
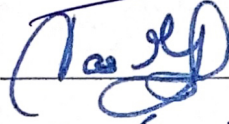
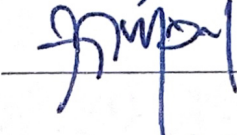

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**Title:**


Coal Combustion Residuals and Agremax™ Dust Control Plan

**Approvals:**

	Signature	Date
Approved by: Felipe Bruneau Sr. Environmental Coordinator		11/3/2022
Reviewed by: Carlos M. Gonzalez		10.5.2022
Elias Sostre Complex Director		11/3/2022
Marco Aresti Operations Manager		11/2/2022


**Distribution List:**

1. CCP Area
2. Material Handling
3. Environmental Coordinator
4. Operations & Maintenance Area
5. Plant Manager

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## **Appendices**

Appendix 1 Dust Control Maps

Appendix 2 Dust Control Activity Flowchart

Appendix 3 Dust Control Inspection Checklist

Appendix 4 Citizen Complaints Log


Appendix 5 Dust Control Training Syllabus

Appendix 6 Employee Training Attendance Form

Appendix 7 Daily Stockpile Inspection Form

Appendix 8 Annual CCR Fugitive Dust Control Reports

Appendix 9 Annual Inspection Reports

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## 1. Purpose

This Standard Operating Procedure (SOP) identifies methods to prevent, reduce or mitigate fugitive dust from the coal combustion residuals (CCRs) and Agremax™ handling activities at the AES-PR site.

The primary purpose of this SOP is to explain how the requirements in Section 2.1.2.10 of the US Environmental Protection Agency's (EPA) 2021 Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (2021 MSGP) - Dust Generation and Vehicle Tracking of Industrial Materials; and the Standards for the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule) of April 17, 2015 will be implemented and monitored at AES-PR.

## 2. Scope


The Coal Combustion Residuals and Agremax™ Dust Control Plan (Plan) described in this SOP addresses fugitive dust emissions (i.e., emitted from any source other than a stack or chimney) from coal combustion residuals (ash) and Agremax™ handling equipment and operations which are non-point sources and area sources within the AES-PR property boundaries as shown in Appendix 1. It does not address particulate or gaseous emissions from point, or other (usually enclosed) sources regulated under the facility's air emission permit issued in accordance with the provisions of Part VI of the Regulation for the Control of Atmospheric Pollution (RCAP) and the Code of Federal Regulations, Title 40 Part 70 e.g., coal combustion and transfer and power generation areas.

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It identifies sources of fugitive dust, outlines the techniques and practices for detecting, monitoring, controlling, minimizing and preventing dust emissions, provides procedures to handle citizen complaints, employee training program guidelines to help them recognize potential sources of dust and the management practices to prevent and control them, identifies the persons and procedures responsible for control equipment availability / operation and maintenance and identifies the inspection / recordkeeping / reporting / notification practices that will be followed.

### 3. Responsibilities

- 3.1. The AES-PR Coal Combustion Products (CCP) and Material Handling (MH) leaders are the dust control site coordinators responsible for the implementation of this SOP, including: reading and understanding it, ensuring that all employees / workers / subcontractors know and understand their dust control responsibilities, monitoring the worksite for compliance with the requirements of this SOP, designing watering schedules, ensuring that adequate watering capability is available, determining when to use standby controls when primary controls are ineffective, determining when to cease and start operations, maintaining records and revising the SOP as necessary, including when the primary and standby or contingency controls don't result in effective control.
- 3.2. The Shift Team Leaders and the CCP/MH Operators are responsible for controlling their operational areas to minimize dust generation. This includes conducting additional inspections, as needed, during high winds and limiting or stopping operations, as needed, during high winds and/or visible dust plume conditions that cannot be controlled. Limitation or ceasing of operations will be documented using the Dust Control Inspection Checklist.
- 3.3. The CPH/MH Operators are responsible for enforcing the requirements of this SOP and notifying the dust control site coordinator or Shift Team Leader of any visible dust plumes which require immediate attention, including those that cross the site boundary. The operational activity that caused the emission will be ceased temporarily until a re-evaluation of the dust control measures is completed and additional controls are identified and implemented, if needed. Limitation or ceasing of operations will be documented using the Dust Control Inspection Checklist.

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3.4. All dust control equipment i.e., water truck, vacuum truck, sweeper, mobile sprinkler guns, hoses, fogging nozzles will be maintained in good operational order by the responsible areas. The water truck will be the responsibility of MH, the sweeper by CCP; all other controls will be the responsibility of the Maintenance Area.

