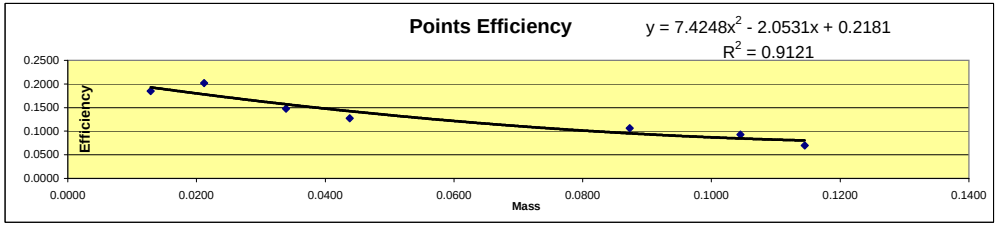
Protean 0

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
0	ICABT-51465;A1	11/13/2015 1:18:49 PM	50	21949	438.980	2374.5	0.1849	1mL	0.0129
0	ICABT-51465;A2	11/15/2015 6:17:57 PM	20.89	10003	478.842	2374.5	0.2017	1mL	0.0212
0	ICABT-51465;A3	11/15/2015 2:39:37 PM	28.46	10002	351.441	2374.5	0.1480	1mL	0.0339
0	ICABT-51465;A4	11/15/2015 1:38:18 PM	33.02	10000	302.847	2374.5	0.1275	1mL	0.0438
0	ICABT-51465;A6	11/15/2015 11:16:21 PM	19.82	10007	504.894	4749.0	0.1063	2mL	0.0873
0	ICABT-51465;A7	11/15/2015 10:33:57 PM	22.71	10004	440.511	4749.0	0.0928	2mL	0.1045
0	ICABT-51465;A8	11/15/2015 9:23:24 PM	30.28	10000	330.251	4749.0	0.0695	2mL	0.1145

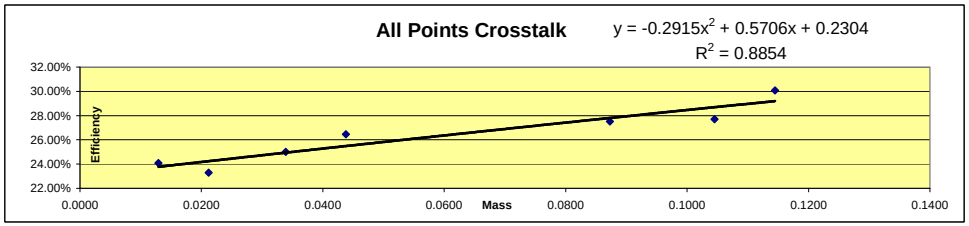
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1849	0.1929	-4.14%
0.0212	0.2017	0.1779	13.35%
0.0339	0.1480	0.1570	-5.75%
0.0438	0.1275	0.1424	-10.45%
0.0873	0.1063	0.0955	11.38%
0.1045	0.0928	0.0846	9.60%
0.1145	0.0695	0.0804	-13.46%



Mass	Efficiency
0.0129	0.1849
0.0212	0.2017
0.0339	0.1480
0.0438	0.1275
0.0873	0.1063
0.1045	0.0928
0.1145	0.0695



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
0	ICABT-51465;A1	0.0129	50	21949	6967	438.98	139.34	24.09%	Min
0	ICABT-51465;A2	0.0212	20.89	10003	3037	478.84	145.3805649	23.29%	23.29%
0	ICABT-51465;A3	0.0339	28.46	10002	3336	351.44	117.2171469	25.01%	
0	ICABT-51465;A4	0.0438	33.02	10000	3599	302.85	108.9945488	26.47%	Max
0	ICABT-51465;A6	0.0873	19.82	10007	3797	504.89	191.5741675	27.51%	30.07%
0	ICABT-51465;A7	0.1045	22.71	10004	3832	440.51	168.7362395	27.70%	
0	ICABT-51465;A8	0.1145	30.28	10000	4301	330.25	142.0409511	30.07%	Mean 26.31%



Standard ID
Thorium-230
Th-230_00016 #51465
Cert # 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-6322;B1*** **Repeat** ***1***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 00:23 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	7	6.931	6.895
sd	0.000			0.006	2.646	2.620	2.620
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	18,594	18,409.901	18,409.342
sd	0.000			0.024	136.360	135.010	135.010

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-6322;B8*** **Repeat** ***2***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 00:32 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	6	5.941	5.905
sd	0.000			0.006	2.449	2.425	2.425
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	15,554	15,400.000	15,399.441
sd	0.000			0.024	124.716	123.481	123.481

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-6322;B7*** **Repeat** ***3***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 00:51 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	14	13.861	13.825
sd	0.000			0.006	3.742	3.705	3.705
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	15,970	15,811.881	15,811.322
sd	0.000			0.024	126.372	125.121	125.121

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-6322;B6*** **Repeat** ***4***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 01:05 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	11	10.891	10.855
sd	0.000			0.006	3.317	3.284	3.284
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	16,166	16,005.941	16,005.382
sd	0.000			0.024	127.146	125.887	125.887

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-6322;B5*** **Repeat** ***6***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 02:14 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	9	8.911	8.875
sd	0.000			0.006	3.000	2.970	2.970
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	16,518	16,354.455	16,353.896
sd	0.000			0.024	128.522	127.250	127.250

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-6322;B4*** **Repeat** ***7***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 08:49 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	6	5.941	5.905
sd	0.000			0.006	2.449	2.425	2.425
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	17,078	16,908.911	16,908.352
sd	0.000			0.024	130.683	129.389	129.389

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-6322;B3*** **Repeat** ***8***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 08:54 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	10	9.901	9.865
sd	0.000			0.006	3.162	3.131	3.131
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	17,895	17,717.822	17,717.263
sd	0.000			0.024	133.772	132.448	132.448

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-6322;B2*** **Repeat** ***9***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:19 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	14	13.861	13.825
sd	0.000			0.006	3.742	3.705	3.705
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	17,845	17,668.317	17,667.758
sd	0.000			0.024	133.585	132.263	132.263

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-51465;A1*** **Repeat** ***39***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/13/201! 12:28 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.071	21,949	438.980	438.909
sd	0.000			0.008	148.152	2.963	2.963
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.621	6,967	139.340	138.719
sd	0.000			0.025	83.469	1.669	1.670

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-51465;A4*** **Repeat** ***40***

Batch ID ***m153000***

Count Routine ***Sample Count*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/15/201! 13:05 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 33.02 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.071	10,000	302.847	302.776
sd	0.000			0.008	100.000	3.028	3.028
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.621	3,599	108.995	108.374
sd	0.000			0.025	59.992	1.817	1.817

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-51465;A3*** **Repeat** ***41***

Batch ID ***m153000***

Count Routine ***Sample Count*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/15/201! 14:11 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 28.46 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.071	10,002	351.441	351.370
sd	0.000			0.008	100.010	3.514	3.514
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.621	3,336	117.217	116.596
sd	0.000			0.025	57.758	2.029	2.030

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-51465;A2*** **Repeat** ***42***

Batch ID ***m153000***

Count Routine ***Sample Count*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/15/201! 17:57 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 20.89 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.071	10,003	478.842	478.771
sd	0.000			0.008	100.015	4.788	4.788
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.621	3,037	145.381	144.760
sd	0.000			0.025	55.109	2.638	2.638

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-51465;A8*** **Repeat** ***40***

Batch ID ***m153000***

Count Routine ***Sample Count*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/15/201! 20:53 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.28 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.071	10,000	330.251	330.180
sd	0.000			0.008	100.000	3.303	3.303
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.621	4,301	142.041	141.420
sd	0.000			0.025	65.582	2.166	2.166

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-51465;A7*** **Repeat** ***41***

Batch ID ***m153000***

Count Routine ***Sample Count*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/15/201! 22:11 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 22.71 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.071	10,004	440.511	440.440
sd	0.000			0.008	100.020	4.404	4.404
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.621	3,832	168.736	168.115
sd	0.000			0.025	61.903	2.726	2.726

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICABT-51465;A6*** **Repeat** ***42***

Batch ID ***m153000***

Count Routine ***Sample Count*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/15/201! 22:56 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 19.82 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.071	10,007	504.894	504.823
sd	0.000			0.008	100.035	5.047	5.047
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.621	3,797	191.574	190.953
sd	0.000			0.025	61.620	3.109	3.109

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

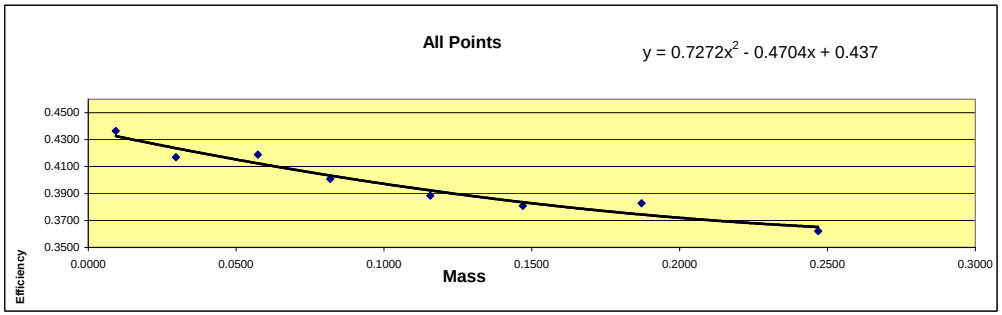
*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

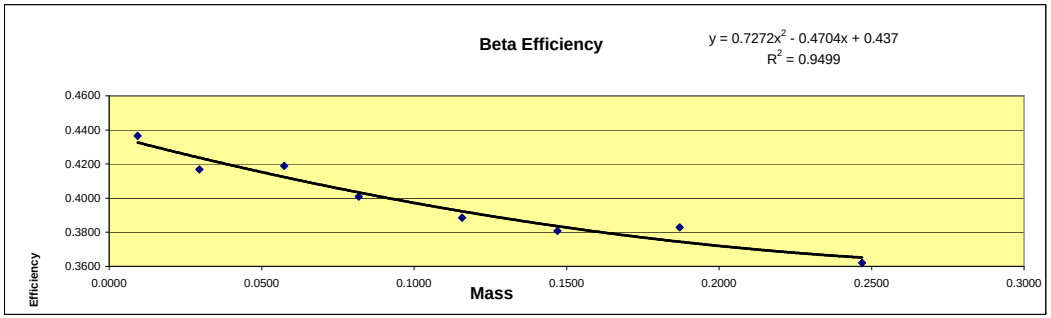
Protean 8

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 41414.371 CPM	Sr-90 Eff	Standard Aliquot
8	B1	3/27/2013 9:27:24 AM	0.0093	1.01	18258	18077.228	0.4365	1mL
8	B2	3/27/2013 10:28:05 AM	0.0296	1.01	17439	17266.337	0.4169	1mL
8	B3	3/27/2013 10:20:33 AM	0.0574	1.01	17519	17345.545	0.4188	1mL
8	B4	3/27/2013 10:13:30 AM	0.0818	1.01	16771	16604.950	0.4009	1mL
8	B5	3/27/2013 10:05:28 AM	0.1157	1.01	16254	16093.069	0.3886	1mL
8	B6	3/27/2013 9:56:32 AM	0.1470	1.01	15930	15772.277	0.3808	1mL
8	B7	3/27/2013 9:48:57 AM	0.1871	1.01	16014	15855.446	0.3828	1mL
8	B8	3/27/2013 9:35:28 AM	0.2469	1.01	15148	14998.020	0.3621	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4365	0.4327	0.88%
0.0296	0.4169	0.4237	-1.60%
0.0574	0.4188	0.4124	1.56%
0.0818	0.4009	0.4034	-0.61%
0.1157	0.3886	0.3923	-0.95%
0.1470	0.3808	0.3836	-0.71%
0.1871	0.3828	0.3744	2.24%
0.2469	0.3621	0.3652	-0.83%



Mass	Efficiency
0.0093	0.4365
0.0296	0.4169
0.0574	0.4188
0.0818	0.4009
0.1157	0.3886
0.1470	0.3808
0.1871	0.3828
0.2469	0.3621



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

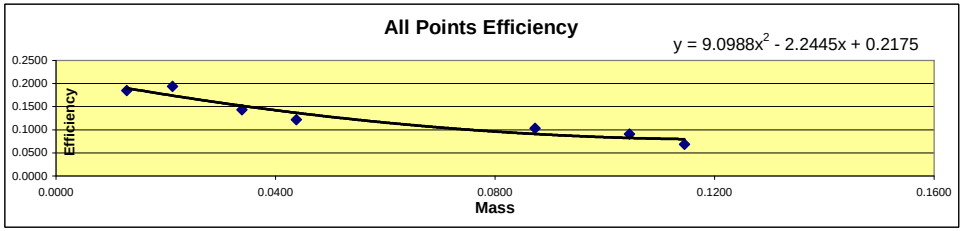
Initial Activity:	22560	dpm/mL
Reference Date:	9/17/2009	
Count Date:	3/27/2013	
Elapsed Time:	1287.000	days
Half Life:	10409.625	days
Exponential Term:	0.917871706	
Corrected Activity:	20707.18568	dpm/mL
Decay Activity (Sr/Y-90)	41414.37137	dpm

Curve is for Gross Alpha

Protean 8

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
8	ICABT-51465;A1	11/25/2015 7:08:42 PM	50	21946	438.920	2374.5	0.1848	1mL	0.0129
8	ICABT-51465;A2	11/27/2015 1:36:08 PM	50	23058	461.160	2374.5	0.1942	1mL	0.0212
8	ICABT-51465;A3	11/27/2015 12:39:10 PM	50	16985	339.700	2374.5	0.1431	1mL	0.0339
8	ICABT-51465;A4	11/29/2015 4:23:41 PM	50	14451	289.020	2374.5	0.1217	1mL	0.0438
8	ICABT-51465;A6	11/27/2015 8:37:48 AM	50	24444	488.880	4749.0	0.1029	2mL	0.0873
8	ICABT-51465;A7	11/26/2015 12:35:54 AM	50	21487	429.740	4749.0	0.0905	2mL	0.1045
8	ICABT-51465;A8	11/25/2015 11:38:12 PM	50	16219	324.380	4749.0	0.0683	2mL	0.1145

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1848	0.1901	-2.74%
0.0212	0.1942	0.1740	11.61%
0.0339	0.1431	0.1519	-5.80%
0.0438	0.1217	0.1366	-10.92%
0.0873	0.1029	0.0909	13.25%
0.1045	0.0905	0.0823	9.94%
0.1145	0.0683	0.0798	-14.40%



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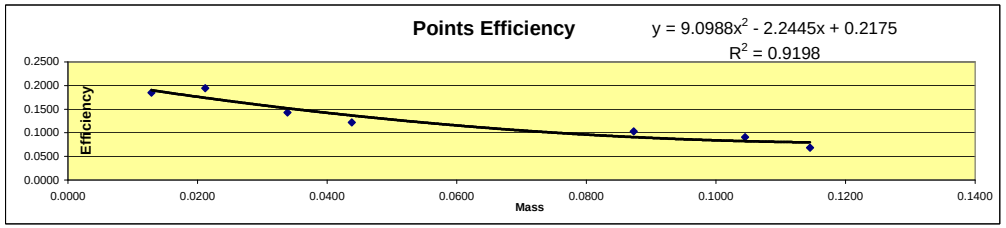
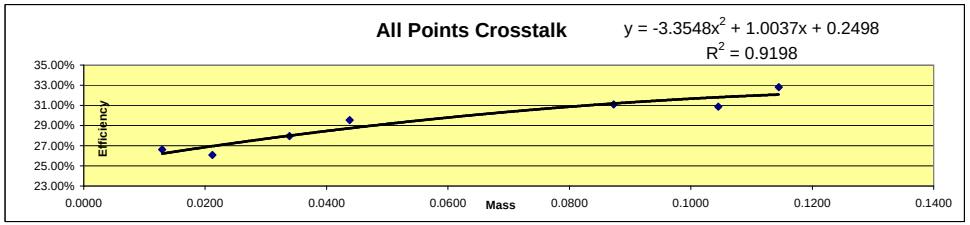
Mass	Efficiency
0.0129	0.1848
0.0212	0.1942
0.0339	0.1431
0.0438	0.1217
0.0873	0.1029
0.1045	0.0905
0.1145	0.0683



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
8	ICABT-51465;A1	0.0129	50	21946	7959	438.92	159.18	26.61%	Min
8	ICABT-51465;A2	0.0212	50	23058	8132	461.16	162.64	26.07%	26.07%
8	ICABT-51465;A3	0.0339	50	16985	6590	339.70	131.80	27.95%	
8	ICABT-51465;A4	0.0438	50	14451	6062	289.02	121.24	29.55%	Max
8	ICABT-51465;A6	0.0873	50	24444	11033	488.88	220.66	31.10%	32.81%
8	ICABT-51465;A7	0.1045	50	21487	9600	429.74	192.00	30.88%	
8	ICABT-51465;A8	0.1145	50	16219	7919	324.38	158.38	32.81%	Mean
									29.28%



Standard ID
Thorium-230
Th-230_00016 #51465
Cert # 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-6322;B1*** **Repeat** ***10***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:26 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	3	2.970	2.927
sd	0.000			0.007	1.732	1.715	1.715
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	18,258	18,077.228	18,076.773
sd	0.000			0.021	135.122	133.784	133.784

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-6322;B8*** **Repeat** ***11***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:34 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	2	1.980	1.937
sd	0.000			0.007	1.414	1.400	1.400
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	15,148	14,998.020	14,997.565
sd	0.000			0.021	123.077	121.859	121.859

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-6322;B7*** **Repeat** ***12***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:47 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	3	2.970	2.927
sd	0.000			0.007	1.732	1.715	1.715
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	16,014	15,855.446	15,854.991
sd	0.000			0.021	126.546	125.293	125.294

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-6322;B6*** **Repeat** ***13***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:55 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	3	2.970	2.927
sd	0.000			0.007	1.732	1.715	1.715
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	15,930	15,772.277	15,771.822
sd	0.000			0.021	126.214	124.964	124.964

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-6322;B5*** **Repeat** ***14***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:04 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	2	1.980	1.937
sd	0.000			0.007	1.414	1.400	1.400
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	16,254	16,093.069	16,092.614
sd	0.000			0.021	127.491	126.229	126.229

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-6322;B4*** **Repeat** ***15***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:12 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	3	2.970	2.927
sd	0.000			0.007	1.732	1.715	1.715
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	16,771	16,604.950	16,604.495
sd	0.000			0.021	129.503	128.221	128.221

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-6322;B3*** **Repeat** ***16***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:19 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	5	4.950	4.907
sd	0.000			0.007	2.236	2.214	2.214
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	17,519	17,345.545	17,345.090
sd	0.000			0.021	132.359	131.049	131.049

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-6322;B2*** **Repeat** ***17***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:27 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	5	4.950	4.907
sd	0.000			0.007	2.236	2.214	2.214
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	17,439	17,266.337	17,265.882
sd	0.000			0.021	132.057	130.749	130.749

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-51465;A1*** **Repeat** ***47***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 18:18 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.208	21,946	438.920	438.712
sd	0.000			0.014	148.142	2.963	2.963
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.565	7,959	159.180	158.615
sd	0.000			0.024	89.213	1.784	1.784

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-51465;A8*** **Repeat** ***48***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 22:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.208	16,219	324.380	324.172
sd	0.000			0.014	127.354	2.547	2.547
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.565	7,919	158.380	157.815
sd	0.000			0.024	88.989	1.780	1.780

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-51465;A7*** **Repeat** ***49***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 23:45 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.208	21,487	429.740	429.532
sd	0.000			0.014	146.584	2.932	2.932
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.565	9,600	192.000	191.435
sd	0.000			0.024	97.980	1.960	1.960

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-51465;A6*** **Repeat** ***50***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 07:47 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.208	24,444	488.880	488.672
sd	0.000			0.014	156.346	3.127	3.127
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.565	11,033	220.660	220.095
sd	0.000			0.024	105.038	2.101	2.101

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-51465;A3*** **Repeat** ***52***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 11:47 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.208	16,985	339.700	339.492
sd	0.000			0.014	130.327	2.607	2.607
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.565	6,590	131.800	131.235
sd	0.000			0.024	81.179	1.624	1.624

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-51465;A2*** **Repeat** ***53***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 12:45 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.208	23,058	461.160	460.952
sd	0.000			0.014	151.849	3.037	3.037
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.565	8,132	162.640	162.075
sd	0.000			0.024	90.178	1.804	1.804

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICABT-51465;A4*** **Repeat** ***54***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/29/201! 15:33 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.208	14,451	289.020	288.812
sd	0.000			0.014	120.212	2.404	2.404
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.565	6,062	121.240	120.675
sd	0.000			0.024	77.859	1.557	1.557

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

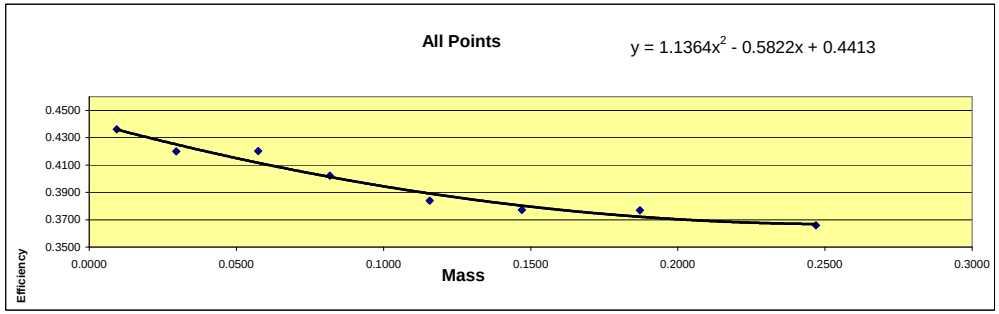
*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

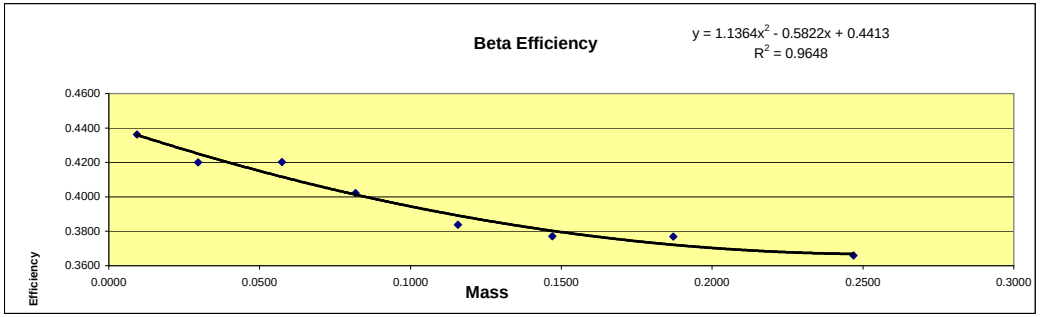
Protean 9

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 41414.371 CPM	Sr-90 Eff	Standard Aliquot
9	B1	3/27/2013 9:35:51 AM	0.0093	1.01	18245	18064.356	0.4362	1mL
9	B2	3/27/2013 9:27:33 AM	0.0296	1.01	17571	17397.030	0.4201	1mL
9	B3	3/27/2013 10:28:12 AM	0.0574	1.01	17575	17400.990	0.4202	1mL
9	B4	3/27/2013 10:21:09 AM	0.0818	1.01	16822	16655.446	0.4022	1mL
9	B5	3/27/2013 10:13:36 AM	0.1157	1.01	16055	15896.040	0.3838	1mL
9	B6	3/27/2013 10:05:33 AM	0.1470	1.01	15776	15619.802	0.3772	1mL
9	B7	3/27/2013 9:56:36 AM	0.1871	1.01	15768	15611.881	0.3770	1mL
9	B8	3/27/2013 9:49:05 AM	0.2469	1.01	15304	15152.475	0.3659	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4362	0.4360	0.05%
0.0296	0.4201	0.4251	-1.17%
0.0574	0.4202	0.4116	2.08%
0.0818	0.4022	0.4013	0.22%
0.1157	0.3838	0.3892	-1.37%
0.1470	0.3772	0.3803	-0.82%
0.1871	0.3770	0.3722	1.29%
0.2469	0.3659	0.3668	-0.26%



Mass	Efficiency
0.0093	0.4362
0.0296	0.4201
0.0574	0.4202
0.0818	0.4022
0.1157	0.3838
0.1470	0.3772
0.1871	0.3770
0.2469	0.3659



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

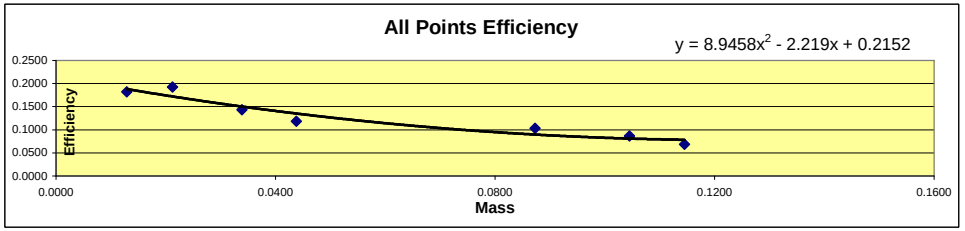
Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/27/2013
Elapsed Time:	1287.000 days
Half Life:	10409.625 days
Exponential Term:	0.917871706
Corrected Activity:	20707.18568 dpm/mL
Decay Activity (Sr/Y-90)	41414.37137 dpm

Curve is for Gross Alpha

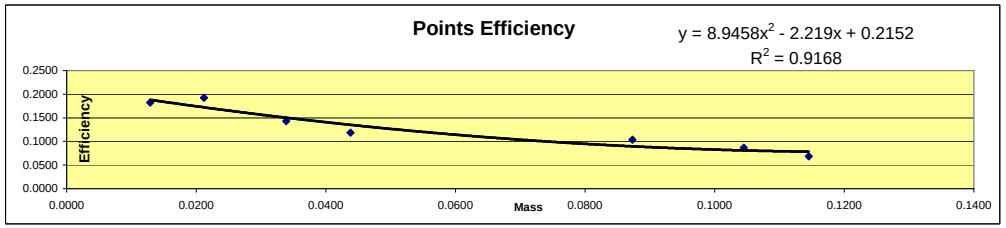
Protean 9

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
9	ICABT-51465;A1	11/25/2015 11:38:29 PM	50	21651	433.020	2374.5	0.1824	1mL	0.0129
9	ICABT-51465;A2	11/25/2015 7:08:47 PM	50	22874	457.480	2374.5	0.1927	1mL	0.0212
9	ICABT-51465;A3	11/27/2015 1:36:13 PM	50	16993	339.860	2374.5	0.1431	1mL	0.0339
9	ICABT-51465;A4	11/27/2015 12:39:25 PM	50	14047	280.940	2374.5	0.1183	1mL	0.0438
9	ICABT-51465;A6	11/27/2015 9:40:35 AM	50	24561	491.220	4749.0	0.1034	2mL	0.0873
9	ICABT-51465;A7	11/27/2015 8:37:59 AM	50	20544	410.880	4749.0	0.0865	2mL	0.1045
9	ICABT-51465;A8	11/26/2015 12:35:57 AM	50	16201	324.020	4749.0	0.0682	2mL	0.1145

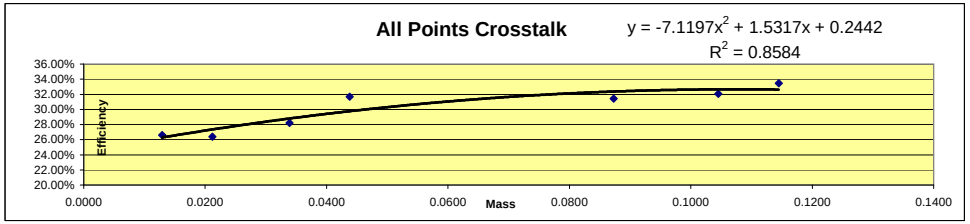
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1824	0.1881	-3.03%
0.0212	0.1927	0.1722	11.90%
0.0339	0.1431	0.1503	-4.74%
0.0438	0.1183	0.1352	-12.47%
0.0873	0.1034	0.0897	15.37%
0.1045	0.0865	0.0810	6.81%
0.1145	0.0682	0.0784	-12.98%



Mass	Efficiency
0.0129	0.1824
0.0212	0.1927
0.0339	0.1431
0.0438	0.1183
0.0873	0.1034
0.1045	0.0865
0.1145	0.0682



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
9	ICABT-51465;A1	0.0129	50	21651	7847	433.02	156.94	26.60%	Min
9	ICABT-51465;A2	0.0212	50	22874	8209	457.48	164.18	26.41%	26.41%
9	ICABT-51465;A3	0.0339	50	16993	6673	339.86	133.46	28.20%	
9	ICABT-51465;A4	0.0438	50	14047	6514	280.94	130.28	31.68%	Max
9	ICABT-51465;A6	0.0873	50	24561	11257	491.22	225.14	31.43%	33.46%
9	ICABT-51465;A7	0.1045	50	20544	9704	410.88	194.08	32.08%	
9	ICABT-51465;A8	0.1145	50	16201	8145	324.02	162.90	33.46%	Mean
									29.98%



Standard ID
Thorium-230
Th-230_00016 #51465
Cert # 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-6322;B2*** **Repeat** ***10***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:26 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	1	0.990	0.950
sd	0.000			0.006	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	17,571	17,397.030	17,396.668
sd	0.000			0.019	132.556	131.243	131.243

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-6322;B1*** **Repeat** ***11***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:34 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	0	0.000	-0.040
sd	0.000			0.006	0.000	0.000	0.282
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	18,245	18,064.356	18,063.994
sd	0.000			0.019	135.074	133.737	133.737

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-6322;B8*** **Repeat** ***12***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	0	0.000	-0.040
sd	0.000			0.006	0.000	0.000	0.282
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	15,304	15,152.475	15,152.113
sd	0.000			0.019	123.709	122.484	122.484

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-6322;B7*** **Repeat** ***13***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:55 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	0	0.000	-0.040
sd	0.000			0.006	0.000	0.000	0.282
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	15,768	15,611.881	15,611.519
sd	0.000			0.019	125.571	124.327	124.327

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-6322;B6*** **Repeat** ***14***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:04 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	1	0.990	0.950
sd	0.000			0.006	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	15,776	15,619.802	15,619.440
sd	0.000			0.019	125.603	124.359	124.359

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-6322;B5*** **Repeat** ***15***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:12 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	0	0.000	-0.040
sd	0.000			0.006	0.000	0.000	0.282
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	16,055	15,896.040	15,895.678
sd	0.000			0.019	126.708	125.454	125.454

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-6322;B4*** **Repeat** ***16***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:20 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	1	0.990	0.950
sd	0.000			0.006	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	16,822	16,655.446	16,655.084
sd	0.000			0.019	129.700	128.415	128.415

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-6322;B3*** **Repeat** ***17***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:27 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	1	0.990	0.950
sd	0.000			0.006	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	17,575	17,400.990	17,400.628
sd	0.000			0.019	132.571	131.258	131.258

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-51465;A2*** **Repeat** ***47***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 18:18 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.115	22,874	457.480	457.365
sd	0.000			0.011	151.242	3.025	3.025
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.416	8,209	164.180	163.764
sd	0.000			0.020	90.604	1.812	1.812

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address: *9***

Sample ID ***ICABT-51465;A1*** **Repeat** ***48***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 22:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.115	21,651	433.020	432.905
sd	0.000			0.011	147.143	2.943	2.943
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.416	7,847	156.940	156.524
sd	0.000			0.020	88.583	1.772	1.772

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address: *9***

Sample ID ***ICABT-51465;A8*** **Repeat** ***49***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 23:45 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.115	16,201	324.020	323.905
sd	0.000			0.011	127.283	2.546	2.546
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.416	8,145	162.900	162.484
sd	0.000			0.020	90.250	1.805	1.805

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-51465;A7*** **Repeat** ***50***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 07:47 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.115	20,544	410.880	410.765
sd	0.000			0.011	143.332	2.867	2.867
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.416	9,704	194.080	193.664
sd	0.000			0.020	98.509	1.970	1.970

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-51465;A6*** **Repeat** ***51***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 08:50 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.115	24,561	491.220	491.105
sd	0.000			0.011	156.719	3.134	3.134
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.416	11,257	225.140	224.724
sd	0.000			0.020	106.099	2.122	2.122

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-51465;A4*** **Repeat** ***52***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 11:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.115	14,047	280.940	280.825
sd	0.000			0.011	118.520	2.370	2.370
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.416	6,514	130.280	129.864
sd	0.000			0.020	80.709	1.614	1.614

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICABT-51465;A3*** **Repeat** ***53***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 12:45 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.115	16,993	339.860	339.745
sd	0.000			0.011	130.357	2.607	2.607
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.416	6,673	133.460	133.044
sd	0.000			0.020	81.688	1.634	1.634

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

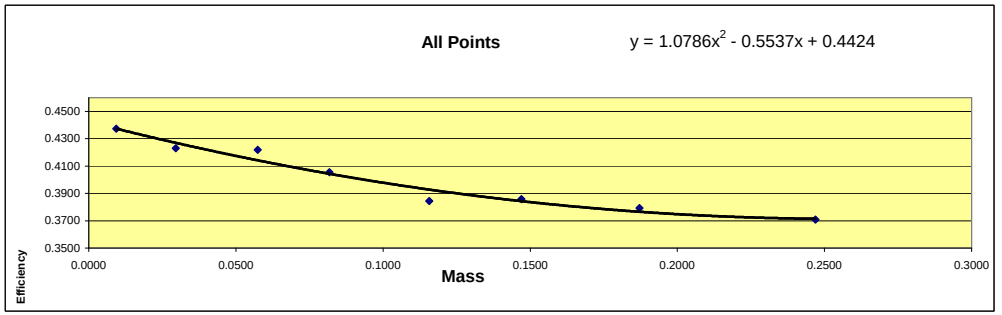
*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

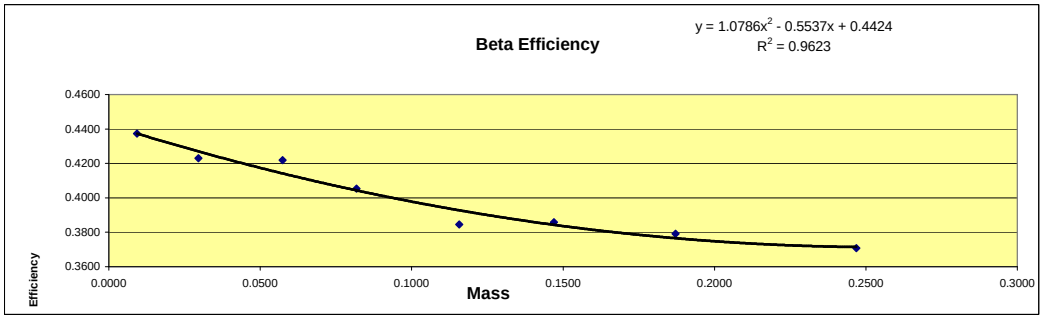
Protean 10

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 41414.371 CPM	Sr-90 Eff	Standard Aliquot
10	B1	3/27/2013 9:49:13 AM	0.0093	1.01	18291	18109.901	0.4373	1mL
10	B2	3/27/2013 9:35:52 AM	0.0296	1.01	17692	17516.832	0.4230	1mL
10	B3	3/27/2013 9:27:47 AM	0.0574	1.01	17650	17475.248	0.4220	1mL
10	B4	3/27/2013 10:28:21 AM	0.0818	1.01	16959	16791.089	0.4054	1mL
10	B5	3/27/2013 10:21:14 AM	0.1157	1.01	16082	15922.772	0.3845	1mL
10	B6	3/27/2013 10:13:42 AM	0.1470	1.01	16141	15981.188	0.3859	1mL
10	B7	3/27/2013 10:05:40 AM	0.1871	1.01	15859	15701.980	0.3791	1mL
10	B8	3/27/2013 9:56:52 AM	0.2469	1.01	15507	15353.465	0.3707	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4373	0.4373	-0.01%
0.0296	0.4230	0.4270	-0.93%
0.0574	0.4220	0.4142	1.88%
0.0818	0.4054	0.4043	0.28%
0.1157	0.3845	0.3928	-2.11%
0.1470	0.3859	0.3843	0.41%
0.1871	0.3791	0.3766	0.69%
0.2469	0.3707	0.3714	-0.19%



Mass	Efficiency
0.0093	0.4373
0.0296	0.4230
0.0574	0.4220
0.0818	0.4054
0.1157	0.3845
0.1470	0.3859
0.1871	0.3791
0.2469	0.3707



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

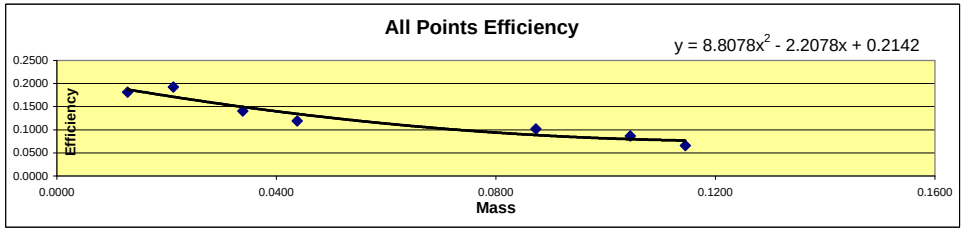
Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/27/2013
Elapsed Time:	1287.000 days
Half Life:	10409.625 days
Exponential Term:	0.917871706
Corrected Activity:	20707.18568 dpm/mL
Decay Activity (Sr/Y-90)	41414.37137 dpm

Curve is for Gross Alpha

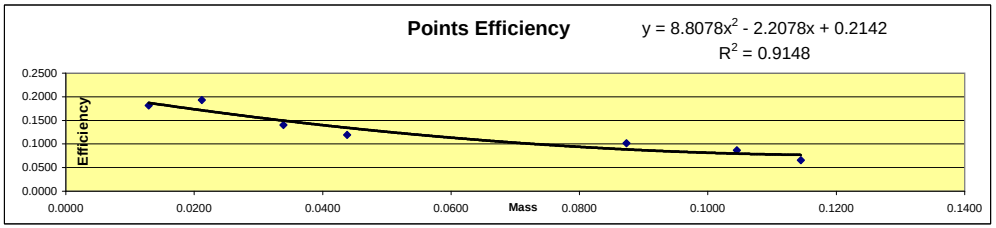
Protean 10

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
10	ICABT-51465;A1	11/26/2015 12:35:30 AM	50	21527	430.540	2374.5	0.1813	1mL	0.0129
10	ICABT-51465;A2	11/25/2015 11:38:47 PM	50	22894	457.880	2374.5	0.1928	1mL	0.0212
10	ICABT-51465;A3	11/25/2015 7:08:51 PM	50	16658	333.160	2374.5	0.1403	1mL	0.0339
10	ICABT-51465;A4	11/27/2015 1:36:35 PM	50	14129	282.580	2374.5	0.1190	1mL	0.0438
10	ICABT-51465;A6	11/29/2015 4:24:25 PM	50	24091	481.820	4749.0	0.1015	2mL	0.0873
10	ICABT-51465;A7	11/27/2015 9:40:41 AM	50	20601	412.020	4749.0	0.0868	2mL	0.1045
10	ICABT-51465;A8	11/27/2015 8:38:08 AM	50	15647	312.940	4749.0	0.0659	2mL	0.1145

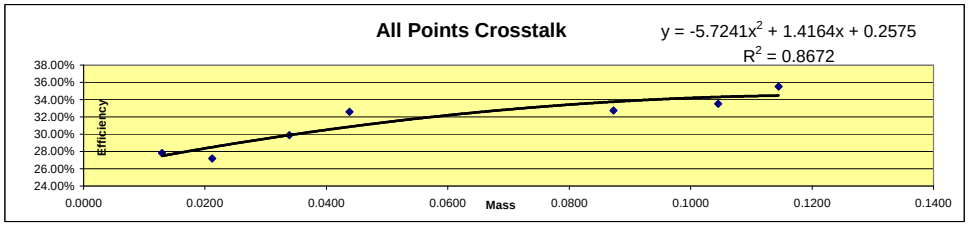
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1813	0.1872	-3.13%
0.0212	0.1928	0.1714	12.53%
0.0339	0.1403	0.1495	-6.13%
0.0438	0.1190	0.1344	-11.45%
0.0873	0.1015	0.0886	14.53%
0.1045	0.0868	0.0797	8.90%
0.1145	0.0659	0.0769	-14.29%



Mass	Efficiency
0.0129	0.1813
0.0212	0.1928
0.0339	0.1403
0.0438	0.1190
0.0873	0.1015
0.1045	0.0868
0.1145	0.0659



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
10	ICABT-51465;A1	0.0129	50	21527	8298	430.54	165.96	27.82%	Min
10	ICABT-51465;A2	0.0212	50	22894	8553	457.88	171.06	27.20%	27.20%
10	ICABT-51465;A3	0.0339	50	16658	7103	333.16	142.06	29.89%	
10	ICABT-51465;A4	0.0438	50	14129	6836	282.58	136.72	32.61%	Max
10	ICABT-51465;A6	0.0873	50	24091	11720	481.82	234.40	32.73%	35.50%
10	ICABT-51465;A7	0.1045	50	20601	10389	412.02	207.78	33.52%	
10	ICABT-51465;A8	0.1145	50	15647	8613	312.94	172.26	35.50%	Mean
									31.32%



Standard ID
Thorium-230
Th-230_00016 #51465
Cert # 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-6322;B3*** **Repeat** ***10***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:26 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	0	0.000	-0.043
sd	0.000			0.007	0.000	0.000	0.292
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	17,650	17,475.248	17,474.857
sd	0.000			0.020	132.853	131.538	131.538

