DUST CONTROL PLAN

Thomas Hill Energy Center

Power Division
5693 Highway F
Clifton Hill, MO 65244-9777

October 2015

REVISION HISTORY

Revision Number	Revision Date	Section Revised	Summary of Revisions
00	10/15/15		Initial Plan

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
EPRI	Electric Power Research Institute

SECTION 1

BACKGROUND

The purpose of this Dust Control Plan is to identify and describe the Coal Combustion Residuals (CCR) fugitive dust control procedures used to reduce the potential for CCR becoming airborne at the Thomas Hill Energy Center located in Clifton Hill, MO (Facility). The Thomas Hill Energy Center is located approximately 8 miles north of Clifton Hill, MO (see Figure 1). This facility is a coal fired power plant consisting of three units with a total capacity of 1,153 megawatts. CCRs generated at the facility are either managed by an existing slag pond or by disposal within its Prairie Hill Mine Reclamation area near the Facility. The following sections provide background information on (1) coal combustion residuals and (2) regulatory requirements.

1.1 Coal Combustion Residuals

CCR materials are produced at coal-fired power plants when coal is burned to produce electricity. CCR materials are managed by coal-fired power plant sites, including on-site storage, processing (such as dewatering), and final disposal. Types of CCR typically generated include fly ash, bottom ash, and boiler slag.

Fly ash is captured from exhaust (flue) gases by emissions control equipment including baghouses and electrostatic precipitators. The fly ash at the Thomas Hill Energy Center is conveyed through a pin mixer to add moisture before being transported.

Bottom ash and boiler slag are heavier materials that fall to the bottom of the boiler. Bottom ash is characterized by sand-sized and gravel-sized materials, which settle by gravity to the bottom of a coal-fired furnace. In general, bottom ash is less prone to dusting than fly ash due to its larger particle size. Under certain conditions, such as differential settling in a surface impoundment, the smaller-grained materials can be concentrated at the surface and be a potential source of dust issues. Boiler slag is sluiced to an ash impoundment and the decant water is then discharged into a system of settling ponds. The bottom ash is dewatered underneath the boiler and then conveyed to a loading/unloading area for transportation.

CCR materials including fly ash, bottom ash, and boiler slag are transported by trucks from the Facility to the Prairie Hill Mine Reclamation areas located south of the Facility for placement in the mine as part of the coal mine reclamation.

1.2 Regulatory Requirements

This Dust Control Plan has been developed for the Thomas Hill Energy Center in accordance with applicable federal, state, and local regulations.

1.2.1 CCR Rule Requirements

The CCR Rule (40 Code of Federal Regulations [CFR] Part 257, Subpart D) requires preparation of a Dust Control Plan for facilities including CCR landfills, CCR surface impoundments, and any lateral expansion of a CCR unit. Selected definitions from the CCR Rule are provided below.

> **CCR (coal combustion residuals)** means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.
>
> **CCR fugitive dust** means solid airborne particulate matter that contains or is derived from CCR, emitted from any source other than a stack or chimney.
>
> **CCR landfill** means an area of land or an excavation that receives CCR and which is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface coal mine, or a cave. For purposes of this subpart, a CCR landfill also includes sand and gravel pits and quarries that receive CCR, CCR piles, and any practice that does not meet the definition of a beneficial use of CCR.
>
> **CCR surface impoundment** means a natural topographic depression, manmade excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.
>
> **CCR unit** means any CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit, or a combination of more than one of these units, based on the context of the paragraph(s) in which it is used. This term includes both new and existing units, unless otherwise specified.
>
> **Qualified professional engineer** means an individual who is licensed by a state as a Professional Engineer to practice one or more disciplines of engineering and who is qualified by education, technical knowledge and experience to make the specific technical certifications required under this subpart. Professional engineers making these certifications must be currently licensed in the state where the CCR unit(s) is located.

The CCR Rule requires owners or operators of these CCR facilities to adopt and document "measures that will effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management and material handling activities" (40 CFR 257.80). Existing CCR surface impoundments and existing CCR landfills must prepare a Dust Control Plan "no later than October 19, 2015, or by initial receipt of CCR in any CCR unit at the facility if the owner or operator becomes subject to this subpart after October 19, 2015" (40 CFR 257.80 (b)(5)).

