Coal Combustion Residuals

Fugitive Dust Control Plan

Revision 0

Prepared for
Montana-Dakota Utilities Company
R.M. Heskett Station

October 12, 2015

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Certifications

I hereby certify that I, or my agent, have examined the facility and, being familiar with the provisions of 40 CFR 257 Subp. D, attest that this Coal Combustion Residuals Fugitive Dust Control Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR §257.80. I certify that the plan is adequate for this facility and that procedures for the required monitoring and recordkeeping have been established.

Revision	Date	Summary of Revisions
0	1	Original plan

Seth W. Hueckman
Barr Engineering Co.
ND Registration Number PE-10057

Dated this 12th day of October, 2015

1.0 Introduction

The process of ash disposal at the R.M. Heskett Station (Heskett) of Montana-Dakota Utilities (MDU) is subject to Federal Standards for the Disposal of Coal Combustion Residuals (CCR) in Landfills and Surface Impoundments per 40 Code of Federal Regulations (CFR) Part 257 Subpart D. CCR is defined in 40 CFR §257.53, Definitions as follows:

> *"...CCR 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..."*

This CCR Fugitive Dust Control Plan (FDCP) has been developed to satisfy the requirements described in 40 CFR §257.80, Air Criteria, as they apply to CCR units, roads, and other CCR management and material handling activities at the Heskett Facility. If the processes for controlling fugitive dust from the stated operations are modified, this plan should be updated according to the procedures described in Section 6.0.

2.0 Objective

The CCR FDCP identifies the control measures and operating practices that MDU will implement at Heskett on an as-needed basis to effectively minimize CCR fugitive dust emissions from CCR loading, hauling, placement, and storage in the CCR disposal facility (landfill and disposal facility are used interchangeably hereafter).

In order to fulfill this objective, the plan must:

- define the CCR fugitive dust emission sources;
- define procedures required to effectively minimize CCR fugitive dust emission levels;
- define all CCR fugitive dust monitoring requirements;
- define all CCR fugitive dust notification requirements; and
- define the recordkeeping and reporting requirements for CCR fugitive dust.

3.0 Fugitive Emission Sources

This CCR FDCP addresses the possible emissions occurring in the process of transporting multiple types of CCR from Units 1 and 2 to the CCR disposal facility and subsequent emissions at the disposal facility. Unit 1 and Unit 2 are both coal-fired boilers that produce CCR. The CCR is divided between three silos depending on CCR type: fly ash or bottom ash. Each silo is equipped with a truck loading area. Fly ash from Units 1 and 2 is stored in the Central Silo. The ash is conditioned using water as it leaves the silo and is loaded into trucks. Bottom ash from Unit 1 is stored in the North Silo, and removed every third or fourth day. MDU has the capability to remove mechanical ash (heavier fly ash) from Unit 2 and store it in the North Silo as needed. Once the various types of ash are generated, the CCR FDCP applies to potential emission points outlined below. The location of each emission source is denoted on Diagram 1 – Site Plan.

Truck Loading: Haul trucks transport CCR from the plant to the landfill. Truck loading occurs at various locations within the facility depending on the type of CCR as previously described and are shown on Diagram 2 – Site Area.

Haul Road: The haul truck transports CCR along the gravel haul road to the landfill. CCR emissions can occur along the haul road.

Bunker/containment: At times some boiler slag and on rare occasions other CCR is stored in containment before being transferred to the landfill.

Placement: The CCR is removed from the haul truck into the currently active CCR landfill. CCR emissions can occur during the truck dumping operation and during spreading of the CCR within the landfill.

CCR Disposal Facility: Heskett operates an on-site CCR disposal facility (landfill). CCR emissions can occur during vehicle travel on the CCR surface within the disposal facility and during dry weather/high wind conditions.

4.0 Emissions Control Strategies

40 CFR §257.80 (b)(1) and (b)(2), Air Criteria, describe regulations applicable to emissions control strategies for this CCR FDCP. Relevant segments are cited below.

> *40 CFR §257.80 (b)(1) states, "The owner or operator must select, and include in the CCR fugitive dust control plan, the CCR fugitive dust control measures that are most appropriate for site conditions, along with an explanation of how the measures selected are applicable and appropriate for site conditions."*
>
> *Additionally 40 CFR §257.80 (b)(2) states, "If the owner or operator operates a CCR landfill or any lateral expansion of a CCR landfill, the CCR fugitive dust control plan must include procedures to emplace CCR as conditioned CCR. Conditioned CCR means wetting CCR with water to a moisture content that will prevent wind dispersal, but will not result in free liquids."*

MDU implements multiple types of CCR fugitive dust control measures to minimize CCR from becoming airborne. The following measures and procedures are most applicable and appropriate for site conditions at Heskett:

