



## REPORT

# 2020 Annual CCR Fugitive Dust Control Report

## *Great River Energy - Coal Creek Station*

Submitted to:

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Submitted by:

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## FIGURES

Figure 1      Fugitive Dust Locations and Haul Routes

## 1.0 INTRODUCTION

Golder Associates Inc. (Golder) has prepared this 2020 Annual Coal Combustion Residual (CCR) Fugitive Dust Control Report on behalf of Great River Energy (GRE) for Coal Creek Station (CCS). This report has been developed in accordance with recognized and generally accepted best management practices, and as required under 40 CFR §257.80(c). A description of the actions taken to control CCR fugitive dust is provided in this report. Citizen complaints and corrective measures regarding fugitive dust are addressed in Sections 3.0 and 4.0, respectively; there have not been any citizen complaints at CCS for the 2020 reporting period (October 15, 2019 to October 15, 2020).

### 1.1 Facility Description

CCS is a coal-fired electric generation facility located in McLean County, North Dakota, approximately six miles south of the city of Underwood. The facility has two units with a total generation capacity of more than 1,100 megawatts. The plant and associated facilities cover an area of approximately 3,360 acres.

CCRs generated at CCS include fly ash, bottom ash, flue gas desulfurization (FGD) material, and economizer ash. CCRs produced at GRE's Spiritwood Station may also be deposited at CCS. These materials are managed in dry landfills and/or surface impoundments that are owned and operated by GRE and regulated by the North Dakota Department of Environmental Quality (NDDEQ). CCS has four CCR facilities that are within the purview of the EPA CCR rule (Figure 1):

- Drains Pond System CCR Surface Impoundment (Drains Pond System)
- Upstream Raise 91 CCR Surface Impoundment (Upstream Raise 91)
- Upstream Raise 92 CCR Surface Impoundment (Upstream Raise 92)
- Southeast Section 16 CCR Landfill (Southeast 16)

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

### 1.2 Regulatory Requirements

At CCS, CCR fugitive dust and other air emissions are regulated by the NDDEQ in accordance with the Air Pollution Control Title V Operating Permit, Permit Number T5-F82006. Fugitive dust generated by CCR-related activities at CCS is also managed in accordance with the CCR Rule, 40 CFR §257. This report is limited to addressing the annual requirements for 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 GRE's publicly accessible website for at least five years.

## 2.0 ACTIONS TAKEN TO CONTROL FUGITIVE DUST

Fugitive dust may be generated at CCS 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) to fly ash dome/fly ash silos
    - Spiritwood Station to fly ash silos

- Reclaimed fly ash from offsite landfills to haul trucks
  - Fly ash silos to haul trucks, tanker trucks, or rail cars
- Economizer ash:
  - Hopper to Drains Pond System
  - Drains Pond System to Upstream Raise 91, Upstream Raise 92, or Southeast 16
- Bottom ash:
  - Hopper to Drains Pond System
  - Drains Pond System to Upstream Raise 91, Upstream Raise 92, or Southeast 16
- FGD material:
  - Scrubber Building to Upstream Raise 91 or Upstream Raise 92
- Transport:
  - Haul trucks
  - Tanker trucks/rail tanker cars
  - Haul roads
- Placement:
  - Surface impoundments
  - Landfills

Actions taken at CCS 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 ambient air beyond the premises where it originated or visible plumes crossed the property boundary.

The observations and routine functions listed above are standard practice at CCS. Visual emissions were observed daily during operations to ensure 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

Fly ash generated at CCS was collected in an ESP and pneumatically conveyed directly to the fly ash dome and silos for temporary storage. Dry fly ash was also pneumatically conveyed from the fly ash dome to Fly Ash Silo 93

when needed for beneficial reuse. Fly ash was stored in Fly Ash Silo 91 and 92 until it was loaded into haul trucks for disposal or on-site beneficial reuse. Additionally, stored fly ash from Fly Ash Silo 91 and 93 was loaded into tanker trucks or rail tanker cars for off-site beneficial reuse. Fly ash not used for off-site beneficial reuse was moisture conditioned prior to loading into haul trucks. Fly ash received from Spiritwood Station in tanker trucks was pneumatically transferred into Fly Ash Silo 92, then moisture conditioned and loaded into haul trucks.