#### **4. Safety Precautions**

All AES-PR employees and contractors must use the safety and personal protective equipment required for conducting the activities described herein, including but not limited to hard hats, safety glasses, harness, life preservers and other, as appropriate.


#### **5. Dust Emission Sources**

The potential dust emission sources covered by this Plan are located at the southeast quadrant of the plant site and the marine dock. See Appendix 1

Fly ash and bottom ash are produced by the coal combustion process and stored in two elevated silos. The dry ash is transferred from the silos directly into totally enclosed bulk trailers for transport, if required.

Agremax™ is a manufactured aggregate produced by AES-PR using its own CCRs. Dry ashes that are not delivered to off-site users are mixed in a pug mill that conditions this CCR to produce Agremax™ with enough moisture to prevent wind dispersal without producing free liquids before feeding an enclosed belt conveyor that is used to transfer the mixture to an open Stockpile Area at the facility where it is also kept wet by the application of water sufficient to prevent dispersal by wind (without producing free liquids). A stockpile to store the inventory of



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Agremax™ is formed by a bulldozer or by dump trucks that are loaded with Agremax™ by an excavator or front-end loader, and the trucks then place the Agremax™ onto a stockpile. Agremax™ can be fed by a bulldozer into a crusher located in the Stockpile Area. The crusher feeds an enclosed belt conveyor to transfer the Agremax™ to marine vessels in the dock area for shipment overseas. Alternatively, from the Stockpile Area the Agremax™ is loaded by an excavator or front-end loader into dump trucks, covered, and dispatched for transport by public highway, if required. Dust can be generated from the ash-Agremax™ transfer operations, truck loading and unloading, crusher loading, from paved and unpaved haul roads within the site, from the Stockpile Area and the belt conveyor system that includes the transfer towers.

## 6. Controls

The main equipment and structures used for controlling dust emissions include a water truck with rear spray nozzles and front water cannon, a broom sweeper, mobile water sprinkler guns, large water hoses, fixed belt conveyor fogging nozzles, fixed water spray nozzle systems / articulated telescoping spouts at drop and loading / shipping areas, a truck wheel cleaning station and curved- paved haul roads.

Wetting of the side slopes of the stockpile when needed will be addressed using the water truck water cannon. In cases when a sprinkler gun is not operational, manual hosing will be used to provide coverage of the affected area.


In addition to the use of the equipment and structures described above, primary (first approach) and contingency (standby or backup strategy) control measures are used to control the generation of dust emissions. Refer to the flowchart in Appendix 2.

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Primary controls include initial and annual personnel training, an operational inspection checklist to monitor the implementation and effectiveness of the control measures, evaluation of weather forecast and real-time instrumental monitoring of weather conditions (precipitation, wind speed-direction [refer to AES Rainfall Data Collection Management & Recordkeeping Procedure. SOP-Eng-002]), around the clock watering of stockpile surfaces and pre-shift watering of haul roads, a log of water truck use, enclosed transfer conveyors, regular monitoring for observation of visible dust emissions (VDE), sweeping / cleaning of paved roads, maintenance / repair of paved road surfaces, immediate cleanup of track-out and material spillage onto paved roads, prohibited use of blower devices or dry rotary brushes or brooms, enforcement of posted vehicle and moving equipment speed limits to 10 miles per hour (mph) or less , traffic restrictions, minimization of drop distances at transfer points, loading of trucks to prevent their contents from dropping/leaking/ blowing or otherwise escaping, sweeping or spray-cleaning and covering dump trucks prior to leaving the facility, 6-inch minimum bed freeboard clearance requirements for loading dump trucks, surface roughening-compaction of stockpile surfaces, placing stockpile ridges at right angles to prevailing winds, conducting loading and unloading activities on the downwind side of a stockpile, watering of exposed areas before forecasted high winds, restriction or termination of a stockpile disturbance and hauling activities during high-wind conditions (i.e., 25 miles per hour or higher) and scheduled washing of mobile equipment.

At the start of each shift or material handling equipment startup and at least twice during each CCP handling shift, the CPH/MH Operators will assess the operational status of all controls and record such assessments using the Dust Control Inspection Checklist in Appendix 3 which will be used to monitor the implementation and effectiveness of the control measures. Water truck operations may be curtailed during wet weather if the CPH/MH Operators confirm that the Agremax™ is sufficiently wet as to not require further wet abatement (one inch of precipitation is equivalent to an application of 5.6 gallons of water per square yard). These determinations will also be recorded in the Dust Control Inspection Checklist.