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-6322;B2*** **Repeat** ***11***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:34 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	1	0.990	0.947
sd	0.000			0.007	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	17,692	17,516.832	17,516.441
sd	0.000			0.020	133.011	131.694	131.694

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-6322;B1*** **Repeat** ***12***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	2	1.980	1.937
sd	0.000			0.007	1.414	1.400	1.400
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	18,291	18,109.901	18,109.510
sd	0.000			0.020	135.244	133.905	133.905

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-6322;B8*** **Repeat** ***13***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:55 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	0	0.000	-0.043
sd	0.000			0.007	0.000	0.000	0.292
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	15,507	15,353.465	15,353.074
sd	0.000			0.020	124.527	123.294	123.294

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-6322;B7*** **Repeat** ***14***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:04 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	2	1.980	1.937
sd	0.000			0.007	1.414	1.400	1.400
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	15,859	15,701.980	15,701.589
sd	0.000			0.020	125.933	124.686	124.686

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-6322;B6*** **Repeat** ***15***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:12 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	0	0.000	-0.043
sd	0.000			0.007	0.000	0.000	0.292
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	16,141	15,981.188	15,980.797
sd	0.000			0.020	127.047	125.789	125.789

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-6322;B5*** **Repeat** ***16***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:20 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	1	0.990	0.947
sd	0.000			0.007	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	16,082	15,922.772	15,922.381
sd	0.000			0.020	126.815	125.559	125.559

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-6322;B4*** **Repeat** ***17***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:27 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	0	0.000	-0.043
sd	0.000			0.007	0.000	0.000	0.292
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	16,959	16,791.089	16,790.698
sd	0.000			0.020	130.227	128.937	128.937

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-51465;A3*** **Repeat** ***47***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 18:18 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.130	16,658	333.160	333.030
sd	0.000			0.011	129.066	2.581	2.581
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	7,103	142.060	141.451
sd	0.000			0.025	84.279	1.686	1.686

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-51465;A2*** **Repeat** ***48***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 22:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.130	22,894	457.880	457.750
sd	0.000			0.011	151.308	3.026	3.026
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	8,553	171.060	170.451
sd	0.000			0.025	92.482	1.850	1.850

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-51465;A1*** **Repeat** ***49***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 23:45 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.130	21,527	430.540	430.410
sd	0.000			0.011	146.721	2.934	2.934
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	8,298	165.960	165.351
sd	0.000			0.025	91.093	1.822	1.822

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-51465;A8*** **Repeat** ***50***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 07:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.130	15,647	312.940	312.810
sd	0.000			0.011	125.088	2.502	2.502
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	8,613	172.260	171.651
sd	0.000			0.025	92.806	1.856	1.856

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-51465;A7*** **Repeat** ***51***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 08:50 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.130	20,601	412.020	411.890
sd	0.000			0.011	143.530	2.871	2.871
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	10,389	207.780	207.171
sd	0.000			0.025	101.926	2.039	2.039

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-51465;A4*** **Repeat** ***53***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 12:46 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.130	14,129	282.580	282.450
sd	0.000			0.011	118.865	2.377	2.377
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	6,836	136.720	136.111
sd	0.000			0.025	82.680	1.654	1.654

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICABT-51465;A6*** **Repeat** ***54***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/29/201! 15:33 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.130	24,091	481.820	481.690
sd	0.000			0.011	155.213	3.104	3.104
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	11,720	234.400	233.791
sd	0.000			0.025	108.259	2.165	2.165

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

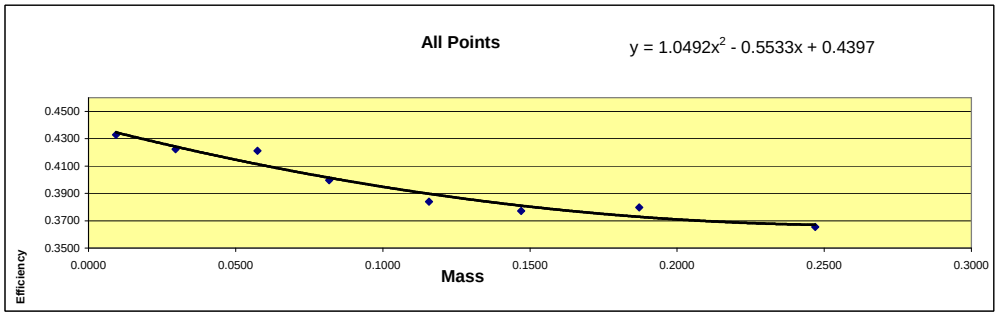
*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

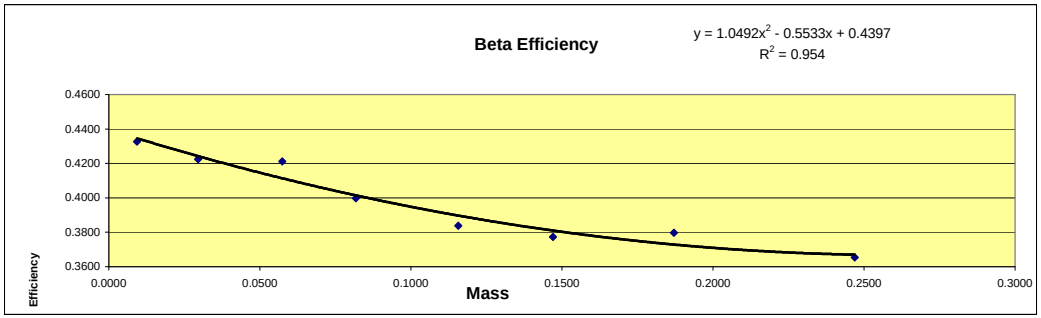
Protean 11

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 41414.371 CPM	Sr-90 Eff	Standard Aliquot
11	B1	3/27/2013 9:57:07 AM	0.0093	1.01	18102	17922.772	0.4328	1mL
11	B2	3/27/2013 9:49:14 AM	0.0296	1.01	17667	17492.079	0.4224	1mL
11	B3	3/27/2013 9:35:53 AM	0.0574	1.01	17614	17439.604	0.4211	1mL
11	B4	3/27/2013 9:27:48 AM	0.0818	1.01	16720	16554.455	0.3997	1mL
11	B5	3/27/2013 10:28:22 AM	0.1157	1.01	16057	15898.020	0.3839	1mL
11	B6	3/27/2013 10:21:21 AM	0.1470	1.01	15780	15623.762	0.3773	1mL
11	B7	3/27/2013 10:13:49 AM	0.1871	1.01	15880	15722.772	0.3796	1mL
11	B8	3/27/2013 10:05:57 AM	0.2469	1.01	15284	15132.673	0.3654	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4328	0.4346	-0.43%
0.0296	0.4224	0.4242	-0.44%
0.0574	0.4211	0.4114	2.36%
0.0818	0.3997	0.4015	-0.43%
0.1157	0.3839	0.3897	-1.50%
0.1470	0.3773	0.3810	-0.99%
0.1871	0.3796	0.3729	1.81%
0.2469	0.3654	0.3670	-0.45%



Mass	Efficiency
0.0093	0.4328
0.0296	0.4224
0.0574	0.4211
0.0818	0.3997
0.1157	0.3839
0.1470	0.3773
0.1871	0.3796
0.2469	0.3654



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

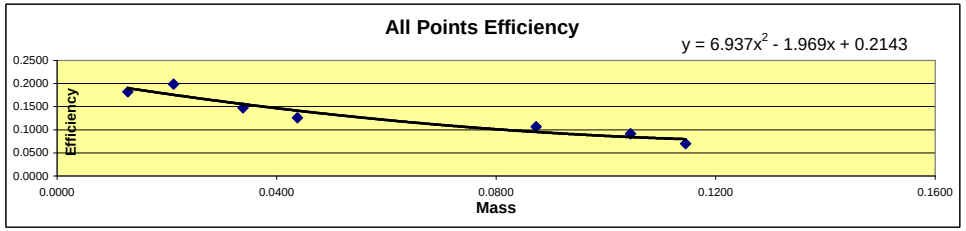
Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/27/2013
Elapsed Time:	1287.000 days
Half Life:	10409.625 days
Exponential Term:	0.917871706
Corrected Activity:	20707.18568 dpm/mL
Decay Activity (Sr/Y-90)	41414.37137 dpm

Curve is for Gross Alpha

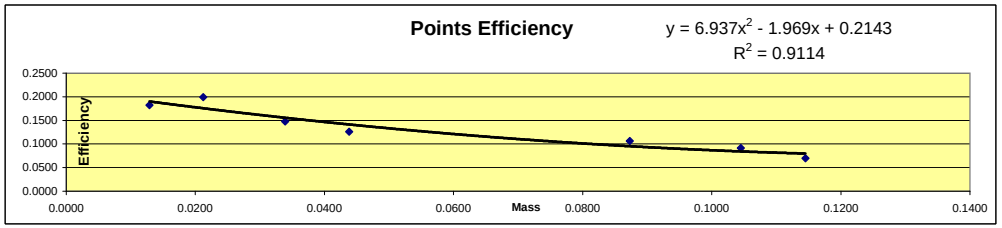
Protean 11

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
11	ICABT-51465;A1	11/27/2015 8:38:14 AM	50	21614	432.280	2374.5	0.1821	1mL	0.0129
11	ICABT-51465;A2	11/26/2015 12:35:35 AM	50	23629	472.580	2374.5	0.1990	1mL	0.0212
11	ICABT-51465;A3	11/25/2015 11:38:48 PM	50	17529	350.580	2374.5	0.1476	1mL	0.0339
11	ICABT-51465;A4	11/25/2015 7:08:57 PM	50	14940	298.800	2374.5	0.1258	1mL	0.0438
11	ICABT-51465;A6	11/27/2015 12:39:39 PM	50	25316	506.320	4749.0	0.1066	2mL	0.0873
11	ICABT-51465;A7	11/29/2015 4:24:30 PM	50	21689	433.780	4749.0	0.0913	2mL	0.1045
11	ICABT-51465;A8	11/27/2015 9:40:48 AM	50	16545	330.900	4749.0	0.0697	2mL	0.1145

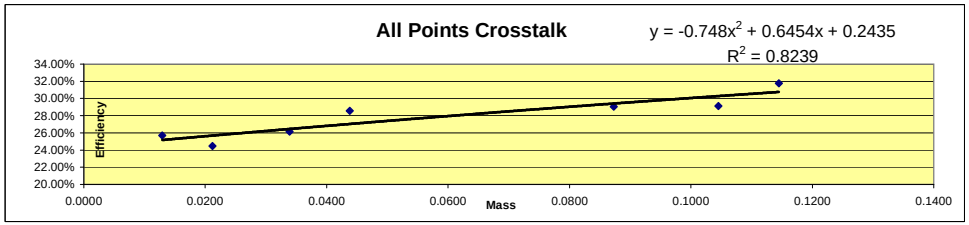
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1821	0.1901	-4.21%
0.0212	0.1990	0.1757	13.29%
0.0339	0.1476	0.1555	-5.07%
0.0438	0.1258	0.1414	-10.98%
0.0873	0.1066	0.0953	11.90%
0.1045	0.0913	0.0843	8.36%
0.1145	0.0697	0.0798	-12.68%



Mass	Efficiency
0.0129	0.1821
0.0212	0.1990
0.0339	0.1476
0.0438	0.1258
0.0873	0.1066
0.1045	0.0913
0.1145	0.0697



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
11	ICABT-51465;A1	0.0129	50	21614	7477	432.28	149.54	25.70%	Min
11	ICABT-51465;A2	0.0212	50	23629	7654	472.58	153.08	24.47%	24.47%
11	ICABT-51465;A3	0.0339	50	17529	6203	350.58	124.06	26.14%	
11	ICABT-51465;A4	0.0438	50	14940	5969	298.80	119.38	28.55%	Max
11	ICABT-51465;A6	0.0873	50	25316	10357	506.32	207.14	29.03%	31.78%
11	ICABT-51465;A7	0.1045	50	21689	8912	433.78	178.24	29.12%	
11	ICABT-51465;A8	0.1145	50	16545	7709	330.90	154.18	31.78%	Mean
									27.83%



Standard ID
Thorium-230
Th-230_00016 #51465
Cert # 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-6322;B4*** **Repeat** ***10***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:26 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	2	1.980	1.948
sd	0.000			0.006	1.414	1.400	1.400
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	16,720	16,554.455	16,554.026
sd	0.000			0.021	129.306	128.026	128.026

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-6322;B3*** **Repeat** ***11***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:34 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	2	1.980	1.948
sd	0.000			0.006	1.414	1.400	1.400
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	17,614	17,439.604	17,439.175
sd	0.000			0.021	132.718	131.404	131.404

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-6322;B2*** **Repeat** ***12***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	2	1.980	1.948
sd	0.000			0.006	1.414	1.400	1.400
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	17,667	17,492.079	17,491.650
sd	0.000			0.021	132.917	131.601	131.601

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-6322;B1*** **Repeat** ***13***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:55 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	1	0.990	0.958
sd	0.000			0.006	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	18,102	17,922.772	17,922.343
sd	0.000			0.021	134.544	133.212	133.212

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-6322;B8*** **Repeat** ***14***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:04 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	0	0.000	-0.032
sd	0.000			0.006	0.000	0.000	0.252
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	15,284	15,132.673	15,132.244
sd	0.000			0.021	123.628	122.404	122.404

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-6322;B7*** **Repeat** ***15***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:12 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	0	0.000	-0.032
sd	0.000			0.006	0.000	0.000	0.252
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	15,880	15,722.772	15,722.343
sd	0.000			0.021	126.016	124.768	124.768

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-6322;B6*** **Repeat** ***16***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:20 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	1	0.990	0.958
sd	0.000			0.006	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	15,780	15,623.762	15,623.333
sd	0.000			0.021	125.618	124.375	124.375

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-6322;B5*** **Repeat** ***17***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:27 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	1	0.990	0.958
sd	0.000			0.006	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	16,057	15,898.020	15,897.591
sd	0.000			0.021	126.716	125.462	125.462

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-51465;A4*** **Repeat** ***47***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 18:18 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.057	14,940	298.800	298.743
sd	0.000			0.008	122.229	2.445	2.445
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.456	5,969	119.380	118.924
sd	0.000			0.021	77.259	1.545	1.545

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-51465;A3*** **Repeat** ***48***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 22:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.057	17,529	350.580	350.523
sd	0.000			0.008	132.397	2.648	2.648
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.456	6,203	124.060	123.604
sd	0.000			0.021	78.759	1.575	1.575

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-51465;A2*** **Repeat** ***49***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 23:45 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.057	23,629	472.580	472.523
sd	0.000			0.008	153.717	3.074	3.074
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.456	7,654	153.080	152.624
sd	0.000			0.021	87.487	1.750	1.750

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-51465;A1*** **Repeat** ***50***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 07:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.057	21,614	432.280	432.223
sd	0.000			0.008	147.017	2.940	2.940
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.456	7,477	149.540	149.084
sd	0.000			0.021	86.470	1.729	1.730

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-51465;A8*** **Repeat** ***51***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 08:50 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.057	16,545	330.900	330.843
sd	0.000			0.008	128.627	2.573	2.573
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.456	7,709	154.180	153.724
sd	0.000			0.021	87.801	1.756	1.756

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-51465;A6*** **Repeat** ***52***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 11:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.057	25,316	506.320	506.263
sd	0.000			0.008	159.110	3.182	3.182
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.456	10,357	207.140	206.684
sd	0.000			0.021	101.769	2.035	2.035

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICABT-51465;A7*** **Repeat** ***54***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/29/201! 15:33 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.057	21,689	433.780	433.723
sd	0.000			0.008	147.272	2.945	2.945
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.456	8,912	178.240	177.784
sd	0.000			0.021	94.403	1.888	1.888

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

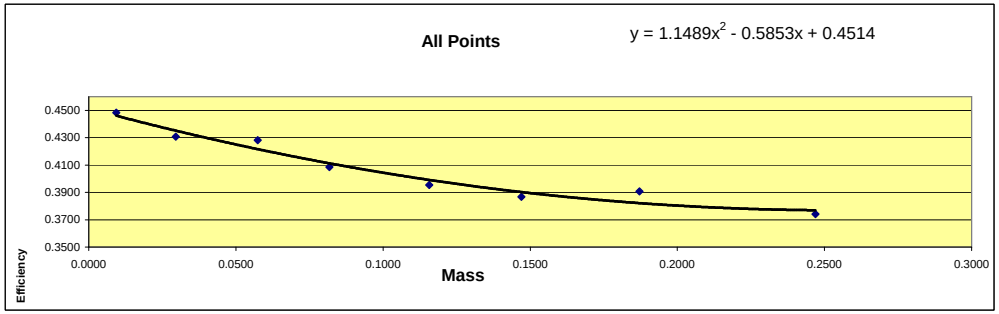
*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

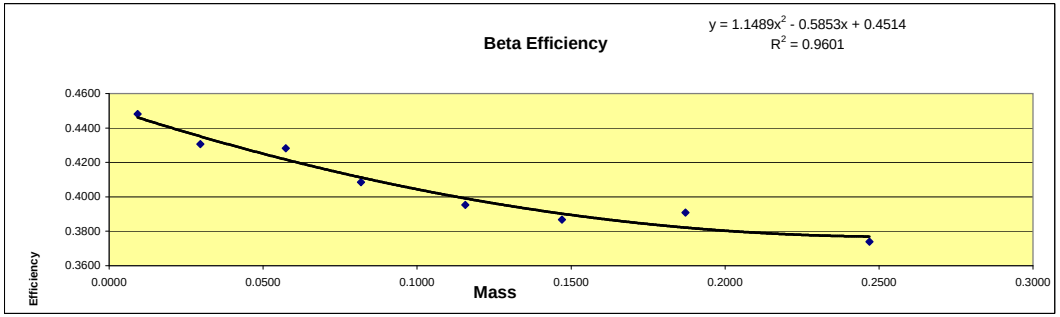
Protean 13

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 41414.371 CPM 18561.386	Sr-90 Eff	Standard Aliquot
13	B1	3/27/2013 10:14:19 AM	0.0093	1.01	18747		0.4482	1mL
13	B2	3/27/2013 10:06:06 AM	0.0296	1.01	18015	17836.634	0.4307	1mL
13	B3	3/27/2013 9:57:08 AM	0.0574	1.01	17908	17730.693	0.4281	1mL
13	B4	3/27/2013 9:49:28 AM	0.0818	1.01	17087	16917.822	0.4085	1mL
13	B5	3/27/2013 9:36:05 AM	0.1157	1.01	16537	16373.267	0.3954	1mL
13	B6	3/27/2013 9:27:49 AM	0.1470	1.01	16181	16020.792	0.3868	1mL
13	B7	3/27/2013 10:28:32 AM	0.1871	1.01	16347	16185.149	0.3908	1mL
13	B8	3/27/2013 10:21:43 AM	0.2469	1.01	15645	15490.099	0.3740	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4482	0.4461	0.48%
0.0296	0.4307	0.4351	-1.01%
0.0574	0.4281	0.4216	1.55%
0.0818	0.4085	0.4112	-0.66%
0.1157	0.3954	0.3991	-0.93%
0.1470	0.3868	0.3902	-0.86%
0.1871	0.3908	0.3821	2.28%
0.2469	0.3740	0.3769	-0.77%



Mass	Efficiency
0.0093	0.4482
0.0296	0.4307
0.0574	0.4281
0.0818	0.4085
0.1157	0.3954
0.1470	0.3868
0.1871	0.3908
0.2469	0.3740



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

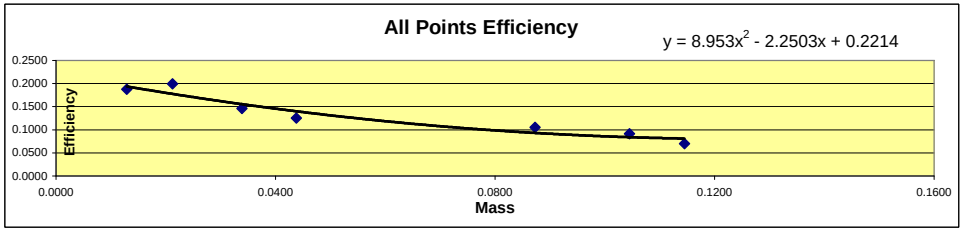
Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/27/2013
Elapsed Time:	1287.000 days
Half Life:	10409.625 days
Exponential Term:	0.917871706
Corrected Activity:	20707.18568 dpm/mL
Decay Activity (Sr/Y-90)	41414.37137 dpm

Curve is for Gross Alpha

Protean 13

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
13	ICABT-51465;A1	11/29/2015 4:23:27 PM	50	22264	445.280	2374.5	0.1875	1mL	0.0129
13	ICABT-51465;A2	11/27/2015 9:40:57 AM	50	23693	473.860	2374.5	0.1996	1mL	0.0212
13	ICABT-51465;A3	11/27/2015 8:38:31 AM	50	17349	346.980	2374.5	0.1461	1mL	0.0339
13	ICABT-51465;A4	11/26/2015 12:35:38 AM	50	14844	296.880	2374.5	0.1250	1mL	0.0438
13	ICABT-51465;A6	11/25/2015 7:09:06 PM	50	25031	500.620	4749.0	0.1054	2mL	0.0873
13	ICABT-51465;A7	11/27/2015 1:36:42 PM	50	21665	433.300	4749.0	0.0912	2mL	0.1045
13	ICABT-51465;A8	11/27/2015 12:40:03 PM	50	16687	333.740	4749.0	0.0703	2mL	0.1145

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1875	0.1939	-3.27%
0.0212	0.1996	0.1777	12.29%
0.0339	0.1461	0.1554	-5.97%
0.0438	0.1250	0.1400	-10.70%
0.0873	0.1054	0.0932	13.13%
0.1045	0.0912	0.0840	8.60%
0.1145	0.0703	0.0811	-13.36%



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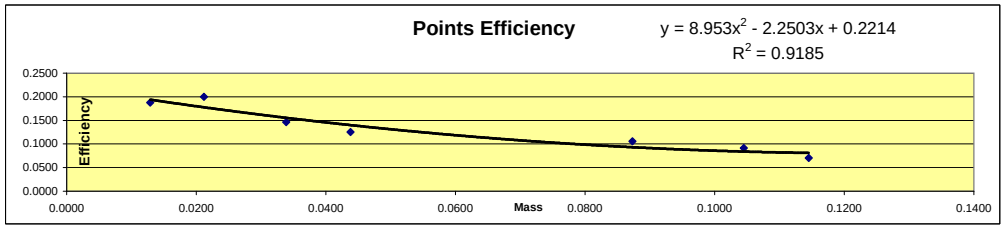
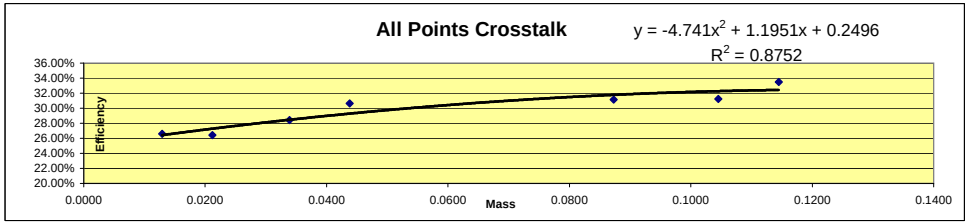
Mass	Efficiency
0.0129	0.1875
0.0212	0.1996
0.0339	0.1461
0.0438	0.1250
0.0873	0.1054
0.1045	0.0912
0.1145	0.0703



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
13	ICABT-51465;A1	0.0129	50	22264	8058	445.28	161.16	26.57%	Min
13	ICABT-51465;A2	0.0212	50	23693	8503	473.86	170.06	26.41%	26.41%
13	ICABT-51465;A3	0.0339	50	17349	6894	346.98	137.88	28.44%	
13	ICABT-51465;A4	0.0438	50	14844	6559	296.88	131.18	30.65%	Max
13	ICABT-51465;A6	0.0873	50	25031	11318	500.62	226.36	31.14%	33.49%
13	ICABT-51465;A7	0.1045	50	21665	9845	433.30	196.90	31.24%	
13	ICABT-51465;A8	0.1145	50	16687	8403	333.74	168.06	33.49%	Mean
									29.71%



Standard ID
Thorium-230
Th-230_00016 #51465
Cert # 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-6322;B6*** **Repeat** ***10***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:26 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	5	4.950	4.903
sd	0.000			0.007	2.236	2.214	2.214
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	16,181	16,020.792	16,020.363
sd	0.000			0.021	127.205	125.945	125.945

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-6322;B5*** **Repeat** ***11***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:35 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	4	3.960	3.913
sd	0.000			0.007	2.000	1.980	1.980
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	16,537	16,373.267	16,372.838
sd	0.000			0.021	128.596	127.323	127.323

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-6322;B4*** **Repeat** ***12***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	1	0.990	0.943
sd	0.000			0.007	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	17,087	16,917.822	16,917.393
sd	0.000			0.021	130.717	129.423	129.423

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-6322;B3*** **Repeat** ***13***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:55 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	3	2.970	2.923
sd	0.000			0.007	1.732	1.715	1.715
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	17,908	17,730.693	17,730.264
sd	0.000			0.021	133.821	132.496	132.496

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-6322;B2*** **Repeat** ***14***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:05 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	4	3.960	3.913
sd	0.000			0.007	2.000	1.980	1.980
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	18,015	17,836.634	17,836.205
sd	0.000			0.021	134.220	132.891	132.891

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-6322;B1*** **Repeat** ***15***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:13 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	9	8.911	8.864
sd	0.000			0.007	3.000	2.970	2.970
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	18,747	18,561.386	18,560.957
sd	0.000			0.021	136.920	135.564	135.564

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-6322;B8*** **Repeat** ***16***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:20 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	3	2.970	2.923
sd	0.000			0.007	1.732	1.715	1.715
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	15,645	15,490.099	15,489.670
sd	0.000			0.021	125.080	123.842	123.842

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-6322;B7*** **Repeat** ***17***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:27 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	4	3.960	3.913
sd	0.000			0.007	2.000	1.980	1.980
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	16,347	16,185.149	16,184.720
sd	0.000			0.021	127.855	126.589	126.589

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-51465;A6*** **Repeat** ***47***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 18:18 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.149	25,031	500.620	500.471
sd	0.000			0.012	158.212	3.164	3.164
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.492	11,318	226.360	225.868
sd	0.000			0.022	106.386	2.128	2.128

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-51465;A4*** **Repeat** ***49***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 23:45 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.149	14,844	296.880	296.731
sd	0.000			0.012	121.836	2.437	2.437
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.492	6,559	131.180	130.688
sd	0.000			0.022	80.988	1.620	1.620

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-51465;A3*** **Repeat** ***50***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 07:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.149	17,349	346.980	346.831
sd	0.000			0.012	131.716	2.634	2.634
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.492	6,894	137.880	137.388
sd	0.000			0.022	83.030	1.661	1.661

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-51465;A2*** **Repeat** ***51***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 08:50 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.149	23,693	473.860	473.711
sd	0.000			0.012	153.925	3.079	3.079
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.492	8,503	170.060	169.568
sd	0.000			0.022	92.212	1.844	1.844

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-51465;A8*** **Repeat** ***52***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 11:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.149	16,687	333.740	333.591
sd	0.000			0.012	129.178	2.584	2.584
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.492	8,403	168.060	167.568
sd	0.000			0.022	91.668	1.833	1.833

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-51465;A7*** **Repeat** ***53***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 12:46 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.149	21,665	433.300	433.151
sd	0.000			0.012	147.190	2.944	2.944
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.492	9,845	196.900	196.408
sd	0.000			0.022	99.222	1.984	1.985

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICABT-51465;A1*** **Repeat** ***54***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/29/201! 15:32 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.149	22,264	445.280	445.131
sd	0.000			0.012	149.211	2.984	2.984
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.492	8,058	161.160	160.668
sd	0.000			0.022	89.766	1.795	1.795

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

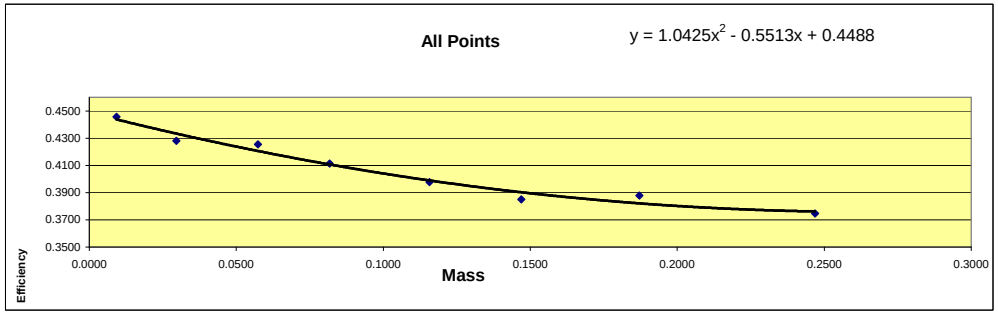
*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Curve is for Gross Beta
Strontium 90
and
Total Strontium

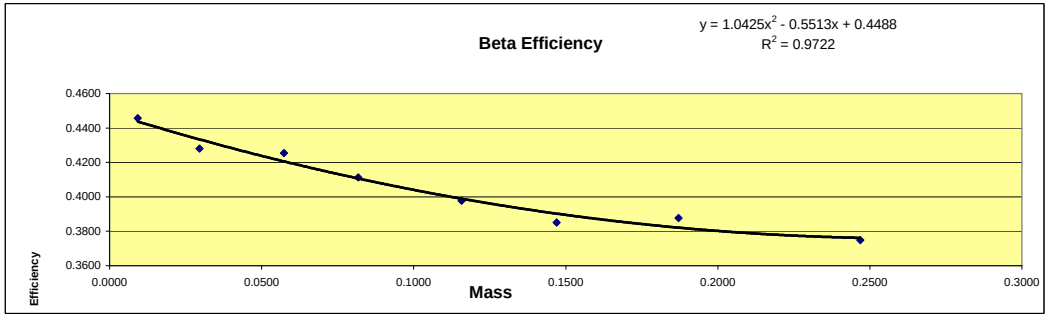
Protean 14

Detector ID	Std ID	Count Date	Sample Wt	Count Time	Beta Counts	DPM 41414.371 CPM	Sr-90 Eff	Standard Aliquot
14	B1	3/27/2013 10:21:56 AM	0.0093	1.01	18646	18461.386	0.4458	1mL
14	B2	3/27/2013 10:14:36 AM	0.0296	1.01	17902	17724.752	0.4280	1mL
14	B3	3/27/2013 10:06:14 AM	0.0574	1.01	17793	17616.832	0.4254	1mL
14	B4	3/27/2013 9:57:09 AM	0.0818	1.01	17203	17032.673	0.4113	1mL
14	B5	3/27/2013 9:49:28 AM	0.1157	1.01	16637	16472.277	0.3977	1mL
14	B6	3/27/2013 9:36:07 AM	0.1470	1.01	16107	15947.525	0.3851	1mL
14	B7	3/27/2013 9:27:53 AM	0.1871	1.01	16219	16058.416	0.3877	1mL
14	B8	3/27/2013 10:28:39 AM	0.2469	1.01	15677	15521.782	0.3748	1mL

Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0093	0.4458	0.4438	0.45%
0.0296	0.4280	0.4334	-1.25%
0.0574	0.4254	0.4206	1.14%
0.0818	0.4113	0.4107	0.14%
0.1157	0.3977	0.3990	-0.31%
0.1470	0.3851	0.3903	-1.34%
0.1871	0.3877	0.3821	1.47%
0.2469	0.3748	0.3762	-0.38%



Mass	Efficiency
0.0093	0.4458
0.0296	0.4280
0.0574	0.4254
0.0818	0.4113
0.1157	0.3977
0.1470	0.3851
0.1871	0.3877
0.2469	0.3748



Standard ID
Strontium 90
Sr-90_00004 #6322
Cert# 80573-334 Ref. date 9/172009

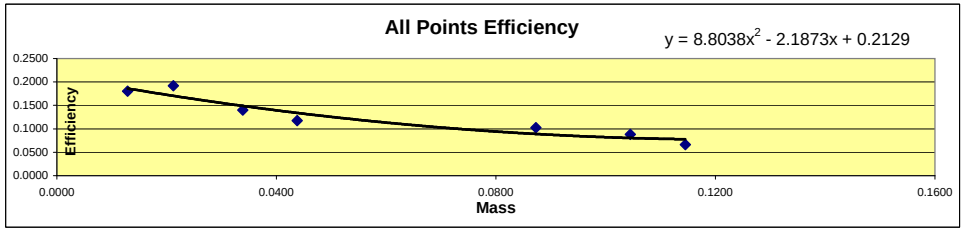
Initial Activity:	22560 dpm/mL
Reference Date:	9/17/2009
Count Date:	3/27/2013
Elapsed Time:	1287.000 days
Half Life:	10409.625 days
Exponential Term:	0.917871706
Corrected Activity:	20707.18568 dpm/mL
Decay Activity (Sr/Y-90)	41414.37137 dpm

Curve is for Gross Alpha

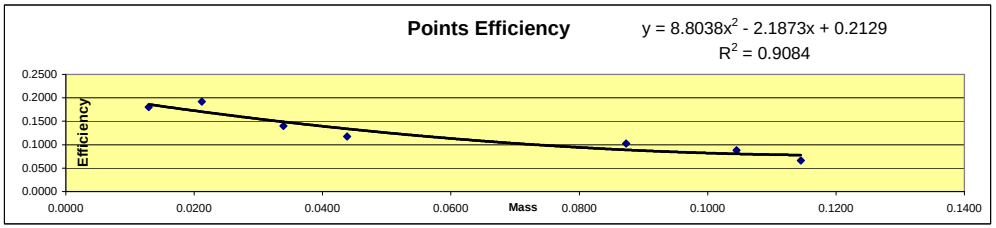
Protean 14

Detector ID	Sample ID	Count Date	Count Time	Alpha Counts	Net CPM	DPM	Th-230 Efficiency	Standard Aliquot	Mass
14	ICABT-51465;A1	11/27/2015 12:40:04 PM	50	21447	428.940	2374.5	0.1806	1mL	0.0129
14	ICABT-51465;A2	11/29/2015 4:23:31 PM	50	22770	455.400	2374.5	0.1918	1mL	0.0212
14	ICABT-51465;A3	11/27/2015 9:40:59 AM	50	16586	331.720	2374.5	0.1397	1mL	0.0339
14	ICABT-51465;A4	11/27/2015 8:38:31 AM	50	13981	279.620	2374.5	0.1178	1mL	0.0438
14	ICABT-51465;A6	11/25/2015 11:38:48 PM	50	24358	487.160	4749.0	0.1026	2mL	0.0873
14	ICABT-51465;A7	11/25/2015 7:09:12 PM	50	20861	417.220	4749.0	0.0879	2mL	0.1045
14	ICABT-51465;A8	11/27/2015 1:36:42 PM	50	15734	314.680	4749.0	0.0663	2mL	0.1145

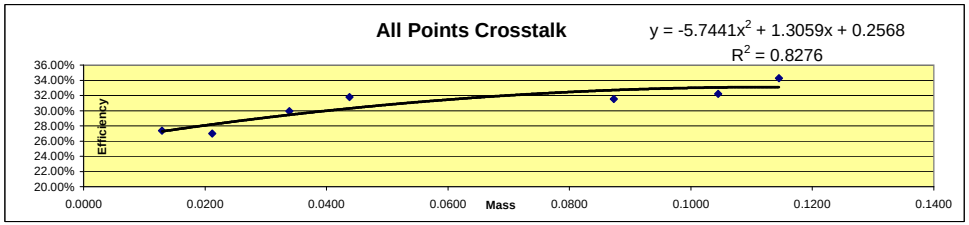
Mass	Measured Efficiency	Theoretical Efficiency	Percent Δ Efficiency
0.0129	0.1806	0.1861	-2.96%
0.0212	0.1918	0.1705	12.49%
0.0339	0.1397	0.1489	-6.16%
0.0438	0.1178	0.1340	-12.11%
0.0873	0.1026	0.0890	15.20%
0.1045	0.0879	0.0805	9.18%
0.1145	0.0663	0.0779	-14.91%



Mass	Efficiency
0.0129	0.1806
0.0212	0.1918
0.0339	0.1397
0.0438	0.1178
0.0873	0.1026
0.1045	0.0879
0.1145	0.0663



Detector ID	Sample ID	Mass	Count Time	Alpha Counts	Beta Counts	Alpha CPM	Beta CPM	% α into β	
14	ICABT-51465;A1	0.0129	50	21447	8080	428.94	161.60	27.36%	Min
14	ICABT-51465;A2	0.0212	50	22770	8417	455.40	168.34	26.99%	26.99%
14	ICABT-51465;A3	0.0339	50	16586	7081	331.72	141.62	29.92%	
14	ICABT-51465;A4	0.0438	50	13981	6517	279.62	130.34	31.79%	Max
14	ICABT-51465;A6	0.0873	50	24358	11227	487.16	224.54	31.55%	34.26%
14	ICABT-51465;A7	0.1045	50	20861	9914	417.22	198.28	32.21%	
14	ICABT-51465;A8	0.1145	50	15734	8201	314.68	164.02	34.26%	Mean
									30.58%



Standard ID
Thorium-230
Th-230_00016 #51465
Cert # 92523 Ref. date 11/29/2012
Activity 2374.5 dpm/mL

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-6322;B7*** **Repeat** ***10***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:26 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	0	0.000	-0.031
sd	0.000			0.006	0.000	0.000	0.248
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	16,219	16,058.416	16,058.001
sd	0.000			0.020	127.354	126.093	126.093

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-6322;B6*** **Repeat** ***11***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:35 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	0	0.000	-0.031
sd	0.000			0.006	0.000	0.000	0.248
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	16,107	15,947.525	15,947.110
sd	0.000			0.020	126.913	125.657	125.657

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-6322;B5*** **Repeat** ***12***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	1	0.990	0.959
sd	0.000			0.006	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	16,637	16,472.277	16,471.862
sd	0.000			0.020	128.984	127.707	127.707

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-6322;B4*** **Repeat** ***13***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 09:55 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	0	0.000	-0.031
sd	0.000			0.006	0.000	0.000	0.248
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	17,203	17,032.673	17,032.258
sd	0.000			0.020	131.160	129.862	129.862

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-6322;B3*** **Repeat** ***14***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:05 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	1	0.990	0.959
sd	0.000			0.006	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	17,793	17,616.832	17,616.417
sd	0.000			0.020	133.390	132.070	132.070

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-6322;B2*** **Repeat** ***15***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:13 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	0	0.000	-0.031
sd	0.000			0.006	0.000	0.000	0.248
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	17,902	17,724.752	17,724.337
sd	0.000			0.020	133.798	132.474	132.474

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-6322;B1*** **Repeat** ***16***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:20 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	2	1.980	1.949
sd	0.000			0.006	1.414	1.400	1.400
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	18,646	18,461.386	18,460.971
sd	0.000			0.020	136.550	135.198	135.198

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-6322;B8*** **Repeat** ***17***

Batch ID ***122627***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/27/2013 10:27 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 1.01 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	1	0.990	0.959
sd	0.000			0.006	1.000	0.990	0.990
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	15,677	15,521.782	15,521.367
sd	0.000			0.020	125.208	123.968	123.968

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-51465;A7*** **Repeat** ***47***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 18:19 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.192	20,861	417.220	417.028
sd	0.000			0.014	144.433	2.889	2.889
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.466	9,914	198.280	197.814
sd	0.000			0.022	99.569	1.991	1.991

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-51465;A6*** **Repeat** ***48***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/25/201! 22:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.192	24,358	487.160	486.968
sd	0.000			0.014	156.070	3.121	3.121
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.466	11,227	224.540	224.074
sd	0.000			0.022	105.958	2.119	2.119

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-51465;A4*** **Repeat** ***50***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 07:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.192	13,981	279.620	279.428
sd	0.000			0.014	118.241	2.365	2.365
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.466	6,517	130.340	129.874
sd	0.000			0.022	80.728	1.615	1.615

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-51465;A3*** **Repeat** ***51***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 08:50 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.192	16,586	331.720	331.528
sd	0.000			0.014	128.787	2.576	2.576
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.466	7,081	141.620	141.154
sd	0.000			0.022	84.149	1.683	1.683

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-51465;A1*** **Repeat** ***52***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 11:48 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.192	21,447	428.940	428.748
sd	0.000			0.014	146.448	2.929	2.929
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.466	8,080	161.600	161.134
sd	0.000			0.022	89.889	1.798	1.798

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-51465;A8*** **Repeat** ***53***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/27/201! 12:46 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.192	15,734	314.680	314.488
sd	0.000			0.014	125.435	2.509	2.509
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.466	8,201	164.020	163.554
sd	0.000			0.022	90.559	1.811	1.811

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICABT-51465;A2*** **Repeat** ***54***

Batch ID ***m153000***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/29/201! 15:32 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 50.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.192	22,770	455.400	455.208
sd	0.000			0.014	150.897	3.018	3.018
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.466	8,417	168.340	167.874
sd	0.000			0.022	91.744	1.835	1.835

