Coal Combustion Residual
Fugitive Dust Control Plan

Basin Electric Power Cooperative
Leland Olds Station

October 2015

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Purpose and Definitions

In accordance with 40 CFR §257.80, the purpose of this Fugitive Dust Control Plan (Plan) is to adopt measures that will effectively minimize Coal Combustion Residuals (CCRs) from becoming airborne at the Basin Electric Power Cooperative (Basin Electric) Leland Olds Station (LOS), including CCR fugitive dust originating from active and inactive CCR units, roads, and other CCR material management and material handling activities.

LOS operates two lignite-fired boilers, resulting in the production of CCRs. CCRs and CCR fugitive dust are defined in 40 CFR §257.53 (Definitions) as:

"*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.*"

"CCR fugitive dust means solid airborne particulate matter that contains or is derived from CCRs, emitted from any source other than a stack or chimney."

CCRs generated at LOS (and thus regulated under 40 CFR 257) include boiler slag, flue gas desulfurization (FGD) materials and fly ash.

Dust from coal piles, aggregate surfaced roads, soil stockpiles and other non-CCR sources are not subject to this Plan.

Responsibility

Implementation of this Plan is the responsibility of the facility Environmental Coordinator, Coal Yard Supervisors, all Shift supervisors, Lead Yard Equipment Operators and Equipment Operators.

CCR Production and Handling

On a daily average, approximately 1400 tons of FGD materials, fly ash, and boiler slag (oftentimes referred to as bottom ash) are generated at LOS. Not all CCRs generated at LOS are managed in solid waste facilities; significant amounts of boiler slag and fly ash are sold for beneficial use. The proportions of FGD, fly ash, and boiler slag produced at LOS are approximately 40%, 30% and 30% respectively. A description of CCR generation and handling at LOS follows.

CCRs are produced from the combustion of lignite and subbituminous coal in Units 1 and 2 at LOS. Unit 1 is a nominally rated 216-megawatt gross generating unit that uses a pulverized coal burning dry-bottom boiler. Unit 2 is a nominally rated 440-megawatt generating unit that uses a cyclone-fired wet-bottom boiler. Fly ash is captured in the LOS electrostatic precipitator system and transferred to a storage silo. Vertical shaft batch operation ash conditioners mix water (typically 10 to 20% by weight) with the dry fly ash to minimize dusting before being loaded into 40 or 70 ton off-highway haul trucks for transportation to the Glenharold Mine landfill for final disposal or for beneficial reuse.

Bottom ash/boiler slag from Unit 1 and Unit 2 boilers is hydraulically conveyed to a temporary dewatering system consisting of a series of weirs adjacent to the previously used ash pond. The dewatered bottom ash is loaded into trucks for transportation to the Glenharold Mine landfill or rail cars for beneficial reuse. These CCRs have approximately 15 to 40 percent moisture content when transported to the landfill. A range of zero-discharge technologies are being evaluated to replace the current bottom ash handling system, including submerged chain conveyors and dewatering tanks/bins. Various methods for loading the material into haul trucks are also being contemplated. As such, the Fugitive Dust Control plan will need to be updated when the permanent solution is implemented.

The method for controlling sulfur dioxide (SO_2) emissions from LOS is wet flue gas desulfurization. Limestone slurry is used as the scrubbing reagent. Flue gas enters the absorber reaction tank and passes vertically through multiple levels where a spray of fine slurry droplets contact and react with the flue gas, forming synthetic gypsum. The gypsum produced in the scrubbing process is removed from each absorber reaction tank through one of two bleed pumps and is directed to a dedicated hydroclone cluster for primary dewatering. The resulting slurry is pumped to one of two redundant vacuum belt filters for secondary dewatering. The synthetic gypsum has a moisture content of approximately 10 to 20 percent when transferred to the load out conveyors. The FGD material (synthetic gypsum) is periodically loaded into 40 or 70 ton off-highway haul trucks for transportation to the Glenharold Mine landfill.

When not being beneficially reused, the moisture-conditioned CCRs (fly ash, boiler slag, and FGD material) are transported by haul truck approximately 4.5 miles to the LOS Glenharold Mine landfill, where the CCRs are dumped, spread and compacted.

Identification of Sources

Potential sources for CCR fugitive dust emission include CCR loading, hauling and landfill operations. The inactive surface impoundment containing boiler slag may present a potential, however unlikely, source of CCR fugitive dust.

Description and Justification of Controls

Fugitive dust from loading/unloading operations is controlled by the moisture conditioning of materials (described in previous section). Bottom ash is a relatively coarse-grained material, and as indicated earlier, contains 15 to 40 percent moisture when loaded into haul trucks. These factors (large grain-size and high moisture content) greatly reduce the probability of fugitive dust emissions of this CCR.