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If after the implementation of primary control measures, significant visible dust emissions persist, contingency control measures including additional wetting of the stockpiles with sprinklers, applying chemical dust suppressants, surfacing of unpaved haul roads with aggregate cover / aprons and restriction /termination of activities can be implemented. Because the control effectiveness of chemical dust suppressants depend on the dilution rate, the application rate, time between applications, size/speed / amount of traffic and meteorological conditions any chemical dust suppressants used will be applied according to the manufacturer's instructions.

If primary and contingency controls don't result in effective control, this SOP must be revised.


The dust type / source and the primary control measures used for each source can be described as follows:

#### 6.1. Agremax™- Ash / Paved Haul Roads

Description: Emissions can be generated from uncovered truck beds, spillage from haul trucks, vehicle dust carryout and track out. Wind and traffic, including plant (front end loaders, trucks, and trailers) and customer vehicles, re-suspend the deposited material creating secondary sources of dust emissions. The average vehicle weight is highly variable, ranging from small pick-up trucks (1 ton) to large trucks / trailers (30 tons).

Control Methods and Equipment: Wet suppression by water truck with rear water sprinklers and water cannon, pavement cleaning with water hoses, speed limit restrictions to 10 mph or less posted along haul route, wet mechanical sweeping of pavement, immediate cleanup of material spillages, dump truck freeboard / cover, wheel washing and hosing at fixed station, curved shoulders and pavement surface repair as needed.

Frequency of Application: At the beginning of the CCP handling shift, whenever fugitive dust plumes are observed and as required to keep road surfaces wet, clean, and structurally sound.

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Monitoring: Twice Daily during CCP handling operation

Recordkeeping: Dust Control Inspection Checklist

## 6.2. Agremax™ / Unpaved Roads

Description: Emissions can be generated from wind erosion of uncovered truck beds and road surfaces and heavy equipment traffic (bulldozer, excavator, front end loader, trucks and trailers).

Control Methods and Equipment: Daytime wet suppression by water truck with rear water nozzles and water cannon, vehicle speed limits to 10 mph or less, dump truck freeboard / cover.


Frequency of Application: At the beginning of the CCP handling shift, whenever fugitive dust plumes are observed and as required to keep road surfaces wet.

Monitoring: Twice Daily during CCP handling operation

Recordkeeping: Dust Control Inspection Checklist

## 6.3. Agremax™ / Stockpile.

Description: Agremax™ is a cementitious aggregate material which forms a cementitious crust when wetted, resulting in limited fugitive dust emissions. As long as the integrity of this crust is not mechanically broken, wind erosion will be minimized. Agremax™ is stored in an open storage pile that continuously changes in shape and volume. Emissions may be generated from the initial Agremax™ conveyor drop discharge into the Stockpile Area, pushing by heavy equipment to create a stockpile, loading, and unloading of dump trucks to remove or


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add Agremax™ to a stockpile and for off-site transportation, pushing Agremax™ into the crusher feeding the conveyor to the dock and from wind erosion of stockpile surfaces.

Control Methods and Equipment: Daytime and nighttime wet suppression of stockpile surfaces by up to ten Sime Skipper mobile sprinkler guns, daytime wet suppression of stockpile surfaces by water truck with adjustable angle water cannon, fixed water spay nozzles at conveyor drop discharge points, reduced drop heights for truck loading, hose wetting of crusher feed and dump truck unloading, surface roughening, compaction of stockpile surfaces with bulldozer, stockpile ridges at right angles to prevailing winds, confining loading and unloading to downwind side of stockpile, watering of exposed areas before forecasted high winds. The number of sprinkler guns will be appropriate for the area of the Stockpile in use at any time and sprinklers shall be positioned to effectively wet the upper areas of the stockpile. The stockpile will be managed such that water trucks can move effectively to water the upper areas of the stockpile. At least three (3) and up to five (5) spare sprinkler guns are maintained in stock. The combined efficiency of all the Agremax™ moisture content controls described should be well above the 90 % reported just for watering storage piles. In the event that a needed sprinkler gun is found to be non-operational, it will be replaced as soon as possible within twenty-four (24) hours using a stock sprinkler gun. In the unlikely event that a sufficient number of sprinkler guns are not available in stock, up to two (2) water trucks will be used to ensure that sufficient wetting is maintained. As documented in the flowchart in Appendix 2, if sufficient wetting cannot be achieved and application of water cannot be achieved, operations will be discontinued.