1.2.2 Title V Requirements

Prior to the promulgation of the Rule, AECI has been required by its Title V Operating Permit to minimize and monitor fugitive dust from the site. The facility is operated according to the AECI Title V Operating Permit issued by the Missouri Department of Natural Resources. The permit includes requirements for particulate matter and fugitive dust control. Permit emission limitations include operational requirements for material handling equipment and associated dust controls, such as baghouses. Monitoring is not limited to, but includes pressure drop readings across control devices and opacity readings. On-site haul road fugitive emissions are required to be controlled by various methods, including watering, use of dust suppressants and maintenance and repair.

• Sources of fugitive dust include open areas, roadways, storage piles and material handling.

For these units, the permit contains emission source specific conditions related to the prevention and control of airborne fugitive dust. Permit requirements related to CCR fugitive dust include:

- Opacity and particulate matter emission limitations.
- Air pollution control requirements such as enclosure requirements, watering requirements, paved road maintenance requirements, and other precautions to prevent excessive amounts of particulate matter from becoming airborne from fugitive dust sources.
- Opacity monitoring requirements.

The specific methods used to comply with these requirements for sources of CCR fugitive dust are further discussed in Section 3.

SECTION 2

FACILITY INFORMATION

Name of Facility:	Thomas Hill Energy Center
Name of Operator:	Associated Electric Cooperative, Inc.
Operator Mailing Address:	AECI Environmental Health and Safety Department 4297 Highway F Clifton Hill, MO 65244
Location:	Clifton Hill, MO
Facility Description:	The Thomas Hill Energy Center is located approximately 8 miles north of Clifton Hill, MO (see Figure 1). This facility is a coal fired power plant consisting of three units with a total capacity of 1,150 megawatts. CCRs generated at the facility are either managed by an existing slag pond or by disposal within its Prairie Hill Mine Reclamation area near the Facility. Boiler slag is directly sluiced to an ash impoundment and the decant water is then discharged into a system of settling ponds. The dewatered boiler slag, bottom ash, and fly ash are all transported to the Prairie Hill Mine Reclamation area for placement in the mine as part of the coal mine reclamation.

SECTION 3

DUST CONTROL PROCEDURES

The following sections discuss dust control procedures for (1) CCR short-term storage and management areas, (2) CCR surface impoundment units, (3) mine reclamation, and (4) facility roads. Thomas Hill Energy Center has implemented these dust control procedures, which are applicable and appropriate for site-specific conditions in accordance with 40 CFR 257.80(b)(1).

3.1 CCR Short-Term Storage and Management Areas

The following dust control procedures will be implemented for CCR short-term storage and management areas.

- During short-term storage, a berm, enclosure, or partial enclosure is maintained to provide a wind break around the CCR staging area.
- During loading and unloading activities, drop height is kept low to reduce the potential for mobilization of CCR dust.
- During high wind conditions, loading and management operations may be reduced or halted.
- Water spray or chemical dust suppressant is applied, as needed, to CCR piles during staging or transportation. Manual water spray is used as needed.

3.2 CCR Surface Impoundment Units

In CCR surface impoundments (SI), CCR are stored as a slurry mixture with high water content and the wetted CCR pond surface is present at a lower elevation than its surroundings (e.g., berms) and would not be expected to cause dusting. However, as the surface impoundments are being filled or drained, the CCR may be stacked or exposed above the pond water level, and, based on these conditions, CCR can become airborne during storage in the CCR SI. The stacked or exposed areas are treated appropriately with water spray, as needed, until the material can be removed and disposed of properly.

If dry CCR areas are observed during dry weather conditions, it may be possible to adjust the CCR SI water level upward to hydrate these areas and reduce the potential for

CCR to become airborne. In addition, these areas may be manually sprayed with water to control mobilization of dust.

When CCR are dredged from a CCR SI, additional dust control procedures may be employed during dewatering and subsequent transportation for disposal or beneficial reuse if the CCR become dry, as discussed in Section 3.1 for short-term storage and management areas.

3.3 Mine Reclamation

CCR materials including fly ash, bottom ash, and boiler slag are transported by trucks from the Facility to the Prairie Hill Mine Reclamation areas located south of the Facility for placement in the mine as part of the coal mine reclamation. Water will be added to the CCR materials to reduce any wind dispersal and improve compaction during CCR placement.