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

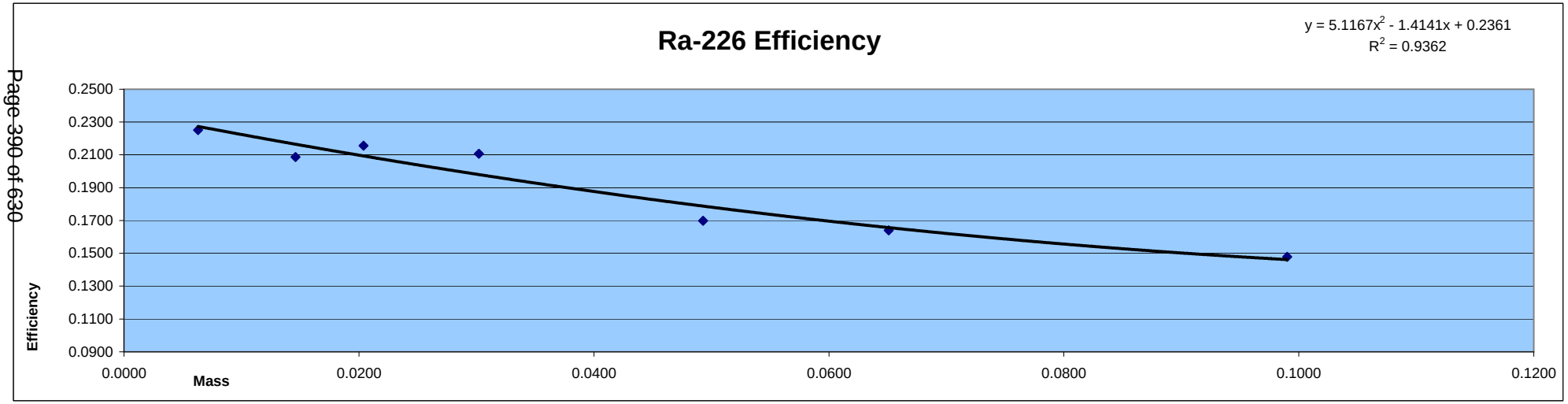
*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Ra-226 Calibrations

Ra-226 Calibration 2019

Blue 2

Std #	Sample Time	Count Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency	Mass
ICRa6-1063071;Ra2	7/26/2019 16:14	15	45675	3045.0000	2/13/2017 13:30	4.0000	0.4487	1696.4922	7534.6	0.2252	0.0063
ICRa6-1063071;Ra3	7/26/2019 15:56	15	65388	4359.2000	2/13/2017 13:30	4.0000	0.6933	1571.9932	7534.6	0.2086	0.0146
ICRa6-1063071;Ra4	7/26/2019 18:14	15	70801	4720.0667	2/13/2017 13:30	4.0000	0.7265	1624.2487	7534.6	0.2156	0.0204
ICRa6-1063071;Ra5	7/26/2019 17:42	15	81964	5464.2667	2/13/2017 13:30	4.0000	0.8604	1587.7111	7534.6	0.2107	0.0302
ICRa6-1063071;Ra6	7/26/2019 17:23	15	71928	4795.2000	2/13/2017 13:30	4.0000	0.9364	1280.2631	7534.6	0.1699	0.0493
ICRa6-1063071;Ra7	7/26/2019 17:06	15	68753	4583.5333	2/13/2017 13:30	4.0000	0.9274	1235.6536	7534.6	0.1640	0.0651
ICRa6-1063071;Ra8	7/26/2019 16:49	15	62848	4189.8667	2/13/2017 13:30	4.0000	0.9402	1114.1248	7534.6	0.1479	0.0990



Reagent ID:Ra-226_00022
Container #:986404
Final Conc.: 7534.60740 dpm/mL
Added: 1mL

Reagent ID:Ba Carrier_00026
Container #: 1015438
Cert.#: 16I027

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICRa6-1063071;Ra3 **Repeat** 18

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/26/2019 3:56:17 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/26/2019 4:11:35 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	65,388	4,359.200	4,359.104
sd	0.000			0.010	255.711	17.047	17.047
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	76,574	5,104.933	5,104.506
sd	0.000			0.021	276.720	18.448	18.448

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICRa6-1063071;Ra2 **Repeat** 19

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/26/2019 4:14:50 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/26/2019 4:30:04 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	45,675	3,045.000	3,044.904
sd	0.000			0.010	213.717	14.248	14.248
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	51,884	3,458.933	3,458.506
sd	0.000			0.021	227.781	15.185	15.185

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICRa6-1063071;Ra1 **Repeat** 20

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/26/2019 4:32:12 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/26/2019 4:47:31 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	45,568	3,037.867	3,037.771
sd	0.000			0.010	213.467	14.231	14.231
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	53,629	3,575.267	3,574.840
sd	0.000			0.021	231.579	15.439	15.439

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICRa6-1063071;Ra8 **Repeat** 20

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/26/2019 4:49:24 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/26/2019 5:04:44 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	62,848	4,189.867	4,189.771
sd	0.000			0.010	250.695	16.713	16.713
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	100,377	6,691.800	6,691.373
sd	0.000			0.021	316.823	21.122	21.122

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICRa6-1063071;Ra7 **Repeat** 22

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/26/2019 5:06:13 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/26/2019 5:21:33 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	68,753	4,583.533	4,583.437
sd	0.000			0.010	262.208	17.481	17.481
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	97,010	6,467.333	6,466.906
sd	0.000			0.021	311.464	20.764	20.764

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICRa6-1063071;Ra6 **Repeat** 23

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/26/2019 5:23:08 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/26/2019 5:38:29 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	71,928	4,795.200	4,795.104
sd	0.000			0.010	268.194	17.880	17.880
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	99,180	6,612.000	6,611.573
sd	0.000			0.021	314.929	20.995	20.995

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICRa6-1063071;Ra5 **Repeat** 24

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/26/2019 5:42:17 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/26/2019 5:57:39 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	81,964	5,464.267	5,464.171
sd	0.000			0.010	286.294	19.086	19.086
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	97,470	6,498.000	6,497.573
sd	0.000			0.021	312.202	20.813	20.813

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICRa6-1063071;Ra4

Repeat 25

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/26/2019 6:14:25 PM

Count Ended 7/26/2019 6:29:46 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	70,801	4,720.067	4,719.971
sd	0.000			0.010	266.085	17.739	17.739
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	84,171	5,611.400	5,610.973
sd	0.000			0.021	290.122	19.341	19.342

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

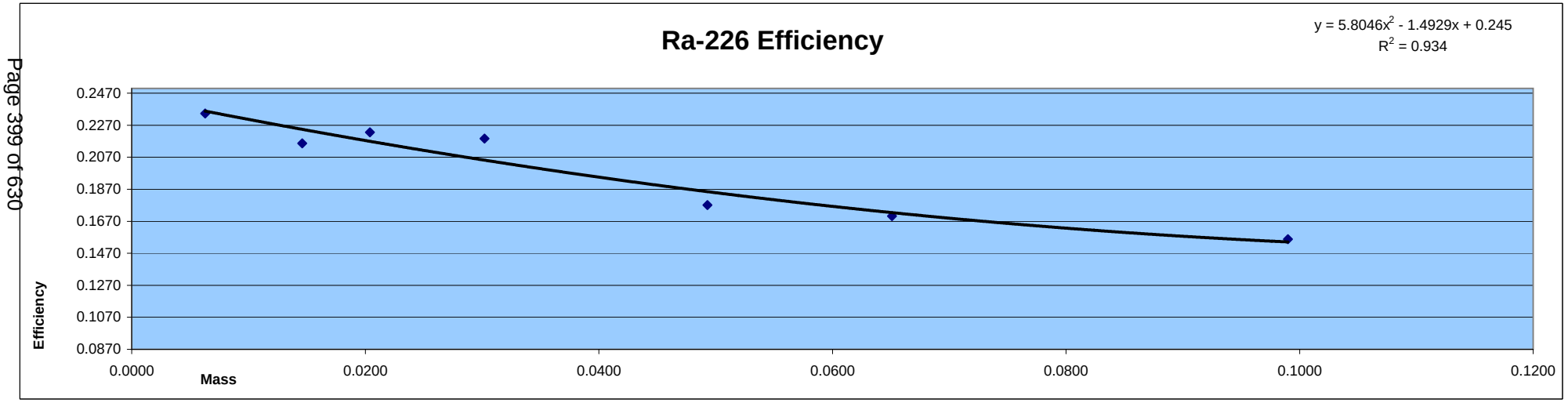
MDC Method Currie

Error = .00 **x sd**

Ra-226 Calibration 2019

Blue 13

Std #	Sample Time	Count Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency	Mass
ICRa6-1063071;Ra2	7/24/2019 15:48	15	47540	3169.333	2/13/2017 13:30	4.0000	0.4487	1765.7634	7534.6	0.2344	0.0063
ICRa6-1063071;Ra3	7/24/2019 15:17	15	67578	4505.200	2/13/2017 13:30	4.0000	0.6933	1624.6430	7534.6	0.2156	0.0146
ICRa6-1063071;Ra4	7/24/2019 14:34	15	73095	4873.000	2/13/2017 13:30	4.0000	0.7265	1676.8754	7534.6	0.2226	0.0204
ICRa6-1063071;Ra5	7/24/2019 13:58	15	85066	5671.067	2/13/2017 13:30	4.0000	0.8604	1647.7995	7534.6	0.2187	0.0302
ICRa6-1063071;Ra6	7/24/2019 13:40	15	74944	4996.267	2/13/2017 13:30	4.0000	0.9364	1333.9456	7534.6	0.1770	0.0493
ICRa6-1063071;Ra7	7/24/2019 17:07	15	71396	4759.733	2/13/2017 13:30	4.0000	0.9274	1283.1545	7534.6	0.1703	0.0651
ICRa6-1063071;Ra8	7/24/2019 16:50	15	66214	4414.267	2/13/2017 13:30	4.0000	0.9402	1173.7948	7534.6	0.1558	0.0990



Reagent ID:Ra-226_00022
Container #:986404
Final Conc.: 7534.60740 dpm/mL
Added: 1mL

Reagent ID:Ba Carrier_00026
Container #: 1015438
Cert.#: 16I027

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICRa6-1063071;Ra6 **Repeat** 10

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 1:40:40 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 1:56:00 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	74,944	4,996.267	4,996.156
sd	0.000			0.011	273.759	18.251	18.251
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	95,462	6,364.133	6,363.772
sd	0.000			0.019	308.969	20.598	20.598

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICRa6-1063071;Ra5 **Repeat** 11

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 1:58:27 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 2:13:47 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	85,066	5,671.067	5,670.956
sd	0.000			0.011	291.661	19.444	19.444
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	94,997	6,333.133	6,332.772
sd	0.000			0.019	308.216	20.548	20.548

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICRa6-1063071;Ra4 **Repeat** 12

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 2:34:52 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 2:50:15 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	73,095	4,873.000	4,872.889
sd	0.000			0.011	270.361	18.024	18.024
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	81,045	5,403.000	5,402.639
sd	0.000			0.019	284.684	18.979	18.979

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICRa6-1063071;Ra3 **Repeat** 13

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 3:17:05 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 3:32:23 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	67,578	4,505.200	4,505.089
sd	0.000			0.011	259.958	17.331	17.331
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	73,720	4,914.667	4,914.306
sd	0.000			0.019	271.514	18.101	18.101

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICRa6-1063071;Ra2 **Repeat** 14

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 3:48:47 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 4:04:03 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	47,540	3,169.333	3,169.222
sd	0.000			0.011	218.037	14.536	14.536
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	49,713	3,314.200	3,313.839
sd	0.000			0.019	222.964	14.864	14.864

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICRa6-1063071;Ra1 **Repeat** 15

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 4:26:24 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 4:41:44 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	46,957	3,130.467	3,130.356
sd	0.000			0.011	216.696	14.446	14.446
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	51,435	3,429.000	3,428.639
sd	0.000			0.019	226.793	15.120	15.120

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICRa6-1063071;Ra8 **Repeat** 15

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 4:50:19 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 5:05:37 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	66,214	4,414.267	4,414.156
sd	0.000			0.011	257.321	17.155	17.155
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	97,725	6,515.000	6,514.639
sd	0.000			0.019	312.610	20.841	20.841

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICRa6-1063071;Ra7 **Repeat** 17

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 5:07:57 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 5:23:19 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	71,396	4,759.733	4,759.622
sd	0.000			0.011	267.200	17.813	17.813
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	94,040	6,269.333	6,268.972
sd	0.000			0.019	306.659	20.444	20.444

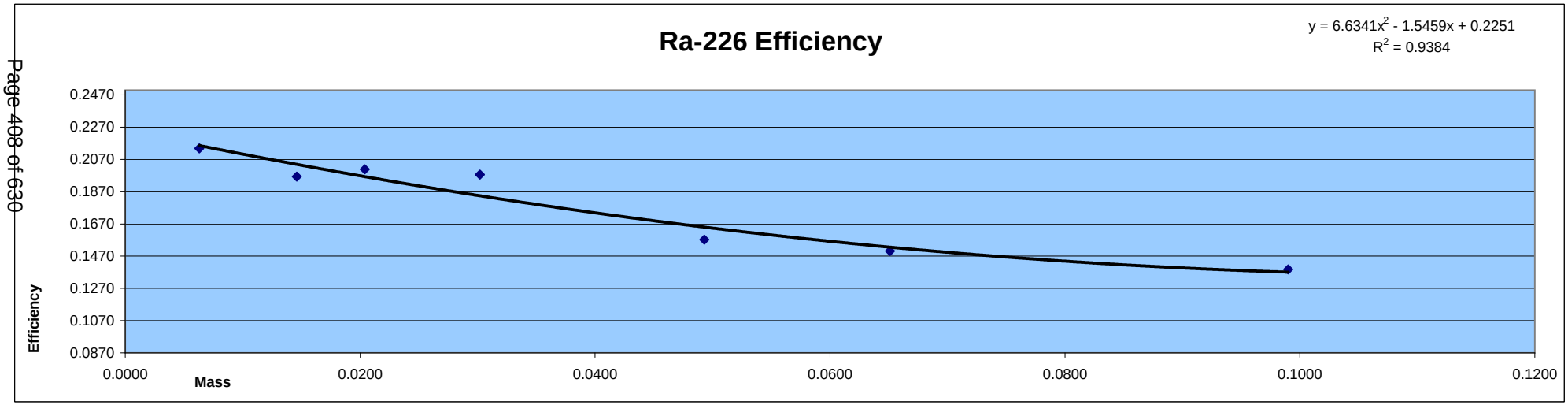
	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra-226 Calibration 2019

Blue 14

Std #	Sample Time	Count Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency	Mass
ICRa6-1063071;Ra2	7/24/2019 16:26	15	43386	2892.400	2/13/2017 13:30	4.0000	0.4487	1611.4726	7534.6	0.2139	0.0063
ICRa6-1063071;Ra3	7/24/2019 15:48	15	61554	4103.600	2/13/2017 13:30	4.0000	0.6933	1479.8200	7534.6	0.1964	0.0146
ICRa6-1063071;Ra4	7/24/2019 15:17	15	65979	4398.600	2/13/2017 13:30	4.0000	0.7265	1513.6270	7534.6	0.2009	0.0204
ICRa6-1063071;Ra5	7/24/2019 14:34	15	76888	5125.867	2/13/2017 13:30	4.0000	0.8604	1489.3848	7534.6	0.1977	0.0302
ICRa6-1063071;Ra6	7/24/2019 13:58	15	66556	4437.067	2/13/2017 13:30	4.0000	0.9364	1184.6457	7534.6	0.1572	0.0493
ICRa6-1063071;Ra7	7/24/2019 13:40	15	62942	4196.133	2/13/2017 13:30	4.0000	0.9274	1131.2162	7534.6	0.1501	0.0651
ICRa6-1063071;Ra8	7/24/2019 17:08	15	58999	3933.267	2/13/2017 13:30	4.0000	0.9402	1045.8924	7534.6	0.1388	0.0990



Reagent ID:Ra-226_00022
Container #:986404
Final Conc.: 7534.60740 dpm/mL
Added: 1mL

Reagent ID:Ba Carrier_00026
Container #: 1015438
Cert.#: 16I027

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICRa6-1063071;Ra7 **Repeat** 10

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 1:40:45 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 1:56:05 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	62,942	4,196.133	4,196.025
sd	0.000			0.010	250.882	16.725	16.725
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	100,225	6,681.667	6,681.311
sd	0.000			0.019	316.583	21.106	21.106

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICRa6-1063071;Ra6 **Repeat** 11

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 1:58:31 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 2:13:50 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	66,556	4,437.067	4,436.959
sd	0.000			0.010	257.984	17.199	17.199
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	102,186	6,812.400	6,812.044
sd	0.000			0.019	319.665	21.311	21.311

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICRa6-1063071;Ra5 **Repeat** 12

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 2:34:56 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 2:50:16 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	76,888	5,125.867	5,125.759
sd	0.000			0.010	277.287	18.486	18.486
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	100,607	6,707.133	6,706.777
sd	0.000			0.019	317.186	21.146	21.146

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICRa6-1063071;Ra4 **Repeat** 13

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 3:17:09 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 3:32:31 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	65,979	4,398.600	4,398.492
sd	0.000			0.010	256.864	17.124	17.124
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	85,302	5,686.800	5,686.444
sd	0.000			0.019	292.065	19.471	19.471

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICRa6-1063071;Ra3 **Repeat** 14

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 3:48:53 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 4:04:11 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	61,554	4,103.600	4,103.492
sd	0.000			0.010	248.101	16.540	16.540
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	78,373	5,224.867	5,224.511
sd	0.000			0.019	279.952	18.663	18.663

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICRa6-1063071;Ra2 **Repeat** 15

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/24/2019 4:26:28 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 4:41:44 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	43,386	2,892.400	2,892.292
sd	0.000			0.010	208.293	13.886	13.886
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	53,223	3,548.200	3,547.844
sd	0.000			0.019	230.701	15.380	15.380

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICRa6-1063071;Ra1 **Repeat** 16

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/24/2019 4:50:23 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 5:05:40 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	43,315	2,887.667	2,887.559
sd	0.000			0.010	208.123	13.875	13.875
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	55,397	3,693.133	3,692.777
sd	0.000			0.019	235.366	15.691	15.691

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICRa6-1063071;Ra8 **Repeat** 16

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 5:08:01 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 5:23:21 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	58,999	3,933.267	3,933.159
sd	0.000			0.010	242.897	16.193	16.193
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	103,019	6,867.933	6,867.577
sd	0.000			0.019	320.966	21.398	21.398

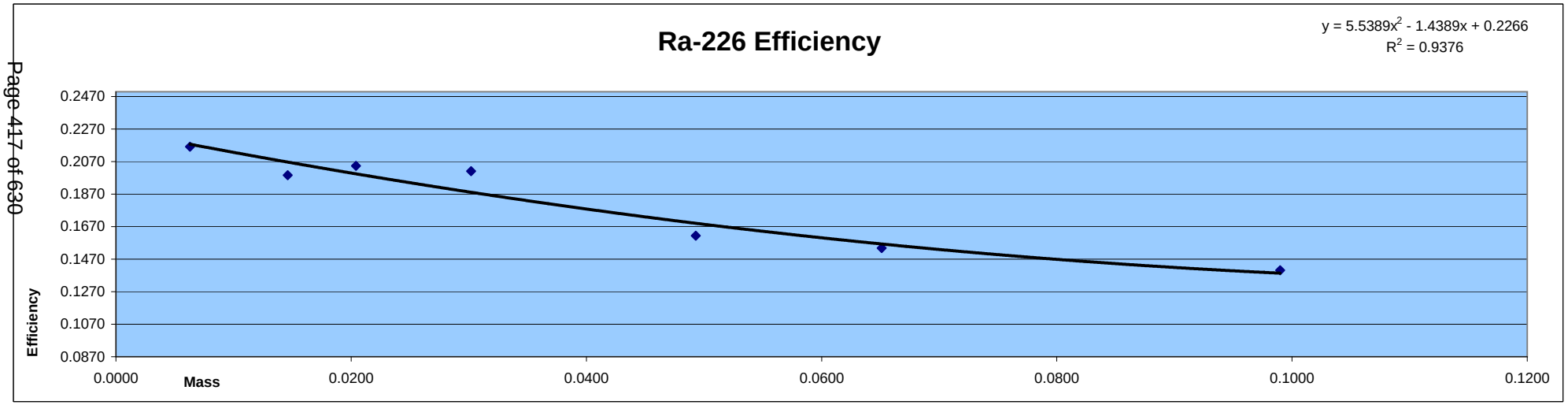
	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra-226 Calibration 2019

Blue 15

Std #	Sample Time	Count Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency	Mass
ICRa6-1063071;Ra2	7/24/2019 16:50	15	43861	2924.067	2/13/2017 13:30	4.0000	0.4487	1629.1154	7534.6	0.2162	0.0063
ICRa6-1063071;Ra3	7/24/2019 16:26	15	62257	4150.467	2/13/2017 13:30	4.0000	0.6933	1496.7208	7534.6	0.1986	0.0146
ICRa6-1063071;Ra4	7/24/2019 15:48	15	67149	4476.600	2/13/2017 13:30	4.0000	0.7265	1540.4680	7534.6	0.2045	0.0204
ICRa6-1063071;Ra5	7/24/2019 15:17	15	78262	5217.467	2/13/2017 13:30	4.0000	0.8604	1516.0003	7534.6	0.2012	0.0302
ICRa6-1063071;Ra6	7/24/2019 14:35	15	68345	4556.333	2/13/2017 13:30	4.0000	0.9364	1216.4885	7534.6	0.1615	0.0493
ICRa6-1063071;Ra7	7/24/2019 13:58	15	64516	4301.067	2/13/2017 13:30	4.0000	0.9274	1159.5047	7534.6	0.1539	0.0651
ICRa6-1063071;Ra8	7/24/2019 13:40	15	59556	3970.400	2/13/2017 13:30	4.0000	0.9402	1055.7665	7534.6	0.1401	0.0990



Reagent ID:Ra-226_00022
Container #:986404
Final Conc.: 7534.60740 dpm/mL
Added: 1mL

Reagent ID:Ba Carrier_00026
Container #: 1015438
Cert.#: 16I027

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICRa6-1063071;Ra8 **Repeat** 9

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 1:40:53 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 1:56:12 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	59,556	3,970.400	3,970.303
sd	0.000			0.010	244.041	16.269	16.269
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	103,379	6,891.933	6,891.484
sd	0.000			0.021	321.526	21.435	21.435

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICRa6-1063071;Ra7 **Repeat** 11

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 1:58:37 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 2:13:57 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	64,516	4,301.067	4,300.970
sd	0.000			0.010	254.000	16.933	16.933
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	99,903	6,660.200	6,659.751
sd	0.000			0.021	316.074	21.072	21.072

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICRa6-1063071;Ra6 **Repeat** 12

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/24/2019 2:35:01 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 2:50:25 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	68,345	4,556.333	4,556.236
sd	0.000			0.010	261.429	17.429	17.429
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	101,770	6,784.667	6,784.218
sd	0.000			0.021	319.014	21.268	21.268

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICRa6-1063071;Ra5 **Repeat** 13

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 3:17:14 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 3:32:39 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	78,262	5,217.467	5,217.370
sd	0.000			0.010	279.753	18.650	18.650
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	101,348	6,756.533	6,756.084
sd	0.000			0.021	318.352	21.223	21.223

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICRa6-1063071;Ra4 **Repeat** 14

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 3:48:57 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 4:04:16 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	67,149	4,476.600	4,476.503
sd	0.000			0.010	259.131	17.275	17.275
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	86,276	5,751.733	5,751.284
sd	0.000			0.021	293.728	19.582	19.582

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICRa6-1063071;Ra3 **Repeat** 15

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 4:26:32 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 4:41:51 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	62,257	4,150.467	4,150.370
sd	0.000			0.010	249.514	16.634	16.634
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	78,613	5,240.867	5,240.418
sd	0.000			0.021	280.380	18.692	18.692

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICRa6-1063071;Ra2 **Repeat** 16

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 4:50:28 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 5:05:44 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	43,861	2,924.067	2,923.970
sd	0.000			0.010	209.430	13.962	13.962
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	53,869	3,591.267	3,590.818
sd	0.000			0.021	232.097	15.473	15.473

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICRa6-1063071;Ra1 **Repeat** 17

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/24/2019 5:08:06 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/24/2019 5:23:24 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	43,667	2,911.133	2,911.036
sd	0.000			0.010	208.967	13.931	13.931
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	54,764	3,650.933	3,650.484
sd	0.000			0.021	234.017	15.601	15.601

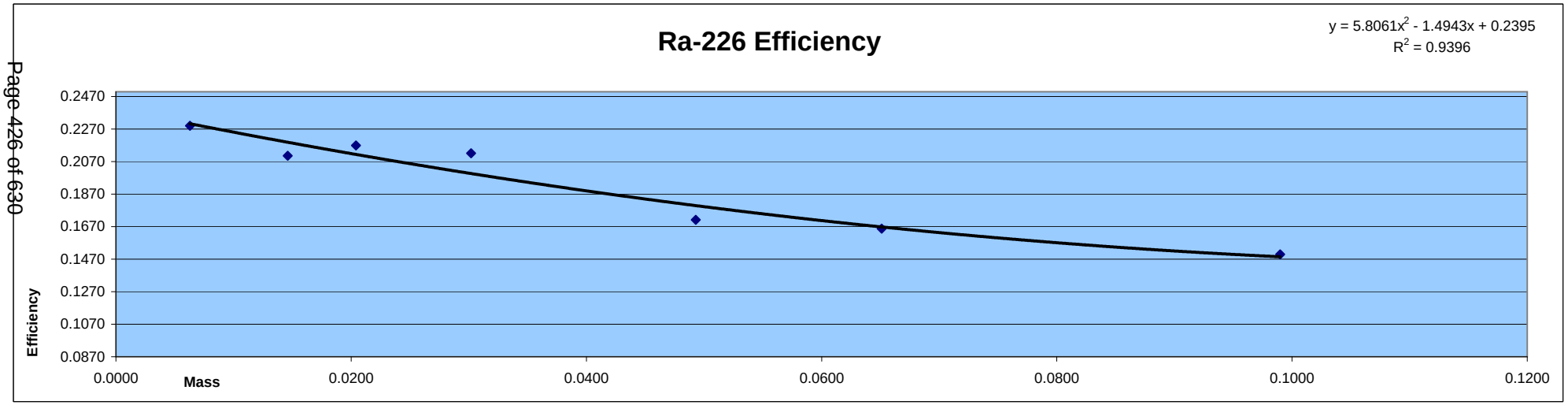
	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra-226 Calibration 2019

Blue 17

Std #	Sample Time	Count Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency	Mass
ICRa6-1063071;Ra2	7/23/2019 15:12	15	46457	3097.133	2/13/2017 13:30	4.0000	0.4487	1725.5378	7534.6	0.2290	0.0063
ICRa6-1063071;Ra3	7/23/2019 18:16	15	66007	4400.467	2/13/2017 13:30	4.0000	0.6933	1586.8746	7534.6	0.2106	0.0146
ICRa6-1063071;Ra4	7/23/2019 17:57	15	71263	4750.867	2/13/2017 13:30	4.0000	0.7265	1634.8474	7534.6	0.2170	0.0204
ICRa6-1063071;Ra5	7/23/2019 17:30	15	82552	5503.467	2/13/2017 13:30	4.0000	0.8604	1599.1012	7534.6	0.2122	0.0302
ICRa6-1063071;Ra6	7/23/2019 17:12	15	72464	4830.933	2/13/2017 13:30	4.0000	0.9364	1289.8035	7534.6	0.1712	0.0493
ICRa6-1063071;Ra7	7/23/2019 16:51	15	69490	4632.667	2/13/2017 13:30	4.0000	0.9274	1248.8992	7534.6	0.1658	0.0651
ICRa6-1063071;Ra8	7/23/2019 16:27	15	63721	4248.067	2/13/2017 13:30	4.0000	0.9402	1129.6007	7534.6	0.1499	0.0990



Reagent ID:Ra-226_00022
Container #:986404
Final Conc.: 7534.60740 dpm/mL
Added: 1mL

Reagent ID:Ba Carrier_00026
Container #: 1015438
Cert.#: 16I027

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICRa6-1063071;Ra2 **Repeat** 1

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 3:12:55 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 3:28:06 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	46,457	3,097.133	3,097.017
sd	0.000			0.011	215.539	14.369	14.369
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	51,094	3,406.267	3,405.881
sd	0.000			0.020	226.040	15.069	15.069

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICRa6-1063071;Ra1 **Repeat** 2

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 3:47:29 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:02:47 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	46,028	3,068.533	3,068.417
sd	0.000			0.011	214.541	14.303	14.303
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	52,683	3,512.200	3,511.814
sd	0.000			0.020	229.528	15.302	15.302

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICRa6-1063071;Ra1 **Repeat** 3

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:08:52 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:24:06 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	46,030	3,068.667	3,068.551
sd	0.000			0.011	214.546	14.303	14.303
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	52,969	3,531.267	3,530.881
sd	0.000			0.020	230.150	15.343	15.343

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICRa6-1063071;Ra8

Repeat 3

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/23/2019 4:27:33 PM

Count Ended 7/23/2019 4:42:56 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 15.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	63,721	4,248.067	4,247.951
sd	0.000			0.011	252.430	16.829	16.829
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	98,909	6,593.933	6,593.547
sd	0.000			0.020	314.498	20.967	20.967

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICRa6-1063071;Ra7 **Repeat** 5

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:51:09 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:06:27 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	69,490	4,632.667	4,632.551
sd	0.000			0.011	263.610	17.574	17.574
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	95,967	6,397.800	6,397.414
sd	0.000			0.020	309.785	20.652	20.652

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICRa6-1063071;Ra6 **Repeat** 6

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:12:23 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:27:42 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	72,464	4,830.933	4,830.817
sd	0.000			0.011	269.191	17.946	17.946
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	97,423	6,494.867	6,494.481
sd	0.000			0.020	312.127	20.808	20.808

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICRa6-1063071;Ra5 **Repeat** 7

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:30:40 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:46:01 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	82,552	5,503.467	5,503.351
sd	0.000			0.011	287.319	19.155	19.155
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	96,748	6,449.867	6,449.481
sd	0.000			0.020	311.043	20.736	20.736

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICRa6-1063071;Ra4 **Repeat** 8

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:57:55 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 6:13:14 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	71,263	4,750.867	4,750.751
sd	0.000			0.011	266.951	17.797	17.797
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	82,769	5,517.933	5,517.547
sd	0.000			0.020	287.696	19.180	19.180

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICRa6-1063071;Ra3 **Repeat** 9

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 6:16:27 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 6:31:49 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	66,007	4,400.467	4,400.351
sd	0.000			0.011	256.918	17.128	17.128
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	75,226	5,015.067	5,014.681
sd	0.000			0.020	274.274	18.285	18.285

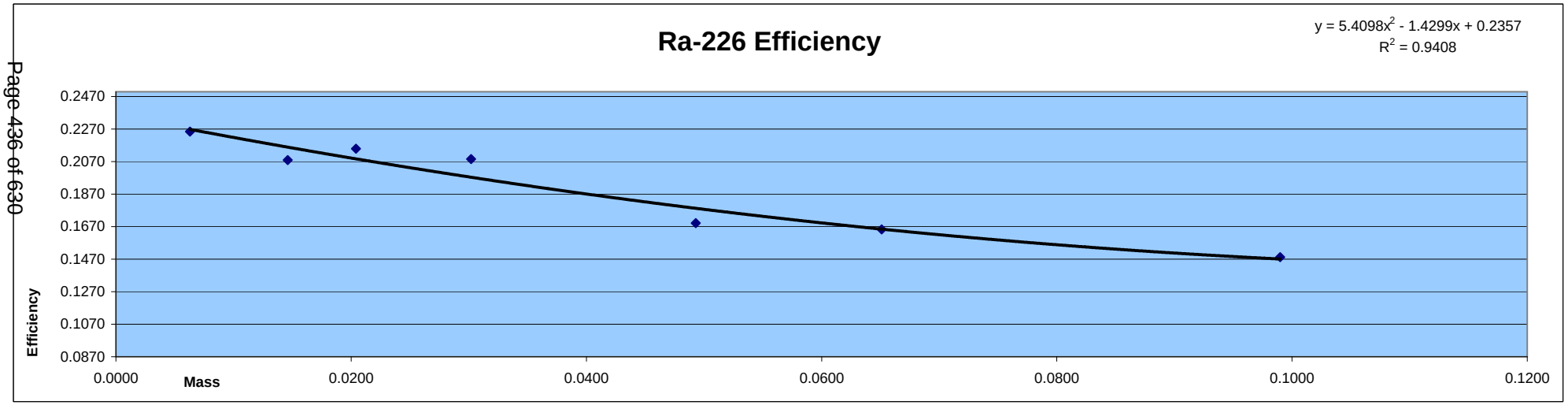
	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra-226 Calibration 2019

Blue 19

Std #	Sample Time	Count Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency	Mass
ICRa6-1063071;Ra2	7/23/2019 16:27	15	45730	3048.667	2/13/2017 13:30	4.0000	0.4487	1698.5351	7534.6	0.2254	0.0063
ICRa6-1063071;Ra3	7/23/2019 16:09	15	65169	4344.600	2/13/2017 13:30	4.0000	0.6933	1566.7282	7534.6	0.2079	0.0146
ICRa6-1063071;Ra4	7/23/2019 15:13	15	70616	4707.733	2/13/2017 13:30	4.0000	0.7265	1620.0046	7534.6	0.2150	0.0204
ICRa6-1063071;Ra5	7/23/2019 18:16	15	81144	5409.600	2/13/2017 13:30	4.0000	0.8604	1571.8271	7534.6	0.2086	0.0302
ICRa6-1063071;Ra6	7/23/2019 17:58	15	71645	4776.333	2/13/2017 13:30	4.0000	0.9364	1275.2260	7534.6	0.1692	0.0493
ICRa6-1063071;Ra7	7/23/2019 17:30	15	69290	4619.333	2/13/2017 13:30	4.0000	0.9274	1245.3047	7534.6	0.1653	0.0651
ICRa6-1063071;Ra8	7/23/2019 17:12	15	63042	4202.800	2/13/2017 13:30	4.0000	0.9402	1117.5638	7534.6	0.1483	0.0990



Reagent ID:Ra-226_00022
Container #:986404
Final Conc.: 7534.60740 dpm/mL
Added: 1mL

Reagent ID:Ba Carrier_00026
Container #: 1015438
Cert.#: 16I027

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICRa6-1063071;Ra4 **Repeat** 1

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 3:13:06 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 3:28:25 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	70,616	4,707.733	4,707.555
sd	0.000			0.013	265.737	17.716	17.716
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	83,843	5,589.533	5,589.006
sd	0.000			0.023	289.557	19.304	19.304

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICRa6-1063071;Ra3 **Repeat** 2

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 3:47:41 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:02:58 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	65,294	4,352.933	4,352.755
sd	0.000			0.013	255.527	17.035	17.035
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	75,895	5,059.667	5,059.140
sd	0.000			0.023	275.490	18.366	18.366

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICRa6-1063071;Ra3 **Repeat** 3

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:09:01 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:24:19 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	65,169	4,344.600	4,344.422
sd	0.000			0.013	255.282	17.019	17.019
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	75,827	5,055.133	5,054.606
sd	0.000			0.023	275.367	18.358	18.358

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICRa6-1063071;Ra2 **Repeat** 4

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:27:41 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:43:01 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	45,730	3,048.667	3,048.489
sd	0.000			0.013	213.846	14.256	14.256
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	51,839	3,455.933	3,455.406
sd	0.000			0.023	227.682	15.179	15.179

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICRa6-1063071;Ra1 **Repeat** 5

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:51:23 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:06:37 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	46,213	3,080.867	3,080.689
sd	0.000			0.013	214.972	14.331	14.331
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	52,901	3,526.733	3,526.206
sd	0.000			0.023	230.002	15.333	15.333

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICRa6-1063071;Ra8 **Repeat** 5

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:12:34 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:27:58 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	63,042	4,202.800	4,202.622
sd	0.000			0.013	251.082	16.739	16.739
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	100,202	6,680.133	6,679.606
sd	0.000			0.023	316.547	21.103	21.103

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICRa6-1063071;Ra7 **Repeat** 7

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:30:50 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:46:10 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	69,290	4,619.333	4,619.155
sd	0.000			0.013	263.230	17.549	17.549
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	97,030	6,468.667	6,468.140
sd	0.000			0.023	311.496	20.766	20.766

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICRa6-1063071;Ra6 **Repeat** 8

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:58:06 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 6:13:28 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	71,645	4,776.333	4,776.155
sd	0.000			0.013	267.666	17.844	17.844
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	98,930	6,595.333	6,594.806
sd	0.000			0.023	314.531	20.969	20.969

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICRa6-1063071;Ra5 **Repeat** 9

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 6:16:34 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 6:32:01 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	81,144	5,409.600	5,409.422
sd	0.000			0.013	284.858	18.991	18.991
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	97,421	6,494.733	6,494.206
sd	0.000			0.023	312.123	20.808	20.808

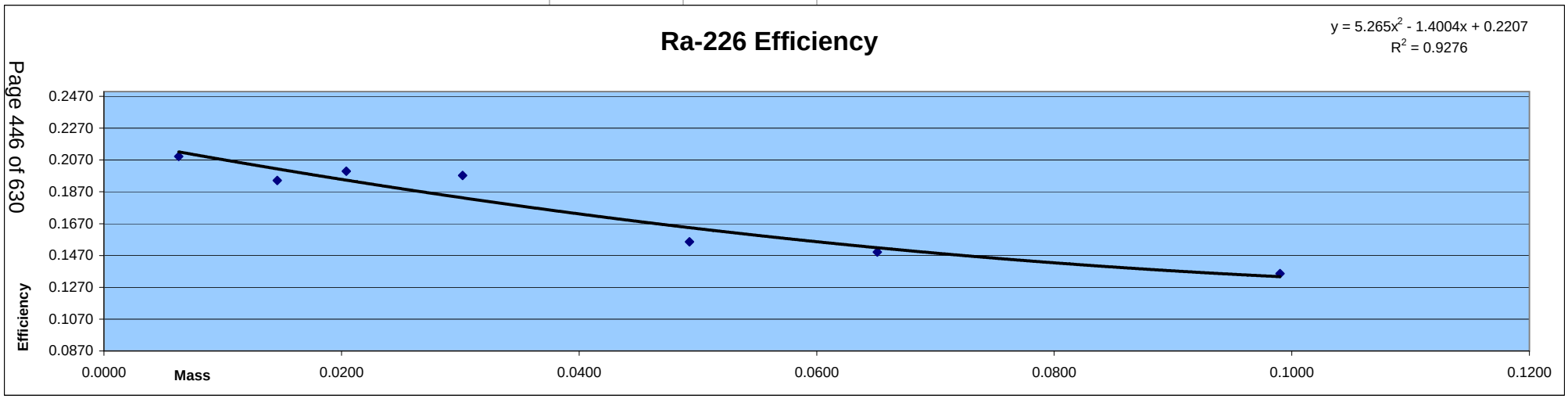
	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra-226 Calibration 2019

Blue 20

Std #	Sample Time	Count Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency	Mass
ICRa6-1063071;Ra2	7/23/2019 16:51	15	42456	2830.400	2/13/2017 13:30	4.0000	0.4487	1576.9299	7534.6	0.2093	0.0063
ICRa6-1063071;Ra3	7/23/2019 16:27	15	60845	4056.333	2/13/2017 13:30	4.0000	0.6933	1462.7749	7534.6	0.1941	0.0146
ICRa6-1063071;Ra4	7/23/2019 16:09	15	65670	4378.000	2/13/2017 13:30	4.0000	0.7265	1506.5382	7534.6	0.1999	0.0204
ICRa6-1063071;Ra5	7/23/2019 15:13	15	76727	5115.133	2/13/2017 13:30	4.0000	0.8604	1486.2661	7534.6	0.1973	0.0302
ICRa6-1063071;Ra6	7/23/2019 18:16	15	65897	4393.133	2/13/2017 13:30	4.0000	0.9364	1172.9160	7534.6	0.1557	0.0493
ICRa6-1063071;Ra7	7/23/2019 17:58	15	62556	4170.400	2/13/2017 13:30	4.0000	0.9274	1124.2789	7534.6	0.1492	0.0651
ICRa6-1063071;Ra8	7/23/2019 17:30	15	57660	3844.000	2/13/2017 13:30	4.0000	0.9402	1022.1556	7534.6	0.1357	0.0990



Reagent ID:Ra-226_00022
Container #:986404
Final Conc.: 7534.60740 dpm/mL
Added: 1mL

Reagent ID:Ba Carrier_00026
Container #: 1015438
Cert.#: 16I027

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICRa6-1063071;Ra5 **Repeat** 1

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 3:13:12 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 3:28:33 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	76,727	5,115.133	5,115.100
sd	0.000			0.006	276.996	18.466	18.466
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	103,755	6,917.000	6,916.634
sd	0.000			0.019	322.110	21.474	21.474

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICRa6-1063071;Ra4 **Repeat** 2

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 3:47:46 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:03:05 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	66,003	4,400.200	4,400.167
sd	0.000			0.006	256.910	17.127	17.127
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	89,795	5,986.333	5,985.967
sd	0.000			0.019	299.658	19.977	19.977

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICRa6-1063071;Ra4 **Repeat** 3

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:09:13 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:24:33 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	65,670	4,378.000	4,377.967
sd	0.000			0.006	256.262	17.084	17.084
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	89,295	5,953.000	5,952.634
sd	0.000			0.019	298.823	19.922	19.922

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICRa6-1063071;Ra3 **Repeat** 4

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:27:46 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:43:03 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	60,845	4,056.333	4,056.300
sd	0.000			0.006	246.668	16.445	16.445
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	80,784	5,385.600	5,385.234
sd	0.000			0.019	284.225	18.948	18.948

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICRa6-1063071;Ra2 **Repeat** 5

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:51:28 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:06:45 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	42,456	2,830.400	2,830.367
sd	0.000			0.006	206.049	13.737	13.737
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	55,311	3,687.400	3,687.034
sd	0.000			0.019	235.183	15.679	15.679

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICRa6-1063071;Ra1 **Repeat** 6

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:12:44 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:28:04 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	42,746	2,849.733	2,849.700
sd	0.000			0.006	206.751	13.783	13.783
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	57,064	3,804.267	3,803.901
sd	0.000			0.019	238.881	15.925	15.925