Frequency of Application: Around the clock and at the beginning of the CCP handling shift, and as required to keep stockpile surfaces wet.

Monitoring: Twice Daily during CCP handling operations.

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Recordkeeping: Dust Control Inspection Checklist

#### 6.4. Ash / Transfer to Bulk Trailers

Description: Fugitive dust emissions may be generated during the chute connection and disconnection steps required for loading ash from the elevated storage silos into bulk trailers for off-site transportation.

Control Methods and Equipment: Discharge drop height control using articulated- telescopic loading spout, enclosed loading area, wet suppression with water spray nozzles at west side of loading bay, truck- trailer cleaning with water hose before leaving the loading bay.

Frequency of Application: Each loading

Monitoring: Twice Daily during CCP handling operations


Recordkeeping: Dust Control Inspection Checklist

#### 6.5. Agremax™ / Dump Truck Loading and Unloading

Description: Dust emissions may be generated during the loading of Agremax™ into dump trucks to create a stockpile or for off-site transportation and during unloading of dump trucks into a stockpile.

Control Methods and Equipment: Daytime wet suppression by water truck with rear water nozzles and water cannon or large hoses, front end loader and excavator discharge drop height reduction.

Frequency of Application: Each loading

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Monitoring: Twice Daily during CCP handling operations

Recordkeeping: Dust Control Inspection Checklist

#### 6.6. Agremax™ / Conveyor Loading and Transfer

Description: Dust emissions can be generated by wind blowing over exposed Agremax™ on the elevated conveyor used to transfer Agremax™ to marine vessels at the dock area and when it is discharged into the vessel's holding compartment.

Control Methods and Equipment: Enclosed belt conveyors, discharge drop height control with articulated- telescopic loading spout.


Frequency of Application: Each loading

Monitoring: Twice Daily (During Vessel Loading)

Recordkeeping: Dust Control Inspection Checklist

### 7. Citizen Complaints and Corrective Actions

Citizen complaints claiming CCR fugitive dust events at AES-PR will be documented using the Citizen Complaints Log in Appendix 4 so they can be investigated by the Environmental staff. Because CCR dust events may be short-term and visual observations will probably be required, expeditious attention will be provided to these events. If the origin of the complaint is determined to be due to CCR fugitive dust, then corrective and follow-up actions will be identified and included in the Log. This Log of Citizen complaints and a summary of corrective actions taken, if any, will be kept for use in the preparation of the Annual Fugitive Dust Control Report described below.

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## 8. Training

To ensure that the dust control practices are followed, AES-PR will conduct an employee awareness training that will include all applicable dust control measures and the importance of strict compliance. Records of the trainings will be maintained, including the sign-in sheets.

8.1 The designated employees and/or contractors responsible for the performance and/or supervision of dust control activities must receive initial and yearly classroom and hands-on training on this SOP.

8.2 Training in the requirements of this SOP will be provided prior to commencing duties at the affected areas and at least every year following the Training Syllabus in Appendix 5.

8.3 All trainings will be documented using the Employee Training Attendance Log in Appendix 6.


## 9. Inspections, Reports and Corrective Actions

In addition to the inspections described above, AES-PR will perform weekly inspections by a qualified person to identify conditions with the potential to disrupt operations or safety of the CCR inventory stored in the Stockpile Area. A qualified person is one who is familiar with typical CCR handling operations and the requirements of this Plan. The inspections will be documented using the form in Appendix 7.

AES-PR will prepare an Annual CCR Fugitive Dust Control Report that includes the following:

- Descriptions of actions taken to control CCR fugitive dust
- A record of all citizen complaints and a summary of any corrective actions taken



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Finally, AES-PR will engage a qualified professional engineer to prepare an Annual Inspection Report addressing geometric changes, approximate volume, structural weaknesses, existing conditions and any other changes that can disrupt the operation, safety or stability of a stockpile.


## 10. Recordkeeping

All versions of this Plan, the annual CCR Fugitive Dust Control Reports, documentation detailing corrective measures, daily and annual inspections will be kept in the facility's operating record as they become available.

All information related to this SOP will be kept for three years after the expiration of the site's industrial storm water discharge permit under the 2021 MSGP or five years following the date on which it was prepared, whichever is later.