Both fly ash and FGD material are relatively fine-grained, and if excessively dry, these materials have the potential for becoming airborne during loading operations. As described earlier, vertical shaft batch operation ash conditioners mix water (typically 10 to 20% by weight) with the stored fly ash to minimize dusting, before discharging the conditioned ash into haul trucks. Dust suppressing agents may also be utilized in conjunction with water. FGD material normally contains adequate moisture when it is discharged from the secondary dewatering system. To further minimize the potential for dusting, fly ash and FGD material are loaded into haul trucks in a partial enclosure.

The primary means of controlling fugitive dust during CCR hauling operations is by moisture conditioning the materials (described earlier) before transport. Dust suppressant agents may also be utilized in conjunction with water for increased fugitive dust minimization. The speed limit for loaded haul trucks is 30 mph, further limiting the probability of dusting. In addition, hauling may be suspended if wind speeds are greater than 40 mph (dependent on other mitigating conditions such as rain, freezing temperatures, etc.)

Truck operators are trained to prevent the haul trucks from being overfilled during loading operations, thus minimizing potential spillage from haul trucks. Any CCRs that are spilled in waste loading or handling areas, on haul roads, access ramps, or other areas out of the immediate disposal area will be cleaned up and returned to the transport vehicle or to the disposal area.

Boiler slag stored in the inactive surface impoundment is relatively coarse-grained and not normally susceptible to dusting. Further, the bulk of the boiler slag is submerged, again preventing any possibility of dusting. Finally, the inactive surface impoundment will be closed within approximately 18 to 24 months, effectively eliminating the possibility for fugitive dust emissions from this source.

North Dakota Administrative Code Chapter 33-15-17-03 (2) (f) requires that waste disposal sites be operated and constructed as to prevent particulate matter from being airborne. As with loading and hauling operations, the primary means of controlling fugitive dust during landfill operations is the CCR moisture conditioning that occurs before the materials are loaded into haul trucks. Since the distance from the CCR loading to the landfill is relatively small, moisture-conditioned CCRs arrive at the landfill with essentially the same moisture content as when initially loaded. Landfill operations may be temporarily suspended if wind speeds are greater than 40 mph, again, dependent on other mitigating conditions (rain, freezing temperatures, etc.) On areas where fly ash and FGD material will not be immediately placed or on areas subject to equipment traffic, bottom ash will spread to seal the area, minimizing fugitive dust. Water may be spread on the landfill if needed for additional dust suppression. Finally, the practice of partial sequential closure will be incorporated at this facility. As areas of the landfill are brought to grade, the final cover system will be installed, effectively eliminating the possibility of CCR fugitive dust emission from these capped and revegetated areas.

Statement of Moisture Conditioning

Before CCRs are loaded into trucks for transport to the landfill, fly ash and FGD material are moisture-conditioned to 10 to 20% moisture content. This moisture content effectively minimizes these CCRs from becoming airborne. Bottom ash typically contains 15 to 40% moisture content when loaded into haul trucks.

Establish Log for Complaints

To date, Basin Electric has not received any complaints due to CCR dust emissions from this facility. A log for recording citizen complaints is attached (Attachment 1). Log entries include data and time of complaint, name and telephone number of person making complaint, location of reported fugitive dusting event, corrective measures taken, and current weather condition parameter estimates (including wind speed and direction, temperature, relative humidity, etc.)

Periodic Assessments and Amendment of Plan

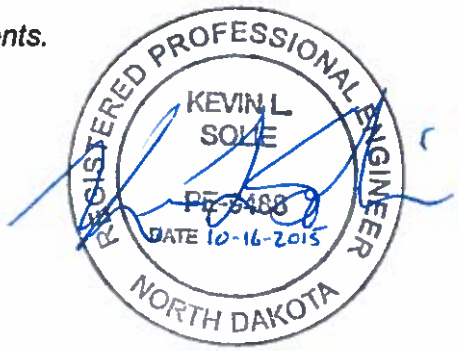
The facility environmental coordinator or other qualified person will include observations for fugitive dust emissions while performing weekly and monthly inspections required by the CCR Rule 40 CFR §257.83 and/or §257.84. If fugitive dust is observed, additional controls will be implemented to correct the situation. Basin Electric will amend this Fugitive Dust Control plan whenever there is a change in conditions that would substantially affect the written plan currently in place, such as the construction and operation of a new CCR unit.

Annual Fugitive Dust Report

Basin Electric will prepare an annual CCR fugitive dust control report (to be completed and posted on Basin Electric's CCR public website by December 1st of each year) that includes 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.

Certification Statement

I certify that this Fugitive Dust Control Plan meets the requirements of 40 CFR §257.80 specifying Air Criteria in the *Standards of Coal Combustion Residuals in Landfills and Impoundments.*



Kevin L. Solie, North Dakota PE-9488
October 16, 2015

Attachment 1.

Basin Electric Power Cooperative CCR Fugitive Dust Complaint Log

Leland Olds Station

Date	Time	Citizen Name	Citizen Contact Information	Citizen Direction from Facility	Location of Dust Emission	Wind Direction	Color of Dust Emission	Weather Conditions	Corrective Measures