



REPORT

ANNUAL CCR FUGITIVE DUST CONTROL REPORT

Stanton Station

Great River Energy

Submitted To: Great River Energy
Stanton Station
4001 Highway 200A
Stanton, North Dakota 58571

Submitted By: Golder Associates Inc.
44 Union Boulevard, Suite 300
Lakewood, Colorado 80228

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) has prepared this Annual Coal Combustion Residual (CCR) Fugitive Dust Control Report on behalf of Great River Energy (GRE) for Stanton Station (SS). This report has been developed in accordance with recognized and generally accepted best management practices and is required under 40 CFR 257.80(c). Provided in this report are a description of the actions taken to control CCR fugitive dust. To date, GRE has not received citizen complaints regarding fugitive dust. Procedures for implementing fugitive dust control corrective measures are addressed in Section 3.0.

1.1 Facility Description

SS is a coal-fired electric generation facility located in Mercer County, North Dakota, approximately three miles southeast of the city of Stanton along the Missouri River. The facility has a generation capacity of 188 mega-watts. The plant and associated facilities cover an area of approximately 250 acres (Figure 1).

CCRs generated at SS include spray dryer material (e.g. flue gas desulfurization (FGD) material), fly ash, economizer ash, and bottom ash. CCRs produced at the Hazen and Center Public Schools, GRE's Spiritwood Station, and Basin Electric Power Cooperative's Leland Olds Station may also be deposited at SS. The dry spray dryer material is collected with the fly ash in the baghouse. The co-mingled spray dryer/fly ash and fly ash from the other potential sources is then managed in a dry landfill off-site. Economizer ash and bottom ash are managed together in an impoundment and a dry landfill located at the Stanton Station Facility. These two facilities are owned and operated by GRE and regulated by the North Dakota Department of Health (NDDH). This Plan includes dust control measures for management, handling, transport, and placement of CCRs.

1.2 Regulatory Requirements

At SS, CCR fugitive dust and other air emissions are regulated by the NDDH in accordance with the Air Pollution Control Title V Operating Permit, Permit Number T5-F76007. Fugitive dust generated by CCR-related activities at SS is also managed in accordance with the CCR Rule, 40 CFR 257. This Report is limited to addressing the annual requirements of the CCR Rule. Specific requirements of the Title V Operating Permit are not duplicated in this report. This report will be maintained within the Operating Record and SS's publically accessible website for at least five years.



2.0 ACTIONS TAKEN TO CONTROL FUGITIVE DUST

Fugitive dust may be generated at SS by loading, transport, and placement operations. The specific locations of potential CCR fugitive dust sources are as follows:

- Collection, Handling, and Loading
 - Fly Ash
 - Electrostatic precipitator (ESP)/Baghouse to Fly Ash Silos
 - Fly Ash Silo to Haul Trucks, Tanker Trucks, or Fly Ash Super Sacks
 - Spray Dryer Material
 - Baghouse to Fly Ash Silo
 - Managed with fly ash
 - Bottom Ash
 - Hopper to Bottom Ash Impoundment
 - Bottom Ash Impoundment to the Inert Bottom Ash Landfill
 - Economizer Ash
 - Hopper to Bottom Ash Impoundment
 - Managed with the bottom ash
- Transport
 - Haul Trucks, Tanker Trucks, and Semi-Trucks with Super Sacks
 - Haul Roads
- Placement
 - Surface Impoundment
 - Landfills

Actions taken at SS to control fugitive dust have not changed from the collection, handling, loading, transport, placement, and control measures presented in the initial Dust Control Plan dated October 15, 2015. The Dust Control Plan will be amended as needed, maintained in the Operating Record, certified by a professional engineer registered in North Dakota, and posted to the publicly accessible website.

GRE staff performed the following tasks to evaluate the effectiveness of the current CCR fugitive dust measures and ensure that the procedures described in the Dust Control Plan adequately controlled CCR fugitive dust.

- Routine visual emission observations were conducted to determine whether dust was visible at the collection, handling and loading sources per the Title V Operating Permit.
- For fugitive emissions resulting from transport and/or placement, routine visual emission observations were conducted to determine if dust was becoming airborne in such quantities and concentrations that it remained visible in the ambient air beyond the premises where it originated or visible plumes crossed the property boundary.



- The ESPs were monitored continuously using the Precipitator Operating Software in accordance with the Title V Operating Permit. Also, as part of the operations and maintenance routine, the operation of the ESP was observed at least once per day.

The observations and routine functions listed above are standard practice at SS. Visual emissions were observed daily during operations to assure that fugitive dust at the site was controlled. Annual instruction was provided to personnel involved in CCR handling and placement to ensure compliance with the permits, facility plans and appropriate regulations. Additional fugitive dust control activities completed by GRE since October 2015 are described in the following sections.

2.1 Collection, Handling, and Loading

Fly ash and spray dryer material generated at SS Unit 10 was collected in a baghouse using fabric dust collector filter bags and fly ash generated at Unit 1 was collected in an ESP. The fly ash from both units and spray dryer material from Unit 10 was pneumatically conveyed to the Fly Ash Silo for temporary storage. Fly ash sold for beneficial reuse was dry loaded directly into tanker trucks or Super Sacks. The Super Sacks were transported off-site in haul trucks. Fly ash that was not sold for beneficial reuse was moisture conditioned prior to being loaded into haul trucks in a partially enclosed loading area that can be fully enclosed through use of retractable entrance and exit doors.