## 11. Internet Requirements and Notifications

AES-PR will ensure the Puerto Rico Department of Natural and Environmental Resources is notified of the availability of the Plan, including any subsequent amendments, and of the availability of the Annual CCR Fugitive Dust Control Report, as provided in the CCR Rule. AES-PR will also ensure the most recent version of the Plan and Annual CCR Fugitive Dust Control Report is posted on a publicly-accessible internet site (CCR Web site) for the AES-PR facility, as required by the CCR Rule.

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## 12. Licensed Professional Engineer Certification

This Dust Control Plan was prepared following the guidelines of 40 CFR 257.80 to cover the needs of the AES Puerto Rico facility located at Km. 142.0 State Road PR-3, Jobos Ward, Guayama, PR.

I, Winston R. Esteves, a Puerto Rico licensed Professional Engineer, certify that:

- I am familiar with the requirements of 40 CFR 257.80;
- I have visited and examined the AES Puerto Rico, facility;
- This Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of the CCR rule;
- Procedures for required inspections have been established; and
- That this Plan is adequate for the facility.

This certification in no way relieves the owner or operator of the facility of the duty to fully implement this Fugitive Dust Control Plan. This Plan is only valid to the extent that the facility owner or operator maintains, tests and inspects controls, equipment, and other devices as prescribed herein. I did not test for proper operation of any equipment, devices, control systems or any other equipment systems not specifically mentioned.



Winston R. Esteves, PE

7/20/22

Date

8827

License Number


8/31/23

License Renewal Date



## 13. Periodic Plan Assessment and Amendments

P.E. Seal


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The effectiveness of this Plan will be assessed to determine if updates or amendments are necessary after reviewing the Annual Fugitive Dust Control Report, the Annual Inspection Report and whenever there is a change in conditions that would substantially affect it e.g. construction and operation of a new CCR unit, significant increases in quantities of CCR managed, changes in CCR handling / storage practices or modifications to CCR handling / storage equipment. All technical amendments to this SOP will be certified by a Professional Engineer.

A record of the amendments made to this SOP is included below.


#### Record of Amendments

<b>Date of Amendment</b>	<b>Amended Sections or Topics</b>	<b>Amendments Made By</b>
---	Original document prepared in August 2015.	---
September 19, 2016	Addition of CCR Rule Provisions for Fugitive Dust	Winston R. Esteves, PE
March 29, 2017	Revision to include EPA August 12, 2016 Water Compliance Inspection comments	Winston R. Esteves, PE
July 19, 2020	Addition of alternative BMP for paved roads. Addition of details related to Controls in Section 6.3 and Revisions to Dust Control Checklist and Stockpile Inspection Form	Winston R. Esteves, PE
July 20, 2022	Revision to reflect personnel changes, clarification of inspection frequency, and 2021 MSGP reference.	Winston R. Esteves, PE

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## 14. References

- 1- AES Rainfall Data Collection Management & Recordkeeping Procedure. SOP-Eng-002.
- 2- Air & Waste Management Association. Air Pollution Engineering Manual. 2000.
- 3- California Stormwater Quality Association. California Stormwater BMP Handbook- Construction. Wind Erosion Control WE-1. May 2011.
- 4- Noyes Data Corporation. Dust Control Handbook. Pollution Technology Review No. 161. 1988.
- 5- US Department of Health and Human Services. Dust Control Handbook for Industrial Minerals Mining and Processing. January 2012.
- 6- United States Environmental Protection Agency (USEPA). Identification, Assessment, and Control of Fugitive Particulate Emissions. EPA -600/8-86-023. August 1986.
- 7- USEPA. Emission Control Technologies and Emission Factors for Unpaved Road Fugitive Emissions. EPA 625/5-87-022. September 1987.
- 8- USEPA. Control of Open Fugitive Dust Sources. EPA 450/3-88-008. September 1988
- 9- USEPA. AP-42 Compilation of Air Pollutant Emission Factors. Volume 1: Stationary Point and Area Sources. Chapter 13: Miscellaneous Sources. January 1995.
- 10- USEPA. Storm Water Management Fact Sheet- Dust Control EPA 832-F-99-003. September 1999.

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<http://www.epa.gov/polwaste/npdes/swbmp/Dust-C>. Web Page last updated on Tuesday, July 1, 2014; Accessed and printed on March 27, 2015. [4 pages]

13- USEPA. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule 80 FR 21301-21501. April 17,2015

14- Western Regional Air Partnership. WRAP Fugitive Dust Handbook. Chapter 9. Storage Pile Wind Erosion. September 7, 2006.