REPORT

2017 ANNUAL CCR FUGITIVE DUST CONTROL REPORT

Stanton Station

Great River Energy

Submitted To: Great River Energy
Stanton Station
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Project No. 1772461

Golder Associates

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1.0 INTRODUCTION

Golder Associates Inc. (Golder) has prepared this 2017 Annual Coal Combustion Residual (CCR) Fugitive Dust Control Report on behalf of Great River Energy (GRE) for Stanton Station. This report has been developed in accordance with recognized and generally accepted best management practices and as required under 40 CFR 257.80(c). Provided in this report are a description of the actions taken to control CCR fugitive dust. Citizen complaints and corrective measures regarding fugitive dust are addressed in Section 3.0 and 4.0, respectively; there have not been any citizen complaints at Stanton Station for the 2017 reporting period (October 15, 2016 to October 15, 2017).

1.1 Facility Description

Stanton Station 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 began generating power in 1966 and ceased power production in February 2017. The plant and associated facilities cover an area of approximately 250 acres (Figure 1).

CCRs generated at Stanton Station 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 Stanton Station. 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). Stanton Station has two CCR facilities that are within the purview of the EPA CCR rule (Figure 1):

- Bottom Ash CCR Landfill (Bottom Ash Landfill).
- Bottom Ash CCR Surface Impoundment (Bottom Ash Impoundment) consisting of the north, center, and south cells.

The dust control measures for management and handling, transport, and placement of CCRs are described in this report.

Stanton Station generated and managed CCRs for the first approximately two months of 2017 prior to ceasing production of CCRs and power. Plant decommissioning has begun and the CCR facilities will remain open for receipt of any residual plant CCRs, and for construction and demolition waste. Dust control measures will continue to be implemented when handling, transporting, and placing new or in-place CCRs.

1.2 Regulatory Requirements

At Stanton Station, 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 Stanton Station 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 Stanton Station's publically accessible website for at least five years.

2.0 ACTIONS TAKEN TO CONTROL FUGITIVE DUST

Fugitive dust may be generated at Stanton Station by loading, transport, and placement operations. Although the facility ceased operations in February of 2017, remnant CCRs may continue to be loaded, transported, and placed. 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 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 Stanton Station 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 Stanton Station. 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 are described in the following sections.

2.1 Collection, Handling, and Loading

Prior to the end of production, fly ash and spray dryer material generated at Stanton Station 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 Stanton Station was quenched with water in a hopper beneath the boilers. 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 in 2017 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 Stanton Station was collected in enclosed hoppers below the Economizers, 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 impoundment cells 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 surfaces on the onsite haul roads at Stanton Station.
- 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 Bottom Ash Impoundment and Bottom Ash 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, 2016 and October 15, 2017. 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

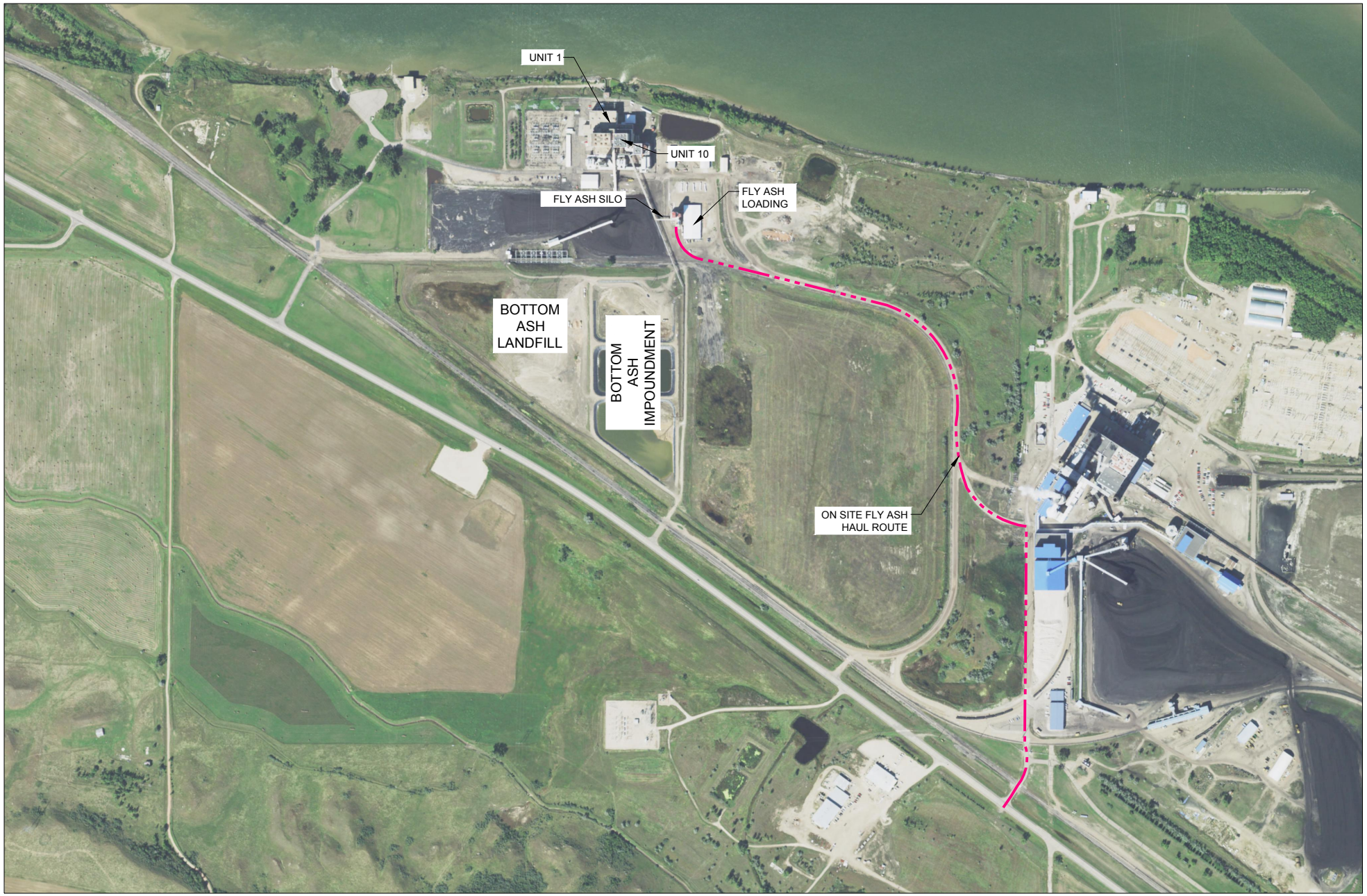
CCR fugitive dust was sufficiently managed using the procedures described in the Dust Control Plan. Corrective measures were not needed during the period from October 15, 2016 to October 15, 2017.

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

Path: \\Denver.golder.gds\projects\17JOBS\1772461 GRE SS\CCR Support\Dust Control\Draft\ | File Name: 1772461_DustControlFigure.dwg



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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.

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