Bottom ash generated at CCS was quenched with water in a hopper beneath the boilers. Economizer ash generated at CCS was collected in enclosed hoppers below the economizer. From these hoppers, bottom ash and economizer ash were hydraulically conveyed to the Drains Pond System. A dozer was used to stack the bottom ash and economizer ash to allow passive dewatering of free liquids. After dewatering, the material was loaded into haul trucks and beneficially used in Upstream Raise 91 and Upstream Raise 92 or taken to Southeast 16. Some bottom ash material was also loaded onto trucks and beneficially used off-site.

FGD material was collected in the scrubber and hydraulically conveyed to the interior of Upstream Raise 91 or Upstream Raise 92. Upstream Raise 91 and Upstream Raise 92 consist of a bottom ash drainage layer and fly ash shell that allows the FGD material to dewater by gravity.

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

- Operating the ESP with best practice 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
- 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 and loading and transporting with sufficient moisture content to limit fugitive dust generation
- Limiting the fall distance to haul trucks
- Reducing or halting operations during high winds

## 2.2 Transport

Control measures used to limit fugitive dust emissions from CCR transport were as follows:

- Restricting haul road speeds to less than 30 miles per hour (mph).
- Maintaining granular surfaces on the haul roads at CCS.
- Wetting haul roads and access roads with water or chemical dust suppressants as needed to limit fugitive dust generation during periods when temperatures are above freezing.
- Fly ash sold for off-site beneficial reuse was pneumatically conveyed into closed tanker trucks or closed rail tanker cars.

## 2.3 Placement

CCR materials were placed and stored in CCR landfills and several surface impoundments. Fly ash from CCS and Spiritwood Station was beneficially used in the construction of Upstream Raise 91, Upstream Raise 92, and Southeast 16. Bottom ash and economizer ash were managed in the Drains Pond System and beneficially used in Upstream Raise 91 and Upstream Raise 92.

At times, fugitive dust was 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 enough moisture content to help reduce fugitive dust generation.
- Placing fly ash that cannot be moisture conditioned due to the method of transport, such as unloading vacuum trucks or belly dump trucks containing fly ash, only when conditions were favorable. Water was added to fly ash destined for the dry landfill during and after placement using a water truck.
- Limiting the fall distance from haul trucks.
- Adding moisture to CCRs with a water truck after placement to prevent off-property transport of visible emissions.
- Compacting CCRs after placement. Compaction was achieved by making passes over spread materials with a haul truck or other heavy equipment.
- Reducing or halting operation during high winds.

## 3.0 RECORD OF CITIZEN COMPLAINTS

Citizen complaints regarding CCR fugitive dust at CCS were not received between October 15, 2019 and October 15, 2020. 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 methods described in the Dust Control Plan. Corrective measures were not needed during the period from October 15, 2019, to October 15, 2020.