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICRa6-1063071;Ra8 **Repeat** 6

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:30:57 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:46:19 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	57,660	3,844.000	3,843.967
sd	0.000			0.006	240.125	16.008	16.008
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	106,480	7,098.667	7,098.301
sd	0.000			0.019	326.313	21.754	21.754

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICRa6-1063071;Ra7 **Repeat** 8

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:58:11 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 6:13:33 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	62,556	4,170.400	4,170.367
sd	0.000			0.006	250.112	16.674	16.674
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	103,374	6,891.600	6,891.234
sd	0.000			0.019	321.518	21.435	21.435

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICRa6-1063071;Ra6 **Repeat** 9

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 6:16:42 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 6:32:07 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	65,897	4,393.133	4,393.100
sd	0.000			0.006	256.704	17.114	17.114
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	104,998	6,999.867	6,999.501
sd	0.000			0.019	324.034	21.602	21.602

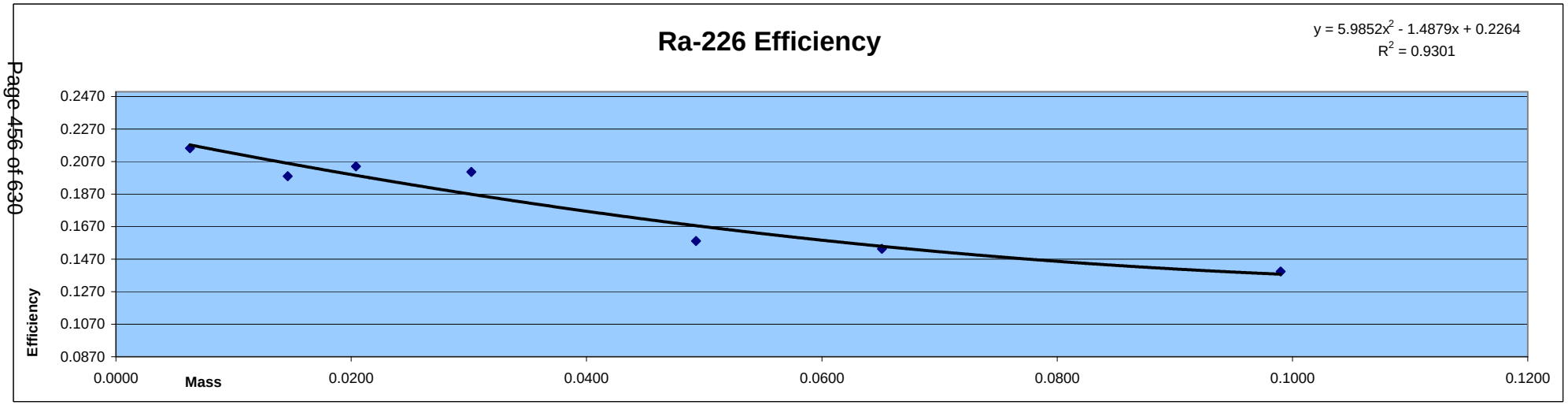
	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra-226 Calibration 2019

Blue 22

Std #	Sample Time	Count Time	Alpha Counts	CPM	Sep Time	Ingrowth	Recovery	Adj CPM	DPM	Efficiency	Mass
ICRa6-1063071;Ra2	7/23/2019 17:31	15	43664	2910.933	2/13/2017 13:30	4.0000	0.4487	1621.7983	7534.6	0.2152	0.0063
ICRa6-1063071;Ra3	7/23/2019 17:12	15	62078	4138.533	2/13/2017 13:30	4.0000	0.6933	1492.4175	7534.6	0.1981	0.0146
ICRa6-1063071;Ra4	7/23/2019 16:51	15	67017	4467.800	2/13/2017 13:30	4.0000	0.7265	1537.4398	7534.6	0.2041	0.0204
ICRa6-1063071;Ra5	7/23/2019 16:27	15	78034	5202.267	2/13/2017 13:30	4.0000	0.8604	1511.5838	7534.6	0.2006	0.0302
ICRa6-1063071;Ra6	7/23/2019 16:09	15	66985	4465.667	2/13/2017 13:30	4.0000	0.9364	1192.2815	7534.6	0.1582	0.0493
ICRa6-1063071;Ra7	7/23/2019 15:13	15	64318	4287.867	2/13/2017 13:30	4.0000	0.9274	1155.9462	7534.6	0.1534	0.0651
ICRa6-1063071;Ra8	7/23/2019 18:16	15	59263	3950.867	2/13/2017 13:30	4.0000	0.9402	1050.5724	7534.6	0.1394	0.0990



Reagent ID:Ra-226_00022
Container #:986404
Final Conc.: 7534.60740 dpm/mL
Added: 1mL

Reagent ID:Ba Carrier_00026
Container #: 1015438
Cert.#: 16I027

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICRa6-1063071;Ra7 **Repeat** 1

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 3:13:23 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 3:28:44 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	64,318	4,287.867	4,287.806
sd	0.000			0.008	253.610	16.907	16.907
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	102,375	6,825.000	6,824.733
sd	0.000			0.016	319.961	21.331	21.331

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICRa6-1063071;Ra6 **Repeat** 2

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 3:47:56 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:03:17 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	67,075	4,471.667	4,471.606
sd	0.000			0.008	258.988	17.266	17.266
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	103,949	6,929.933	6,929.666
sd	0.000			0.016	322.411	21.494	21.494

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICRa6-1063071;Ra6 **Repeat** 3

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:09:23 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:24:42 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	66,985	4,465.667	4,465.606
sd	0.000			0.008	258.815	17.254	17.254
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	103,545	6,903.000	6,902.733
sd	0.000			0.016	321.784	21.452	21.452

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICRa6-1063071;Ra5 **Repeat** 4

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:27:55 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 4:43:17 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	78,034	5,202.267	5,202.206
sd	0.000			0.008	279.346	18.623	18.623
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	102,790	6,852.667	6,852.400
sd	0.000			0.016	320.609	21.374	21.374

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICRa6-1063071;Ra4 **Repeat** 5

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 4:51:38 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:06:57 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	67,017	4,467.800	4,467.739
sd	0.000			0.008	258.876	17.258	17.258
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	88,504	5,900.267	5,900.000
sd	0.000			0.016	297.496	19.833	19.833

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICRa6-1063071;Ra3 **Repeat** 6

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:12:53 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:28:16 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	62,078	4,138.533	4,138.472
sd	0.000			0.008	249.155	16.610	16.610
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	80,401	5,360.067	5,359.800
sd	0.000			0.016	283.551	18.903	18.903

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICRa6-1063071;Ra2 **Repeat** 7

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:31:07 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 5:46:26 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	43,664	2,910.933	2,910.872
sd	0.000			0.008	208.959	13.931	13.931
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	54,815	3,654.333	3,654.066
sd	0.000			0.016	234.126	15.608	15.608

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICRa6-1063071;Ra1 **Repeat** 8

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 5:58:24 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 6:13:40 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	42,983	2,865.533	2,865.472
sd	0.000			0.008	207.323	13.822	13.822
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	56,015	3,734.333	3,734.066
sd	0.000			0.016	236.675	15.778	15.778

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICRa6-1063071;Ra8 **Repeat** 8

Carrier No. 0

Batch ID Ra226 - IC

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/23/2019 6:16:52 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/23/2019 6:32:15 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 15.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	59,263	3,950.867	3,950.806
sd	0.000			0.008	243.440	16.229	16.229
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	105,624	7,041.600	7,041.333
sd	0.000			0.016	324.998	21.667	21.667

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha Beta Calibration Verifications

ICV is for Gross Alpha

Blue - Alpha ICV 2017				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
7	107.00%	101.94%	100.49%	102.24%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: 281207

	Low Mass	Medium Mass	High Mass
	0.0161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
7	5.37E+00	5.12E+00	5.04E+00

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Blue - Beta ICV 2017				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
7	97.24%	96.08%	96.03%	96.45%

Beta Activity 1815.077 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/31/2017		(or date at which you wish to determine activity)
Elapsed Time:	1583.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.899957764		
Corrected Activity:	2014.735445	dpm	
Decay Activity (Sr/Y-90)	4029.47089	dpm	1815.077 pCi

Prep Batch: 239589

Detector	Beta 1	Activity	Units
7	Low Mass	1.765E+03	pCi/mL

Beta 2	Activity	Units
Medium Mass	1.744E+03	pCi/mL

Beta 3	Activity	Units
High Mass	1.743E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICVABT-51512;Beta3 **Repeat** 10

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 3:20:09 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 3:25:14 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.033	0	0.000	0.000
sd	0.000			0.000	0.000	0.000	0.000
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.340	7,353	1,470.600	1,470.600
sd	0.000			0.000	85.750	17.150	17.150

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICVABT-51512;Beta2 **Repeat** 11

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 4:02:56 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 4:08:00 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.033	0	0.000	0.000
sd	0.000			0.000	0.000	0.000	0.000
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.340	7,747	1,549.400	1,549.400
sd	0.000			0.000	88.017	17.603	17.603

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICVABT-51512;Beta1 **Repeat** 12

Carrier No. 0

Batch ID Beta_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 3/31/2017 5:29:26 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 3/31/2017 5:34:31 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.033	1	0.200	0.200
sd	0.000			0.000	1.000	0.200	0.200
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.340	8,300	1,660.000	1,660.000
sd	0.000			0.000	91.104	18.221	18.221

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICVABT-181198;Alpha3 **Repeat** 6

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/1/2017 3:02:40 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/1/2017 3:32:47 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.033	6,594	219.800	219.800
sd	0.000			0.000	81.203	2.707	2.707
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.340	3,349	111.633	111.633
sd	0.000			0.000	57.871	1.929	1.929

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICVABT-181198;Alpha2 **Repeat** 7

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/1/2017 3:49:17 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/1/2017 4:19:21 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.033	8,183	272.767	272.767
sd	0.000			0.000	90.460	3.015	3.015
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.340	3,672	122.400	122.400
sd	0.000			0.000	60.597	2.020	2.020

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 4-7 - D

Addr: 7

Sample ID ICVABT-181198;Alpha1 **Repeat** 8

Carrier No. 0

Batch ID Alpha_ICV

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 4/1/2017 4:22:53 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 4/1/2017 4:53:01 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	0.000	1.000	0.033	12,207	406.900	406.900
sd	0.000			0.000	110.485	3.683	3.683
A to B	0.000	0.000				0.000	
sd	0.000					0.000	
Beta	0.000	0.000	1.000	0.340	5,006	166.867	166.867
sd	0.000			0.000	70.753	2.358	2.358

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Blue - Beta ICV 2017						
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery	Beta Activity	1807.96 pCi
15	96.30%	94.14%	97.62%	96.02%		

Standard ID
Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	5/29/2017		(or date at which you wish to determine activity)
Elapsed Time:	1642.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.896429088		
Corrected Activity:	2006.8358	dpm	
Decay Activity (Sr/Y-90)	4013.671599	dpm	1807.96 pCi

Standard ID
Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	5/30/2017		(or date at which you wish to determine activity)
Elapsed Time:	1643.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.8963694		
Corrected Activity:	2006.702175	dpm	
Decay Activity (Sr/Y-90)	4013.404349	dpm	1807.84 pCi

Standard ID
Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	5/31/2017		(or date at which you wish to determine activity)
Elapsed Time:	1644.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.896309715		
Corrected Activity:	2006.568559	dpm	
Decay Activity (Sr/Y-90)	4013.137117	dpm	1807.719 pCi

Prep Batch: 239589

Detector	Beta 1	Activity	Units
15	Low Mass	1.741E+03	pCi/mL

Beta 2	Activity	Units
Medium Mass	1.702E+03	pCi/mL

Beta 3	Activity	Units
High Mass	1.765E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICVABT-51512;B3 **Repeat** 14

Carrier No. 0

Batch ID 239589

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/29/2017 10:36:05 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/29/2017 10:41:15 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	3	0.600	0.582
sd	0.000			0.004	1.732	0.346	0.346
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	7,405	1,481.000	1,480.728
sd	0.000			0.016	86.052	17.210	17.210

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICVABT-51512;B2 **Repeat** 15

Carrier No. 0

Batch ID 239589

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/30/2017 2:28:36 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/30/2017 2:33:41 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	2	0.400	0.382
sd	0.000			0.004	1.414	0.283	0.283
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	7,539	1,507.800	1,507.528
sd	0.000			0.016	86.827	17.365	17.365

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICVABT-51512;B1 **Repeat** 9

Carrier No. 0

Batch ID 239589

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/31/2017 4:55:52 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/31/2017 5:00:59 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.018	1	0.200	0.182
sd	0.000			0.004	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.272	8,185	1,637.000	1,636.728
sd	0.000			0.016	90.471	18.094	18.094

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Blue Alpha Verification 2018				
	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
15	98.36%	93.22%	104.85%	98.81%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: 281207 (5/30/2018)

	Low Mass	Medium Mass	High Mass
	0.0168g	0.0557g	0.0757g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
15	4.94E+00	4.68E+00	5.26E+00

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICVABT-181198;A3 **Repeat** 59

Carrier No. 0

Batch ID 281207

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/30/2018 2:36:48 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/30/2018 3:06:54 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	6,103	203.433	203.392
sd	0.000			0.006	78.122	2.604	2.604
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	3,751	125.033	124.644
sd	0.000			0.020	61.245	2.042	2.042

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICVABT-181198;A2 **Repeat** 1

Carrier No. 0

Batch ID 281207

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/30/2018 8:06:33 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/30/2018 8:36:38 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	6,471	215.700	215.659
sd	0.000			0.006	80.443	2.681	2.681
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	4,436	147.867	147.478
sd	0.000			0.020	66.603	2.220	2.220

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICVABT-181198;A1 **Repeat** 2

Carrier No. 0

Batch ID 281207

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/30/2018 8:46:26 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/30/2018 9:16:35 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.041	10,384	346.133	346.092
sd	0.000			0.006	101.902	3.397	3.397
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.389	5,819	193.967	193.578
sd	0.000			0.020	76.282	2.543	2.543

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Blue - Beta ICV 2017				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
21	97.83%	96.34%	99.10%	97.76%

Beta Activity 1808.201 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	5/27/2017		(or date at which you wish to determine activity)
Elapsed Time:	1640.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.896548477		
Corrected Activity:	2007.103076	dpm	
Decay Activity (Sr/Y-90)	4014.206153	dpm	1808.201 pCi

Prep Batch: 239589

Detector	Beta 1	Activity	Units
21	Low Mass	1.769E+03	pCi/mL

Beta 2	Activity	Units
Medium Mass	1.742E+03	pCi/mL

Beta 3	Activity	Units
High Mass	1.792E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICVABT-51512;B2

Repeat 5

Carrier No. 0

Batch ID 239589

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/27/2017 4:26:46 PM

Count Ended 5/27/2017 4:31:51 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	1	0.200	0.181
sd	0.000			0.004	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	7,675	1,535.000	1,534.799
sd	0.000			0.014	87.607	17.521	17.521

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICVABT-51512;B1

Repeat 6

Carrier No. 0

Batch ID 239589

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/27/2017 5:06:21 PM

Count Ended 5/27/2017 5:11:25 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	3	0.600	0.581
sd	0.000			0.004	1.732	0.346	0.346
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	8,278	1,655.600	1,655.399
sd	0.000			0.014	90.984	18.197	18.197

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICVABT-51512;B3

Repeat 8

Carrier No. 0

Batch ID 239589

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/27/2017 5:17:50 PM

Count Ended 5/27/2017 5:22:54 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.019	0	0.000	-0.019
sd	0.000			0.004	0.000	0.000	0.087
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.201	7,469	1,493.800	1,493.599
sd	0.000			0.014	86.423	17.285	17.285

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Blue Alpha Verification 2018

	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
21	96.48%	94.43%	104.77%	98.56%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: 281207 (5/30/2018)

	Low Mass	Medium Mass	High Mass
	0.0168g	0.0557g	0.0757g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
21	4.84E+00	4.74E+00	5.26E+00

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICVABT-181198;A2

Repeat 3

Carrier No. 0

Batch ID 281207

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/30/2018 10:38:05 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/30/2018 11:08:12 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	6,739	224.633	224.587
sd	0.000			0.007	82.091	2.736	2.736
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	4,254	141.800	141.422
sd	0.000			0.019	65.223	2.174	2.174

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICVABT-181198;A1 **Repeat** 4

Carrier No. 0

Batch ID 281207

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 5/30/2018 11:09:57 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/30/2018 11:40:08 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	10,712	357.067	357.021
sd	0.000			0.007	103.499	3.450	3.450
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	5,618	187.267	186.889
sd	0.000			0.019	74.953	2.498	2.499

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - B

Addr: 21

Sample ID ICVABT-181198;A3

Repeat 6

Carrier No. 0

Batch ID 281207

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/31/2018 12:26:13 AM

Count Ended 5/31/2018 12:56:23 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 30.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.046	6,221	207.367	207.321
sd	0.000			0.007	78.873	2.629	2.629
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.378	3,493	116.433	116.055
sd	0.000			0.019	59.102	1.970	1.970

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Blue - Beta ICV 2017				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
22	96.17%	95.18%	97.56%	96.30%

Beta Activity 1808.201 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	5/27/2017		(or date at which you wish to determine activity)
Elapsed Time:	1640.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.896548477		
Corrected Activity:	2007.103076	dpm	
Decay Activity (Sr/Y-90)	4014.206153	dpm	1808.201 pCi

Prep Batch: 239589

Detector	Beta 1	Activity	Units
22	Low Mass	1.739E+03	pCi/mL

Beta 2	Activity	Units
Medium Mass	1.721E+03	pCi/mL

Beta 3	Activity	Units
High Mass	1.764E+03	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICVABT-51512;B3

Repeat 5

Carrier No. 0

Batch ID 239589

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/27/2017 4:26:50 PM

Count Ended 5/27/2017 4:31:59 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	1	0.200	0.178
sd	0.000			0.005	1.000	0.200	0.200
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	7,411	1,482.200	1,481.975
sd	0.000			0.015	86.087	17.217	17.217

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICVABT-51512;B2

Repeat 6

Carrier No. 0

Batch ID 239589

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/27/2017 5:06:24 PM

Count Ended 5/27/2017 5:11:33 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 5.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	0	0.000	-0.022
sd	0.000			0.005	0.000	0.000	0.094
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	7,641	1,528.200	1,527.975
sd	0.000			0.015	87.413	17.483	17.483

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICVABT-51512;B1 **Repeat** 7

Carrier No. 0

Batch ID 239589

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/27/2017 5:12:08 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 5/27/2017 5:17:13 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.022	0	0.000	-0.022
sd	0.000			0.005	0.000	0.000	0.094
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.225	8,222	1,644.400	1,644.175
sd	0.000			0.015	90.675	18.135	18.135

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Blue Alpha Verification 2018

	Low Mass	Medium Mass	High Mass	Mean
Detector	Recovery	Recovery	Recovery	Recovery
22	96.18%	95.09%	100.35%	97.21%

Standard ID

Thorium-230
Th-230_00019
Container#: 181198
Ref. date 08/08/2013
Activity: 5.0185 pCi/mL

Prep Batch: 281207 (5/30/2018)

	Low Mass	Medium Mass	High Mass
	0.0168g	0.0557g	0.0757g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
22	4.83E+00	4.77E+00	5.04E+00

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICVABT-181198;A3

Repeat 3

Carrier No. 0

Batch ID 281207

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/30/2018 10:38:15 PM

Count Ended 5/30/2018 11:08:25 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 30.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	5,912	197.067	197.022
sd	0.000			0.007	76.890	2.563	2.563
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	3,862	128.733	128.408
sd	0.000			0.018	62.145	2.071	2.072

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICVABT-181198;A2

Repeat 4

Carrier No. 0

Batch ID 281207

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/30/2018 11:10:05 PM

Count Ended 5/30/2018 11:40:14 PM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 30.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	6,718	223.933	223.888
sd	0.000			0.007	81.963	2.732	2.732
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	4,334	144.467	144.142
sd	0.000			0.018	65.833	2.194	2.195

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICVABT-181198;A1

Repeat 5

Carrier No. 0

Batch ID 281207

Count Method Gross Alpha Beta

Detector Volts 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 5/30/2018 11:53:00 PM

Count Ended 5/31/2018 12:23:10 AM

Collection Date 1 1/1/1900

Collection Date 2 1/1/1900

Half Life 0.00 ***days***

Decay Factor 1.000

Sample Count Time 30.00 ***mins***

Background Count Time 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.045	10,533	351.100	351.055
sd	0.000			0.007	102.630	3.421	3.421
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.325	5,652	188.400	188.075
sd	0.000			0.018	75.180	2.506	2.506

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected**

MDC Method Currie

Error = .00 **x sd**

ICV is for Gross Alpha

Protean Alpha ICV - 2015				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
0	101.29%	85.46%	85.48%	90.74%

Standard ID

Thorium-230

Th-230_00019 #181198

Cert # 92776 Ref. date 08/08/2013

Activity 5.0185 pCi/mL

Prep Batch: M153001

	Low Mass	Medium Mass	High Mass
	0.142g	0.0512g	0.0747g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
0	5.083	4.289	4.29

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Protean Beta ICV - 2013				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
0	98.05%	97.20%	98.50%	97.92%

Beta Activity 2000.929 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Count Date:	3/28/2013		(or date at which you wish to determine activity)
Elapsed Time:	119.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.992107441		
Corrected Activity:	2221.030929	dpm	
Decay Activity (Sr/Y-90)	4442.061857	dpm	2000.929 pCi

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICVABT-51512;Beta 1*** **Repeat** ***5***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 10:21 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	6	1.200	1.164
sd	0.000			0.006	2.449	0.490	0.490
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	9,201	1,840.200	1,839.641
sd	0.000			0.024	95.922	19.184	19.184

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICVABT-51512;Beta 3*** **Repeat** ***10***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 13:22 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	5	1.000	0.964
sd	0.000			0.006	2.236	0.447	0.447
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	8,327	1,665.400	1,664.841
sd	0.000			0.024	91.252	18.250	18.250

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICVABT-51512;Beta 2*** **Repeat** ***11***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 13:39 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.036	7	1.400	1.364
sd	0.000			0.006	2.646	0.529	0.529
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.559	8,614	1,722.800	1,722.241
sd	0.000			0.024	92.812	18.562	18.562

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICVABT-181198;A1*** **Repeat** ***1***

Batch ID ***m153001***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/20/201! 13:53 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.071	12,896	429.867	429.796
sd	0.000			0.008	113.561	3.785	3.785
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.621	4,088	136.267	135.646
sd	0.000			0.025	63.937	2.131	2.131

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICVABT-181198;A3*** **Repeat** ***3***

Batch ID ***m153001***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/20/201! 18:43 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.071	6,068	202.267	202.196
sd	0.000			0.008	77.897	2.597	2.597
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.621	2,274	75.800	75.179
sd	0.000			0.025	47.686	1.590	1.590

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 0-3 - A **Address:** ***0***

Sample ID ***ICVABT-181198;A2*** **Repeat** ***4***

Batch ID ***m153001***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 11/20/201! 19:40 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.071	7,568	252.267	252.196
sd	0.000			0.008	86.994	2.900	2.900
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.621	2,634	87.800	87.179
sd	0.000			0.025	51.323	1.711	1.711

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

ICV is for Gross Alpha

Protean Alpha ICV - 2015				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
8	103.02%	104.95%	106.65%	104.87%

Standard ID

Thorium-230

Th-230_00019 #181198

Cert # 92776 Ref. date 08/08/2013

Activity 5.0185 pCi/mL

Prep Batch: M153007

	Low Mass	Medium Mass	High Mass
	0.161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
8	5.17	5.267	5.352

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Protean Beta ICV - 2013				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
8	98.75%	95.51%	100.00%	98.09%

Beta Activity 2000.929 pCi

Beta Activity 2000.796 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/28/2013		(or date at which you wish to determine activity)
Elapsed Time:	119.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.992107441		
Corrected Activity:	2221.030929	dpm	
Decay Activity (Sr/Y-90)	4442.061857	dpm	2000.929 pCi

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/29/2013		(or date at which you wish to determine activity)
Elapsed Time:	120.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.992041382		
Corrected Activity:	2220.883041	dpm	
Decay Activity (Sr/Y-90)	4441.766083	dpm	2000.796 pCi

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICVABT-51512;Beta 1*** **Repeat** ***12***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 21:29 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	2	0.400	0.357
sd	0.000			0.007	1.414	0.283	0.283
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	9,102	1,820.400	1,819.945
sd	0.000			0.021	95.404	19.081	19.081

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICVABT-51512;Beta 3*** **Repeat** ***18***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:59 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	3	0.600	0.557
sd	0.000			0.007	1.732	0.346	0.346
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	8,344	1,668.800	1,668.345
sd	0.000			0.021	91.345	18.269	18.269

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICVABT-51512;Beta 2*** **Repeat** ***19***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/29/2013 00:05 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	1	0.200	0.157
sd	0.000			0.007	1.000	0.200	0.200
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.455	8,351	1,670.200	1,669.745
sd	0.000			0.021	91.384	18.277	18.277

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICVABT-181198; A3*** **Repeat** ***15***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/2/2015 22:14 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.208	8,518	283.933	283.725
sd	0.000			0.014	92.293	3.076	3.076
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.565	3,262	108.733	108.168
sd	0.000			0.024	57.114	1.904	1.904

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICVABT-181198; A1*** **Repeat** ***17***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/3/2015 09:10 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.208	6,995	233.167	232.959
sd	0.000			0.014	83.636	2.788	2.788
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.565	2,753	91.767	91.202
sd	0.000			0.024	52.469	1.749	1.749

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - A **Address:** ***8***

Sample ID ***ICVABT-181198; A2*** **Repeat** ***101***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/3/2015 11:06 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.208	12,657	421.900	421.692
sd	0.000			0.014	112.503	3.750	3.750
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.565	4,145	138.167	137.602
sd	0.000			0.024	64.382	2.146	2.146

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

ICV is for Gross Alpha

Protean Alpha ICV - 2015				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
9	102.62%	104.83%	105.75%	104.40%

Standard ID

Thorium-230

Th-230_00019 #181198

Cert # 92776 Ref. date 08/08/2013

Activity 5.0185 pCi/mL

Prep Batch: M153007

	Low Mass	Medium Mass	High Mass
	0.161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
9	5.15	5.261	5.307

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Protean Beta ICV - 2013				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
9	98.75%	96.36%	100.35%	98.49%

Beta Activity 2000.929 pCi

Beta Activity 2000.929 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/28/2013		(or date at which you wish to determine activity)
Elapsed Time:	119.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.992107441		
Corrected Activity:	2221.030929	dpm	
Decay Activity (Sr/Y-90)	4442.061857	dpm	2000.929 pCi

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/28/2013		(or date at which you wish to determine activity)
Elapsed Time:	119.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.992107441		
Corrected Activity:	2221.030929	dpm	
Decay Activity (Sr/Y-90)	4442.061857	dpm	2000.929 pCi

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICVABT-51512;Beta 2*** **Repeat** ***12***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 21:29 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	1	0.200	0.160
sd	0.000			0.006	1.000	0.200	0.200
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	8,361	1,672.200	1,671.838
sd	0.000			0.019	91.439	18.288	18.288

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICVABT-51512;Beta 1*** **Repeat** ***13***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:10 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	3	0.600	0.560
sd	0.000			0.006	1.732	0.346	0.346
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	9,092	1,818.400	1,818.038
sd	0.000			0.019	95.352	19.070	19.070

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICVABT-51512;Beta 3*** **Repeat** ***19***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/29/2013 00:05 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.040	0	0.000	-0.040
sd	0.000			0.006	0.000	0.000	0.127
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.362	8,319	1,663.800	1,663.438
sd	0.000			0.019	91.209	18.242	18.242

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICVABT-181198; A1*** **Repeat** ***12***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/2/2015 20:08 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.115	6,846	228.200	228.085
sd	0.000			0.011	82.741	2.758	2.758
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.416	2,731	91.033	90.617
sd	0.000			0.020	52.259	1.742	1.742

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICVABT-181198; A2*** **Repeat** ***14***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/2/2015 21:17 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.115	12,473	415.767	415.652
sd	0.000			0.011	111.683	3.723	3.723
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.416	4,225	140.833	140.417
sd	0.000			0.020	65.000	2.167	2.167

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - B **Address:** ***9***

Sample ID ***ICVABT-181198; A3*** **Repeat** ***101***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/3/2015 11:06 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.115	8,410	280.333	280.218
sd	0.000			0.011	91.706	3.057	3.057
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.416	3,114	103.800	103.384
sd	0.000			0.020	55.803	1.860	1.860

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

ICV is for Gross Alpha

Protean Alpha ICV - 2015				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
10	104.27%	101.31%	106.37%	103.98%

Standard ID

Thorium-230

Th-230_00019 #181198

Cert # 92776 Ref. date 08/08/2013

Activity 5.0185 pCi/mL

Prep Batch: M153007

	Low Mass	Medium Mass	High Mass
	0.161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
10	5.233	5.084	5.338

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Protean Beta ICV - 2013				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
10	99.40%	99.35%	97.30%	98.69%

Beta Activity 2000.929 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/28/2013		(or date at which you wish to determine activity)
Elapsed Time:	119.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.992107441		
Corrected Activity:	2221.030929	dpm	
Decay Activity (Sr/Y-90)	4442.061857	dpm	2000.929 pCi

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICVABT-51512;Beta 3*** **Repeat** ***12***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 21:29 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	0	0.000	-0.043
sd	0.000			0.007	0.000	0.000	0.131
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	8,160	1,632.000	1,631.609
sd	0.000			0.020	90.333	18.067	18.067

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICVABT-51512;Beta 2*** **Repeat** ***13***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:10 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	0	0.000	-0.043
sd	0.000			0.007	0.000	0.000	0.131
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	8,698	1,739.600	1,739.209
sd	0.000			0.020	93.263	18.653	18.653

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICVABT-51512;Beta 1*** **Repeat** ***14***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:20 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.043	1	0.200	0.157
sd	0.000			0.007	1.000	0.200	0.200
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.391	9,203	1,840.600	1,840.209
sd	0.000			0.020	95.932	19.186	19.186

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICVABT-181198; A2*** **Repeat** ***13***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/2/2015 20:08 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.130	12,616	420.533	420.403
sd	0.000			0.011	112.321	3.744	3.744
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	4,468	148.933	148.324
sd	0.000			0.025	66.843	2.228	2.228

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICVABT-181198; A3*** **Repeat** ***14***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/2/2015 21:17 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.130	8,074	269.133	269.003
sd	0.000			0.011	89.855	2.995	2.995
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	3,254	108.467	107.858
sd	0.000			0.025	57.044	1.901	1.902

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - C **Address:** ***10***

Sample ID ***ICVABT-181198; A1*** **Repeat** ***19***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/3/2015 11:06 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.130	6,818	227.267	227.137
sd	0.000			0.011	82.571	2.752	2.752
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.609	3,078	102.600	101.991
sd	0.000			0.025	55.480	1.849	1.849

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

ICV is for Gross Alpha

Protean Alpha ICV - 2015				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
11	107.00%	101.90%	103.42%	104.11%

Standard ID

Thorium-230

Th-230_00019 #181198

Cert # 92776 Ref. date 08/08/2013

Activity 5.0185 pCi/mL

Prep Batch: M153007

	Low Mass	Medium Mass	High Mass
	0.161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
11	5.37	5.114	5.19

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Protean Beta ICV - 2013				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
11	98.05%	97.40%	99.65%	98.37%

Beta Activity 2000.929 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/28/2013		(or date at which you wish to determine activity)
Elapsed Time:	119.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.992107441		
Corrected Activity:	2221.030929	dpm	
Decay Activity (Sr/Y-90)	4442.061857	dpm	2000.929 pCi

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICVABT-51512;Beta 3*** **Repeat** ***13***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:10 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	5	1.000	0.968
sd	0.000			0.006	2.236	0.447	0.447
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	8,279	1,655.800	1,655.371
sd	0.000			0.021	90.989	18.198	18.198

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICVABT-51512;Beta 2*** **Repeat** ***14***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:20 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	0	0.000	-0.032
sd	0.000			0.006	0.000	0.000	0.113
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	8,463	1,692.600	1,692.171
sd	0.000			0.021	91.995	18.399	18.399

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICVABT-51512;Beta 1*** **Repeat** ***15***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:41 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.032	1	0.200	0.168
sd	0.000			0.006	1.000	0.200	0.200
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	9,020	1,804.000	1,803.571
sd	0.000			0.021	94.974	18.995	18.995

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICVABT-181198; A3*** **Repeat** ***13***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/2/2015 20:08 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.057	8,636	287.867	287.810
sd	0.000			0.008	92.930	3.098	3.098
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.456	3,008	100.267	99.811
sd	0.000			0.021	54.845	1.828	1.828

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICVABT-181198; A1*** **Repeat** ***13***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/2/2015 21:17 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.057	7,135	237.833	237.776
sd	0.000			0.008	84.469	2.816	2.816
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.456	2,530	84.333	83.877
sd	0.000			0.021	50.299	1.677	1.677

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 8-11 - D **Address:** ***11***

Sample ID ***ICVABT-181198; A2*** **Repeat** ***15***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.200 ***l*** **sd** 0.000 ***l***

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/2/2015 22:14 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.057	13,192	439.733	439.676
sd	0.000			0.008	114.856	3.829	3.829
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.456	4,047	134.900	134.444
sd	0.000			0.021	63.616	2.121	2.121

	Net Activity dpm	LLD dpm	Net Concentration * pCi/l	MDC pCi/l	Limits pCi/l	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

ICV is for Gross Alpha

Protean Alpha ICV - 2015				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
13	101.68%	103.98%	103.02%	102.89%

Standard ID

Thorium-230

Th-230_00019 #181198

Cert # 92776 Ref. date 08/08/2013

Activity 5.0185 pCi/mL

Prep Batch: M153007

	Low Mass	Medium Mass	High Mass
	0.161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
13	5.103	5.218	5.17

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Protean Beta ICV - 2013				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
13	99.70%	99.45%	97.35%	98.84%

Beta Activity 2000.929 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/28/2013		(or date at which you wish to determine activity)
Elapsed Time:	119.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.992107441		
Corrected Activity:	2221.030929	dpm	
Decay Activity (Sr/Y-90)	4442.061857	dpm	2000.929 pCi

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICVABT-51512;Beta 3*** **Repeat** ***15***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:41 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	3	0.600	0.553
sd	0.000			0.007	1.732	0.346	0.346
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	8,285	1,657.000	1,656.571
sd	0.000			0.021	91.022	18.204	18.204

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICVABT-51512;Beta 2*** **Repeat** ***16***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:47 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	5	1.000	0.953
sd	0.000			0.007	2.236	0.447	0.447
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	8,847	1,769.400	1,768.971
sd	0.000			0.021	94.058	18.812	18.812

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICVABT-51512;Beta 1*** **Repeat** ***17***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:53 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.047	2	0.400	0.353
sd	0.000			0.007	1.414	0.283	0.283
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.429	9,399	1,879.800	1,879.371
sd	0.000			0.021	96.948	19.390	19.390

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICVABT-181198; A3*** **Repeat** ***99***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/3/2015 08:30 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.149	8,655	288.500	288.351
sd	0.000			0.012	93.032	3.101	3.101
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.492	3,265	108.833	108.341
sd	0.000			0.022	57.140	1.905	1.905

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICVABT-181198; A2*** **Repeat** ***100***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/3/2015 10:24 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.149	12,748	424.933	424.784
sd	0.000			0.012	112.907	3.764	3.764
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.492	4,325	144.167	143.675
sd	0.000			0.022	65.765	2.192	2.192

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - B **Address:** ***13***

Sample ID ***ICVABT-181198; A1*** **Repeat** ***21***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/3/2015 12:21 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.149	6,933	231.100	230.951
sd	0.000			0.012	83.265	2.775	2.776
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.492	2,877	95.900	95.408
sd	0.000			0.022	53.638	1.788	1.788

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

ICV is for Gross Alpha

Protean Alpha ICV - 2015				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
14	104.49%	104.75%	103.18%	104.14%

Standard ID

Thorium-230

Th-230_00019 #181198

Cert # 92776 Ref. date 08/08/2013

Activity 5.0185 pCi/mL

Prep Batch: M153007

	Low Mass	Medium Mass	High Mass
	0.161g	0.0552g	0.0777g
Detector	Activity (pCi/mL)	Activity (pCi/mL)	Activity (pCi/mL)
14	5.244	5.257	5.178

ICV is for Gross Beta
Strontium 90
and
Total Strontium

Protean Beta ICV - 2013				
Detector	Low Mass Recovery	Medium Mass Recovery	High Mass Recovery	Mean Recovery
14	99.75%	97.40%	97.30%	98.15%

Beta Activity 2000.929 pCi

Standard ID

Strontium 90
Sr-90_00018 #51512
Cert# 92352 Ref. date 11/29/12

Initial Activity:	2238.7	dpm	
Reference Date:	11/29/2012		
Current Date:	3/28/2013		(or date at which you wish to determine activity)
Elapsed Time:	119.000	days	
Half Life:	10409.625	days	
Exponential Term:	0.992107441		
Corrected Activity:	2221.030929	dpm	
Decay Activity (Sr/Y-90)	4442.061857	dpm	2000.929 pCi

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICVABT-51512;Beta 3*** **Repeat** ***16***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:47 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	1	0.200	0.169
sd	0.000			0.006	1.000	0.200	0.200
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	8,282	1,656.400	1,655.985
sd	0.000			0.020	91.005	18.201	18.201

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICVABT-51512;Beta 2*** **Repeat** ***17***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:53 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	0	0.000	-0.031
sd	0.000			0.006	0.000	0.000	0.111
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	8,664	1,732.800	1,732.385
sd	0.000			0.020	93.081	18.616	18.616

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICVABT-51512;Beta 1*** **Repeat** ***18***

Batch ID ***122640***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 3/28/2013 23:58 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.031	3	0.600	0.569
sd	0.000			0.006	1.732	0.346	0.346
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.415	9,382	1,876.400	1,875.985
sd	0.000			0.020	96.861	19.372	19.372

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICVABT-181198; A1*** **Repeat** ***16***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/3/2015 08:30 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.192	6,634	221.133	220.941
sd	0.000			0.014	81.449	2.715	2.715
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.466	2,871	95.700	95.234
sd	0.000			0.022	53.582	1.786	1.786

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICVABT-181198; A3*** **Repeat** ***100***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/3/2015 10:24 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.192	8,337	277.900	277.708
sd	0.000			0.014	91.307	3.044	3.044
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.466	3,336	111.200	110.734
sd	0.000			0.022	57.758	1.925	1.925

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Low Level Alpha/Beta Count Results
Sample Activity Report

Protean 12-15 - C **Address:** ***14***

Sample ID ***ICVABT-181198; A2*** **Repeat** ***102***

Batch ID ***m153007***

Count Routine ***Gross Alpha Beta*** **Detector Volts** ***1,515.0***

Sample Qty 0.000 **sd** 0.000

Residual Wt 0.000 ***mg*** **sd** 0.000 ***mg***

Count Date 12/3/2015 11:38 **Collection Date 1** **Half Life** 0.00 ***days***
Collection Date 2 **Decay Factor** 1.000

Sample Count Time 30.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.192	12,576	419.200	419.008
sd	0.000			0.014	112.143	3.738	3.738
Alpha to Beta	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.466	4,357	145.233	144.767
sd	0.000			0.022	66.008	2.200	2.200

	Net Activity dpm	LLD dpm	Net Concentration *	MDC	Limits	% of Limits
Alpha	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			
Beta	0.000	0.000	0.000 ± 0.000	0.000	1.000	0.000
sd	0.000		0.000			

*** Note: Decay Corrected MDC Method -** **Tb = Ts < 10**
Error = 0.00 **x sd**

Ra-226 Calibration Verifications

Ra226 ICV

Blue - Ra226 ICV 2019				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
2	88.08%	96.38%	89.62%	91.36%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3.7839E+06 pCi/mL

Prep Batch: 291970 7/28/2019

Detector	1	Activity	Units
2	Low Mass (0.0132g)	3.333E+06	pCi/mL

2	Activity	Units
Medium Mass (0.0271g)	3.647E+06	pCi/mL

3	Activity	Units
High Mass (0.0498g)	3.391E+06	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICVRa6-1063071;Ra3 **Repeat** 1

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/28/2019 11:31:59 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/28/2019 11:37:14 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	24,950	4,990.000	4,989.904
sd	0.000			0.010	157.956	31.591	31.591
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	35,237	7,047.400	7,046.973
sd	0.000			0.021	187.715	37.543	37.543

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICVRa6-1063071;Ra2 **Repeat** 2

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/28/2019 11:38:34 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/28/2019 11:43:47 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	25,561	5,112.200	5,112.104
sd	0.000			0.010	159.878	31.976	31.976
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	31,127	6,225.400	6,224.973
sd	0.000			0.021	176.428	35.286	35.286

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 0-3 - C

Addr: 2

Sample ID ICVRa6-1063071;Ra1 **Repeat** 3

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/28/2019 11:44:28 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/28/2019 11:49:39 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.096	20,372	4,074.400	4,074.304
sd	0.000			0.010	142.731	28.546	28.546
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.427	24,959	4,991.800	4,991.373
sd	0.000			0.021	157.984	31.597	31.597

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra226 ICV

Blue - Ra226 ICV 2019				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
13	89.04%	96.99%	90.07%	92.03%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3.7839E+06 pCi/mL

Prep Batch: 291970 7/28-29/19

Detector	1	Activity	Units
13	Low Mass (0.0132g)	3.369E+06	pCi/mL

2	Activity	Units
Medium Mass (0.0271g)	3.670E+06	pCi/mL

3	Activity	Units
High Mass (0.0498g)	3.408E+06	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICVRa6-1063071;Ra3 **Repeat** 12