- Delay hauling in high wind conditions. The silos are able to store CCR for more than one day but less than two days. This control method is applicable because the site region will occasionally experience high wind conditions. High wind accelerates drying of moisture-conditioned CCR and causes increased CCR fugitive dust transport. By suspending hauling during high wind conditions, accelerated drying of the CCR that occurs after placement in the landfill and the emissions that can occur during CCR discharge from the haul trucks are avoided.
- Condition CCR by adding water to CCR as it leaves the silo before loading into haul trucks. The water to ash ratio is manually adjusted by MDU personnel to account for varying weather conditions. The water conditioned CCR is heavier and more likely to aggregate, decreasing the likelihood of fugitive dust emissions.
- Place fluidized bed material on top of the fly ash in the CCR disposal facility. The weight of the fluidized bed material prevents fly ash from becoming airborne. This method utilizes the readily available source of fluidized bed material to minimize emissions from deposits of the lighter fly ash.
- Apply water to haul roads using a water truck. Truck traffic, sun exposure, and wind conditions can increase the mobility of dust on unpaved haul roads. Watering reduces soil agitation and dust generation caused by these factors. Watering frequency may be adjusted according to meteorological conditions and as determined by inspections. Water truck fill locations are denoted on Diagram 1 – Site Plan and Diagram 2 - Site Area.
- Maintain CCR placement procedure in the landfill to minimize CCR fugitive dust emissions. MDU implements a CCR placement procedure with fill progressing upwind. The progression upwind

mitigates CCR fugitive dust emissions by allowing more downwind travel distance within the landfill, which increases the opportunity for any airborne dust to settle out of the air. This placement procedure will minimize potential CCR transport by air currents into populated areas.

- Addressing any CCR spills. If a CCR spill occurs and is less than approximately one cubic foot of CCR (i.e., size of a 5-gallon bucket), removal of spilled CCR is completed by the end of the day. If the spill is greater than approximately one cubic foot, removal of CCR is immediate. These procedures minimize CCR exposure time to prevent it from becoming airborne.
- Use pay loaders in place of tracked dozers for CCR placement. The dozer blade stirs up CCR and subjects it to air currents. The bucket of the loader is able to contain the CCR and significantly reduces the amount of CCR that becomes airborne as CCR is spread after placement into the landfill.
- Maintain a grass or cover crop on the covered portion of the CCR disposal facility. The landfill cover is vegetated and stabilized to prevent water and wind erosion while also sometimes providing a beneficial use through occasional harvesting of the cover crop.

5.0 Monitoring

40 CFR §257.80(b)(4), Air Criteria, stipulates that, *"The CCR fugitive dust control plan must include a description of the procedures the owner or operator will follow to periodically assess the effectiveness of the control plan."* A person other than a professional engineer may perform monitoring responsibilities. In order to ensure that operations are in accordance with this plan, MDU personnel monitor operations and meteorological conditions as outlined below. MDU personnel will at a minimum monitor these factors on a weekly basis at Heskett. In the event that operations are suspended or idled, the associated operations may not require monitoring until such time that operations restart.

- Boundary Dust Observation Log: Record temperature, wind speed (provided by national weather service), wind direction (provided by national weather service), sky condition, and dust observation.
- Precipitation Log: Record date and precipitation amount (obtained from rain gauge on site).
- Ash Haul Log: Record date, time, landfill area in which CCR is placed, and whether spill occurred.

6.0 Recordkeeping

40 CFR §257.80 (b)(5), Air Criteria, states that, *"The owner or operator of a CCR unit must prepare an initial CCR fugitive dust control plan for the facility no later than October 19, 2015."* The plan is considered complete when it is placed in the MDU facility operating record. In accordance with Section C.VI.F of the preamble to 40 CFR §257 Subpart D, "*The plan and any subsequent amendments must be certified by a qualified professional engineer*".

After October 19, 2015, MDU will maintain a copy of the most recent version of the CCR FDCP in the facility's operating record for Heskett. According to 40 CFR §257.80 (b)(6), MDU can, *"amend the written CCR fugitive dust control plan at any time provided the revised plan is placed in the facility's operating record."* If the plan is updated, the new version of the CCR FDCP will be put in the operating record *"as it becomes available"* in accordance with 40 CFR §257.105 (g). After a qualified professional engineer has certified the most recent revision of the CCR FDCP, a person other than a professional engineer may put the most recent version in the facility's operating record.

When the initial plan, and successive revisions to the plan, are placed in the operating record the most current version will be made publicly available on the MDU CCR website in compliance with 40 CFR §257.107 (g)(1), Publicly Accessible Internet Site Requirements. Additionally, to comply with 40 CFR §257.106 (g)(1), Notification Requirements, MDU will" *notify the State Director... when [the fugitive dust control plan] has been placed in the operating record and on the owner or operator's publicly accessible internet site"* using the contact information listed below:

North Dakota Department of Health
Attn: Director, Division of Waste Management
918 E. Divide Ave, 3rd Floor
Bismarck, ND 58501
P: (701) 328.5166
F: (701) 328.5185

After a qualified professional engineer has certified the most recent revision of the CCR FDCP, and it has been placed in the facility's operating record, a person other than a professional engineer may put the most recent version on the MDU CCR website and notify the State Director. The most recent revision of the CCR FDCP must be posted to the MDU CCR website and the State Director notified within 30 days of placing it in the facility's operating record.