The following additional dust control procedures will be implemented for CCR placement as part of coal mine reclamation.

- Active areas are reduced to the extent possible, and the working face will be maintained as small as feasible.
- During loading and unloading activities, the drop height will be minimized to control mobilization of CCR dust.
- Water spray or chemical dust suppressant is applied to the exposed CCR, including on the working face, as needed.
- During high wind conditions, unloading operations at the working face may be reduced or halted.

When active CCR operations are completed in a given area, as well as prior to any long-term inactivity in a given area, the areas are contoured as needed to reduce the slopes of any exposed CCR.

Following installation, the final cap and cover, including vegetation, are maintained to reduce the potential for CCR becoming exposed to the atmosphere and airborne.

3.4 Facility Roads

The following dust control procedures will be implemented for roads in active use for CCR management activities at the Facility, or that are being traveled by construction equipment employed in CCR management activities.

- Reduced vehicle speed limits are enforced to reduce dust mobilization.
- During high wind conditions, operations and related traffic may be reduced or halted.
- Prior to transportation, CCR is conditioned by adding water to the ash to control mobilization of CCR dust. If ash is transported dry, it may be transported in a fully enclosed trailer or covered using well-fitted tarps to reduce the potential for CCR becoming airborne during truck transport.
- During non-freezing weather, unpaved roads at the Facility are sprayed as needed throughout the day using water trucks.
- During freezing weather, a solution of calcium chloride (or equivalent hygroscopic product) or other dust suppression agent may be applied on the unpaved roads to reduce fugitive dusting.
- Paved roads at the Facility are maintained to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these roads.

Good housekeeping measures are implemented at all areas of the Facility. In addition, trucks and vehicles that have the potential to track ash, mud, or dust outside of the CCR management area(s) are cleaned, as needed.

SECTION 4

RECORDKEEPING AND REPORTING

The following sections provide details regarding: (1) Dust Control Plan preparation, (2) community involvement, (3) annual reporting, and (4) Dust Control Plan assessment and update process.

4.1 Dust Control Plan Preparation

Existing CCR surface impoundments and existing CCR landfills must prepare a Dust Control Plan "no later than October 19, 2015, or by initial receipt of CCR in any CCR unit at the facility if the owner or operator becomes subject to this subpart after October 19, 2015" as required by 40 CFR 257.80 (b)(5).

A complete, updated copy of this Dust Control Plan is maintained in the Facility operating record and on the Thomas Hill Energy Center publicly accessible internet site in accordance with 40 CFR 257.80(a), 257.105(g), and 257.107(g). The State Director is notified when this Dust Control Plan, or any subsequent amended version, is placed in the Facility operating record and on the Thomas Hill Energy Center site, in accordance with 40 CFR 257.106(g).

4.2 Community Involvement

Thomas Hill Energy Center has implemented procedures for community involvement, including "logging citizen complaints involving CCR fugitive dust events at the facility," as required by 40 CFR 257.80 (b)(3). The Thomas Hill Energy Center publicly accessible internet site provides contact information for stakeholders to contact with any questions or concerns regarding dust controls at the facility. The designated point(s) of contact for responding to stakeholder concerns regarding dust controls is listed below.

AECI Environmental Health and Safety Department
Thomas Hill Energy Center

Thomas Hill Energy Center will maintain records of stakeholder correspondence regarding any concerns about dust controls at the Facility in accordance with 40 CFR 257.80(b)(3). Appendix A provides an example stakeholder correspondence record

form. Thomas Hill Energy Center's designated point(s) of contact will evaluate stakeholder concerns and complete an investigation of the event. The results of the investigation, as well as any resulting action items, will be implemented and then communicated to the stakeholders.

Section 4.3 presents annual dust control reporting requirements, including documentation of any stakeholder concerns about dust controls at the Facility, along with any required corrective actions.