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/28/2019 1:38:27 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/28/2019 1:43:40 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	26,009	5,201.800	5,201.689
sd	0.000			0.011	161.273	32.255	32.255
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	34,392	6,878.400	6,878.039
sd	0.000			0.019	185.451	37.090	37.090

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICVRa6-1063071;Ra2 **Repeat** 13

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/28/2019 1:45:15 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/28/2019 1:50:25 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	26,649	5,329.800	5,329.689
sd	0.000			0.011	163.245	32.649	32.649
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	30,389	6,077.800	6,077.439
sd	0.000			0.019	174.324	34.865	34.865

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - B

Addr: 13

Sample ID ICVRa6-1063071;Ra1 **Repeat** 14

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/29/2019 6:49:49 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 6:54:57 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.111	21,344	4,268.800	4,268.689
sd	0.000			0.011	146.096	29.219	29.219
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.361	23,667	4,733.400	4,733.039
sd	0.000			0.019	153.841	30.768	30.768

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra226 ICV

Blue - Ra226 ICV 2019				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
14	87.77%	97.52%	88.64%	91.31%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3.7839E+06 pCi/mL

Prep Batch: 291970 7/28-29/19

Detector	1	Activity	Units
14	Low Mass (0.0132g)	3.321E+06	pCi/mL

2	Activity	Units
Medium Mass (0.0271g)	3.690E+06	pCi/mL

3	Activity	Units
High Mass (0.0498g)	3.354E+06	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICVRa6-1063071;Ra3 **Repeat** 13

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/28/2019 1:45:23 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/28/2019 1:50:37 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	22,776	4,555.200	4,555.092
sd	0.000			0.010	150.917	30.183	30.183
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	36,540	7,308.000	7,307.644
sd	0.000			0.019	191.154	38.231	38.231

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICVRa6-1063071;Ra2 **Repeat** 14

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/29/2019 6:50:08 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 6:55:18 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	24,129	4,825.800	4,825.692
sd	0.000			0.010	155.335	31.067	31.067
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	32,401	6,480.200	6,479.844
sd	0.000			0.019	180.003	36.001	36.001

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - C

Addr: 14

Sample ID ICVRa6-1063071;Ra1 **Repeat** 15

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/29/2019 7:07:31 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 7:12:39 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.108	19,134	3,826.800	3,826.692
sd	0.000			0.010	138.326	27.665	27.665
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.356	25,709	5,141.800	5,141.444
sd	0.000			0.019	160.340	32.068	32.068

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra226 ICV

Blue - Ra226 ICV 2019				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
15	88.00%	97.76%	89.56%	91.77%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3.7839E+06 pCi/mL

Prep Batch: 291970 7/29/2019

Detector	1	Activity	Units
15	Low Mass (0.0132g)	3.330E+06	pCi/mL

2	Activity	Units
Medium Mass (0.0271g)	3.699E+06	pCi/mL

3	Activity	Units
High Mass (0.0498g)	3.389E+06	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICVRa6-1063071;Ra3 **Repeat** 14

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/29/2019 6:50:20 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 6:55:32 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	23,585	4,717.000	4,716.903
sd	0.000			0.010	153.574	30.715	30.715
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	36,479	7,295.800	7,295.351
sd	0.000			0.021	190.995	38.199	38.199

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICVRa6-1063071;Ra2 **Repeat** 15

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/29/2019 7:07:37 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 7:12:45 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	24,652	4,930.400	4,930.303
sd	0.000			0.010	157.010	31.402	31.402
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	32,177	6,435.400	6,434.951
sd	0.000			0.021	179.379	35.876	35.876

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 12-15 - D

Addr: 15

Sample ID ICVRa6-1063071;Ra1 **Repeat** 16

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/29/2019 7:23:14 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 7:28:22 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.097	19,440	3,888.000	3,887.903
sd	0.000			0.010	139.427	27.885	27.885
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.449	25,211	5,042.200	5,041.751
sd	0.000			0.021	158.780	31.756	31.756

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra226 ICV

Blue - Ra226 ICV 2019				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
17	88.19%	96.54%	90.57%	91.77%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3.7839E+06 pCi/mL

Prep Batch: 291970 7/29/2019

Detector	1	Activity	Units
17	Low Mass (0.0132g)	3.337E+06	pCi/mL

2	Activity	Units
Medium Mass (0.0271g)	3.653E+06	pCi/mL

3	Activity	Units
High Mass (0.0498g)	3.427E+06	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICVRa6-1063071;Ra2 **Repeat** 17

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/29/2019 11:19:44 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 11:24:56 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	25,819	5,163.800	5,163.684
sd	0.000			0.011	160.683	32.137	32.137
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	31,050	6,210.000	6,209.614
sd	0.000			0.020	176.210	35.242	35.242

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICVRa6-1063071;Ra1 **Repeat** 18

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/29/2019 11:30:56 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 11:36:04 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	20,621	4,124.200	4,124.084
sd	0.000			0.011	143.600	28.720	28.720
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	24,167	4,833.400	4,833.014
sd	0.000			0.020	155.457	31.091	31.091

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - B

Addr: 17

Sample ID ICVRa6-1063071;Ra3 **Repeat** 24

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/29/2019 1:33:53 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 1:39:07 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.116	25,374	5,074.800	5,074.684
sd	0.000			0.011	159.292	31.858	31.858
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.386	34,874	6,974.800	6,974.414
sd	0.000			0.020	186.746	37.349	37.349

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra226 ICV

Blue - Ra226 ICV 2019				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
19	88.67%	99.37%	90.73%	92.92%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3.7839E+06 pCi/mL

Prep Batch: 291970 7/29/2019

Detector	1	Activity	Units
19	Low Mass (0.0132g)	3.355E+06	pCi/mL

2	Activity	Units
Medium Mass (0.0271g)	3.760E+06	pCi/mL

3	Activity	Units
High Mass (0.0498g)	3.433E+06	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICVRa6-1063071;Ra3 **Repeat** 18

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/29/2019 11:31:10 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 11:36:19 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	25,331	5,066.200	5,066.022
sd	0.000			0.013	159.157	31.831	31.831
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	35,318	7,063.600	7,063.073
sd	0.000			0.023	187.931	37.586	37.586

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICVRa6-1063071;Ra2 **Repeat** 19

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/29/2019 11:46:07 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 11:51:17 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	25,716	5,143.200	5,143.022
sd	0.000			0.013	160.362	32.072	32.072
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	31,011	6,202.200	6,201.673
sd	0.000			0.023	176.099	35.220	35.220

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 16-19 - D

Addr: 19

Sample ID ICVRa6-1063071;Ra1 **Repeat** 20

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/29/2019 12:05:23 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 12:10:34 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.178	19,770	3,954.000	3,953.822
sd	0.000			0.013	140.606	28.121	28.121
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.527	23,909	4,781.800	4,781.273
sd	0.000			0.023	154.625	30.925	30.925

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra226 ICV

Blue - Ra226 ICV 2019				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
20	87.45%	97.81%	87.29%	90.85%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3.7839E+06 pCi/mL

Prep Batch: 291970 7/29/2019

Detector	1	Activity	Units
20	Low Mass (0.0132g)	3.309E+06	pCi/mL

2	Activity	Units
Medium Mass (0.0271g)	3.701E+06	pCi/mL

3	Activity	Units
High Mass (0.0498g)	3.303E+06	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICVRa6-1063071;Ra3 **Repeat** 19

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/29/2019 11:46:17 AM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 11:51:28 AM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	23,055	4,611.000	4,610.967
sd	0.000			0.006	151.839	30.368	30.368
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	37,315	7,463.000	7,462.634
sd	0.000			0.019	193.171	38.634	38.634

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICVRa6-1063071;Ra2 **Repeat** 20

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/29/2019 12:05:29 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 12:10:36 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	24,028	4,805.600	4,805.567
sd	0.000			0.006	155.010	31.002	31.002
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	33,526	6,705.200	6,704.834
sd	0.000			0.019	183.101	36.620	36.620

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - A

Addr: 20

Sample ID ICVRa6-1063071;Ra1 **Repeat** 21

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/29/2019 12:14:22 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 12:19:32 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.033	18,465	3,693.000	3,692.967
sd	0.000			0.006	135.886	27.177	27.177
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.366	25,776	5,155.200	5,154.834
sd	0.000			0.019	160.549	32.110	32.110

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Ra226 ICV

Blue - Ra226 ICV 2019				
	Low	Medium	High	Mean
	Mass	Mass	Mass	Recovery
Detector	Recovery	Recovery	Recovery	
22	85.20%	96.96%	89.38%	90.52%

Standard ID

Ra-226
Ra-226_00025 #1063071
Cert # 104858
Added: 1mL
Activity 3.7839E+06 pCi/mL

Prep Batch: 291970 7/29/2019

Detector	1	Activity	Units
22	Low Mass (0.0132g)	3.224E+06	pCi/mL

2	Activity	Units
Medium Mass (0.0271g)	3.669E+06	pCi/mL

3	Activity	Units
High Mass (0.0498g)	3.382E+06	pCi/mL

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICVRa6-1063071;Ra3 **Repeat** 21

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/29/2019 12:14:36 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 12:19:47 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	23,329	4,665.800	4,665.739
sd	0.000			0.008	152.738	30.548	30.548
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	36,858	7,371.600	7,371.333
sd	0.000			0.016	191.984	38.397	38.397

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICVRa6-1063071;Ra2 **Repeat** 22

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty 0 ***Sample*** **sd** 0 ***Sample***

Residual Wt 0 ***mg*** **sd** 0 ***mg***

Count Began 7/29/2019 12:34:06 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 12:39:15 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	24,296	4,859.200	4,859.139
sd	0.000			0.008	155.872	31.174	31.174
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	32,933	6,586.600	6,586.333
sd	0.000			0.016	181.475	36.295	36.295

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Alpha/Beta Count Results

Sample Activity Report

Blue 20-23 - C

Addr: 22

Sample ID ICVRa6-1063071;Ra1 **Repeat** 23

Carrier No. 0

Batch ID 291970

Count Method Gross Alpha Beta **Detector Volts** 1515

Sample Qty	0 ***Sample***	**sd**	0 ***Sample***
Residual Wt	0 ***mg***	**sd**	0 ***mg***

Count Began 7/29/2019 1:09:45 PM **Collection Date 1** 1/1/1900 **Half Life** 0.00 ***days***

Count Ended 7/29/2019 1:14:56 PM **Collection Date 2** 1/1/1900 **Decay Factor** 1.000

Sample Count Time 5.00 ***mins*** **Background Count Time** 1,000.00 ***mins***

	Efficiency %	Attenuation Factor	Activity Divisor	Background cpm	Gross counts	Gross cpm	Net cpm
Alpha	0.000	1.000	1.000	0.061	18,750	3,750.000	3,749.939
sd	0.000			0.008	136.931	27.386	27.386
A to B	0.000	1.000				0.000	
sd	0.000					0.000	
Beta	0.000	1.000	1.000	0.267	25,181	5,036.200	5,035.933
sd	0.000			0.016	158.685	31.737	31.737

	Net Activity dpm	LLD dpm	MDC DPM	MPC DPM	Net Concentration * DPM	Conc / MPC Ratio
Alpha	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	
Beta	0.000	0.000	0.000	0.000	0.000 ± 0.000	0.000
sd	0.000				0.000	

*** Note: Decay Corrected** **MDC Method** Currie **Error =** .00 **x sd**

Monthly Backgrounds

APPROVED
By Kody Saulters at 12:40 pm, Oct 09, 2019

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Check Type = Alpha										
Detector 0										
10/8/2019 1:42:00 AM	11600.49	11687.23	350.62	-86.74	Pass	4343.50	4369.78	44.00	-26.275	Pass
10/8/2019 2:28:00 AM	11470.95	11687.23	350.62	-216.27	Pass	4331.00	4369.78	44.00	-38.775	Pass
10/9/2019 12:38:00 AM	11597.54	11687.23	350.62	-89.69	Pass	4356.00	4369.78	44.00	-13.775	Pass
Detector 1										
10/8/2019 1:42:00 AM	12513.72	12660.45	379.81	-146.73	Pass	4532.50	4639.33	62.38	-106.825	Pass
10/9/2019 12:38:00 AM	12622.31	12660.45	379.81	-38.14	Pass	4503.00	4639.33	62.38	-136.325	**WARNING**
Detector 2										
10/8/2019 1:42:00 AM	12714.77	12819.28	384.58	-104.50	Pass	4652.50	4776.73	60.67	-124.225	**WARNING**
10/9/2019 12:38:00 AM	12515.28	12819.28	384.58	-304.00	Pass	4645.50	4776.73	60.67	-131.225	**WARNING**
Detector 3										
10/8/2019 1:42:00 AM	12712.26	12695.28	380.86	16.98	Pass	4552.00	4545.10	50.19	6.900	Pass
10/8/2019 2:28:00 AM	12506.70	12695.28	380.86	-188.57	Pass	4545.50	4545.10	50.19	0.400	Pass
10/9/2019 12:38:00 AM	12639.79	12695.28	380.86	-55.48	Pass	4442.00	4545.10	50.19	-103.100	**WARNING**
Detector 4										
10/8/2019 1:39:00 AM	15540.99	15947.40	478.42	-406.41	Pass	6139.50	6010.63	170.60	128.875	Pass
10/8/2019 2:31:00 AM	15586.00	15947.40	478.42	-361.40	Pass	6198.50	6010.63	170.60	187.875	Pass
10/9/2019 12:41:00 AM	15557.06	15947.40	478.42	-390.34	Pass	6159.00	6010.63	170.60	148.375	Pass
Detector 5										
10/8/2019 1:39:00 AM	16047.12	16232.73	486.98	-185.61	Pass	5852.00	5886.28	70.81	-34.275	Pass
10/9/2019 12:41:00 AM	16049.69	16232.73	486.98	-183.04	Pass	5810.50	5886.28	70.81	-75.775	Pass
Detector 6										
10/8/2019 1:39:00 AM	14548.22	14681.80	440.45	-133.58	Pass	5438.50	5388.75	56.94	49.750	Pass
10/8/2019 2:31:00 AM	14590.23	14681.80	440.45	-91.57	Pass	5338.50	5388.75	56.94	-50.250	Pass
10/9/2019 12:41:00 AM	14557.79	14681.80	440.45	-124.01	Pass	5372.00	5388.75	56.94	-16.750	Pass
Detector 7										
10/8/2019 1:39:00 AM	14543.22	14832.35	444.97	-289.13	Pass	5335.00	5352.95	57.41	-17.950	Pass
10/9/2019 1:04:00 AM	14663.32	14832.35	444.97	-169.03	Pass	5322.50	5352.95	57.41	-30.450	Pass
Detector 8										
10/8/2019 1:44:00 AM	11411.92	11576.25	347.29	-164.33	Pass	4398.50	4391.63	40.19	6.875	Pass
10/9/2019 12:50:00 AM	11396.47	11576.25	347.29	-179.78	Pass	4267.50	4391.63	40.19	-124.125	**DOEF**

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 9										
10/8/2019 1:44:00 AM	12280.14	12556.93	376.71	-276.78	Pass	4730.00	4786.65	49.55	-56.650	Pass
10/9/2019 12:50:00 AM	12488.25	12556.93	376.71	-68.67	Pass	4659.00	4786.65	49.55	-127.650	**WARNING**
Detector 10										
10/8/2019 1:44:00 AM	12818.28	12963.10	388.89	-144.82	Pass	4736.50	4837.70	61.92	-101.200	Pass
10/9/2019 12:50:00 AM	12786.83	12963.10	388.89	-176.27	Pass	4743.50	4837.70	61.92	-94.200	Pass
Detector 11										
10/8/2019 1:44:00 AM	12553.72	12659.60	379.79	-105.88	Pass	4661.50	4751.65	71.92	-90.150	Pass
10/8/2019 2:34:00 AM	12564.72	12659.60	379.79	-94.88	Pass	4737.00	4751.65	71.92	-14.650	Pass
10/9/2019 12:50:00 AM	12599.29	12659.60	379.79	-60.31	Pass	4651.50	4751.65	71.92	-100.150	Pass
Detector 12										
10/8/2019 1:45:00 AM	15467.96	15436.53	463.10	31.43	Pass	6608.50	6853.73	91.51	-245.225	**WARNING**
10/9/2019 12:52:00 AM	15473.53	15436.53	463.10	37.00	Pass	6551.50	6853.73	91.51	-302.225	**DOEF**
Detector 13										
10/8/2019 1:45:00 AM	16850.81	16942.28	508.27	-91.46	Pass	5211.50	5324.63	67.75	-113.125	Pass
10/9/2019 12:53:00 AM	16933.41	16942.28	508.27	-8.87	Pass	5321.00	5324.63	67.75	-3.625	Pass
Detector 14										
10/8/2019 1:45:00 AM	13740.52	14060.75	421.82	-320.23	Pass	6082.50	6110.60	310.42	-28.100	Pass
10/9/2019 12:53:00 AM	13905.62	14060.75	421.82	-155.13	Pass	5946.00	6110.60	310.42	-164.600	Pass
Detector 15										
10/8/2019 1:45:00 AM	14047.10	14067.33	422.02	-20.23	Pass	5888.50	5856.58	128.86	31.925	Pass
10/9/2019 12:53:00 AM	14042.66	14067.33	422.02	-24.67	Pass	5740.50	5856.58	128.86	-116.075	Pass
Detector 16										
10/8/2019 1:52:00 AM	11573.96	11644.40	349.33	-70.44	Pass	4430.50	4442.73	57.31	-12.225	Pass
10/9/2019 12:53:00 AM	11519.50	11644.40	349.33	-124.90	Pass	4376.00	4442.73	57.31	-66.725	Pass
Detector 17										
10/8/2019 1:52:00 AM	12585.22	12769.60	383.09	-184.38	Pass	4580.50	4694.90	44.72	-114.400	**WARNING**
10/9/2019 12:53:00 AM	12616.28	12769.60	383.09	-153.32	Pass	4534.00	4694.90	44.72	-160.900	**DOEF**
Detector 18										
10/8/2019 1:52:00 AM	12914.31	13168.68	395.06	-254.37	Pass	4637.00	4634.05	64.62	2.950	Pass
10/9/2019 12:54:00 AM	12944.37	13168.68	395.06	-224.31	Pass	4557.50	4634.05	64.62	-76.550	Pass
Detector 19										
10/8/2019 1:52:00 AM	12586.21	12692.53	380.78	-106.31	Pass	4739.00	4577.53	110.81	161.475	Pass
10/9/2019 12:54:00 AM	12646.79	12692.53	380.78	-45.74	Pass	4583.00	4577.53	110.81	5.475	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Alpha CPM	Alpha Mean	Alpha +/- limit	Alpha Deviation	Alpha Flag	A>>B XT CPM	A>>B XT Mean	A>>B XT +/- limit	A>>B XT Deviation	A>>B XT Flag
Detector 20										
10/8/2019 1:52:00 AM	15395.92	15429.63	462.89	-33.71	Pass	6885.50	7112.73	112.02	-227.225	**WARNING**
10/8/2019 2:27:00 AM	15279.39	15429.63	462.89	-150.24	Pass	6771.00	7112.73	112.02	-341.725	**DOEF**
10/9/2019 12:55:00 AM	15576.53	15429.63	462.89	146.91	Pass	6702.00	7112.73	112.02	-410.725	**DOEF**
Detector 21										
10/8/2019 1:52:00 AM	15656.48	15659.78	469.79	-3.29	Pass	6350.00	6551.25	94.85	-201.250	**WARNING**
10/9/2019 12:55:00 AM	15690.06	15659.78	469.79	30.29	Pass	6349.50	6551.25	94.85	-201.750	**WARNING**
Detector 22										
10/8/2019 1:52:00 AM	13927.04	13972.80	419.18	-45.76	Pass	6228.50	6401.03	87.63	-172.525	Pass
10/8/2019 2:27:00 AM	13969.05	13972.80	419.18	-3.75	Pass	6192.00	6401.03	87.63	-209.025	**WARNING**
10/9/2019 12:55:00 AM	14059.14	13972.80	419.18	86.34	Pass	6140.00	6401.03	87.63	-261.025	**WARNING**
Detector 23										
10/8/2019 1:52:00 AM	13980.44	14123.95	423.72	-143.51	Pass	6427.00	6632.90	79.57	-205.900	**WARNING**
10/8/2019 2:27:00 AM	14082.97	14123.95	423.72	-40.98	Pass	6401.00	6632.90	79.57	-231.900	**WARNING**
10/9/2019 12:55:00 AM	14266.58	14123.95	423.72	142.63	Pass	6282.00	6632.90	79.57	-350.900	**DOEF**

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Check Type = Beta										
Detector 0										
10/8/2019 1:27:00 AM	49895.94	50552.05	1516.56	-656.11	Pass	NA	NA	NA	NA	NA
10/8/2019 2:32:00 AM	50158.30	50552.05	1516.56	-393.75	Pass	NA	NA	NA	NA	NA
10/9/2019 12:24:00 AM	50590.73	50552.05	1516.56	38.68	Pass	NA	NA	NA	NA	NA
Detector 1										
10/8/2019 1:27:00 AM	48440.84	47641.23	1429.24	799.62	Pass	NA	NA	NA	NA	NA
10/9/2019 12:24:00 AM	48468.60	47641.23	1429.24	827.38	Pass	NA	NA	NA	NA	NA
Detector 2										
10/8/2019 1:27:00 AM	49573.31	49734.44	1492.03	-161.13	Pass	NA	NA	NA	NA	NA
10/9/2019 12:24:00 AM	49591.74	49734.44	1492.03	-142.70	Pass	NA	NA	NA	NA	NA
Detector 3										
10/8/2019 1:27:00 AM	59441.47	60167.98	1805.04	-726.50	Pass	NA	NA	NA	NA	NA
10/8/2019 2:32:00 AM	59307.15	60167.98	1805.04	-860.82	Pass	NA	NA	NA	NA	NA
10/9/2019 12:24:00 AM	59326.23	60167.98	1805.04	-841.75	Pass	NA	NA	NA	NA	NA
Detector 4										
10/8/2019 1:27:00 AM	54156.53	55277.35	1658.32	-1120.82	Pass	NA	NA	NA	NA	NA
10/8/2019 2:35:00 AM	55369.00	55277.35	1658.32	91.65	Pass	NA	NA	NA	NA	NA
10/9/2019 12:24:00 AM	54138.16	55277.35	1658.32	-1139.19	Pass	NA	NA	NA	NA	NA
Detector 5										
10/8/2019 1:28:00 AM	55073.20	55004.03	1650.12	69.18	Pass	NA	NA	NA	NA	NA
10/9/2019 12:24:00 AM	55124.40	55004.03	1650.12	120.37	Pass	NA	NA	NA	NA	NA
Detector 6										
10/8/2019 1:28:00 AM	51864.75	52072.68	1562.18	-207.93	Pass	NA	NA	NA	NA	NA
10/8/2019 2:35:00 AM	51925.02	52072.68	1562.18	-147.65	Pass	NA	NA	NA	NA	NA
10/9/2019 12:24:00 AM	51465.98	52072.68	1562.18	-606.70	Pass	NA	NA	NA	NA	NA
Detector 7										
10/8/2019 1:28:00 AM	45072.80	44302.58	1329.08	770.23	Pass	NA	NA	NA	NA	NA
10/9/2019 12:55:00 AM	45052.40	44302.58	1329.08	749.82	Pass	NA	NA	NA	NA	NA
Detector 8										
10/8/2019 1:30:00 AM	50010.45	49959.33	1498.78	51.12	Pass	NA	NA	NA	NA	NA
10/9/2019 12:28:00 AM	50119.85	49959.33	1498.78	160.52	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 9										
10/8/2019 1:30:00 AM	48420.21	47696.08	1430.88	724.14	Pass	NA	NA	NA	NA	NA
10/9/2019 12:28:00 AM	48320.45	47696.08	1430.88	624.37	Pass	NA	NA	NA	NA	NA
Detector 10										
10/8/2019 1:31:00 AM	50350.97	50136.65	1504.10	214.32	Pass	NA	NA	NA	NA	NA
10/9/2019 12:28:00 AM	50261.79	50136.65	1504.10	125.14	Pass	NA	NA	NA	NA	NA
Detector 11										
10/8/2019 1:31:00 AM	59904.19	59951.55	1798.55	-47.36	Pass	NA	NA	NA	NA	NA
10/8/2019 2:38:00 AM	59845.13	59951.55	1798.55	-106.42	Pass	NA	NA	NA	NA	NA
10/9/2019 12:28:00 AM	59587.75	59951.55	1798.55	-363.80	Pass	NA	NA	NA	NA	NA
Detector 12										
10/8/2019 1:31:00 AM	55788.75	56070.40	1682.11	-281.65	Pass	NA	NA	NA	NA	NA
10/9/2019 12:28:00 AM	56042.37	56070.40	1682.11	-28.03	Pass	NA	NA	NA	NA	NA
Detector 13										
10/8/2019 1:31:00 AM	55200.43	55607.20	1668.22	-406.77	Pass	NA	NA	NA	NA	NA
10/9/2019 12:28:00 AM	55204.59	55607.20	1668.22	-402.61	Pass	NA	NA	NA	NA	NA
Detector 14										
10/8/2019 1:31:00 AM	50730.09	50580.03	1517.40	150.06	Pass	NA	NA	NA	NA	NA
10/9/2019 12:28:00 AM	51015.16	50580.03	1517.40	435.13	Pass	NA	NA	NA	NA	NA
Detector 15										
10/8/2019 1:31:00 AM	45156.27	45674.43	1370.23	-518.16	Pass	NA	NA	NA	NA	NA
10/9/2019 12:28:00 AM	44890.08	45674.43	1370.23	-784.35	Pass	NA	NA	NA	NA	NA
Detector 16										
10/8/2019 1:34:00 AM	49858.15	49653.23	1489.60	204.92	Pass	NA	NA	NA	NA	NA
10/9/2019 12:31:00 AM	49824.02	49653.23	1489.60	170.80	Pass	NA	NA	NA	NA	NA
Detector 17										
10/8/2019 1:34:00 AM	48556.39	48166.13	1444.98	390.26	Pass	NA	NA	NA	NA	NA
10/9/2019 12:31:00 AM	48401.74	48166.13	1444.98	235.62	Pass	NA	NA	NA	NA	NA
Detector 18										
10/8/2019 1:34:00 AM	50155.58	49957.23	1498.72	198.35	Pass	NA	NA	NA	NA	NA
10/9/2019 12:31:00 AM	50271.86	49957.23	1498.72	314.64	Pass	NA	NA	NA	NA	NA
Detector 19										
10/8/2019 1:34:00 AM	59678.94	59167.80	1775.03	511.14	Pass	NA	NA	NA	NA	NA
10/9/2019 12:31:00 AM	60058.66	59167.80	1775.03	890.86	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	Beta CPM	Beta Mean	Beta +/- limit	Beta Deviation	Beta Flag	B>>A XT CPM	B>>A XT Mean	B>>A XT +/- limit	B>>A XT Deviation	B>>A XT Flag
Detector 20										
10/8/2019 1:35:00 AM	56903.38	57321.08	1719.63	-417.69	Pass	NA	NA	NA	NA	NA
10/8/2019 2:33:00 AM	57048.38	57321.08	1719.63	-272.70	Pass	NA	NA	NA	NA	NA
10/9/2019 12:34:00 AM	57028.67	57321.08	1719.63	-292.40	Pass	NA	NA	NA	NA	NA
Detector 21										
10/8/2019 1:35:00 AM	54756.25	55281.80	1658.45	-525.55	Pass	NA	NA	NA	NA	NA
10/9/2019 12:34:00 AM	55271.65	55281.80	1658.45	-10.15	Pass	NA	NA	NA	NA	NA
Detector 22										
10/8/2019 1:35:00 AM	51988.40	52477.75	1574.33	-489.35	Pass	NA	NA	NA	NA	NA
10/8/2019 2:33:00 AM	51638.35	52477.75	1574.33	-839.40	Pass	NA	NA	NA	NA	NA
10/9/2019 12:34:00 AM	52140.82	52477.75	1574.33	-336.93	Pass	NA	NA	NA	NA	NA
Detector 23										
10/8/2019 1:35:00 AM	45606.73	46160.75	1384.82	-554.02	Pass	NA	NA	NA	NA	NA
10/8/2019 2:33:00 AM	45707.33	46160.75	1384.82	-453.42	Pass	NA	NA	NA	NA	NA
10/9/2019 12:34:00 AM	45656.14	46160.75	1384.82	-504.61	Pass	NA	NA	NA	NA	NA

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Check Type = BKG										
Detector 0										
10/8/2019 6:04:00 AM	0.19	0.14	0.03	0.05	Pass	0.61	0.49	0.08	0.111	Pass
10/9/2019 4:58:00 AM	0.19	0.14	0.03	0.05	Pass	0.60	0.49	0.08	0.106	Pass
Detector 1										
10/8/2019 6:04:00 AM	0.26	0.15	0.02	0.11	FAIL	0.56	0.44	0.07	0.117	Pass
10/8/2019 9:46:00 AM	0.24	0.15	0.02	0.09	FAIL	0.48	0.44	0.07	0.042	Pass
10/9/2019 4:58:00 AM	0.27	0.15	0.02	0.12	FAIL	0.50	0.44	0.07	0.062	Pass
Detector 2										
10/8/2019 6:04:00 AM	0.32	0.19	0.03	0.13	FAIL	0.67	0.49	0.08	0.175	Pass
10/8/2019 9:46:00 AM	0.23	0.19	0.03	0.04	Pass	0.47	0.49	0.08	-0.025	Pass
10/9/2019 4:58:00 AM	0.24	0.19	0.03	0.05	Pass	0.64	0.49	0.08	0.145	Pass
Detector 3										
10/8/2019 6:04:00 AM	0.22	0.06	0.04	0.16	FAIL	0.52	0.41	0.08	0.114	Pass
10/8/2019 11:57:00 AM	0.19	0.06	0.04	0.12	Pass	0.55	0.41	0.08	0.144	Pass
10/9/2019 4:58:00 AM	0.21	0.06	0.04	0.14	FAIL	0.64	0.41	0.08	0.229	Pass
10/9/2019 9:09:00 AM	0.21	0.06	0.04	0.14	FAIL	0.48	0.41	0.08	0.074	Pass
Detector 4										
10/8/2019 6:04:00 AM	0.28	0.11	0.04	0.17	FAIL	0.60	0.40	0.08	0.200	Pass
10/8/2019 11:57:00 AM	0.24	0.11	0.04	0.12	Pass	0.50	0.40	0.08	0.100	Pass
10/9/2019 4:58:00 AM	0.25	0.11	0.04	0.13	FAIL	0.54	0.40	0.08	0.140	Pass
10/9/2019 9:09:00 AM	0.16	0.11	0.04	0.04	Pass	0.44	0.40	0.08	0.040	Pass
Detector 5										
10/8/2019 6:04:00 AM	0.21	0.11	0.04	0.10	Pass	0.39	0.41	0.08	-0.024	Pass
10/9/2019 4:59:00 AM	0.25	0.11	0.04	0.14	FAIL	0.38	0.41	0.08	-0.039	Pass
10/9/2019 9:09:00 AM	0.23	0.11	0.04	0.12	Pass	0.34	0.41	0.08	-0.079	Pass
Detector 6										
10/8/2019 6:04:00 AM	0.13	0.14	0.04	-0.01	Pass	0.48	0.42	0.05	0.056	Pass
10/9/2019 4:59:00 AM	0.22	0.14	0.04	0.08	Pass	0.34	0.42	0.05	-0.084	Pass
Detector 7										
10/8/2019 6:04:00 AM	0.32	0.10	0.04	0.22	FAIL	0.53	0.49	0.12	0.044	Pass
10/9/2019 4:59:00 AM	0.36	0.10	0.04	0.26	FAIL	0.61	0.49	0.12	0.124	Pass
10/9/2019 9:09:00 AM	0.29	0.10	0.04	0.19	FAIL	0.59	0.49	0.12	0.104	Pass

Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 8										
10/8/2019 6:04:00 AM	0.15	0.09	0.04	0.06	Pass	0.51	0.44	0.08	0.066	Pass
10/9/2019 4:59:00 AM	0.20	0.09	0.04	0.11	Pass	0.73	0.44	0.08	0.286	FAIL
10/9/2019 9:09:00 AM	0.20	0.09	0.04	0.11	Pass	0.46	0.44	0.08	0.016	Pass
Detector 9										
10/8/2019 6:04:00 AM	0.13	0.10	0.04	0.03	Pass	0.37	0.39	0.06	-0.030	Pass
10/9/2019 4:59:00 AM	0.20	0.10	0.04	0.10	Pass	0.50	0.39	0.06	0.101	Pass
Detector 10										
10/8/2019 6:04:00 AM	0.18	0.12	0.06	0.06	Pass	0.34	0.37	0.12	-0.035	Pass
10/9/2019 4:59:00 AM	0.22	0.12	0.06	0.09	Pass	0.48	0.37	0.12	0.110	Pass
Detector 11										
10/8/2019 6:04:00 AM	0.23	0.09	0.04	0.14	FAIL	0.55	0.45	0.10	0.103	Pass
10/8/2019 11:57:00 AM	0.23	0.09	0.04	0.14	FAIL	0.34	0.45	0.10	-0.107	Pass
10/9/2019 4:59:00 AM	0.13	0.09	0.04	0.04	Pass	0.52	0.45	0.10	0.068	Pass
Detector 12										
10/8/2019 6:04:00 AM	0.25	0.11	0.03	0.14	FAIL	0.53	0.44	0.11	0.085	Pass
10/8/2019 9:47:00 AM	0.22	0.11	0.03	0.10	FAIL	0.59	0.44	0.11	0.140	Pass
10/9/2019 4:58:00 AM	0.19	0.11	0.03	0.08	Pass	0.40	0.44	0.11	-0.045	Pass
Detector 13										
10/8/2019 6:04:00 AM	0.20	0.09	0.05	0.11	Pass	0.54	0.40	0.09	0.140	Pass
10/9/2019 4:58:00 AM	0.23	0.09	0.05	0.13	Pass	0.40	0.40	0.09	0.005	Pass
Detector 14										
10/8/2019 6:04:00 AM	0.20	0.10	0.04	0.10	Pass	0.44	0.39	0.08	0.049	Pass
10/9/2019 4:58:00 AM	0.29	0.10	0.04	0.19	FAIL	0.66	0.39	0.08	0.269	FAIL
10/9/2019 9:09:00 AM	0.18	0.10	0.04	0.08	Pass	0.53	0.39	0.08	0.139	Pass
Detector 15										
10/8/2019 6:04:00 AM	0.25	0.09	0.04	0.16	FAIL	0.50	0.44	0.07	0.055	Pass
10/8/2019 9:47:00 AM	0.19	0.09	0.04	0.10	Pass	0.60	0.44	0.07	0.160	Pass
10/9/2019 4:58:00 AM	0.32	0.09	0.04	0.23	FAIL	0.61	0.44	0.07	0.170	Pass
10/9/2019 9:09:00 AM	0.24	0.09	0.04	0.15	FAIL	0.55	0.44	0.07	0.110	Pass
Detector 16										
10/8/2019 6:04:00 AM	0.18	0.10	0.05	0.08	Pass	1.66	1.85	2.38	-0.195	Pass
10/9/2019 4:58:00 AM	0.27	0.10	0.05	0.17	FAIL	1.28	1.85	2.38	-0.570	Pass

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Gas Proportional Counter Daily Quality Control Checks

Instrument: Blue

	AlphaBKG CPM	BKG Mean	BKG +/- limit	BKG Deviation	BKG Flag	BetaBKG CPM	BetaBKG Mean	BetaBKG +/- limit	BetaBKG Deviation	BetaBKG Flag
Detector 17										
10/8/2019 6:05:00 AM	0.22	0.08	0.05	0.14	Pass	0.45	0.43	0.08	0.022	Pass
10/9/2019 4:58:00 AM	0.23	0.08	0.05	0.15	FAIL	0.47	0.43	0.08	0.037	Pass
10/9/2019 9:09:00 AM	0.19	0.08	0.05	0.11	Pass	0.33	0.43	0.08	-0.098	Pass
Detector 18										
10/8/2019 6:05:00 AM	1.02	0.05	0.03	0.96	FAIL	1.39	0.62	0.09	0.765	FAIL
10/9/2019 4:58:00 AM	0.83	0.05	0.03	0.77	FAIL	1.31	0.62	0.09	0.690	FAIL
Detector 19										
10/8/2019 6:05:00 AM	0.25	0.10	0.03	0.15	FAIL	0.60	0.49	0.10	0.103	Pass
10/9/2019 4:58:00 AM	0.32	0.10	0.03	0.22	FAIL	0.73	0.49	0.10	0.233	Pass
Detector 20										
10/8/2019 6:05:00 AM	0.21	0.11	0.07	0.10	Pass	0.61	0.44	0.11	0.165	Pass
10/9/2019 4:58:00 AM	0.15	0.11	0.07	0.04	Pass	0.54	0.44	0.11	0.100	Pass
Detector 21										
10/8/2019 6:05:00 AM	0.24	0.05	0.03	0.18	FAIL	0.59	0.34	0.12	0.242	Pass
10/9/2019 4:58:00 AM	0.41	0.05	0.03	0.36	FAIL	0.65	0.34	0.12	0.302	Pass
Detector 22										
10/8/2019 6:05:00 AM	0.15	0.07	0.04	0.08	Pass	0.47	0.40	0.06	0.069	Pass
10/9/2019 4:58:00 AM	0.16	0.07	0.04	0.08	Pass	0.47	0.40	0.06	0.069	Pass
Detector 23										
10/8/2019 6:05:00 AM	0.48	0.05	0.02	0.43	FAIL	0.66	0.47	0.10	0.187	Pass
10/9/2019 4:58:00 AM	0.44	0.05	0.02	0.39	FAIL	0.74	0.47	0.10	0.267	Pass

The Alpha and Beta +/- limit are based upon initial 20-point population.

The Alpha and Beta +/- limit for Efficiency is stated at 3%. Flags are "FAIL" > 3%.

The Alpha and Beta +/- limit for Background is stated at 1 StDev. Flags are "FAIL" > 3 StDev.

The Alpha +/- limit for Crosstalk is stated at 1 StDev. Flags are "Warning > 2 StDev and "DOEF" > 3 StDev. Beta is negligible, for trend only ("NA").

Times shown reflect the end of the count duration.