Bottom ash generated at SS was quenched with water in a hopper beneath the boiler. From the hopper, bottom ash was hydraulically conveyed to the Bottom Ash Impoundment. The Bottom Ash Impoundment consists of three cells (North, Center, and South). Bottom ash was conveyed into the South cell during the period from October 15, 2015 to October 15, 2016 and the sluice water used to convey the bottom ash to the surface impoundment was decanted to the water retention cell (i.e., the Center cell).

Economizer ash generated at SS was collected in enclosed hoppers below the Economizer, and then hydraulically conveyed to the Bottom Ash Impoundment. Once in the Bottom Ash Impoundment, the economizer ash was managed with the bottom ash.

At times, fugitive dust during CCR collection, handling, and loading was created by wind, excavation operations, and/or truck loading operations. Fugitive dust emissions for CCR collection, handling, and loading was controlled by:

- Operating the ESP and baghouse with best operation and maintenance practice and in accordance with the Title V Operating Permit.
- Pneumatically conveying dry CCRs.
- Capturing airborne particulate matter in a baghouse or bin vent filter for air displaced from the Fly Ash Silo.
- Loading fly ash via telescoping spouts from the Fly Ash Silo into trucks.
- Loading the Super Sacks with a sealed hopper loading system.



- Moisture conditioning fly ash to limit dust emissions.
- Limited handling of unconditioned fly ash to the extent possible.
- Hydraulically conveying bottom ash and economizer ash. Once the ponds are full, bottom ash and economizer ash are transported to the landfill with sufficient moisture content to limit fugitive dust generation.
- Limiting the fall distance from the pug mill to haul trucks.
- Reducing or halting operations during high winds.

2.2 Transport

The plant and associated facilities pertaining to the handling of CCRs are shown on Figure 1. Control measures implemented to limit fugitive dust emissions from CCR transport were as follows:

- Restricting speeds on onsite haul roads to 25 miles per hour (mph).
- Maintaining gravel surface on the onsite haul roads at SS.
- Wetting onsite haul roads with water or chemical dust suppressants as needed to limit fugitive dust generation and when temperatures are above freezing.
- Fly ash sold for off-site beneficial reuse was pneumatically conveyed into closed tanker trucks or Super Sacks.

2.3 Placement

The co-mingled spray dryer/fly ash material was handled dry and managed in a landfill off-site. Economizer ash and bottom ash were managed together in the surface impoundment and a dry landfill located at the Stanton Station Facility. At times, fugitive dust may have been created by vehicle traffic, truck unloading operations, CCR Facility maintenance operations, and/or wind. Fugitive emissions from these operations were controlled by:

- Placing CCRs with sufficient moisture content to help reduce fugitive dust generation.
- Limiting the fall distance from haul trucks.
- Adding moisture to the CCRs with a water truck or sprinkler system after placement to prevent off-property transport of visible emissions.
- Compacting CCRs after placement. Compaction may be achieved by making a pass over spread materials with a haul truck or other heavy equipment.
- Reducing or halting operations during high wind events.



3.0 RECORD OF CITIZEN COMPLAINTS

Citizen complaints were not received between October 15, 2015 and October 15, 2016. As stated in the Dust Control Plan, documentation of citizen complaints and implementation of corrective actions will be completed in accordance with GRE's Environmental Communication Procedure, Section 4.4.3. In summary, this procedure requires that the complaint will be recorded, the cause of the complaint will be investigated, and corrective action will be taken if warranted. The complaint will be incorporated into the annual report, along with a summary of the corrective measure(s) taken to address the complaint.



4.0 SUMMARY OF CORRECTIVE MEASURES TAKEN

CCR fugitive dust was sufficiently managed using the procedures described in the Dust Control Plan. Corrective measures were not needed during the period from October 15, 2015 to October 15, 2016.



5.0 RECORD KEEPING AND NOTIFICATIONS

The NDDH will be notified before the close of business on the day this annual report is placed in the Operating Record. Within 30 days of placement in the Operating Record, the annual report will be posted to the publicly accessible website. At least the five most recent annual reports will be retained in the Operating Record and posted to the website.

FIGURE



**GREAT RIVER ENERGY STANTON STATION
FUGITIVE DUST LOCATIONS AND HAUL ROUTE**

FIGURE 1

Established in 1960, Golder Associates is a global, employee-owned organization that helps clients find sustainable solutions to the challenges of finite resources, energy and water supply and management, waste management, urbanization, and climate change. We provide a wide range of independent consulting, design, and construction services in our specialist areas of earth, environment, and energy. By building strong relationships and meeting the needs of clients, our people have created one of the most trusted professional services organizations in the world.

Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 56 2 2616 2000

solutions@golder.com
www.golder.com

Golder Associates Inc.
44 Union Boulevard, Suite 300
Lakewood, CO 80228 USA
Tel: (303) 980-0540
Fax: (303) 985-2080



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