## 5.0 RECORD KEEPING AND NOTIFICATIONS

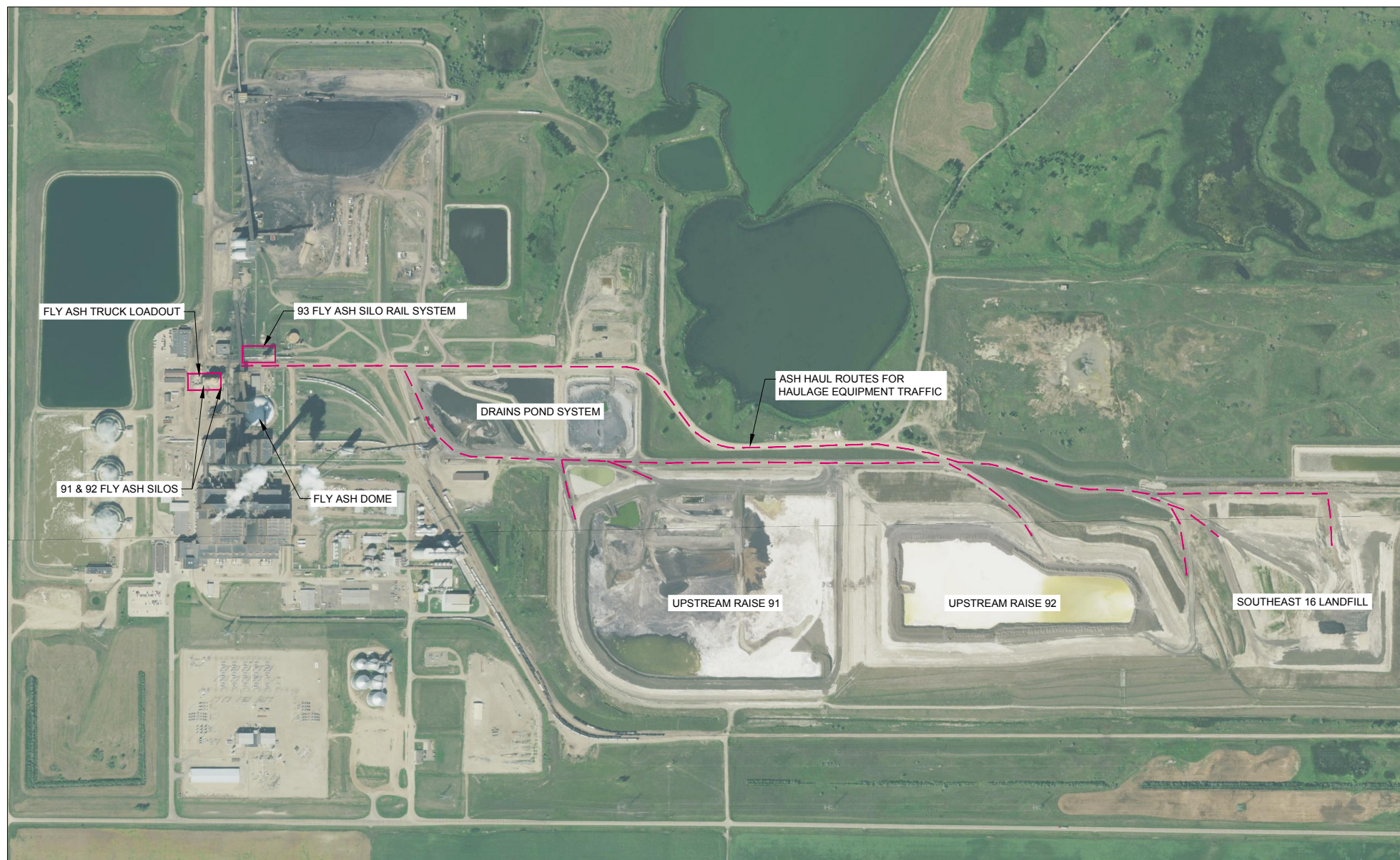
The NDDEQ will be notified before the close of business on the day this annual report is placed in the Operation Record. Within 30 days of placement in the Operating Record, the annual report will be posted to the publicly-accessible website. At least the five most recent annual reports will be retained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

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[https://golderassociates.sharepoint.com/sites/120551/project files/6 deliverables/19136224/reports/ccs\\_dustcontrolrpt\\_dft\\_04dec20/19136224-1-r-0/19136224-1-r-0-2020\\_annual\\_ccr\\_fugitive\\_dust\\_control\\_rpt\\_11dec20.docx](https://golderassociates.sharepoint.com/sites/120551/project%20files/6%20deliverables/19136224/reports/ccs_dustcontrolrpt_dft_04dec20/19136224-1-r-0/19136224-1-r-0-2020_annual_ccr_fugitive_dust_control_rpt_11dec20.docx)

## Figures





**REFERENCE(S)**

1. AERIAL IMAGE FROM UNITED STATES DEPARTMENT OF AGRICULTURE NATIONAL AGRICULTURE AERIAL IMAGERY PROGRAM, TAKEN IN 2019.





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