Alpha/Beta Count Results

Source Count Report

Blue 0-3 - C

Addr: 2

Sample ID ICB
ICB;Monthly Background

Batch ID ICB;Monthly Background

Repeat 833
Carrier No. 0
Detector Volts 1515

Residual Wt 0 ***mg***
Count Began 10/5/2019 11:50:08 PM
Count Ended 10/6/2019 4:31:11 PM
Sample Count Time 1,000.00 ***mins***

Calibration Date 3/21/2017 12:09:15 PM
Backgrounds From
Background Count Time 0.00

Half Life 0.00 ***Years***
Decay Factor 1.000

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	165	0.165	0.000	0.165
sd	12.845	0.013	0.000	0.013
Beta	515	0.515	0.000	0.515
sd	22.694	0.023	0.000	0.023

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Blue 12-15 - B

Addr: 13

Sample ID ICB
ICB;Monthly Background

Repeat 844

Carrier No. 0

Batch ID ICB;Monthly Background

Detector Volts 1515

Residual Wt 0 ***mg***

Half Life 0.00 ***Years***

Count Began 10/5/2019 11:51:05 PM

Calibration Date 3/21/2017 12:09:15 PM

Decay Factor 1.000

Count Ended 10/6/2019 4:32:11 PM

Backgrounds From

Sample Count Time 1,000.00 ***mins***

Background Count Time 0.00

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	186	0.186	0.000	0.186
sd	13.638	0.014	0.000	0.014
Beta	369	0.369	0.000	0.369
sd	19.209	0.019	0.000	0.019

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Blue 12-15 - C

Addr: 14

Sample ID ICB
ICB;Monthly Background

Batch ID ICB;Monthly Background

Repeat 845

Carrier No. 0

Detector Volts 1515

Residual Wt 0 ***mg***

Count Began 10/5/2019 11:51:07 PM

Count Ended 10/6/2019 4:32:26 PM

Calibration Date 3/21/2017 12:09:15 PM

Backgrounds From

Half Life 0.00 ***Years***

Decay Factor 1.000

Sample Count Time 1,000.00 ***mins***

Background Count Time 0.00

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	145	0.145	0.000	0.145
sd	12.042	0.012	0.000	0.012
Beta	411	0.411	0.000	0.411
sd	20.273	0.020	0.000	0.020

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Blue 12-15 - D

Addr: 15

Sample ID ICB
ICB;Monthly Background

Repeat 846

Carrier No. 0

Batch ID ICB;Monthly Background

Detector Volts 1515

Residual Wt 0 ***mg***

Half Life 0.00 ***Years***

Count Began 10/5/2019 11:51:11 PM

Calibration Date 3/21/2017 12:09:15 PM

Decay Factor 1.000

Count Ended 10/6/2019 4:32:32 PM

Backgrounds From

Sample Count Time 1,000.00 ***mins***

Background Count Time 0.00

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	142	0.142	0.000	0.142
sd	11.916	0.012	0.000	0.012
Beta	447	0.447	0.000	0.447
sd	21.142	0.021	0.000	0.021

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Blue 16-19 - B

Addr: 17

Sample ID ICB
ICB;Monthly Background

Repeat 851

Carrier No. 0

Batch ID ICB;Monthly Background

Detector Volts 1515

Residual Wt 0 ***mg***

Half Life 0.00 ***Years***

Count Began 10/5/2019 11:51:18 PM

Calibration Date 3/21/2017 12:09:15 PM

Decay Factor 1.000

Count Ended 10/6/2019 4:32:57 PM

Backgrounds From

Sample Count Time 1,000.00 ***mins***

Background Count Time 0.00

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	169	0.169	0.000	0.169
sd	13.000	0.013	0.000	0.013
Beta	360	0.360	0.000	0.360
sd	18.974	0.019	0.000	0.019

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Blue 16-19 - D

Addr: 19

Sample ID ICB
ICB;Monthly Background

Batch ID ICB;Monthly Background

Repeat 853
Carrier No. 0
Detector Volts 1515

Residual Wt 0 *mg*
Count Began 10/5/2019 11:51:23 PM
Count Ended 10/6/2019 4:33:04 PM
Sample Count Time 1,000.00 *mins*

Calibration Date 3/21/2017 12:09:15 PM
Backgrounds From
Background Count Time 0.00

Half Life 0.00 *Years*
Decay Factor 1.000

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	223	0.223	0.000	0.223
sd	14.933	0.015	0.000	0.015
Beta	609	0.609	0.000	0.609
sd	24.678	0.025	0.000	0.025

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Blue 20-23 - A

Addr: 20

Sample ID ICB
ICB;Monthly Background

Batch ID ICB;Monthly Background

Repeat 860
Carrier No. 0
Detector Volts 1515

Residual Wt 0 ***mg***
Count Began 10/6/2019 10:43:01 PM
Count Ended 10/7/2019 3:24:01 PM
Sample Count Time 1,000.00 ***mins***

Calibration Date 3/21/2017 12:09:15 PM
Backgrounds From
Background Count Time 0.00

Half Life 0.00 ***Years***
Decay Factor 1.000

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	168	0.168	0.000	0.168
sd	12.961	0.013	0.000	0.013
Beta	440	0.440	0.000	0.440
sd	20.976	0.021	0.000	0.021

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Blue 20-23 - B

Addr: 21

Sample ID ICB
ICB;Monthly Background

Batch ID ICB;Monthly Background

Repeat 848
Carrier No. 0
Detector Volts 1515

Residual Wt 0 *mg*
Count Began 10/5/2019 11:51:31 PM
Count Ended 10/6/2019 4:32:41 PM
Sample Count Time 1,000.00 *mins*

Calibration Date 3/21/2017 12:09:15 PM
Backgrounds From
Background Count Time 0.00

Half Life 0.00 *Years*
Decay Factor 1.000

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	231	0.231	0.000	0.231
sd	15.199	0.015	0.000	0.015
Beta	411	0.411	0.000	0.411
sd	20.273	0.020	0.000	0.020

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Blue 20-23 - C

Addr: 22

Sample ID ICB
ICB;Monthly Background

Repeat 861

Carrier No. 0

Batch ID ICB;Monthly Background

Detector Volts 1515

Residual Wt 0 ***mg***

Half Life 0.00 ***Years***

Count Began 10/6/2019 10:43:08 PM

Calibration Date 3/21/2017 12:09:15 PM

Decay Factor 1.000

Count Ended 10/7/2019 3:24:05 PM

Backgrounds From

Sample Count Time 1,000.00 ***mins***

Background Count Time 0.00

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	170	0.170	0.000	0.170
sd	13.038	0.013	0.000	0.013
Beta	379	0.379	0.000	0.379
sd	19.468	0.019	0.000	0.019

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Protean 0-3 - A

Addr: 0

Sample ID ICB
ICB; Monthly Backgrounds

Batch ID ICB;Monthly Backgrounds

Repeat 770
Carrier No. 0
Detector Volts 1515

Residual Wt 0 ***mg***
Count Began 10/6/2019 11:40:56 PM
Count Ended 10/7/2019 4:21:47 PM
Sample Count Time 1,000.00 ***mins***

Calibration Date 2/15/2016 5:20:09 PM
Backgrounds From
Background Count Time 0.00

Half Life 0.00 ***Years***
Decay Factor 1.000

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	112	0.112	0.000	0.112
sd	10.583	0.011	0.000	0.011
Beta	637	0.637	0.000	0.637
sd	25.239	0.025	0.000	0.025

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Protean 8-11 - A

Addr: 8

Sample ID ICB
ICB; Monthly Backgrounds

Batch ID ICB;Monthly Backgrounds

Repeat 762
Carrier No. 0
Detector Volts 1515

Residual Wt 0 ***mg***
Count Began 10/6/2019 12:15:36 AM
Count Ended 10/6/2019 4:56:31 PM
Sample Count Time 1,000.00 ***mins***

Calibration Date 2/15/2016 5:20:09 PM
Backgrounds From
Background Count Time 0.00

Half Life 0.00 ***Years***
Decay Factor 1.000

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	197	0.197	0.000	0.197
sd	14.036	0.014	0.000	0.014
Beta	436	0.436	0.000	0.436
sd	20.881	0.021	0.000	0.021

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Protean 8-11 - B

Addr: 9

Sample ID ICB
ICB; Monthly Backgrounds

Batch ID ICB;Monthly Backgrounds

Repeat 777
Carrier No. 0

Detector Volts 1515

Residual Wt 0 ***mg***
Count Began 10/6/2019 11:41:26 PM
Count Ended 10/7/2019 4:25:22 PM

Calibration Date 2/15/2016 5:20:09 PM
Backgrounds From

Half Life 0.00 ***Years***
Decay Factor 1.000

Sample Count Time 1,000.00 ***mins***
Background Count Time 0.00

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	204	0.204	0.000	0.204
sd	14.283	0.014	0.000	0.014
Beta	410	0.410	0.000	0.410
sd	20.248	0.020	0.000	0.020

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Protean 8-11 - C

Addr: 10

Sample ID ICB
ICB; Monthly Backgrounds

Batch ID ICB;Monthly Backgrounds

Repeat 764
Carrier No. 0

Detector Volts 1515

Residual Wt 0 ***mg***
Count Began 10/6/2019 12:15:44 AM
Count Ended 10/6/2019 4:56:39 PM

Calibration Date 2/15/2016 5:20:09 PM
Backgrounds From

Half Life 0.00 ***Years***
Decay Factor 1.000

Sample Count Time 1,000.00 ***mins***
Background Count Time 0.00

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	276	0.276	0.000	0.276
sd	16.613	0.017	0.000	0.017
Beta	456	0.456	0.000	0.456
sd	21.354	0.021	0.000	0.021

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Protean 8-11 - D

Addr: 11

Sample ID ICB
ICB; Monthly Backgrounds

Batch ID ICB;Monthly Backgrounds

Repeat 778
Carrier No. 0
Detector Volts 1515

Residual Wt 0 ***mg***
Count Began 10/6/2019 11:41:30 PM
Count Ended 10/7/2019 4:25:26 PM
Sample Count Time 1,000.00 ***mins***

Calibration Date 2/15/2016 5:20:09 PM
Backgrounds From
Background Count Time 0.00

Half Life 0.00 ***Years***
Decay Factor 1.000

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	222	0.222	0.000	0.222
sd	14.900	0.015	0.000	0.015
Beta	447	0.447	0.000	0.447
sd	21.142	0.021	0.000	0.021

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Protean 12-15 - B

Addr: 13

Sample ID ICB
ICB; Monthly Backgrounds

Batch ID ICB;Monthly Backgrounds

Repeat 776
Carrier No. 0
Detector Volts 1515

Residual Wt 0 ***mg***
Count Began 10/6/2019 11:41:42 PM
Count Ended 10/7/2019 4:25:18 PM
Sample Count Time 1,000.00 ***mins***

Calibration Date 2/15/2016 5:20:09 PM
Backgrounds From
Background Count Time 0.00

Half Life 0.00 ***Years***
Decay Factor 1.000

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	346	0.346	0.000	0.346
sd	18.601	0.019	0.000	0.019
Beta	558	0.558	0.000	0.558
sd	23.622	0.024	0.000	0.024

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Alpha/Beta Count Results

Source Count Report

Protean 12-15 - C

Addr: 14

Sample ID ICB
ICB; Monthly Backgrounds

Batch ID ICB;Monthly Backgrounds

Repeat 768
Carrier No. 0
Detector Volts 1515

Residual Wt 0 ***mg***
Count Began 10/6/2019 12:16:00 AM
Count Ended 10/6/2019 4:56:54 PM
Sample Count Time 1,000.00 ***mins***

Calibration Date 2/15/2016 5:20:09 PM
Backgrounds From
Background Count Time 0.00

Half Life 0.00 ***Years***
Decay Factor 1.000

	Gross counts	Gross cpm	Background cpm	Net cpm
Alpha	365	0.365	0.000	0.365
sd	19.105	0.019	0.000	0.019
Beta	605	0.605	0.000	0.605
sd	24.597	0.025	0.000	0.025

	Uncorrected DPM	Corrected DPM	Corrected dpm	Efficiency %
Alpha	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000
Alpha to Beta				0.000
sd				0.000
Beta	0.000	0.000	0.000	0.000
sd	0.000	0.000	0.000	0.000

Run Logs

Gas Flow Proportional Counter Run Log

Detector: Blue2 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/26/19 15:56	15	ICRA6 160-439057/1		439057			SCB
07/26/19 16:14	15	ICRA6 160-439057/2		439057			SCB
07/26/19 16:32	15	ICRA6 160-439057/3		439057			SCB
07/26/19 16:49	15	ICRA6 160-439057/4		439057			SCB
07/26/19 17:06	15	ICRA6 160-439057/5		439057			SCB
07/26/19 17:23	15	ICRA6 160-439057/6		439057			SCB
07/26/19 17:42	15	ICRA6 160-439057/7		439057			SCB
07/26/19 18:14	15	ICRA6 160-439057/8		439057			SCB
07/28/19 11:31	5	ICVRA6 160-439057/9		439057			SCB
07/28/19 11:38	5	ICVRA6 160-439057/10		439057			SCB
07/28/19 11:44	5	ICVRA6 160-439057/11		439057			SCB
10/05/19 23:50	1000	ICB 160-445230/3		445230			JLW
10/23/19 00:00	2	CCVB 160-447440/2		447440			SCB
10/23/19 00:45	2	CCVA 160-447440/27		447440			SCB
10/23/19 01:12	200	CCB 160-447440/52		447440			SCB
10/23/19 06:25	100	ZZZZZ		447440			
10/23/19 08:51	100	ZZZZZ		447440			
10/23/19 11:21	100	ZZZZZ		447440			
10/23/19 13:46	100	ZZZZZ		447440			
10/23/19 16:21	100	LCS 160-444531/1-A		447440	444531	9315	SCB
10/23/19 18:58	100	ZZZZZ		447440			
10/23/19 20:52	100	ZZZZZ		447440			
10/23/19 22:48	100	ZZZZZ		447440			

Detector: Blue7 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/19/17 14:10	5	ICABT 160-302999/1		302999			JLW
03/19/17 14:17	5	ICABT 160-302999/2		302999			JLW
03/19/17 14:23	5	ICABT 160-302999/3		302999			JLW
03/19/17 14:30	5	ICABT 160-302999/4		302999			JLW
03/19/17 14:40	5	ICABT 160-302999/5		302999			JLW
03/19/17 14:49	50	ICABT 160-302999/6		302999			JLW
03/20/17 00:22	5	ICABT 160-302999/7		302999			JLW
03/20/17 00:37	5	ICABT 160-302999/8		302999			JLW
03/20/17 00:59	5	ICABT 160-302999/9		302999			JLW
03/20/17 03:37	50	ICABT 160-302999/10		302999			JLW
03/20/17 04:38	50	ICABT 160-302999/11		302999			JLW
03/20/17 05:44	50	ZZZZZ		302999			
03/20/17 06:39	50	ICABT 160-302999/13		302999			JLW
03/20/17 12:46	50	ICABT 160-302999/14		302999			JLW
03/29/17 10:25	50	ICABT 160-302999/15		302999			JLW
03/29/17 11:59	50	ICABT 160-302999/16		302999			JLW
03/31/17 15:20	5	ICVABT 160-302999/17		302999			JLW
03/31/17 16:02	5	ICVABT 160-302999/18		302999			JLW
03/31/17 17:29	5	ICVABT 160-302999/19		302999			JLW
04/01/17 15:02	30	ICVABT 160-302999/20		302999			JLW
04/01/17 15:49	30	ICVABT 160-302999/21		302999			JLW
04/01/17 16:22	30	ICVABT 160-302999/22		302999			JLW
10/08/19 01:26	2	CCVB 160-445366/8		445366			
10/08/19 01:34	2	CCVA 160-445366/30		445366			
10/08/19 02:43	200	CCB 160-445366/69		445366			
10/08/19 08:05	0	ICB 160-445366/98		445366			KLS

Gas Flow Proportional Counter Run Log

Detector: Blue7 (Continued) — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
10/15/19 01:23	2	CCVB 160-446357/8		446357			JCB
10/15/19 01:30	2	CCVA 160-446357/32		446357			JCB
10/15/19 01:55	200	CCB 160-446357/72		446357			JCB
10/15/19 16:47	200	400-176914-5	AES-MW4-DUP-092319	446357	444558	9320	JCB

Detector: Blue13 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/24/19 13:40	15	ICRA6 160-439070/1		439070			SCB
07/24/19 13:58	15	ICRA6 160-439070/2		439070			SCB
07/24/19 14:34	15	ICRA6 160-439070/3		439070			SCB
07/24/19 15:17	15	ICRA6 160-439070/4		439070			SCB
07/24/19 15:48	15	ICRA6 160-439070/5		439070			SCB
07/24/19 16:26	15	ICRA6 160-439070/6		439070			SCB
07/24/19 16:50	15	ICRA6 160-439070/7		439070			SCB
07/24/19 17:07	15	ICRA6 160-439070/8		439070			SCB
07/28/19 13:38	5	ICVRA6 160-439070/9		439070			SCB
07/28/19 13:45	5	ICVRA6 160-439070/10		439070			SCB
07/29/19 06:49	5	ICVRA6 160-439070/11		439070			SCB
10/05/19 23:51	1000	ICB 160-445230/14		445230			JLW
10/23/19 00:01	2	CCVB 160-447440/14		447440			SCB
10/23/19 00:46	2	CCVA 160-447440/38		447440			SCB
10/23/19 01:12	200	CCB 160-447440/62		447440			SCB
10/23/19 06:28	100	ZZZZZ		447440			
10/23/19 08:58	100	ZZZZZ		447440			
10/23/19 11:25	100	ZZZZZ		447440			
10/23/19 13:48	100	ZZZZZ		447440			
10/23/19 16:23	100	400-176914-1	AES-MW1-092319	447440	444531	9315	SCB
10/23/19 18:59	100	ZZZZZ		447440			
10/23/19 20:54	100	ZZZZZ		447440			
10/23/19 22:53	100	ZZZZZ		447440			

Detector: Blue14 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/24/19 13:40	15	ICRA6 160-439071/1		439071			SCB
07/24/19 13:58	15	ICRA6 160-439071/2		439071			SCB
07/24/19 14:34	15	ICRA6 160-439071/3		439071			SCB
07/24/19 15:17	15	ICRA6 160-439071/4		439071			SCB
07/24/19 15:48	15	ICRA6 160-439071/5		439071			SCB
07/24/19 16:26	15	ICRA6 160-439071/6		439071			SCB
07/24/19 16:50	15	ICRA6 160-439071/7		439071			SCB
07/24/19 17:08	15	ICRA6 160-439071/8		439071			SCB
07/28/19 13:45	5	ICVRA6 160-439071/9		439071			SCB
07/29/19 06:50	5	ICVRA6 160-439071/10		439071			SCB
07/29/19 07:07	5	ICVRA6 160-439071/11		439071			SCB
10/05/19 23:51	1000	ICB 160-445230/15		445230			JLW
10/23/19 00:01	2	CCVB 160-447440/15		447440			SCB
10/23/19 00:46	2	CCVA 160-447440/39		447440			SCB
10/23/19 01:12	200	CCB 160-447440/63		447440			
10/23/19 06:05	200	CCB 160-447440/76		447440			SCB
10/23/19 13:48	100	ZZZZZ		447440			

Gas Flow Proportional Counter Run Log

Detector: Blue14 (Continued) — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
10/23/19 16:23	100	400-176914-2	AES-MW2-092319	447440	444531	9315	SCB
10/23/19 18:59	100	ZZZZZ		447440			
10/23/19 20:54	100	ZZZZZ		447440			
10/23/19 22:53	100	ZZZZZ		447440			

Detector: Blue15 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
05/13/17 10:43	5	ICABT 160-368454/12		368454			PS
05/13/17 11:01	5	ICABT 160-368454/13		368454			PS
05/13/17 11:08	5	ICABT 160-368454/14		368454			PS
05/13/17 11:15	5	ICABT 160-368454/15		368454			PS
05/13/17 11:21	5	ICABT 160-368454/16		368454			PS
05/13/17 11:28	5	ICABT 160-368454/17		368454			PS
05/13/17 11:34	5	ICABT 160-368454/18		368454			PS
05/13/17 11:41	5	ICABT 160-368454/19		368454			PS
05/29/17 22:36	5	ICVABT 160-368454/20		368454			PS
05/30/17 02:28	5	ICVABT 160-368454/21		368454			PS
05/31/17 04:55	5	ICVABT 160-368454/22		368454			PS
05/12/18 13:58	50	ICABT 160-368454/1		368454			PS
05/12/18 15:26	50	ICABT 160-368454/2		368454			PS
05/12/18 18:49	50	ICABT 160-368454/3		368454			PS
05/14/18 12:36	50	ICABT 160-368454/4		368454			PS
05/15/18 10:10	50	ICABT 160-368454/5		368454			PS
05/15/18 11:49	50	ICABT 160-368454/6		368454			PS
05/15/18 18:44	50	ICABT 160-368454/7		368454			PS
05/15/18 23:20	50	ICABT 160-368454/8		368454			PS
05/30/18 14:36	30	ICVABT 160-368454/9		368454			PS
05/30/18 20:06	30	ICVABT 160-368454/10		368454			PS
05/30/18 20:46	30	ICVABT 160-368454/11		368454			PS
07/24/19 13:40	15	ICRA6 160-439072/1		439072			SCB
07/24/19 13:58	15	ICRA6 160-439072/2		439072			SCB
07/24/19 14:35	15	ICRA6 160-439072/3		439072			SCB
07/24/19 15:17	15	ICRA6 160-439072/4		439072			SCB
07/24/19 15:48	15	ICRA6 160-439072/5		439072			SCB
07/24/19 16:26	15	ICRA6 160-439072/6		439072			SCB
07/24/19 16:50	15	ICRA6 160-439072/7		439072			SCB
07/24/19 17:08	15	ICRA6 160-439072/8		439072			SCB
07/29/19 06:50	5	ICVRA6 160-439072/9		439072			SCB
07/29/19 07:07	5	ICVRA6 160-439072/10		439072			SCB
07/29/19 07:23	5	ICVRA6 160-439072/11		439072			SCB
10/05/19 23:51	1000	ICB 160-445230/16		445230			JLW
10/15/19 01:26	2	CCVB 160-446357/16		446357			JCB
10/15/19 01:34	2	CCVA 160-446357/40		446357			JCB
10/15/19 01:55	200	CCB 160-446357/57		446357			JCB
10/15/19 16:47	200	400-176914-6	AES-MW5-092319	446357	444558	9320	JCB
10/23/19 00:01	2	CCVB 160-447440/16		447440			SCB
10/23/19 00:46	2	CCVA 160-447440/40		447440			SCB
10/23/19 01:12	200	CCB 160-447440/64		447440			SCB
10/23/19 06:28	100	ZZZZZ		447440			
10/23/19 08:58	100	ZZZZZ		447440			
10/23/19 11:25	100	ZZZZZ		447440			
10/23/19 13:48	100	ZZZZZ		447440			

Gas Flow Proportional Counter Run Log

Detector: Blue15 (Continued) — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
10/23/19 16:23	100	400-176914-2 MS	AES-MW2-092319 MS	447440	444531	9315	SCB
10/23/19 18:59	100	ZZZZZ		447440			
10/23/19 20:54	100	ZZZZZ		447440			
10/23/19 22:53	100	ZZZZZ		447440			

Detector: Blue17 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/23/19 15:12	15	ICRA6 160-439074/1		439074			SCB
07/23/19 15:47	15	ICRA6 160-439074/2		439074			SCB
07/23/19 16:08	15	ICRA6 160-439074/3		439074			SCB
07/23/19 16:27	15	ICRA6 160-439074/4		439074			SCB
07/23/19 16:51	15	ICRA6 160-439074/5		439074			SCB
07/23/19 17:12	15	ICRA6 160-439074/6		439074			SCB
07/23/19 17:30	15	ICRA6 160-439074/7		439074			SCB
07/23/19 17:57	15	ICRA6 160-439074/8		439074			SCB
07/23/19 18:16	15	ICRA6 160-439074/9		439074			SCB
07/29/19 11:19	5	ICVRA6 160-439074/10		439074			SCB
07/29/19 11:30	5	ICVRA6 160-439074/11		439074			SCB
07/29/19 13:33	5	ICVRA6 160-439074/12		439074			SCB
10/05/19 23:51	1000	ICB 160-445230/18		445230			JLW
10/23/19 00:01	2	CCVB 160-447440/18		447440			SCB
10/23/19 00:49	2	CCVA 160-447440/42		447440			SCB
10/23/19 01:12	200	CCB 160-447440/67		447440			SCB
10/23/19 06:29	100	ZZZZZ		447440			
10/23/19 08:58	100	ZZZZZ		447440			
10/23/19 11:25	100	ZZZZZ		447440			
10/23/19 13:48	100	ZZZZZ		447440			
10/23/19 16:23	100	400-176914-2 MSD	AES-MW2-092319 MSD	447440	444531	9315	SCB
10/23/19 18:52	100	400-176914-6	AES-MW5-092319	447440	444531	9315	SCB
10/23/19 20:55	100	ZZZZZ		447440			
10/23/19 22:53	100	ZZZZZ		447440			

Detector: Blue19 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/23/19 15:13	15	ICRA6 160-439076/1		439076			SCB
07/23/19 15:47	15	ICRA6 160-439076/2		439076			SCB
07/23/19 16:09	15	ICRA6 160-439076/3		439076			SCB
07/23/19 16:27	15	ICRA6 160-439076/4		439076			SCB
07/23/19 16:51	15	ICRA6 160-439076/5		439076			SCB
07/23/19 17:12	15	ICRA6 160-439076/6		439076			SCB
07/23/19 17:30	15	ICRA6 160-439076/7		439076			SCB
07/23/19 17:58	15	ICRA6 160-439076/8		439076			SCB
07/23/19 18:16	15	ICRA6 160-439076/9		439076			SCB
07/29/19 11:31	5	ICVRA6 160-439076/10		439076			SCB
07/29/19 11:46	5	ICVRA6 160-439076/11		439076			SCB
07/29/19 12:05	5	ICVRA6 160-439076/12		439076			SCB
10/05/19 23:51	1000	ICB 160-445230/20		445230			JLW
10/23/19 00:01	2	CCVB 160-447440/20		447440			SCB
10/23/19 00:50	2	CCVA 160-447440/44		447440			SCB
10/23/19 01:12	200	CCB 160-447440/65		447440			

Gas Flow Proportional Counter Run Log

Detector: Blue19 (Continued) — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
10/23/19 06:05	200	CCB 160-447440/77		447440			SCB
10/23/19 13:50	100	ZZZZZ		447440			
10/23/19 16:23	100	400-176914-3	AES-MW3-092319	447440	444531	9315	SCB
10/23/19 18:52	100	400-176914-7	AES-FB-092319	447440	444531	9315	SCB
10/23/19 20:55	100	ZZZZZ		447440			
10/23/19 22:53	100	ZZZZZ		447440			

Detector: Blue20 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/23/19 15:13	15	ICRA6 160-439077/1		439077			SCB
07/23/19 15:47	15	ICRA6 160-439077/2		439077			SCB
07/23/19 16:09	15	ICRA6 160-439077/3		439077			SCB
07/23/19 16:27	15	ICRA6 160-439077/4		439077			SCB
07/23/19 16:51	15	ICRA6 160-439077/5		439077			SCB
07/23/19 17:12	15	ICRA6 160-439077/6		439077			SCB
07/23/19 17:30	15	ICRA6 160-439077/7		439077			SCB
07/23/19 17:58	15	ICRA6 160-439077/8		439077			SCB
07/23/19 18:16	15	ICRA6 160-439077/9		439077			SCB
07/29/19 11:46	5	ICVRA6 160-439077/10		439077			SCB
07/29/19 12:05	5	ICVRA6 160-439077/11		439077			SCB
07/29/19 12:14	5	ICVRA6 160-439077/12		439077			SCB
10/06/19 22:43	1000	ICB 160-445274/6		445274			PS
10/23/19 00:02	2	CCVB 160-447440/21		447440			SCB
10/23/19 00:50	2	CCVA 160-447440/45		447440			SCB
10/23/19 01:13	200	CCB 160-447440/72		447440			SCB
10/23/19 06:29	100	ZZZZZ		447440			
10/23/19 08:59	100	ZZZZZ		447440			
10/23/19 11:25	100	ZZZZZ		447440			
10/23/19 13:50	100	ZZZZZ		447440			
10/23/19 16:23	100	400-176914-4	AES-MW4-092319	447440	444531	9315	SCB
10/23/19 18:53	100	ZZZZZ		447440			
10/23/19 20:55	100	ZZZZZ		447440			
10/23/19 22:54	100	ZZZZZ		447440			

Detector: Blue21 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
05/17/17 21:26	5	ICABT 160-368457/12		368457			PS
05/17/17 21:32	5	ICABT 160-368457/13		368457			PS
05/17/17 21:40	5	ICABT 160-368457/14		368457			PS
05/17/17 21:56	5	ICABT 160-368457/15		368457			PS
05/17/17 22:04	5	ICABT 160-368457/16		368457			PS
05/17/17 22:13	5	ICABT 160-368457/17		368457			PS
05/18/17 00:15	5	ICABT 160-368457/18		368457			PS
05/18/17 00:48	5	ICABT 160-368457/19		368457			PS
05/27/17 16:26	5	ICVABT 160-368457/20		368457			PS
05/27/17 17:06	5	ICVABT 160-368457/21		368457			PS
05/27/17 17:17	5	ICVABT 160-368457/22		368457			PS
05/12/18 18:51	50	ICABT 160-368457/1		368457			PS
05/12/18 19:54	50	ICABT 160-368457/2		368457			PS
05/14/18 12:37	50	ICABT 160-368457/3		368457			PS

Gas Flow Proportional Counter Run Log

Detector: Blue21 (Continued) — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
05/15/18 10:10	50	ICABT 160-368457/4		368457			PS
05/15/18 11:50	50	ICABT 160-368457/5		368457			PS
05/15/18 17:51	50	ICABT 160-368457/6		368457			PS
05/15/18 18:43	50	ICABT 160-368457/7		368457			PS
05/16/18 00:35	2	CCVA 160-365927/22		365927			
05/16/18 00:50	2	CCVB 160-365927/54		365927			
05/16/18 00:54	200	CCB 160-365927/79		365927			
05/16/18 14:36	50	ICABT 160-365927/110		365927			RTM
05/16/18 14:36	50	ICABT 160-368457/8		368457			PS
05/30/18 22:38	30	ICVABT 160-368457/9		368457			PS
05/30/18 23:09	30	ICVABT 160-368457/10		368457			PS
05/31/18 00:26	30	ICVABT 160-368457/11		368457			PS
10/05/19 23:51	1000	ICB 160-445230/22		445230			JLW
10/15/19 01:27	2	CCVB 160-446357/21		446357			JCB
10/15/19 01:38	2	CCVA 160-446357/46		446357			JCB
10/15/19 01:55	200	CCB 160-446357/51		446357			JCB
10/15/19 16:47	200	400-176914-7	AES-FB-092319	446357	444558	9320	JCB

Detector: Blue22 — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
05/17/17 22:22	5	ICABT 160-368458/12		368458			PS
05/17/17 22:32	5	ICABT 160-368458/13		368458			PS
05/17/17 22:42	5	ICABT 160-368458/14		368458			PS
05/17/17 22:50	5	ICABT 160-368458/15		368458			PS
05/17/17 23:02	5	ICABT 160-368458/16		368458			PS
05/18/17 00:15	5	ICABT 160-368458/17		368458			PS
05/18/17 00:49	5	ICABT 160-368458/18		368458			PS
05/18/17 08:56	5	ICABT 160-368458/19		368458			PS
05/27/17 16:26	5	ICVABT 160-368458/20		368458			PS
05/27/17 17:06	5	ICVABT 160-368458/21		368458			PS
05/27/17 17:12	5	ICVABT 160-368458/22		368458			PS
05/12/18 18:51	50	ICABT 160-368458/1		368458			PS
05/12/18 19:54	50	ICABT 160-368458/2		368458			PS
05/14/18 12:37	50	ICABT 160-368458/3		368458			PS
05/15/18 10:11	50	ICABT 160-368458/4		368458			PS
05/15/18 11:50	50	ICABT 160-368458/5		368458			PS
05/15/18 17:52	50	ICABT 160-368458/6		368458			PS
05/15/18 18:44	50	ICABT 160-368458/7		368458			PS
05/15/18 21:57	50	ICABT 160-368458/8		368458			PS
05/30/18 22:38	30	ICVABT 160-368458/9		368458			PS
05/30/18 23:10	30	ICVABT 160-368458/10		368458			PS
05/30/18 23:53	30	ICVABT 160-368458/11		368458			PS
07/23/19 15:13	15	ICRA6 160-439079/1		439079			SCB
07/23/19 15:47	15	ICRA6 160-439079/2		439079			SCB
07/23/19 16:09	15	ICRA6 160-439079/3		439079			SCB
07/23/19 16:27	15	ICRA6 160-439079/4		439079			SCB
07/23/19 16:51	15	ICRA6 160-439079/5		439079			SCB
07/23/19 17:12	15	ICRA6 160-439079/6		439079			SCB
07/23/19 17:31	15	ICRA6 160-439079/7		439079			SCB
07/23/19 17:58	15	ICRA6 160-439079/8		439079			SCB
07/23/19 18:16	15	ICRA6 160-439079/9		439079			SCB
07/29/19 12:14	5	ICVRA6 160-439079/10		439079			SCB

Gas Flow Proportional Counter Run Log

Detector: Blue22 (Continued) — Serial Number: Unknown

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/29/19 12:34	5	ICVRA6 160-439079/11		439079			SCB
07/29/19 13:09	5	ICVRA6 160-439079/12		439079			SCB
10/06/19 22:43	1000	ICB 160-445274/7		445274			PS
10/15/19 01:27	2	CCVB 160-446357/22		446357			JCB
10/15/19 01:38	2	CCVA 160-446357/47		446357			JCB
10/15/19 01:55	200	CCB 160-446357/50		446357			JCB
10/15/19 16:47	200	MB 160-444558/18-A		446357	444558	9320	JCB
10/15/19 22:27	100	ZZZZZ		446357			
10/23/19 00:02	2	CCVB 160-447440/23		447440			SCB
10/23/19 00:50	2	CCVA 160-447440/47		447440			SCB
10/23/19 01:13	200	CCB 160-447440/70		447440			
10/23/19 06:05	200	CCB 160-447440/78		447440			SCB
10/23/19 13:51	100	ZZZZZ		447440			
10/23/19 16:23	100	400-176914-5	AES-MW4-DUP-092319	447440	444531	9315	SCB
10/23/19 18:53	100	MB 160-444531/18-A		447440	444531	9315	SCB
10/23/19 20:55	100	ZZZZZ		447440			
10/23/19 22:54	100	ZZZZZ		447440			

Detector: Protean0

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/27/13 00:23	1.01	ICABT 160-224068/1		224068			JLW
03/27/13 00:32	1.01	ICABT 160-224068/2		224068			JLW
03/27/13 00:51	1.01	ICABT 160-224068/3		224068			JLW
03/27/13 01:05	1.01	ICABT 160-224068/4		224068			JLW
03/27/13 01:08	1.01	ZZZZZ		224068			
03/27/13 02:14	1.01	ICABT 160-224068/6		224068			JLW
03/27/13 08:49	1.01	ICABT 160-224068/7		224068			JLW
03/27/13 08:54	1.01	ICABT 160-224068/8		224068			JLW
03/27/13 09:19	1.01	ICABT 160-224068/9		224068			JLW
03/28/13 10:21	5	ICVABT 160-224068/10		224068			JLW
03/28/13 13:22	5	ICVABT 160-224068/11		224068			JLW
03/28/13 13:39	5	ICVABT 160-224068/12		224068			JLW
11/13/15 12:28	50	ICABT 160-224068/22		224068			JLW
11/14/15 21:07	50	ZZZZZ		224068			
11/15/15 13:05	33	ICABT 160-224068/13		224068			JLW
11/15/15 14:11	28	ICABT 160-224068/14		224068			JLW
11/15/15 17:57	21	ICABT 160-224068/15		224068			JLW
11/15/15 20:53	30	ICABT 160-224068/16		224068			JLW
11/15/15 22:11	23	ICABT 160-224068/17		224068			JLW
11/15/15 22:56	20	ICABT 160-224068/18		224068			JLW
11/20/15 13:53	30	ICVABT 160-224068/19		224068			JLW
11/20/15 18:43	30	ICVABT 160-224068/20		224068			JLW
11/20/15 19:40	30	ICVABT 160-224068/21		224068			JLW
10/06/19 00:14	1000	ZZZZZ		445289			
10/06/19 23:40	1000	ICB 160-445289/17		445289			JLW
10/15/19 00:09	2	CCVA 160-446271/1		446271			JCB
10/15/19 00:21	2	CCVB 160-446271/17		446271			JCB
10/15/19 00:49	200	CCB 160-446271/35		446271			JCB
10/15/19 08:31	200	ZZZZZ		446271			
10/15/19 12:52	200	ZZZZZ		446271			
10/15/19 16:50	200	LCS 160-444558/1-A		446271	444558	9320	JCB

Gas Flow Proportional Counter Run Log

Detector: Protean8

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/27/13 09:26	1.01	ICABT 160-224906/12		224906			ALD
03/27/13 09:34	1.01	ICABT 160-224906/13		224906			ALD
03/27/13 09:47	1.01	ICABT 160-224906/14		224906			ALD
03/27/13 09:55	1.01	ICABT 160-224906/15		224906			ALD
03/27/13 10:04	1.01	ICABT 160-224906/16		224906			ALD
03/27/13 10:12	1.01	ICABT 160-224906/17		224906			ALD
03/27/13 10:19	1.01	ICABT 160-224906/18		224906			ALD
03/27/13 10:27	1.01	ICABT 160-224906/19		224906			ALD
03/28/13 21:29	5	ICVABT 160-224906/20		224906			ALD
03/28/13 23:59	5	ICVABT 160-224906/21		224906			ALD
03/29/13 00:05	5	ICVABT 160-224906/22		224906			ALD
11/25/15 18:18	50	ICABT 160-224906/1		224906			ALD
11/25/15 22:48	50	ICABT 160-224906/2		224906			ALD
11/25/15 23:45	50	ICABT 160-224906/3		224906			ALD
11/27/15 07:47	50	ICABT 160-224906/4		224906			ALD
11/27/15 08:50	50	ZZZZZ		224906			
11/27/15 11:47	50	ICABT 160-224906/6		224906			ALD
11/27/15 12:45	50	ICABT 160-224906/7		224906			ALD
11/29/15 15:33	50	ICABT 160-224906/8		224906			ALD
11/29/15 20:57	30	ZZZZZ		224906			
11/29/15 22:54	30	ZZZZZ		224906			
11/29/15 23:29	30	ZZZZZ		224906			
12/02/15 22:14	30	ICVABT 160-224906/23		224906			ALD
12/03/15 09:10	30	ICVABT 160-224906/24		224906			ALD
12/03/15 11:06	30	ICVABT 160-224906/25		224906			ALD
10/06/19 00:15	1000	ICB 160-445289/9		445289			JLW
10/15/19 00:10	2	CCVA 160-446271/9		446271			JCB
10/15/19 00:22	2	CCVB 160-446271/25		446271			JCB
10/15/19 00:49	200	CCB 160-446271/41		446271			JCB
10/15/19 08:33	200	ZZZZZ		446271			
10/15/19 12:55	200	ZZZZZ		446271			
10/15/19 16:51	200	400-176914-1	AES-MW1-092319	446271	444558	9320	JCB

Detector: Protean9

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/27/13 09:26	1.01	ICABT 160-224908/12		224908			ALD
03/27/13 09:34	1.01	ICABT 160-224908/13		224908			ALD
03/27/13 09:48	1.01	ICABT 160-224908/14		224908			ALD
03/27/13 09:55	1.01	ICABT 160-224908/15		224908			ALD
03/27/13 10:04	1.01	ICABT 160-224908/16		224908			ALD
03/27/13 10:12	1.01	ICABT 160-224908/17		224908			ALD
03/27/13 10:20	1.01	ICABT 160-224908/18		224908			ALD
03/27/13 10:27	1.01	ICABT 160-224908/19		224908			ALD
03/28/13 21:29	5	ICVABT 160-224908/20		224908			ALD
03/28/13 23:10	5	ICVABT 160-224908/21		224908			ALD
03/29/13 00:05	5	ICVABT 160-224908/22		224908			ALD
11/25/15 18:18	50	ICABT 160-224908/1		224908			ALD
11/25/15 22:48	50	ICABT 160-224908/2		224908			ALD
11/25/15 23:45	50	ICABT 160-224908/3		224908			ALD
11/27/15 07:47	50	ICABT 160-224908/4		224908			ALD
11/27/15 08:50	50	ICABT 160-224908/5		224908			ALD
11/27/15 11:48	50	ICABT 160-224908/6		224908			ALD

Gas Flow Proportional Counter Run Log

Detector: Protean9 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
11/27/15 12:45	50	ICABT 160-224908/7		224908			ALD
11/29/15 15:33	50	ZZZZZ		224908			
11/29/15 20:57	30	ZZZZZ		224908			
11/29/15 22:18	30	ZZZZZ		224908			
11/29/15 23:29	30	ZZZZZ		224908			
12/02/15 20:08	30	ICVABT 160-224908/23		224908			ALD
12/02/15 21:17	30	ICVABT 160-224908/24		224908			ALD
12/03/15 11:06	30	ICVABT 160-224908/25		224908			ALD
10/06/19 00:15	1000	ZZZZZ		445289			
10/06/19 23:41	1000	ICB 160-445289/23		445289			JLW
10/15/19 00:10	2	CCVA 160-446271/10		446271			JCB
10/15/19 00:22	2	CCVB 160-446271/26		446271			JCB
10/15/19 00:49	200	CCB 160-446271/40		446271			JCB
10/15/19 08:33	200	ZZZZZ		446271			
10/15/19 12:55	200	ZZZZZ		446271			
10/15/19 16:51	200	400-176914-2	AES-MW2-092319	446271	444558	9320	JCB

Detector: Protean10

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/27/13 09:26	1.01	ICABT 160-224907/12		224907			ALD
03/27/13 09:34	1.01	ICABT 160-224907/13		224907			ALD
03/27/13 09:48	1.01	ICABT 160-224907/14		224907			ALD
03/27/13 09:55	1.01	ICABT 160-224907/15		224907			ALD
03/27/13 10:04	1.01	ICABT 160-224907/16		224907			ALD
03/27/13 10:12	1.01	ICABT 160-224907/17		224907			ALD
03/27/13 10:20	1.01	ICABT 160-224907/18		224907			ALD
03/27/13 10:27	1.01	ICABT 160-224907/19		224907			ALD
03/28/13 21:29	5	ICVABT 160-224907/20		224907			ALD
03/28/13 23:10	5	ICVABT 160-224907/21		224907			ALD
03/28/13 23:20	5	ICVABT 160-224907/22		224907			ALD
11/25/15 18:18	50	ICABT 160-224907/1		224907			ALD
11/25/15 22:48	50	ICABT 160-224907/2		224907			ALD
11/25/15 23:45	50	ICABT 160-224907/3		224907			ALD
11/27/15 07:48	50	ICABT 160-224907/4		224907			ALD
11/27/15 08:50	50	ICABT 160-224907/5		224907			ALD
11/27/15 11:48	50	ZZZZZ		224907			
11/27/15 12:46	50	ICABT 160-224907/7		224907			ALD
11/29/15 15:33	50	ICABT 160-224907/8		224907			ALD
11/29/15 20:57	30	ZZZZZ		224907			
11/29/15 22:18	30	ZZZZZ		224907			
11/29/15 22:54	30	ZZZZZ		224907			
12/02/15 20:08	30	ICVABT 160-224907/23		224907			ALD
12/02/15 21:17	30	ICVABT 160-224907/24		224907			ALD
12/03/15 11:06	30	ICVABT 160-224907/25		224907			ALD
10/06/19 00:15	1000	ICB 160-445289/11		445289			JLW
10/15/19 00:10	2	CCVA 160-446271/11		446271			JCB
10/15/19 00:22	2	CCVB 160-446271/27		446271			JCB
10/15/19 00:49	200	CCB 160-446271/40		446271			JCB
10/15/19 08:34	200	ZZZZZ		446271			
10/15/19 12:56	200	ZZZZZ		446271			
10/15/19 16:51	200	400-176914-2 MS	AES-MW2-092319 MS	446271	444558	9320	JCB