MDU has a history of positive communication with the community. As required by 40 CFR §257.80 (b)(3), a log will be kept of any citizen complaints regarding CCR fugitive dust events at the facility. A record of the citizen complaints and corrective measures implemented to address these complaints will be included in the annual CCR fugitive dust control report as required by 40 CFR §257.80 (c), which is described in Section 7.0. Additional components of the report will be compiled from records kept in accordance with the monitoring section of this plan.

7.0 Reporting

In order to comply with 40 CFR §257.80 (c), MDU will compile an annual report on CCR fugitive dust control. The annual report will include, *"a description of the actions taken by the owner or operator to control CCR fugitive dust, a record of all citizen complaints, and a summary of any corrective measures taken."* As stated in 257.80 (c), this report will be *"completed no later than 14 months after placing the initial CCR fugitive dust control plan in the facility's operating record,"* and subsequent reports will be completed *"one year after the date of completing the previous report."* As specified in 40 CFR §257.105 (g), the report will be added to the facility's operating record *"as it becomes available."* A person other than a professional engineer may compile the annual report on CCR fugitive dust control, and add the report to the facility's operating record.

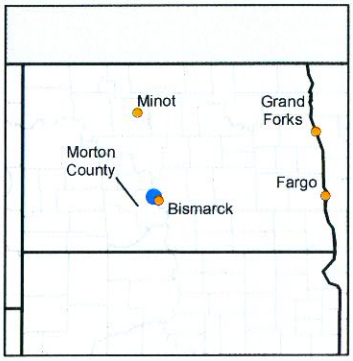
Within 30 days of placing the report in the operating record, the report will be made publicly available by posting it on the MDU CCR website in compliance with 40 CFR §257.107 (g)(2), Publicly Accessible Internet Site Requirements. In accordance with 40 CFR §257.106 (g)(2), Notification Requirements, MDU will also, within 30 days of placing the report in the operating record, *"notify the State Director... when [the annual CCR fugitive dust control report] has been placed in the operating record and on the owner or operator's publicly accessible internet site"* using the previously stated contact information for the North Dakota Department of Health, Division of Waste Management. A person other than a professional engineer may notify the State Director of the annual CCR fugitive dust control report's availability in the facility operating record and CCR website. A summary of all the monitoring, recordkeeping, and reporting requirements is shown in Table 7-1.

Table 7-1 Monitoring, Recordkeeping, and Reporting Summary

Requirement	Performed By	Place in Operating Record	Post to Website	Notification to State
CCR Fugitive Dust Control Plan	Professional Engineer	Yes	Yes	Yes
CCR Fugitive Dust Control Plan Amendment	Professional Engineer	Yes	Yes	Yes
CCR Fugitive Dust Routine Monitoring	MDU Personnel	No	No	No
Annual CCR Fugitive Dust Control Report	MDU Personnel	Yes	Yes	Yes

Appendix A

Diagrams



- Ash Haul Route
- CCR Disposal Facility
- Potential Fill Station for Water Truck
- Water Truck Fill Location
- Bottom Ash Silo/Loading
- Fly Ash Silo/Loading
- Fluidized Bed Material Silo/Loading
- Storage Bin

N

0 400 800 1,600

Feet

1 Inch = 800 Feet

Aerial Photography, USDA-FSA
Aerial Photography Field Office, 2014

DIAGRAM 1 - SITE PLAN
R.M. Heskett Station
Montana Dakota Utilities Co.
Morton County, North Dakota

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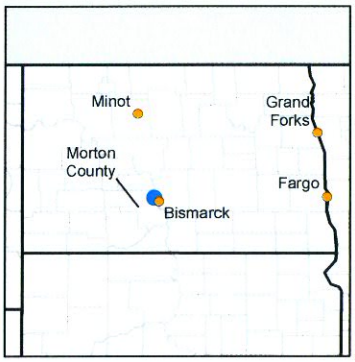

- Ash Haul Route
- Water Truck Fill Location
- Bottom Ash Silo/Loading
- Fly Ash Silo/Loading
- Fluidized Bed Material Silo/Loading
- Storage Bin

N

0 125 250 500

Feet

1 Inch = 250 Feet

Aerial Photography, USDA-FSA
Aerial Photography Field Office, 2014

DIAGRAM 2 - SITE AREA
R.M. Heskett Station
Montana Dakota Utilities Co.
Morton County, North Dakota

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