4.3 Annual Reporting

Thomas Hill Energy Center will prepare annual dust control reports in accordance with 40 CFR 257.80(c) to document the following information:

- Description of dust control procedures implemented at the CCR units
- Summary of any concerns raised by stakeholders
- Description of any corrective actions taken

The first Annual Dust Control Report will be completed in accordance with 40 CFR 257.80(c) and placed in the Facility's operating record. Subsequent Annual Dust Control Reports will be completed one year after the initial report and each calendar year thereafter. Each Annual Dust Control Report is completed and placed in the Facility operating record and on the Thomas Hill Energy Center's internet site, as required by 40 CFR 257.80(c), 257.105(g), and 257.107(g), within the specified timeframes. The State Director is notified when each Annual Dust Control Report has been placed in the Facility operating record and on the internet site, in accordance with 40 CFR 257.106(g).

4.4 Dust Control Plan Assessment and Update Process

Thomas Hill Energy Center periodically assesses the effectiveness of this Dust Control Plan in accordance with 40 CFR 257.80(b). If more effective prevention and control technology has been field-proven at the time of the review and will significantly improve dust controls, the Dust Control Plan will be amended to reflect changes and the changes will be implemented at the Facility. The designated person accountable for dust control at the Facility is responsible for documenting completion of the review, signing a statement as to whether the Dust Control Plan is amended, and recording the

results in Appendix B. Technical changes made to this Dust Control Plan will be certified by a qualified Professional Engineer as required by 40 CFR 257.80(b).

Thomas Hill Energy Center will also amend this Dust Control Plan in accordance with 40 CFR 257.80(b) whenever there is a change in conditions that would substantially affect the written Dust Control Plan in effect, such as the construction and operation of a new CCR unit. The amended Dust Control Plan will be implemented before or concurrently with the initial receipt of CCR into any new CCR unit(s). Technical changes made to this Dust Control Plan will be certified by a qualified Professional Engineer as required by 40 CFR 257.80(b).

The State Director will be notified in accordance with 40 CFR 257.106(g) when this Dust Control Plan has been amended and placed in the Facility operating record and on the internet site.

SECTION 5

ENGINEERING CERTIFICATION

Pursuant to 40 CFR 257.80 and by means of this certification, I attest that:

(i) I am familiar with the requirements of the CCR Rule (40 CFR 257);

(ii) I, or my agent, have visited and examined the Thomas Hill Energy Center;

(iii) the Dust Control Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of the CCR Rule; and

(iv) the Dust Control Plan meets the requirements of 40 CFR 257.80.

Michael C. Stiefermann
Printed Name of Qualified Professional Engineer

STATE OF MISSOURI
MICHAEL C
STIEFERMANN
NUMBER
E-29562
REGISTERED PROFESSIONAL ENGINEER

10-18-2015

Signature of Qualified Professional Engineer

Registration/License No. E-29562 State: MO

FIGURES


Thomas Hill
Energy Center
Legend
Slag Pond Cells
Prairie Hill Mine Reclamation
N
W
E
S

APPENDIX A

Stakeholder Correspondence Records

THOMAS HILL ENERGY CENTER

Stakeholder Correspondence Record

Facility name	**Thomas Hill Energy Center**
Facility location	**Clifton Hill, MO**
Facility phone number	**660-261-4221**

Time and date of correspondence _____

Name of stakeholder _____

Phone number for stakeholder _____

Mailing address / email address for stakeholder _____

_____

Topic of correspondence (e.g., document question, concern, or observation) _____

_____

_____

Describe observed event, if applicable (include date/time, weather conditions, and any other information provided) _____

_____

_____

Required corrective actions or follow-up, if applicable _____

_____

_____

Note: Attach additional sheets or correspondence, as applicable.

APPENDIX B

Dust Control Plan Review Documentation

THOMAS HILL ENERGY CENTER

DUST CONTROL PLAN REVIEW DOCUMENTATION

This Dust Control Plan has been reviewed in accordance with 40 CFR 257.80(b) to assess if more effective control procedures are available to significantly reduce the likelihood of CCR from becoming airborne at the facility.

By means of this certification, I attest that I have completed a review and evaluation of this Dust Control Plan for the Facility located in Clifton Hill, MO, and as a result

_____ Will

_____ Will Not

amend the Dust Control Plan. Technical amendments to the Dust Control Plan have been certified by a Qualified Professional Engineer.

_____ _____

Signature, Authorized Facility Representative Date

_____

Name (Printed)

_____

Title