Gas Flow Proportional Counter Run Log

Detector: Protean11

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/27/13 09:26	1.01	ICABT 160-224909/12		224909			ALD
03/27/13 09:34	1.01	ICABT 160-224909/13		224909			ALD
03/27/13 09:48	1.01	ICABT 160-224909/14		224909			ALD
03/27/13 09:55	1.01	ICABT 160-224909/15		224909			ALD
03/27/13 10:04	1.01	ICABT 160-224909/16		224909			ALD
03/27/13 10:12	1.01	ICABT 160-224909/17		224909			ALD
03/27/13 10:20	1.01	ICABT 160-224909/18		224909			ALD
03/27/13 10:27	1.01	ICABT 160-224909/19		224909			ALD
03/28/13 23:10	5	ICVABT 160-224909/20		224909			ALD
03/28/13 23:20	5	ICVABT 160-224909/21		224909			ALD
03/28/13 23:41	5	ICVABT 160-224909/22		224909			ALD
11/25/15 18:18	50	ICABT 160-224909/1		224909			ALD
11/25/15 22:48	50	ICABT 160-224909/2		224909			ALD
11/25/15 23:45	50	ICABT 160-224909/3		224909			ALD
11/27/15 07:48	50	ICABT 160-224909/4		224909			ALD
11/27/15 08:50	50	ICABT 160-224909/5		224909			ALD
11/27/15 11:48	50	ICABT 160-224909/6		224909			ALD
11/27/15 12:46	50	ZZZZZ		224909			
11/29/15 15:33	50	ICABT 160-224909/8		224909			ALD
11/29/15 22:18	30	ZZZZZ		224909			
11/29/15 22:54	30	ZZZZZ		224909			
11/29/15 23:29	30	ZZZZZ		224909			
12/02/15 20:08	30	ICVABT 160-224909/23		224909			ALD
12/02/15 21:17	30	ICVABT 160-224909/24		224909			ALD
12/02/15 22:14	30	ICVABT 160-224909/25		224909			ALD
10/06/19 00:15	1000	ZZZZZ		445289			
10/06/19 23:41	1000	ICB 160-445289/24		445289			JLW
10/15/19 00:10	2	CCVA 160-446271/12		446271			JCB
10/15/19 00:22	2	CCVB 160-446271/28		446271			JCB
10/15/19 00:49	200	CCB 160-446271/39		446271			JCB
10/15/19 08:34	200	ZZZZZ		446271			
10/15/19 12:56	200	ZZZZZ		446271			
10/15/19 16:51	200	400-176914-2 MSD	AES-MW2-092319 MSD	446271	444558	9320	JCB

Detector: Protean13

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/27/13 09:26	1.01	ICABT 160-224911/9		224911			JLW
03/27/13 09:35	1.01	ICABT 160-224911/10		224911			JLW
03/27/13 09:48	1.01	ICABT 160-224911/11		224911			JLW
03/27/13 09:55	1.01	ICABT 160-224911/12		224911			JLW
03/27/13 10:05	1.01	ICABT 160-224911/13		224911			JLW
03/27/13 10:13	1.01	ICABT 160-224911/14		224911			JLW
03/27/13 10:20	1.01	ICABT 160-224911/15		224911			JLW
03/27/13 10:27	1.01	ICABT 160-224911/16		224911			JLW
03/28/13 23:41	5	ICVABT 160-224911/17		224911			JLW
03/28/13 23:47	5	ICVABT 160-224911/18		224911			JLW
03/28/13 23:53	5	ICVABT 160-224911/19		224911			JLW
11/25/15 18:18	50	ICABT 160-224911/1		224911			JLW
11/25/15 22:48	50	ZZZZZ		224911			
11/25/15 23:45	50	ICABT 160-224911/3		224911			JLW
11/27/15 07:48	50	ICABT 160-224911/4		224911			JLW
11/27/15 08:50	50	ICABT 160-224911/5		224911			JLW

Gas Flow Proportional Counter Run Log

Detector: Protean13 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
11/27/15 11:48	50	ICABT 160-224911/6		224911			JLW
11/27/15 12:46	50	ICABT 160-224911/7		224911			JLW
11/29/15 15:32	50	ICABT 160-224911/8		224911			JLW
12/03/15 08:30	30	ICVABT 160-224911/20		224911			JLW
12/03/15 10:24	30	ICVABT 160-224911/21		224911			JLW
12/03/15 12:21	30	ICVABT 160-224911/22		224911			JLW
10/06/19 00:15	1000	ZZZZZ		445289			
10/06/19 23:41	1000	ICB 160-445289/25		445289			JLW
10/15/19 00:10	2	CCVA 160-446271/14		446271			JCB
10/15/19 00:22	2	CCVB 160-446271/30		446271			JCB
10/15/19 00:49	200	CCB 160-446271/42		446271			JCB
10/15/19 08:35	200	ZZZZZ		446271			
10/15/19 12:56	200	ZZZZZ		446271			
10/15/19 16:52	200	400-176914-3	AES-MW3-092319	446271	444558	9320	JCB

Detector: Protean14

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/27/13 09:26	1.01	ICABT 160-224912/9		224912			JLW
03/27/13 09:35	1.01	ICABT 160-224912/10		224912			JLW
03/27/13 09:48	1.01	ICABT 160-224912/11		224912			JLW
03/27/13 09:55	1.01	ICABT 160-224912/12		224912			JLW
03/27/13 10:05	1.01	ICABT 160-224912/13		224912			JLW
03/27/13 10:13	1.01	ICABT 160-224912/14		224912			JLW
03/27/13 10:20	1.01	ICABT 160-224912/15		224912			JLW
03/27/13 10:27	1.01	ICABT 160-224912/16		224912			JLW
03/28/13 23:47	5	ICVABT 160-224912/17		224912			JLW
03/28/13 23:53	5	ICVABT 160-224912/18		224912			JLW
03/28/13 23:58	5	ICVABT 160-224912/19		224912			JLW
11/25/15 18:19	50	ICABT 160-224912/1		224912			JLW
11/25/15 22:48	50	ICABT 160-224912/2		224912			JLW
11/25/15 23:45	50	ZZZZZ		224912			
11/27/15 07:48	50	ICABT 160-224912/4		224912			JLW
11/27/15 08:50	50	ICABT 160-224912/5		224912			JLW
11/27/15 11:48	50	ICABT 160-224912/6		224912			JLW
11/27/15 12:46	50	ICABT 160-224912/7		224912			JLW
11/29/15 15:32	50	ICABT 160-224912/8		224912			JLW
12/03/15 08:30	30	ICVABT 160-224912/20		224912			JLW
12/03/15 10:24	30	ICVABT 160-224912/21		224912			JLW
12/03/15 11:38	30	ICVABT 160-224912/22		224912			JLW
10/06/19 00:16	1000	ICB 160-445289/15		445289			JLW
10/15/19 00:10	2	CCVA 160-446271/15		446271			JCB
10/15/19 00:22	2	CCVB 160-446271/31		446271			JCB
10/15/19 00:49	200	CCB 160-446271/43		446271			JCB
10/15/19 08:35	200	ZZZZZ		446271			
10/15/19 12:56	200	ZZZZZ		446271			
10/15/19 16:52	200	400-176914-4	AES-MW4-092319	446271	444558	9320	JCB

Shipping and Receiving Documents

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

400-176914 COC

eurofins

Client Information	Sampler: VICENTE PEREZ	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-87191-32598.1
Client Contact: Alberto Melendez	Phone: 787-209-6386	E-Mail: eric.lang@testamericainc.com		Page: Page 1 of 1
Company: DNA-Environment, LLC				Job #:
Address: 35 Calle Juan C Borbon Ste 67-227	Due Date Requested:			
City: Guaynabo	TAT Requested (days): 10 Days (Regular TAT)			
State, Zip: PR, 00969-5375				
Phone: 787-209-6386	PO #: 555			
Email: alberto.melendez@dnaenv.com	WO #:			
Project Name: CCR Groundwater Monitoring	Project #: 40008317			
Site: AES Puerto Rico LP, Guayama, PR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Radium-226 & Radium-228	SM4500_Cl_E-Chloride, Field pH, SM4500_SO4_E-Sulfate, 4500_F_C - Fluoride, SM2540C - TDS, SM2320B - Alkalinity	6020 - Total Metals (As, Ba, B, Ca, Co, Li, Mo, Se, Fe, Mg, Mn, K, Na)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
AES-MW1-092319	9/23/19	0910	G	Water	N		X	X	X	3	pH= 6.59
AES-MW2-092319	9/23/19	1035	G	Water	N		X	X	X	3	pH= 6.31
AES-MW2-092319 MS	9/23/19	1055	G	Water	N	Y	X	X	X	3	
AES-MW2-092319 MSD	9/23/19	1116	G	Water	N	Y	X	X	X	3	
AES-MW3-092319	9/23/19	1310	G	Water	N		X	X	X	3	pH= 6.54
AES-MW4-092319	9/23/19	1450	G	Water	N		X	X	X	3	pH= 6.58
AES-MW4-DUP-092319	9/23/19	1520	G	Water	N		X	X	X	3	
AES-MW5-092319	9/23/19	1710	G	Water	N		X	X	X	3	pH= 6.03
AES-FB-092319	9/23/19	1735	G	Water	N		X	X	X	3	
											NOTE; FIELD pH

Possible Hazard Identification
[X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ] Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[ ] Return To Client [X] Disposal By Lab [ ] Archive For Months

Deliverable Requested: I, II, III, IV, Other (specify): LEVEL IV

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
[signature]	9-24-2019 / 1130	DNA	[signature]	9/25/19 852	TAPEN
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.2°C IR8 RADS 29.4 IR8

Ver: 08/04/2016

Eurofins TestAmerica, Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone: 850-474-1001 Fax: 850-478-2671

Chain of Custody Record

eurofins Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 400-222567.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eric.lang@testamericainc.com	State of Origin: Puerto Rico	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Florida		Job #: 400-176914-2
Address: 13715 Rider Trail North,	Due Date Requested: 10/23/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR GW Monitoring, AES Puerto Rico, LP	Project #: 40008317			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Ra226Ra228_GFPC/ Radium-226 and Radium-228	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
AES-MW1-092319 (400-176914-1)	9/23/19	09:10 Atlantic		Water			X	X	X	1	
AES-MW2-092319 (400-176914-2)	9/23/19	10:35 Atlantic		Water			X	X	X	1	
AES-MW2-092319 (400-176914-2MS)	9/23/19	10:55 Atlantic	MS	Water			X	X	X	1	
AES-MW2-092319 (400-176914-2MSD)	9/23/19	11:16 Atlantic	MSD	Water			X	X	X	1	
AES-MW3-092319 (400-176914-3)	9/23/19	13:10 Atlantic		Water			X	X	X	1	
AES-MW4-092319 (400-176914-4)	9/23/19	14:50 Atlantic		Water			X	X	X	1	
AES-MW4-DUP-092319 (400-176914-5)	9/23/19	15:20 Atlantic		Water			X	X	X	1	
AES-MW5-092319 (400-176914-6)	9/23/19	17:10 Atlantic		Water			X	X	X	1	
AES-FB-092319 (400-176914-7)	9/23/19	17:35 Atlantic		Water			X	X	X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kathy R Avery	9.26-19 6:14 1630	TA Pen	[signature]	9-27-19 09:00	TA SR
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-176914-2

Login Number: 176914
List Number: 1
Creator: Perez, Trina M

List Source: Eurofins TestAmerica, Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	29.4C Rads
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: DNA-Environment, LLC

Job Number: 400-176914-2

Login Number: 176914
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 09/27/19 03:25 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX B
Field Data Sheets

DNA-ENVIRONMENT, LLC

LOW FLOW SAMPLING DATA SHEET

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 4/23/19
FIELD PERSONNEL: A. Melendez / Yadiva de Jesus / R. Diaz
WEATHER: Sunny

MONITORING WELL: MW-1
WELL DEPTH: 25.85
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm): BACKGROUND:
BENEATH OUTER CAP:
BENEATH INNER CAP:
PUMP INTAKE DEPTH: ____ ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION : 12.47 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
9:23			7.58	NA	1.396	NA	88.7	NA	1.94	NA	10.19	NA	28.80	NA	124	12.47
9:28			7.59		1.393		89.6		1.42		11.12		28.81		124	12.48
9:33			7.61		1.390		91.5		1.16		10.85		28.96		138	12.48
9:38			7.59		1.386		91.3		1.02		9.93		28.81		138	12.49
9:43			7.60		1.384		91.2		0.90		10.17		28.86		138	12.49
9:48			7.60		1.382		91.9		.83		9.99		28.95		138	12.49
9:53			7.61		1.378		92.4		.75		9.32		29.00		138	12.49
9:58			7.61		1.371		90.8		.68		10.08		28.01		138	12.48
10:03			7.61		1.370		90.8		.64		9.17		29.10		138	12.49

COMMENTS: Sample Time @ 10:10 PH 7.61

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 4/23/19
FIELD PERSONNEL: A. Melendez / J. de Jesus / R. Diaz
WEATHER: Sunny

MONITORING WELL: MW-2
WELL DEPTH: 22.95
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm): BACKGROUND:
BENEATH OUTER CAP:
BENEATH INNER CAP:
PUMP INTAKE DEPTH: _____ ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION : 12.70 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
11:15			7.23	NA	1.094	NA	83.7	NA	2.80	NA	10.92	NA	29.06	NA	180	12.71
11:20			7.25		1.087		73.5		1.48(8)		5.64		29.07		160	12.70
11:25			7.24		1.083		82.8		1.11		5.01		28.99		160	12.70
11:30			7.24		1.083		84.3		.98		3.71		29.04		160	12.71
11:35			7.23		1.083		84.9		.92		2.89		29.07		160	12.71
11:40			7.23		1.082		86.6		.90		2.66		29.02		160	12.71
11:45			7.21		1.082		87.1		.88		2.47		29.12		160	12.71
11:50			7.22		1.083		84.1		.89		1.91		29.13		160	12.71

COMMENTS: Sample Time @ 11:55 pH 7.22
MS Sample @ 12:14 MSD Sample @ 12:32

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 4/23/19
FIELD PERSONNEL: A. Melendez / Y. deJesus / R. Diaz
WEATHER: Sunny

MONITORING WELL: MW-3
WELL DEPTH: 27.25
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm): BACKGROUND:
BENEATH OUTER CAP:
BENEATH INNER CAP:
PUMP INTAKE DEPTH: _____ ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION : 14.33 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
14:32			7.56	NA	21.90	NA	98.4	NA	2.49	NA	11.95	NA	30.66	NA	190	14.75
14:37			7.60		21.27		78.8		1.22		8.32		30.70		156	14.69
14:42			7.61		20.64		57.2		.88		6.20		30.68		156	14.69
14.47			7.61		19.66		48.1		.75		4.33		30.64		156	14.69
14.52			7.61		18.34		38.8		.68		3.53		30.62		156	14.68
14.57			7.59		17.15		29.6		.65		3.43		30.62		156	14.69
15:02			7.58		16.09		23.0		.65		2.65		30.60 ~~30.62~~		156	14.69
15:07			7.56		15.11		17.2		.64		1.67		30.62		156	14.70

COMMENTS: Sample @ 15:10 pH: 7.56

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 2

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 4/24/19
FIELD PERSONNEL: A. Melendez / Y. de Jesus / R. Diaz
WEATHER: Sunny

MONITORING WELL: MW-4
WELL DEPTH: 28.67
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm): BACKGROUND:
BENEATH OUTER CAP:
BENEATH INNER CAP:
PUMP INTAKE DEPTH: _____ ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION : 13.60 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
9:24			7.35	NA	16.49	NA	-48.7	NA	1.48	NA	85.91	NA	32.05	NA	130	14.0
9:29			7.37		16.47		-55.8		.95		75.72		32.21		130	13.98
9:34																
9:38			7.44		16.46		-55.4		.83		8795		32.24		116	13.91
9:43			7.48		16.44		-52.9		.62		65.27		32.28		120	13.96
9:48			7.49		16.44		-59.1		.54		53.15		32.46		120	13.98
9:53			7.50		16.46		-65.8		.51		41.88		32.61		120	14.01
9:58			7.48		16.47		-66.1		.50		37.04		32.62		120	14.04
10.03			7.48		16.47		-66.7		.49		32.33		32.74		120	14.0<
10.08			7.45		16.47		-60.7		.48		25.58		32.76		120	14.07
10.13			7.44		16.48		-66.0		.48		22.85		32.88		120	14.07

COMMENTS:

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 2 OF 2

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 4/24/19
FIELD PERSONNEL: A. Melendez / Y. deJesus / R. Diaz
WEATHER: Sunny

MONITORING WELL: MW-4
WELL DEPTH: 28.62
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2 inches

PID/FID READINGS (ppm):
BACKGROUND:
BENEATH OUTER CAP:
BENEATH INNER CAP:
PUMP INTAKE DEPTH: _____ ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION : 13.60 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH (pH units) CHANGE*	SPECIFIC CONDUCTIVITY (mS/cm) READING	SPECIFIC CONDUCTIVITY (mS/cm) CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL (mv) CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN (mg/l) CHANGE*	TURBIDITY (NTU) READING	TURBIDITY (NTU) CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE (degrees C) CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
10:18			7.43	NA	16.49	NA	-61.1	NA	.48	NA	19.20	NA	33.0	NA	120	14.08

COMMENTS: Sample @ 10:25 pH 7.43
Dup Sample @ 10:42

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 4/24/19
FIELD PERSONNEL: A. Melendez / Y. de Sosus / R. Diaz
WEATHER: Sunny

MONITORING WELL: MW-5
WELL DEPTH: 27.30
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm): BACKGROUND:
BENEATH OUTER CAP:
BENEATH INNER CAP:
PUMP INTAKE DEPTH: _____ ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION : 14.75 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
11:45			6.75	NA	14.08	NA	20.0	NA	2.10	NA	56.59	NA	29.8	NA	144	14.86
11:50			6.84		14.00		36.4		1.03		49.32		29.51		140	14.91
11:55			6.84		13.95		42.7		.90		34.67		29.50		160	14.92
12:00			6.84		13.88		43.0		.84		26.31		29.46		160	14.93
12:05			6.84		13.78		37.1		.82		21.36		29.51		160	14.94
12:10			6.83		13.71		37.4		.79		17.86		29.51		160	14.92
12:15			6.84		13.65		13.4		.78		19.28		29.52		160	14.94
12:20			6.82		13.60		23.2		.80		15.01		29.49		160	14.92
12:25			6.81		13.58		13.6		.82		14.22		29.52		160	14.93
12:30			6.79		13.53		13.3		.82		12.86		29.47		160	14.94
12:35			6.77		13.50		14.6		.82		11.89		29.53		160	14.94

COMMENTS: Sample @ 12:37 pH. 6.77

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

Date of Calibration: 4/23/19 Technician: R. Starr

Instrument Serial Number:_____ Software Revision:_____ Cable Model Number:_____

Temperature Reading_____ Temperature Accurate: Y N

DO Sensor in use: Polarographic Galvanic Sensor notated in Sensor menu? Y N

DO membrane changed? Y N Color of Membrane Blue Color notated in Sensor menu? Y N

Record the following calibration values:

	Pre Cal	After Cal
Conductivity	1.663	1.413
ORP	221.9	220
DO	100.6	100.2

True Barometric Pressure at time of calibration 30.18 in Hg

	Pre Cal		
pH 7	6.92	pH mV value_____	Range 0 mV ± 50 mV
pH 4	3.93	pH mV value_____	Range +165 to +180 from 7 buffer mV value
pH 10	10.02	pH mV value_____	Range -165 to -180 from 7 buffer mV value

NOTE: See pH Cal tips section for additional information. Span between pH 4 and 7 and 7 and 10 mV values should be ≈ 165 to 180 mV. 177 is the ideal distance or 59 mV per pH unit.

Ammonium
- 1st point (1 mg/L) _____ NH4 mV value_____ Range: 0 mV +/- 20 mV (new sensor only)
- 2nd point (100 mg/L)_____ NH4 mV value_____ Range: 90 to 130 mV > 1 mg/L mV value

Nitrate
- 1st point (1 mg/L) _____ NO3 mV value_____ Range: 200 mV +/- 20 mV (new sensor only)
- 2nd point (100 mg/L)_____ NO3 mV value_____ Range: 90 to 130 mV < 1 mg/L mV value

Chloride
- 1st point (10 mg/L) _____ Cl mV value _____ Range: 225 mV +/- 20 mV (new sensor only)
- 2nd point (1000mg/L)_____ Cl mV value _____ Range: 80 to 130 < 10 mg/L mV value

Record the following diagnostic numbers **after** calibration, by viewing the .glp file and reading the values for the day's calibration

Conductivity Cal Cell Constant _____ Range 5.0 +/- 1.0 acceptable

DO Sensor Value (uA) _____ (Membrane dependent, see DO Cal Tips)

pH Slope _____ (≈ 55 to 60 mV/pH, 59 ideal)

pH Slope % of ideal _____

Turbidity Meter Calibrated @ 8:20

Date of Calibration: 7/24/19 Technician: R. Diaz 8:25

Instrument Serial Number:_____ Software Revision:_____ Cable Model Number:_____

Temperature Reading_____ Temperature Accurate: Y N

DO Sensor in use: Polarographic Galvanic Sensor notated in Sensor menu? Y N

DO membrane changed? Y (N) Color of Membrane Blue Color notated in Sensor menu? (Y) N

Record the following calibration values:

	Pre Cal	After Cal
Conductivity	1.316	1.413
ORP	212.2	220.0
DO	103.5	100.7

True Barometric Pressure at time of calibration 30.17

	Pre Cal		
pH 7	7.50	pH mV value_____	Range 0 mV ± 50 mV
pH 4	3.89	pH mV value_____	Range +165 to +180 from 7 buffer mV value
pH 10	9.93	pH mV value_____	Range -165 to -180 from 7 buffer mV value

NOTE: See pH Cal tips section for additional information. Span between pH 4 and 7 and 7 and 10 mV values should be ≈ 165 to 180 mV. 177 is the ideal distance or 59 mV per pH unit.

Ammonium
1st point (1 mg/L) _____ NH4 mV value_____ Range: 0 mV +/- 20 mV (new sensor only)
2nd point (100 mg/L)_____ NH4 mV value_____ Range: 90 to 130 mV > 1 mg/L mV value

Nitrate
1st point (1 mg/L) _____ NO3 mV value_____ Range: 200 mV +/- 20 mV (new sensor only)
2nd point (100 mg/L)_____ NO3 mV value_____ Range: 90 to 130 mV < 1 mg/L mV value

Chloride
1st point (10 mg/L) _____ Cl mV value _____ Range: 225 mV +/- 20 mV (new sensor only)
2nd point (1000mg/L)_____ Cl mV value _____ Range: 80 to 130 < 10 mg/L mV value

Record the following diagnostic numbers **after** calibration, by viewing the .glp file and reading the values for the day's calibration

Conductivity Cal Cell Constant _____ Range 5.0 +/- 1.0 acceptable

DO Sensor Value (uA) _____ (Membrane dependent, see DO Cal Tips)

pH Slope _____ (≈ 55 to 60 mV/pH, 59 ideal)

pH Slope % of ideal _____

Turbidity Meter Calibrated @ 8:32

.LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/3/2019
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V. Perez, S. Vazquez, A. Melendez
WEATHER: Sunny

MONITORING WELL: TW-101
WELL DEPTH: 26.75
SCREENED/OPEN INTERVAL: 14' - 24'
LOCATION: AES
WELL DIAMETER: 1.5 Inches

PID/FID READINGS (ppm): BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: 22 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 14.12 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
0900			6.75	NA	13.83	NA	-73.6	NA	2.29	NA	44.79	NA	30.20	NA	152	14.20
0905			6.79		13.89		-76.1		1.78		15.22		30.31		140	14.20
0910			6.80		13.93		-85.6		1.27		9.34		30.32		141	14.20
0915			6.81		13.93		-85.5		1.02		7.60		30.34		141	14.20
0920			6.81		13.93		-88.1		1.02		7.03		30.34		141	14.20
0925			6.81		13.94		-89.9		1.02		7.07		30.30		141	14.20

COMMENTS: Collected Sample AES-TW101-060319 @ 0925, pH = 6.81

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/3/2019
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V. Perez, I. Vazquez, A. Melendez
WEATHER Sunny

MONITORING WELL: MW-3
WELL DEPTH: 26.80
SCREENED/OPEN INTERVAL: 14-24'
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: 22 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 13.70 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
0950			7.02	NA	17.67	NA	-49.4	NA	2.03	NA	5.41	NA	30.86	NA	124	14.16
0955			7.01		17.60		-57.6		1.27		4.11		30.97		124	14.11
1000			7.03		17.44		-67.7		1.02		2.88		30.90		145	14.12
1005			7.03		17.39		-63.3		1.02		1.97		30.82		115	14.13
1010			7.03		17.33		-61.9		0.76		3.60		30.85		116	14.12
1015			7.04		17.07		-69.7		0.76		2.84		30.88		115	14.12
1020			7.04		16.62		-74.6		0.76		3.73		30.85		115	14.12
1025			7.03		15.59		-77.0		0.76		2.73		30.84		115	14.12
1030			7.01		14.46		-77.9		0.76		2.38		30.85		115	14.12
1035			7.00		13.95		-76.9		0.76		2.30		30.83		115	14.12

COMMENTS: Collected Sample AES-MW3-060319 @ 1036, pH = 7.00

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

DNA-ENVIRONMENT, LLC

LOW FLOW SAMPLING DATA SHEET

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/3/19
FIELD PERSONNEL: W. Rodriguez L. Diaz, V. Perez, S. Vazquez A. Melendez
WEATHER: Sunny

MONITORING WELL: TW-102
WELL DEPTH: 27.28'
SCREENED/OPEN INTERVAL: 15'-25'
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA

PUMP INTAKE DEPTH: 23 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 15.29 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1100			6.96	NA	35.73	NA	-71.4	NA	1.78	NA	5.19	NA	31.73	NA	120	15.40
1105			6.95		35.70		-74.7		1.52		4.44		31.79		120	15.46
1110			6.94		35.66		-75.3		1.27		4.19		31.91		120	15.48
1115			6.94		35.62		-77.9		1.02		4.33		31.93		120	15.50
1120			6.93		35.54		-73.0		1.02		4.16		31.97		120	15.52
1125			6.93		35.52		-73.3		1.02		4.18		31.90		120	15.51

COMMENTS: Collected Sample AES-TW102-060319 @ 1127, pH = 6.93

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/3/2019
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V. Perez, S. Vazquez, A. Melendez
WEATHER: Sunny

MONITORING WELL: MW-4
WELL DEPTH: 28.35'
SCREENED/OPEN INTERVAL: 15'-25'
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA

PUMP INTAKE DEPTH: _____ ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 13.13 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
1315			7.19	NA	18.53	NA	-83.2	NA	1.78	NA	82.77	NA	32.54	NA	110	13.37
1320			7.19		18.55		-104.4		1.02		41.51		32.86		122	13.41
1325			7.19		18.47		-113.1		1.02		31.06		33.08		103	13.46
1330			7.18		18.44		-113.4		0.76		26.57		33.17		120	13.46
1335			7.17		18.46		-116.4		0.76		22.75		33.24		130	13.49
1340			7.17		18.51		-117.5		0.51		21.97		33.23		102	13.49
1345			7.16		18.68		-118.7		0.51		14.58		33.05		110	13.48
1350			7.16		18.72		-117.8		0.51		15.60		33.14		110	13.48

COMMENTS: Collected Sample AES-MW4-060319 @ 1352, pH = 7.16
AES-MW4-DUP-060319 @ 1404

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/3/2019
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V. Perez, S. Vazquez, A. Melendez
WEATHER: Sunny

MONITORING WELL: TW-103
WELL DEPTH: 27.58'
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA

PUMP INTAKE DEPTH: 23 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 15.23 (15.23) ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	CONDUCTIVITY (mS/cm) READING	CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
1420			7.18	NA	29.91	NA	-78.4	NA	1.27	NA	5.87	NA	30.89	NA	144	15.28
1425			7.17		30.10		-86.2		1.02		4.14		30.12		153	15.31
1430			7.14		30.44		-88.2		0.76		3.76		30.62		156	15.34
1435			7.13		30.61		-88.9		0.76		2.51		30.62		158	15.34
1440			7.12		30.75		-90.2		0.51		2.91		30.76		158	15.36
1445			7.11		30.97		-93.7		0.51		2.49		30.83		158	15.36
1450			7.09		30.86		-94.6		0.51		2.70		30.90		158	15.35

COMMENTS: Collected Sample AES-TW103-060319 @ 1451, pH = 7.09

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

DNA-ENVIRONMENT, LLC

LOW FLOW SAMPLING DATA SHEET

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/3/2019
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V. Perez, S. Vazquez, A. Melendez
WEATHER: PCly Cloudy

MONITORING WELL: MW-5
WELL DEPTH: 26.96'
SCREENED/OPEN INTERVAL: 14' - 24'
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm): BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: 22 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 13.88 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	CONDUCTIVITY (mS/cm) READING	CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
1525			6.59	NA	13.26	NA	-71.6	NA	1.52	NA	49.61	NA	29.70	NA	135	14.03
1530			6.57		13.15		-71.8		1.27		40.68		29.54		138	14.02
1535			6.56		13.08		-64.4		0.76		49.39		29.40		138	14.02
1540			6.55		13.00		-63.3		0.76		37.76		29.36		138	14.03
1545			6.55		12.90		-68.2		0.76		32.71		29.36		138	14.03
1550			6.54		12.83		-67.6		0.76		29.55		29.34		138	14.04
1555			6.55		12.76		-65.8		0.76		25.56		29.37		138	14.05
1600			6.56		12.74		-68.5		0.76		23.47		29.27		138	14.05
1605			6.56		12.67		-67.6		0.76		20.99		29.26		138	14.05

COMMENTS: Collected Sample AES-MW5-060319 @ 1607, pH = 6.56

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/4/2019
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V. Perez, A. Melendez
WEATHER: Sunny

MONITORING WELL: TW-104
WELL DEPTH: 16.80'
SCREENED/OPEN INTERVAL: 4' - 14'
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: 12 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 4.11' ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	SPECIFIC CONDUCTIVITY (mS/cm) READING	SPECIFIC CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
~~0840~~				NA		NA		NA		NA		NA		NA		(Am)
0840			6.98		13.41		-91.0		2.22		38.03		27.92		146	4.15
0845			6.96		14.00		-98.9		1.55		24.99		27.88		162	4.15
0850			6.99		14.60		-98.1		1.15		26.96		28.06		114	4.15
0855			7.01		14.43		-97.0		0.95		19.07		28.11		116	4.14
0900			7.00		14.37		-86.5		0.88		17.52		28.14		116	4.14
0905			7.01		14.32		-92.0		0.83		32.36		28.05		130	4.15
0910			7.00		14.28		-92.7		0.86		14.63		28.09		130	4.15

COMMENTS: Collected sample AES-TW104-060419 @ 0912, pH = 7.00

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/4/2019
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V. Perez, A. Melendez
WEATHER: Sunny

MONITORING WELL: TW-105
WELL DEPTH: 17.10
SCREENED/OPEN INTERVAL: 4-14'
LOCATION: AES
WELL DIAMETER: 2 inches

PID/FID READINGS (ppm): BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: 12 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 4.65 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		SPECIFIC CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
0940			7.35	NA	7.647	NA	-133.3	NA	3.10	NA	66.26	NA	29.56	NA	124	4.70
0945			7.37		8.108		-138.2		1.87		76.22		29.45		129	4.70
0950			7.34		8.787		-143.0		1.31		64.10		29.25		129	4.72
0955			7.17		9.530		-138.9		1.03		47.32		29.10		129	4.72
1000			7.14		10.89		-137.1		0.90		43.76		29.11		124	4.74
1005			7.10		12.11		-128.8		0.86		45.12		28.98		124	4.75
1010			7.10		12.74		-128.4		0.83		51.12		28.99		124	4.74
1015			7.11		13.05		-129.1		0.87		23.02		29.05		129	4.74
1020			7.11		13.19		-130.5		0.88		18.30		29.03		124	4.75
1025			7.14		13.28		-131.1		0.85		11.01		29.07		129	4.75

COMMENTS: Collected Sample AES-TW105-060419 @ 1027, pH = 7.14

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

DNA-ENVIRONMENT, LLC

LOW FLOW SAMPLING DATA SHEET

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/4/2019
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V. Perez, A. Melendez
WEATHER: Sunny

MONITORING WELL: TW-106
WELL DEPTH: 16.69 Ft
SCREENED/OPEN INTERVAL: 4' - 14'
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA

PUMP INTAKE DEPTH: 12 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 5.59 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	SPECIFIC CONDUCTIVITY (mS/cm) READING	SPECIFIC CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
1050			6.91	NA	21.57	NA	-95.4	NA	2.00	NA	32.12	NA	28.98	NA	116	5.56
1055			6.91		21.56		-95.9		1.38		32.94		29.00		120	5.56
1100			6.92		21.51		-96.8		1.16		25.07		29.00		120	5.57
1105			6.93		21.46		-92.3		1.17		29.34		28.90		120	5.57
1110			6.93		21.41		-91.2		~~1.05~~ 1.12		9.19		28.80		120	5.57
1115			6.92		21.38		-92.2		1.09		6.39		28.83		120	5.57
1120			6.93		21.45		-98.4		1.16		~~7.58~~ 7.59		28.86		120	5.57
							(-98.4)									

COMMENTS: Collected sample AES-TW106-060419 @ 1123, pH = 6.93

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/4/2019
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V. Perez, A. Melendez
WEATHER: Sunny

MONITORING WELL: TW-107
WELL DEPTH: 20.09 Ft
SCREENED/OPEN INTERVAL: 7' - 17'
LOCATION: AES
WELL DIAMETER: 2 inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: 15 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 5.69 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	SPECIFIC CONDUCTIVITY (mS/cm) READING	SPECIFIC CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
1300			7.22	NA	25.39	NA	-80.3	NA	1.56	NA	9.88	NA	29.89	NA	112	5.71
1305			7.18		25.36		-73.3		1.30		7.33		30.07		112	5.72
1310			7.17		25.51		-72.2		1.15		7.29		30.01		112	5.72
1315			7.17		25.75		-72.6		0.97		5.75		29.95		112	5.72
1320			7.17		25.97		-74.0		0.85		5.41		29.88		112	5.72
1325			7.17		26.14		-81.7		0.78		4.51		29.88		112	5.72
1330			7.18		26.24		-86.2		0.68		2.85		29.91		112	5.72
1335			7.18		26.35		-85.6		0.69		3.56		29.36		112	5.72

COMMENTS: Collected Sample AES-TW107-060419 @ 1337, pH = 7.18

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

DNA-ENVIRONMENT, LLC

LOW FLOW SAMPLING DATA SHEET

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
DATE: 6/4/2019
WEATHER: Sunny
PROJECT NAME: CCR Groundwater Monitoring
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V Perez, A. Melendez

MONITORING WELL: TW-108
LOCATION: AES
WELL DEPTH: 17 FE
WELL DIAMETER: 2 Inches
SCREENED/OPEN INTERVAL: 4-14'

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: 12 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 5.45 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	SPECIFIC CONDUCTIVITY (mS/cm) READING	SPECIFIC CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
1405			6.92	NA	21.15	NA	-90.0	NA	1.50	NA	29.48	NA	28.60	NA	130 ~~150~~	5.48
1410			6.90		21.10		-87.5		1.05		25.72		28.52		130	5.49
1415			6.91		21.05		-88.5		0.87		20.64		28.55		130	5.49
1420			6.90		20.99		-72.0		0.81		23.09		28.59		130	5.49
1425			6.90		20.89		-66.7		0.83		23.55		28.58		130	5.49
1430			6.91		20.81		-68.4		0.81		21.14		28.60		130	5.49
~~1435~~	Am															

COMMENTS: Collected Sample AES-TW108-060419 @1433, pH = 6.91

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

DNA-ENVIRONMENT, LLC

LOW FLOW SAMPLING DATA SHEET

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 6/4/2019
FIELD PERSONNEL: W. Rodriguez, L. Diaz, V. Perez, A. Melendez
WEATHER: Sunny

MONITORING WELL: TW-109
LOCATION: AES
WELL DEPTH: 16.95
WELL DIAMETER: 2 Inches
SCREENED/OPEN INTERVAL: 4-14

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: 12 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 5.45 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	SPECIFIC CONDUCTIVITY (mS/cm) READING	SPECIFIC CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
1455			6.84	NA	13.11	NA	-71.7	NA	1.88	NA	75.67	NA	27.91	NA	126	5.46
1500			6.76		12.99		-72.3		1.28		65.22		27.83		126	5.48
1505			6.75		12.95		-59.8		1.10		58.39		27.82		126	5.48
1510			6.75		12.90		-67.5		1.08		51.49		27.73		126	5.48
1515			6.76		12.87		-67.9		1.00		39.10		27.66		126	5.48
1520			6.74		12.86		AM -6 59.0 (-59.0)		1.04		33.94		27.59		126	5.48
~~1527~~	AM															
1525			6.75		12.86		-64.9		1.03		29.71		27.58		126	5.48
1530			6.75		12.86		-68.1		1.09		~~26~~ AM 21.63		27.53		126	5.48
1535			6.76		12.86		-69.9		1.02		16.45		27.54		126	5.48

COMMENTS: Collected Sample AES-TW109-060419 @ 1538, pH = 6.76
" " " MS @ 1552
" " " MSD @ 1604

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

YSI Multiparameter Meter Calibration Sheet

Date of Calibration: 6/3/19 Technician: William Rodriguez

Instrument Serial Number: 07F101215 Software Revision: _____ Cable Model Number: _____

Temperature Reading 26.90 °C Temperature Accurate: (Y) N

DO Sensor in use: Polarographic Galvanic Sensor notated in Sensor menu? Y N

DO membrane changed? Y N Color of Membrane Blue Color notated in Sensor menu? Y N

Record the following calibration values:

	Pre Cal	After Cal
Conductivity	1.522	1.413
ORP	~~7.45~~ 236.4 WRR	220.0
DO	_____	~~3.6~~ 100.6 AM

True Barometric Pressure at time of calibration 30.24 in Hg

	Pre Cal		
pH 7	7.45	pH mV value 6.99	Range 0 mV ± 50 mV
pH 4	6.75	pH mV value 4.00	Range +165 to +180 from 7 buffer mV value
pH 10	10.35	pH mV value 10.05	Range -165 to -180 from 7 buffer mV value

NOTE: See pH Cal tips section for additional information. Span between pH 4 and 7 and 7 and 10 mV values should be ≈ 165 to 180 mV. 177 is the ideal distance or 59 mV per pH unit.

Ammonium
- 1st point (1 mg/L) _____ NH4 mV value _____ Range: 0 mV +/- 20 mV (new sensor only)
- 2nd point (100 mg/L) _____ NH4 mV value _____ Range: 90 to 130 mV > 1 mg/L mV value

Nitrate
- 1st point (1 mg/L) _____ NO3 mV value _____ Range: 200 mV +/- 20 mV (new sensor only)
- 2nd point (100 mg/L) _____ NO3 mV value _____ Range: 90 to 130 mV < 1 mg/L mV value

Chloride
- 1st point (10 mg/L) _____ Cl mV value _____ Range: 225 mV +/- 20 mV (new sensor only)
- 2nd point (1000mg/L) _____ Cl mV value _____ Range: 80 to 130 < 10 mg/L mV value

Record the following diagnostic numbers **after** calibration, by viewing the .glp file and reading the values for the day's calibration

Conductivity Cal Cell Constant _____ Range 5.0 +/- 1.0 acceptable

DO Sensor Value (uA) _____ (Membrane dependent, see DO Cal Tips)

pH Slope _____ (≈ 55 to 60 mV/pH, 59 ideal)

pH Slope % of ideal _____

0825 Calibrated Turbidimeter with 1000, 10 and 0.02 Std calibration Solution (AM)

YSI Multiparameter Meter Calibration Sheet

Date of Calibration: 6/4/19 Technician: William Rodriguez

Instrument Serial Number: 07F101215 Software Revision:_____ Cable Model Number:_____

Temperature Reading 25.61 °C Temperature Accurate: (Y) N

DO Sensor in use: Polarographic Galvanic Sensor notated in Sensor menu? Y N

DO membrane changed? Y (N) Color of Membrane_____ Color notated in Sensor menu? Y N

Record the following calibration values:

	Pre Cal	After Cal
Conductivity	1.410	1.413
ORP	217.8	220.0
DO	102.4	100.9

True Barometric Pressure at time of calibration 30.23 in Hg

	Pre Cal		
pH 7	6.89	pH mV value 7.00	Range 0 mV ± 50 mV
pH 4	4.18	pH mV value 4.00	Range +165 to +180 from 7 buffer mV value
pH 10	10.07	pH mV value 10.00	Range -165 to -180 from 7 buffer mV value

NOTE: See pH Cal tips section for additional information. Span between pH 4 and 7 and 7 and 10 mV values should be ≈ 165 to 180 mV. 177 is the ideal distance or 59 mV per pH unit.

Ammonium
- 1st point (1 mg/L) _____ NH4 mV value_____ Range: 0 mV +/- 20 mV (new sensor only)
- 2nd point (100 mg/L)_____ NH4 mV value_____ Range: 90 to 130 mV > 1 mg/L mV value

Nitrate
- 1st point (1 mg/L) _____ NO3 mV value_____ Range: 200 mV +/- 20 mV (new sensor only)
- 2nd point (100 mg/L)_____ NO3 mV value_____ Range: 90 to 130 mV < 1 mg/L mV value

Chloride
- 1st point (10 mg/L) _____ Cl mV value _____ Range: 225 mV +/- 20 mV (new sensor only)
- 2nd point (1000mg/L)_____ Cl mV value _____ Range: 80 to 130 < 10 mg/L mV value

Record the following diagnostic numbers **after** calibration, by viewing the .glp file and reading the values for the day's calibration

Conductivity Cal Cell Constant _____ Range 5.0 +/- 1.0 acceptable

DO Sensor Value (uA) _____ (Membrane dependent, see DO Cal Tips)

pH Slope _____ (≈ 55 to 60 mV/pH, 59 ideal)

pH Slope % of ideal _____

Calibrated Turbidimeter @ 0820

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 9/23/19
FIELD PERSONNEL: A. Helander / V. Perez / R. Diaz
WEATHER: Sunny

MONITORING WELL: MW-1
WELL DEPTH: 25.70
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2" Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA

PUMP INTAKE DEPTH: 18 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 12.78 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	CONDUCTIVITY (mS/cm) READING	CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
8:38			6.50	NA	1.924	NA	-36.5	NA	.97	NA	6.36	NA	29.92	NA	129	13.0
8:43			6.54		1.972		-54.6		.80		4.48		29.95		129	13.0
8:48			6.56		1.992		-71.9		.65		3.82		29.96		129	13.0
8:53			6.56		1.995		-82.1		.56		4.09		30.05		129	13.0
8:58			6.59		1.993		-91.3		.52		4.15		30.07		129	13.0
9:03			6.59		1.989		-96.5		.47		4.28		30.07		129	13.0
9:08			6.59		1.983		-98.6		.48		4.70		30.05		129	13.0

COMMENTS: Sample @ 9:10 pH: 6.59

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 9/23/19
FIELD PERSONNEL: A.Melendez/V.Perez/R.Diaz
WEATHER: Sunny

MONITORING WELL: MW-2
WELL DEPTH: 22.90
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2" Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: 18 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 12.80 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	CONDUCTIVITY (mS/cm) READING	CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
10:05			6.09	NA	1.060	NA	-55.8	NA	1.05	NA	3.98	NA	30.75	NA	150	12.82
10:10			6.20		1.056		-82.1		.75		4.04		30.69		150	12.80
10:15			6.28		1.055		-87.2		.73		3.46		30.70		150	12.80
10:20			6.30		1.054		-93.1		.66		2.67		30.68		150	12.80
10:25			6.31		1.053		-94.0		.68		2.45		30.70		150	12.80
10:30			6.31		1.053		-99.1		.68		2.16		30.66		150	12.80

COMMENTS: Sample @ 10:35 pH: 6.31 MS @ 10:55
MSD @ 11:16

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF ___

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 9/23/19
FIELD PERSONNEL: A. Melendez / V. Perez / R. Diaz
WEATHER Sunny

MONITORING WELL: MW-3
WELL DEPTH: 27.10
SCREENED/OPEN INTERVAL: ___
LOCATION: AES
WELL DIAMETER: 2" Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: ___ ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 13.82 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	CONDUCTIVITY (mS/cm) READING	CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
12:27			6.55	NA	10.51	NA	-72.4	NA	.95	NA	23.61	NA	31.59	NA	148	14.28
12:32			6.54		12.81		-90.7		.62		13.60		31.46		148	14.28
12:37			6.57		15.70		-100.3		.52		25.29		31.45		148	14.29
12:42			6.58		16.14		-104.3		.50		6.54		31.40		148	14.29
12:47			6.59		15.56		-103.8		.46		5.73		31.54		148	14.29
12:52			6.58		15.09		-100.6		.45		5.14		31.49		148	14.32
12:57			6.57		14.42		-106.7		.47		4.94		31.57		148	14.32
13:02			6.55		13.57		-104.3		.45		3.35 AD		31.45		148	14.33
13:07			6.54		13.01		-106.6		.47		7.08		31.43		148	14.31

COMMENTS: Sample @ 13:10 pH: 6.54

FB- 12:25

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 9/23/19
FIELD PERSONNEL: A. Melendez / V. Perez / R. Diaz
WEATHER: Sunny

MONITORING WELL: MW-4
WELL DEPTH: 28.75
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA
PUMP INTAKE DEPTH: 20 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 13.24 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units) READING	pH CHANGE*	CONDUCTIVITY (mS/cm) READING	CONDUCTIVITY CHANGE*	REDOX POTENTIAL (mv) READING	REDOX POTENTIAL CHANGE*	DISSOLVED OXYGEN (mg/l) READING	DISSOLVED OXYGEN CHANGE*	TURBIDITY (NTU) READING	TURBIDITY CHANGE*	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE*	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
14:06			6.57	NA	25.90	NA	-117.2	NA	1.34	NA	116.5	NA	33.56	NA	133	13.62
14:11			6.57		25.91		-130.9		.68		89.28		33.55		98	13.57
14:16			6.57		25.91		-124.7		.58		63.88		33.53		98	13.58
14:21			6.57		25.91		-124.8		.55		71.29		33.51		98	13.60
14:26			6.57		25.91		-130.0		.53		59.48		33.58		98	13.61
14:31			6.57		25.91		-132.7		.51		56.72		33.59		98	13.63
14:36			6.57		25.91		-130.4		.50		58.21		33.53		98	13.63
14:41			6.57		25.91		-125.9		.51		57.67		33.51		98	13.63
14:46			6.58		26.19		-167.6		.45		18.95		33.60		98	13.64

COMMENTS: Sample @ 14:50 pH = 6.58
Dup Sample @ 15:20

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

LOW FLOW SAMPLING DATA SHEET

DNA-ENVIRONMENT, LLC

SHEET 1 OF 1

SITE: AES Puerto Rico, LP in Guayama, Puerto Rico
PROJECT NAME: CCR Groundwater Monitoring
DATE: 9/23/18
FIELD PERSONNEL: A. Melander / V. Perez / R. Diaz
WEATHER: Sunny

MONITORING WELL: MW-5
WELL DEPTH:
SCREENED/OPEN INTERVAL:
LOCATION: AES
WELL DIAMETER: 2 Inches

PID/FID READINGS (ppm):
BACKGROUND: NA
BENEATH OUTER CAP: NA
BENEATH INNER CAP: NA

PUMP INTAKE DEPTH: 20 ft below TOC
DEPTH TO WATER BEFORE PUMP INSTALLATION: 14.07 ft below TOC

TIME	PURGING	SAMPLING	pH (pH units)		CONDUCTIVITY (mS/cm)		REDOX POTENTIAL (mv)		DISSOLVED OXYGEN (mg/l)		TURBIDITY (NTU)		TEMPERATURE (degrees C)		PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
			READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*	READING	CHANGE*		
16:20			5.83	NA	12.74	NA	-47.1	NA	2.16	NA	102.7	NA	29.95	NA	140	14.24
16:25			5.69		12.69		-56.0		1.29		122.4		29.92		140	14.24
16:30			5.77		12.66		-48.4		1.15		51.95		29.88		140	14.24
16:35			5.85		12.59		-49.2		1.13		41.51		29.90		140	14.24
16:40			5.88		12.53		-40.2		1.12		44.44		29.90		140 ft/min	14.24
16:45			5.92		12.49		-54.7		1.16		46.89		29.87		140	14.24
16:50			5.94		12.45		-50.7		1.18		37.27		29.90		140	14.24
16:55			5.97		12.41		-68.7		1.15		35.92		30.06		140	14.24
17:00			6.01		12.36		-78.0		1.14		29.47		30.06		140	14.24
17:05			6.03		12.33		-82.0		1.20		28.72		30.08		140	14.24

COMMENTS: Sample @ 17:10, pH = 6.03

*INDICATOR PARAMETERS HAVE STABLIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for Redox Potential; and ± 10% for Dissolved Oxygen and Turbidity.

Date of Calibration: 9/23/19 Technician: R. Diaz

Instrument Serial Number: 29.16 Software Revision: _____ Cable Model Number _____

Temperature Reading 29.16 Temperature Accurate: (Y) N

DO Sensor in use: Polarographic Galvanic Sensor notated in Sensor menu? Y N

DO membrane changed? (Y) N Color of Membrane Blue Color notated in Sensor menu? (Y) N

Record the following calibration values:

	Pre Cal	After Cal
Conductivity	1.445.	1.413
ORP	214.4	220.0
DO	233.4	100.2

True Barometric Pressure at time of calibration 30.08

	Pre Cal		
pH 7	7.57	pH mV value _____	Range 0 mV ± 50 mV
pH 4	3.77	pH mV value _____	Range +165 to +180 from 7 buffer mV value
pH 10	10.09	pH mV value _____	Range -165 to -180 from 7 buffer mV value

NOTE: See pH Cal tips section for additional information. Span between pH 4 and 7 and 7 and 10 mV values should be ≈ 165 to 180 mV. 177 is the ideal distance or 59 mV per pH unit.

Ammonium
- 1st point (1 mg/L) _____ NH4 mV value _____ Range: 0 mV +/- 20 mV (new sensor only)
- 2nd point (100 mg/L) _____ NH4 mV value _____ Range: 90 to 130 mV > 1 mg/L mV value

Nitrate
- 1st point (1 mg/L) _____ NO3 mV value _____ Range: 200 mV +/- 20 mV (new sensor only)
- 2nd point (100 mg/L) _____ NO3 mV value _____ Range: 90 to 130 mV < 1 mg/L mV value

Chloride
- 1st point (10 mg/L) _____ Cl mV value _____ Range: 225 mV +/- 20 mV (new sensor only)
- 2nd point (1000mg/L) _____ Cl mV value _____ Range: 80 to 130 < 10 mg/L mV value

Record the following diagnostic numbers <u>after</u> calibration, by viewing the .glp file and reading the values for the day's calibration

Conductivity Cal Cell Constant _____ Range 5.0 +/- 1.0 acceptable

DO Sensor Value (uA) _____ (Membrane dependent, see DO Cal Tips)

pH Slope _____ (≈ 55 to 60 mV/pH, 59 ideal)

pH Slope % of ideal _____

Turbidity Calibrated @ 7:55 AM

APPENDIX C
Statistical Analysis Reports

Statistical Evaluation through April 2019 Data: Comparison of Lower Confidence Limits to Groundwater Protection Standards
CCR Groundwater Monitoring Program, AES Puerto Rico LP, Guayama, Puerto Rico

	Comparison Criteria	**Antimony (mg/L)**	**Arsenic (mg/L)**	**Barium (mg/L)**	**Beryllium (mg/L)**	**Cadmium (mg/L)**	**Chromium (mg/L)**	**Cobalt (mg/L)**	**Fluoride (mg/L)**	**Lead (mg/L)**	**Lithium (mg/L)**	**Mercury (mg/L)**	**Molybdenum (mg/L)**	**Selenium (mg/L)**	**Thallium (mg/L)**	**Radium 226 + 228 Combined (pCi/L)**
	GWPS (greater of MCL, USEPA Amendments Level, or Site Background)	**0.006**	**0.010**	**2**	**0.004**	**0.005**	**0.1**	**0.006**	**4.0**	**0.015**	**0.040**	**0.002**	**0.100**	**0.05**	**0.002**	**5**
	MCL	0.006	0.010	2	0.004	0.005	0.1		4.0			0.002		0.05	0.002	5
	USEPA Amendments to the National Minimum Criteria*							0.006		0.015	0.040		0.100			
	Site Background Level**	0.0025	0.0014	0.1599	0.0025	0.0025	0.0039	0.0025	0.7506	0.0013	0.005	0.0002	0.015	0.02271	0.0005	0.8265
Monitoring Well ID[1]	**Through Monitoring Date[2]**	**Lower Confidence Limit[3]**														
MW-3	24-Apr-2019	0.0017	0.00235	0.2106	0.0025	0.00054	0.0025	0.002296	1.758	0.0013	0.0056	0.0002	**0.1918**	**0.1403**	0.0005	0.2646
MW-4	24-Apr-2019	0.0019	0.00283	0.04578	0.0025	0.00034	0.0025	0.0016	0.629	0.00047	**0.5933**	0.0002	**0.4**	0.005361	0.0005	0.1688
MW-5	24-Apr-2019	0.0025	0.003745	0.0337	0.0025	0.0025	0.0025	0.003071	0.4274	0.0013	0.003247	0.0002	0.004466	0.003368	0.0005	0.2097

Notes:

mg/L = milligrams per Liter

pCi/L = picocuries per Liter

GWPS = Groundwater Protection Standard

MCL = USEPA Maximum Contaminant Level

*USEPA Amendments to the National Minimum Criteria (Phase One, Part One), Disposal of Coal Combustion Residuals from Electric Utilities; effective August 29, 2018.

** Site background levels for each constituent were last updated through October 2018 data and computed based on the Upper Tolerance Limit (UTL), with 95% Coverage and 95% Confidence, of the pooled groundwater data from upgradient wells MW-1 and MW-2.

[1]Downgradient Monitoring Well Identification

[2]Includes groundwater results from the initial date of CCR groundwater monitoring program through April 24, 2019.

[3]Lower Confidence Limit (LCL): 95% Parametric LCL for normal or transformed-normal distributions. Otherwise, for Nonparametric LCL, the confidence level was set based on the number of available observations.

Values in bold font and gray shading indicate a Lower Confidence Limit exceeding the corresponding GWPS.

Table 4. Statistical Evaluation through 2019 Data: Comparison of Lower Confidence Limits to Groundwater Protection Standards
CCR Groundwater Monitoring Program, AES Puerto Rico LP, Guayama, Puerto Rico

	Comparison Criteria	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Fluoride (mg/L)	Lead (mg/L)	Lithium (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Selenium (mg/L)	Thallium (mg/L)	Radium 226 + 228 Combined (pCi/L)
	GWPS (greater of MCL, USEPA Amendments Level, or Site Background)	**0.006**	**0.010**	**2**	**0.004**	**0.005**	**0.1**	**0.006**	**4.0**	**0.015**	**0.040**	**0.002**	**0.100**	**0.05**	**0.002**	**5**
	MCL	0.006	0.010	2	0.004	0.005	0.1	-	4.0	-	-	0.002	-	0.05	0.002	5
	USEPA Amendments to the National Minimum Criteria*	-	-	-	-	-	-	0.006	-	0.015	0.040	-	0.100	-	-	-
	Site Background Level**	0.0025	0.0014	0.1678	0.0025	0.0025	0.0039	0.0025	0.8187	0.0013	0.005	0.0002	0.015	0.02144	0.0005	0.8099
Monitoring Well ID[1]	**Through Monitoring Date[2]**	**Lower Confidence Limit[3]**														
MW-3	23-Sep-2019	0.0017	0.002295	0.2043	0.0025	0.00054	0.0025	0.002261	1.752	0.0013	0.006282	0.0002	**0.187**	**0.1357**	0.0005	0.2274
MW-4	23-Sep-2019	0.0019	0.002937	0.04682	0.0025	0.00034	0.0025	0.0016	0.63	0.00047	**0.5787**	0.0002	**0.4222**	0.005239	0.0005	0.1414
MW-5	23-Sep-2019	0.0025	0.004015	0.03373	0.0025	0.0025	0.0025	0.003019	0.4266	0.0013	0.003366	0.0002	0.004213	0.003137	0.0005	0.2379

Notes:

mg/L = milligrams per Liter

pCi/L = picocuries per Liter

GWPS = Groundwater Protection Standard

MCL = USEPA Maximum Contaminant Level

*USEPA Amendments to the National Minimum Criteria (Phase One, Part One), Disposal of Coal Combustion Residuals from Electric Utilities; effective August 29, 2018.

** Site background levels for each constituent were computed based on the Upper Tolerance Limit (UTL), with 95% Coverage and 95% Confidence, of the pooled groundwater data from upgradient wells MW-1 and MW-2.

[1]Downgradient Monitoring Well Identification

[2]Statistical evaluation of groundwater analytical results from all groundwater monitoring events through September 23, 2019.

[3]Lower Confidence Limit (LCL): 95% Parametric LCL for normal or transformed-normal distributions. Otherwise, for Nonparametric LCL, the confidence level was set based on the number of available observations.

Values in bold font and gray shading indicate a Lower Confidence Limit exceeding the corresponding GWPS.

APPENDIX D
Temporary Well Installation Forms

Originally provided in the Corrective Measures Assessment, AES Puerto Rico – Agremax™ Staging Area, Guayama, Puerto Rico (2019).

GROUNDWATER LOG Temporary Well TW-101

DNA-Environment, LLC

PROJECT NUMBER: DNA-190167	DRILLING DATE: May 30, 2019	COORDINATES: Y=212183.1763, X =229833.1169
PROJECT NAME: CCR Groundwater Monitoring	WELL DEPTH: 24 Ft	COORD SYS: NAD 83, PR State Plane (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 1.5-in	ELEVATION REF: Orthometric, Geoid 12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 3.962 m (12.999 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 4.869 m (15.974 Ft)

DRILLING METHOD: Geoprobe 3.25-in ID Dual Tubes. Well was installed using metal-free prepacked well materials from ECT Manufacturing (i.e., 1.5" ID Metals Testing PrePacked PVC Well Screen").

LOGGED BY: Alberto Melendez

CHECKED BY: Juan D. Negron, PG

% Recovery	Depth (Ft)	Graphic Log	Lithologic Description	Well Diagram	Depth (Ft)
	0		Silty sand with some angular rock fragments, light yellowish brown, medium dense, moderate estimated K, no odor, fill material.	well stickup pipe ~ 3 ft	0
	2				2
	4			neat cement grout, 1-10 Ft	4
	6				6
	8				8
	10		Sandy silt, yellowish brown, moist, medium stiff, medium plasticity moderate estimated K, no odor, alluvial deposits.	bentonite seal, 10-12 Ft	10
	12			20-30 mesh silica sand, 12-14 Ft	12
	14		Sandy clay, dark brown, moist, medium stiff, high plasticity, low estimated K, no odor, alluvial deposits.		14
	16				16
	18		Clayey sand, dark brown, moist, loose, medium plasticity, moderate estimated K, no odor, alluvial deposits.	20-40 mesh prepacked silica sand, 14-24 Ft	18
	20		Fine to medium sand with some feldspars minerals, light brown, moist, loose, high estimated K, no odor, alluvial beach deposits.		20
	22			0.010-in slotted screen screen interval 14-24 Ft	22
	24		Clayey sand, brown, moist, medium dense, medium plasticity, moderate estimated K, no odor, alluvial deposits.		24
			Clay, yellowish brown, stiff, high plasticity, low estimated K, no odor, alluvial deposits.		
	26		Borehole Termination Depth: 25 Ft. Water level while drilling intercepted at 9 Ft below ground surface.		26
	28				28

GROUNDWATER LOG Temporary Well TW-102

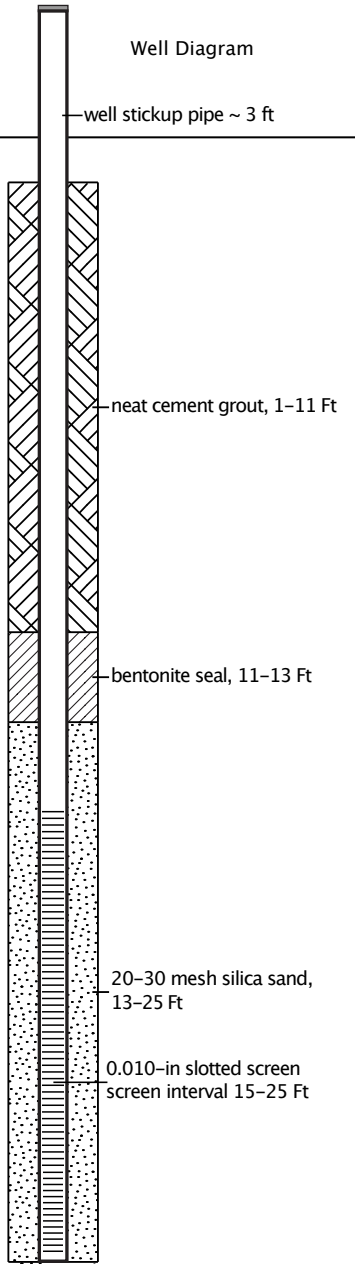
DNA-Environment, LLC

PROJECT NUMBER: DNA-190167	DRILLING DATE: May 6, 2019	COORDINATES: Y=212183.5493, X=229918.3735
PROJECT NAME: CCR Groundwater Monitoring	WELL DEPTH: 25 Ft	COORD SYS: NAD 83, PR State Plane (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 2-in	ELEVATION REF: Orthometric, Geoid12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 4.256 m (13.963 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 5.183 m (17.005 Ft)

DRILLING METHOD: Geoprobe 4.25-in ID Hollow Stem Augers

LOGGED BY: Juan D. Negron, PG

%Recovery	Depth (Ft)	Graphic Log	Lithologic Description
	0		Crushed angular gravel, gray, loose, high estimated K, fill material.
	2		Sandy silt with angular gravel, yellowish brown, medium stiff, moderate estimated K, no odor, fill material.
	10		Sandy clay, dark brown, moist, medium stiff, high plasticity, low estimated K, organic odor, alluvial deposits.
	16		No recovery most likely due to collapse of rock fragment. However, on May 30, 2019 collected core sample from 15 -20 Ft depth interval at offset location and confirmed that lithology was sandy clay as above and below.
	20		Sandy clay, dark brown, moist, medium stiff, high plasticity, low estimated K, organic odor, alluvial deposits.
	23		Clayey sand, dark brown, moist, loose, medium plasticity, moderate estimated K, no odor, alluvial deposits.
	24		Clay, yellowish brown, stiff, high plasticity, low estimated K, no odor, alluvial deposits.
	28		Borehole Termination Depth at: 28 Ft. Water level while drilling intercepted at 10 Ft. below ground surface.



GROUNDWATER LOG Temporary Well TW-103

DNA-Environment, LLC

PROJECT NUMBER: DNA-190167	DRILLING DATE: May 7, 2019	COORDINATES: Y=212193.3289, X=230023.3263
PROJECT NAME: CCR Groundwater Monitoring	WELL DEPTH: 24.5 Ft	COORD SYS: NAD 83, PR State Plane (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 2-in	ELEVATION REF: Orthometric, Geoid12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 4.563 m (14.970 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 5.479 m (17.976 Ft)

DRILLING METHOD: Geoprobe 4.25-in ID Hollow Stem Augers

LOGGED BY: Hardy Rodriguez

CHECKED BY: Juan D. Negron, PG

%Recovery	Depth (Ft)	Graphic Log	Lithologic Description	Well Diagram	Depth (Ft)
	0		Silty sand with some angular rock fragments, light yellowish brown, medium dense hardness, low plasticity, moderate estimated K, no odor, fill material.	well stickup pipe ~ 3 ft	0
	2				2
	4			neat cement grout, 1-10.5 Ft	4
	6				6
	8		Fine to medium sand with some angular rock fragments, light olive gray, medium dense hardness, non plasticity, high estimated K no odor, fill material.		8
	10			bentonite seal, 10.5-12.5 Ft	10
	12		Sandy clay, dark brown, moist, stiff hardness, high plasticity, low estimated K, vague odor, some organic material, alluvial deposits.		12
	14				14
	16		Clayey sand, brown, moist, loose, medium plasticity,moderate estimated K, no odor, alluvial deposits.		16
	18		Fine sand with some feldspars minerals, loose hardness, non plasticity, high estimated K, no odor, alluvial beach deposits.	20-30 mesh silica sand, 12.5-24.5 Ft	18
	20			0.010-in slotted screen screen interval, 14.5-24.5 Ft	20
	22		Sandy clay, light brown, moist, medium stiff hardness, high plasticity, low estimated K, no odor, alluvial beach deposits.		22
	24		Clay, yellowish brown, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.		24
	26		Borehole Termination Depth: 25 Ft. Water level while drilling intercepted at 15.5 Ft below ground surface.		26
	28				28

GROUNDWATER LOG Temporary Well TW-104

DNA-Environment, LLC

PROJECT NUMBER: DNA-190167	DRILLING DATE: May 8, 2019	COORDINATES: Y=212142.7859, X=229828.8634
PROJECT NAME: CCR Groundwater Monitoring	TOTAL DEPTH: 14 Ft	COORD SYS: NAD 83, PR State Plane (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 2-in	ELEVATION REF: Orthometric, Geoid12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 4.594 m (15.072 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 1.759 m (5.771 Ft)

DRILLING METHOD: Geoprobe 4.25-in ID Hollow Stem Augers

LOGGED BY: Hardy Rodriguez

CHECKED BY: Juan D. Negron, PG

%Recovery	Depth (Ft)	Graphic Log	Lithologic Description	Well Diagram	Depth (Ft)
	0-1		Silty sand with organic material, brown to light brown, medium dense hardness, moist, some subrounded rock fragments, very low plasticity, no odor, alluvial deposits.	well stickup pipe ~ 3 ft	0-1
	1-7		Sandy silt, dark brown, soft, medium plasticity, moist, moderate estimated K, no odor, alluvial deposits.	neat cement grout, 1-2 Ft bentonite seal, 2-3 Ft	1-7
	7-9		Silty sand, yellowish brown, medium dense hardness, medium plasticity, moderate estimated K, no odor, alluvial deposits.	20-30 mesh silica sand, 3-14 Ft	7-9
	9-10		Clay, yellowish brown, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.		9-10
	10-11		Fine to medium sand with some feldspars minerals, brown, moist, non plasticity, high estimated K, no odor, alluvial beach deposits.	0.010-in slotted screen screen interval, 4-14 Ft	10-11
	11-12		Medium to coarse sand with some feldspars minerals, brown, loose, non plasticity, high estimated K, no odor, alluvial beach deposits.		11-12
	12-16		Clay, yellowish brown, moist, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.		12-16
	16-20		Clay, dark brown to dark olive gray, moist, stiff hardness, high plasticity, low estimated K, swamp deposits.		16-20
	20-24		Borehole Termination Depth: 20 Ft. Water level while drilling intercepted at 1.5 Ft. below ground surface.		20-24

GROUNDWATER LOG Temporary Well TW-105

DNA-Environment, LLC

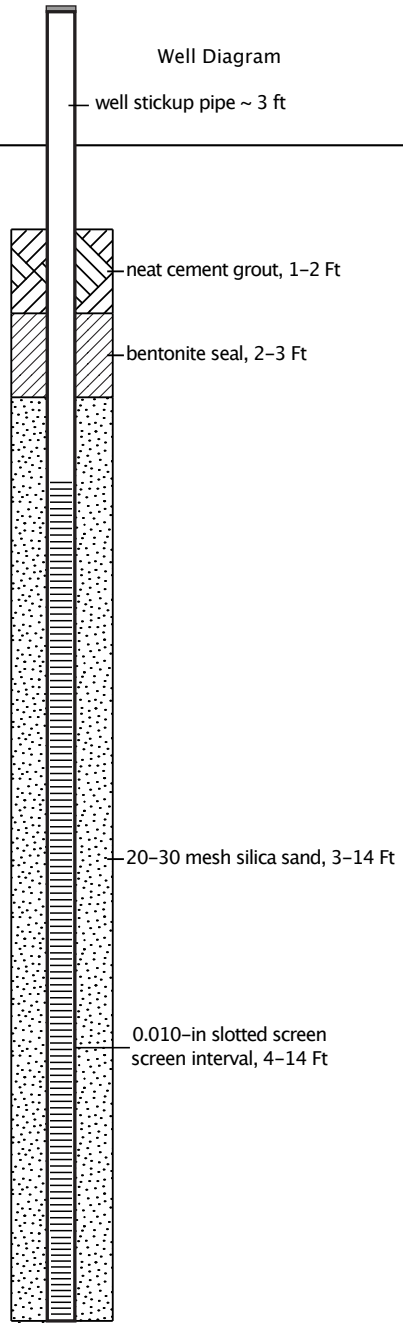
PROJECT NUMBER: DNA-190167	DRILLING DATE: May 7, 2019	COORDINATES: Y=212145.2408, X=229870.9677
PROJECT NAME: CCR Groundwater Monitoring	TOTAL DEPTH: 14 Ft	COORD SYS: NAD 83, PR State Plane (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 2-in	ELEVATION REF: Orthometric, Geoid12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 0.972 m (3.189 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 1.931 m (6.335 Ft)

DRILLING METHOD: Geoprobe 4.25-in ID Hollow Stem Augers

LOGGED BY: Hardy Rodriguez

CHECKED BY: Juan D. Negron, PG

%Recovery	Depth (Ft)	Graphic Log	Lithologic Description
	0		Six inches of fill followed by clayey sand, dark brown, dense hardness, medium plasticity, moist at 2 Ft., low estimated K, no odor, alluvial deposits.
	2		Sandy silt, dark brown, moist, medium stiff hardness, medium to high plasticity, low estimated K, no odor, alluvial deposits.
	6		Sandy silt, dark brown, moist, medium stiff hardness, medium to high plasticity, low estimated K, no odor, alluvial deposits.
	9		Silty sand, light brown, moist, loose hardness, medium plasticity, moderate estimated K, no odor, alluvial deposits.
	10		Fine to medium sand with some feldspars minerals, moist, brown, medium dense hardness, non plasticity, high estimated K, no odor, alluvial beach deposits.
	12		Clay, light brown, moist, soft, high plasticity, low estimated K, no odor, alluvial deposits.
	13		Clay, light brown, moist, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.
	15		Borehole Termination Depth: 15 Ft. Water level while drilling intercepted at 2.5 Ft. below ground surface.



Depth (Ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

GROUNDWATER LOG Temporary Well TW-106

DNA-Environment, LLC

PROJECT NUMBER: DNA-190167	DRILLING DATE: May 8, 2019	COORDINATES: Y =212149.4473, X=229920.7523
PROJECT NAME: CCR Groundwater Monitoring	TOTAL DEPTH: 14 Ft	COORD SYS: NAD 83, PR STATE PLANE (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 2-in	ELEVATION REF: Orthometric, Geoid12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 1.257 m (4.124 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 2.189 m (7.182 Ft)

DRILLING METHOD: Geoprobe 4.25-in ID Hollow Stem Augers

LOGGED BY: Hardy Rodriguez

CHECKED BY: Juan D. Negron, PG

%Recovery	Depth (Ft)	Graphic Log	Lithologic Description	Well Diagram	Depth (Ft)
	0		Fine to medium sand with some angular rock fragments, light brown, loose, non plasticity, high estimated K, no odor, fill material.	well stickup pipe ~ 3 ft	0
	1		Sandy silt, dark brown, moist at 2 Ft., medium stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.	neat cement grout, 1-2 Ft	1
	2			bentonite seal, 2-3 Ft	2
	3				3
	4				4
	5				5
	6				6
	7		Silty sand, dark brown, moist, dense hardness, medium plasticity, moderate estimated K, no odor, alluvial deposits.		7
	8				8
	9			20-30 mesh silica sand, 3-14 Ft	9
	10				10
	11		Fine to medium sand with feldspars minerals, moist, non plasticity, high estimated K, no odor, alluvial beach deposits.	0.010-in slotted screen screen interval, 4-14 Ft	11
	12				12
	13		Medium to coarse sand with feldspars minerals, brown, moist, medium dense, non plasticity, high estimated K, no odor, alluvial beach deposits.		13
	14		Clay, yellowish brown, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.		14
	15		Borehole Termination Depth: 15 Ft. Water level while drilling intercepted at 2 Ft below ground surface.		15

GROUNDWATER LOG Temporary Well TW-107

DNA-Environment, LLC

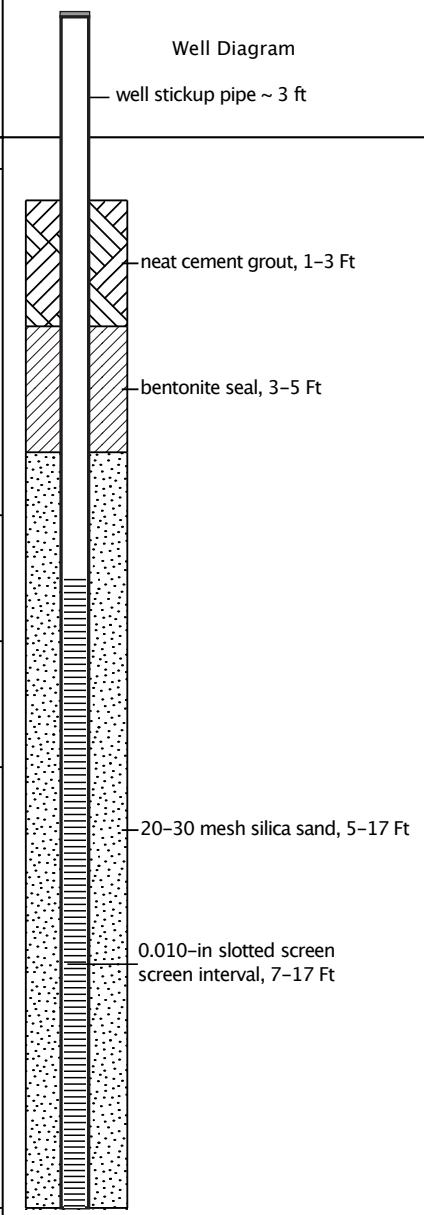
PROJECT NUMBER: DNA-190167	DRILLING DATE: May 8, 2019	COORDINATES: Y=212153.5554, X=229970.3777
PROJECT NAME: CCR Groundwater Monitoring	WELL DEPTH: 17 Ft	COORD SYS: NAD 83, PR State Plane (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 2-in	ELEVATION REF: Orthometric, Geoid12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 1.349 m (4.426 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 2.254 m (7.395 Ft)

DRILLING METHOD: Geoprobe 4.25-in ID Hollow Stem Augers

LOGGED BY: Hardy Rodriguez

CHECKED BY: Juan D. Negron, PG

%Recovery	Depth (Ft)	Graphic Log	Lithologic Description
	0		Six inches of fine sand with some organic material.
	1		Silty sand, brown, moist at 2.5 Ft., medium dense hardness, low plasticity, moderate estimated K, no odor, alluvial deposits.
	6		Sandy silt, dark brown, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.
	8		Silty sand, yellowish brown, moist, soft, high plasticity, low estimated K, no odor, alluvial deposits.
	10		Fine to medium sand with feldspars minerals and calcareous material, brown, loose hardness, non plasticity, high estimated K, no odor, alluvial beach deposits.
	17		Clay, yellowish brown, moist, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.
	18		Clay, dark brown to dark olive green, stiff hardness, high plasticity, low estimated K, vague swamp, odor, swamp deposits.
	20		Borehole Termination Depth: 20 Ft. Water level while drilling intercepted at 2.5 Ft below ground surface.



GROUNDWATER LOG Temporary Well TW-108

DNA-Environment, LLC

PROJECT NUMBER: DNA-190167	DRILLING DATE: May 7, 2019	COORDINATES: Y=212159.3198, X=230031.9076
PROJECT NAME: CCR Groundwater Monitoring	WELL DEPTH: 14 Ft	COORD SYS: NAD 83, PR State Plane (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 2-in	ELEVATION REF: Orthometric, Geoid12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 1.280 m (4.199 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 2.155 m (7.070 Ft)

DRILLING METHOD: Geoprobe 4.25-in ID Hollow Stem Augers

LOGGED BY: Hardy Rodriguez

CHECKED BY: Juan D. Negron, PG

%Recovery	Depth (Ft)	Graphic Log	Lithologic Description	Well Diagram	Depth (Ft)
	0		Fine to medium sand with some angular rock fragments, brown, loose, non plasticity, non odor, high estimated K, fill material.	well stickup pipe ~ 3 ft	0
	1		Clayey sand, olive brown, moist, soft, medium plasticity,moderate estimated K, no odor, alluvial deposits.	neat cement grout, 1-2 Ft	1
	2				2
	3		Silty sand, dark yellowish brown, moist, medium dense hardness, medium plasticity, moderate estimated K, no odor, alluvial deposits.	bentonite seal, 2-3 Ft	3
	4				4
	5				5
	6				6
	7				7
	8				8
	9			20-30 mesh silica sand, 3-14 Ft	9
	10		Fine sand with some feldspars minerals, light brown, moist, medium dense hardness, non plasticity, high estimated K, no odor, alluvial beach deposits.		10
	11		Silty sand, dark yellowish brown, moist, medium dense hardness, medium plasticity, moderate estimated K, no odor, alluvial deposits.	0.010-in slotted screen screen interval, 4-14 Ft	11
	12		Clay, light yellowish brown, moist, medium stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.		12
	13		Clay, light yellowish brown, moist, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.		13
	14				14
	15		Borehole Termination Depth: 15 Ft. Water level while drilling intercepted at 2.5 Ft. below ground surface.		15

GROUNDWATER LOG Temporary Well TW-109

DNA-Environment, LLC

PROJECT NUMBER: DNA-190167	DRILLING DATE: May 8, 2019	COORDINATES: Y=212162.1096, X=230060.4476
PROJECT NAME: CCR Groundwater Monitoring	WELL DEPTH: 14 Ft	COORD SYS: NAD 83, PR State Plane (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 2-in	ELEVATION REF: Orthometric, Geoid12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 1.255 m (4.117 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 2.179 m (7.149 Ft)

DRILLING METHOD: Geoprobe 4.25-in ID Hollow Stem Augers

LOGGED BY: Hardy Rodriguez

CHECKED BY: Juan D. Negron, PG

%Recovery	Depth (Ft)	Graphic Log	Lithologic Description	Well Diagram	Depth (Ft)
	0		Fill material with some organic matter.	well stickup pipe ~ 3 ft	0
	1		Silty sand, dark brown, moist, dense hardness, low plasticity, moderate estimated K, no odor, alluvial deposits.	neat cement grout, 1-2 Ft	1
	2				2
	3		Sandy silt, brown, moist, medium stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.	bentonite seal, 2-3 Ft	3
	4				4
	5				5
	6				6
	7		Silty sand, brown, moist, medium dense hardness, low plasticity, moderate estimated K, no odor, alluvial deposits.		7
	8				8
	9		Fine to medium sand with some feldspars minerals and calcareous material, light brown, moist, medium dense hardness, non plasticity, high estimated K, no odor, alluvial beach deposits.	20-30 mesh silica sand, 3-14 Ft	9
	10				10
	11		Clay, light yellowish brown, moist, medium stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.	0.010-in slotted screen screen interval, 4-14 Ft	11
	12				12
	13		Clay, yellowish brown, moist, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.		13
	14				14
	15		Borehole Termination Depth: 15 Ft. Water level while drilling intercepted at 3 Ft below ground surface.		15

GROUNDWATER LOG Temporary Piezometer P-102

DNA-Environment, LLC

PROJECT NUMBER: DNA-190167	DRILLING DATE: May 10, 2019	COORDINATES: Y=212375.0089, X=229935.0988
PROJECT NAME: CCR Groundwater Monitoring	WELL DEPTH: 24 Ft	COORD SYS: NAD 83, PR State Plane (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 1.5-in	ELEVATION REF: Orthometric, Geoid12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 4.834 m (15.860 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 5.542 m (18.182 Ft)

DRILLING METHOD: Geoprobe 3.25-in ID Dual Tubes

LOGGED BY: Hardy Rodriguez
CHECKED BY: Juan D. Negron, PG

%Recovery	Depth (Ft)	Graphic Log	Lithologic Description	Well Diagram	Depth (Ft)
	0		Fine to medium sand with some angular rock fragments, reddish brown, medium dense hardness, no plasticity, high estimated K, no odor, fill material.	well stickup pipe	0
	2				2
	4			neat cement grout, 1-10 Ft	4
	6				6
	8		Clayey sand with some angular to sub-angular rock fragments, dark yellowish brown, moist, medium dense hardness, medium plasticity, moderate estimated K, no odor, fill material.		8
	10		Sandy clay, very dark brown, medium stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.	bentonite seal, 10-12 Ft	10
	12				12
	14		Fine to medium sand with some sub-angular rock fragments, dark yellowish brown, moist, loose hardness, non plasticity, high estimated K, no odor, alluvial deposits.		14
	16				16
	18		Clayey silt, moist, very dark gray,soft, high plasticity, low estimated K, vague odor, alluvial deposits.	20-30 mesh silica sand, 12-24 Ft	18
	20		Fine sand with some feldspars, olive brown, moist, loose hardness, no plasticity, high estimated K, no odor, alluvial beach deposits.	0.010-in slotted screen screen interval 14-24 Ft	20
	22		Clayey sand, very dark gray,moist,medium dense, medium plasticity, moderate estimated K, vague swamp odor, swamp deposits.		22
	24		Clay, dark yellowish brown, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.		24
	26				26
	28		Borehole Termination Depth at: 28 Ft. Water level intercepted at 15 Ft. below ground surface during soil description sampling conducted on 24 May 2017.		28

GROUNDWATER LOG Temporary Piezometer P-106

DNA-Environment, LLC

PROJECT NUMBER: DNA-190167	DRILLING DATE: May 10, 2019	COORDINATES: Y=212299.0367, X=230114.7307
PROJECT NAME: CCR Groundwater Monitoring	WELL DEPTH: 23 Ft	COORD SYS: NAD 83, PR State Plane (m)
CLIENT: AES Puerto Rico, LP	DIAMETER: 1.5-in	ELEVATION REF: Orthometric, Geoid12B
ADDRESS: Guayama, Puerto Rico	CASING: PVC	GROUND ELEVATION: 4.609 m(15.121 Ft)
DRILLERS: GeoEnviroTech, Inc. (Guaynabo, PR)	SCREEN: PVC Factory Slotted (0.010-in)	WELL ELEVATION AT TOC: 4.949 m(16.237 Ft)

DRILLING METHOD: Geoprobe 3.25-in ID Dual Tubes

LOGGED BY: Hardy Rodriguez

CHECKED BY: Juan D. Negron, PG

%Recovery	Depth (Ft)	Graphic Log	Lithologic Description	Well Diagram	Depth (Ft)
	0		Fine to medium sand with some angular rock fragments, yellowish brown, loose hardness, non plasticity, high estimated K, no odor, fill material.	well stickup pipe	0
	4		Clayey sand with angular to sub-angular rock fragments, yellowish brown, medium dense hardness, medium plasticity, moderate estimated K, no odor, fill material.	neat cement grout, 1-9 Ft	4
	10		Clayey sand, very dark gray,wet, loose hardness, low plasticity, moderate estimated K. no odor, alluvial deposits.	bentonite seal, 9-11 Ft	10
	16		Sandy clay, olive brown, moist, medium stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.	20-30 mesh silica sand, 11-23 Ft	16
	20		Clay, very dark grayish brown, medium stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.	0.010-in slotted screen screen interval 13-23 Ft	20
	28		Clay, dark yellowish brown, stiff hardness, high plasticity, low estimated K, no odor, alluvial deposits.		28
	30		Borehole Termination Depth at: 30 Ft. Water level intercepted at 11 Ft. below ground surface during soil description sampling conducted on June 5, 2017.		30