FUGITIVE DUST CONTROL PLAN

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Nebraska Public Power District – Gerald Gentleman Station

Submitted To: Nebraska Public Power District
Gerald Gentleman Station
6089 South Highway 25
Sutherland, Nebraska 69165

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Project No. 1536625

Golder Associates

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1.0 INTRODUCTION

This Fugitive Dust Control Plan (Plan) has been prepared for Nebraska Public Power District's (NPPD's) Gerald Gentleman Station (GGS). This Plan has been developed in accordance with recognized and generally accepted best management practices and the Coal Combustion Residuals (CCR) Rule, Criteria for Classification of Solid Waste Disposal Facilities and Practices, Subpart D – Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, recently published in the Code of Federal Regulations Title 40 Part 257 (40 CFR 257) on April 17, 2015. This Plan addresses measures to "effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management and material handling activities" (40 CFR 257.80).

This Plan includes identification of the CCR-related fugitive dust control sources at GGS, measures to control the fugitive dust, reasons for selecting the dust control measures, procedures to evaluate the effectiveness of the Plan, and requirements for documenting citizen complaints, annual reporting, and certification by a professional engineer registered in Nebraska. This Plan may be amended at any time, however, the most current Plan will be maintained in the facility operating record.

1.1 Facility Description

GGS is a 1,365 mega-watt coal-fired electric facility located South of Sutherland, Nebraska.

1.2 Regulatory Requirements

At GGS, fugitive dust is regulated by the Nebraska Department of Environmental Quality (NDEQ) in accordance with the Air Pollution Control Title V Permit to Operate and Title 129 of the Nebraska Air Quality Regulations (NDEQ Title 129). Additionally, fugitive dust at GGS will also be managed in accordance with the CCR Rule, 40 CFR 257. Only the requirements of the CCR Rule are covered in this Plan, and the plan does not address requirements specific to only the Title V Permit. The requirements of the CCR Rule are:

- Identify and describe the CCR fugitive dust control measures, including why these measures were selected.
- Moisture condition CCRs prior to placement.
- Provide procedures to document citizen complaints.
- Describe procedures to evaluate the effectiveness of the Plan.
- Prepare the initial Plan by October 19, 2015.
- Obtain certification from a professional engineer.
- Prepare an annual report.
- Maintain the most recent Plan and annual reports in the Operating Record.
- Notify the NDEQ when the Plan or report is placed in the Operating Record.
- Post the Plan and annual reports on a publically accessible website.

1.3 CCR Fugitive Dust Sources

The following definitions apply to fugitive dust:

Emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening (40 CFR 52.21(b)20 and NDEQ Title 129).

"Fugitive dust" means solid airborne particulate matter emitted from any source other than a flue or stack (NDEQ Title 129).

At GGS, potential primary sources of fugitive dust on the plant site include fly ash collection, loading, CCR transport and CCR placement. The CCR-fugitive dust control measures selected for controlling CCR-fugitive dust at GGS are applicable and appropriate for the site conditions and will effectively minimize CCR from becoming airborne. As specified by the EPA, performance standards will be used rather than quantitative standards. The control measures selected for GGS are presented in Section 2.0.

2.0 FUGITIVE DUST CONTROL MEASURES

CCR-fugitive dust sources at GGS include fly ash loading, CCR transport and CCR placement operations. The specific location of each of these dust sources are as follows:

- Fly Ash Collection and Loading
  - Baghouse to Fly Ash Silos
  - Boiler Economizer Hoppers to Fly Ash Silos
  - Fly Ash Silos to Trucks
  - Fly Ash from Truck to Rail Car
- Transport
  - Haul Trucks
  - Vacuum Trucks
  - Haul Roads
- Placement and Storage
  - Ash Pits #3 and #4
  - Bottom Ash Storage Pit

2.1 Fly Ash Collection and Loading

Fly ash is collected in flue gas Baghouses and boiler economizer section hoppers then pneumatically conveyed to the Fly Ash Storage Silos. The Fly Ash Storage Silos are unloaded through the Fly Ash Silo Truck System. At the Baghouses, dust is controlled within a full enclosure using fabric dust collector filter bags.

Fly Ash Not Sold for Off-Site Beneficial Re-use

At the Fly Ash Silos, fly ash is moisture conditioned in rotary pan mixers and loaded into haul trucks. Fugitive dust is controlled by:

- Conditioning the fly ash with water to an appropriate moisture content prior to loading into haul trucks. The moisture content should help prevent wind dispersal, but not result in free liquids.
- Loading into haul trucks that are covered or enclosed at the Fly Ash Silos.
- Minimizing the fall distance at the drop point with an enclosed chute.
- Reducing or halting operations during high winds.

<u>Fly Ash for Off-site Beneficial Reuse</u>

A portion of the fly ash that is marketed and used for off-site beneficial reuse is first screened at the Fly Ash Silos prior to being loaded into the haul trucks. The fly ash screen tailings are conveyed to a

temporary storage container using an enclosed chute. Screened fly ash tailings that have been collected in the temporary storage container are placed in the landfill when the container becomes full. At the rail car loading area, screened fly ash is conveyed from the haul trucks to rail cars via auger. To control dust, a drop chute and drop tube is used to connect the auger to the truck and rail car, respectively, and the rail cars are fully enclosed.

The remaining portion of the fly ash that is marketed and used for off-site beneficial reuse is loaded into fully enclosed haul trucks. This fly ash is not screened prior to loading.

Fugitive dust is controlled by:

- Loading into haul trucks or market trucks that are covered or enclosed at the Fly Ash Silos.
- Minimizing the fall distance at the drop point with an enclosed chute.
- Reducing or halting operations during high winds.

2.2 Transport

Fly ash is transported in covered or enclosed haul trucks while Bottom Ash, which is not easily entrained in the air, may be transported in open trucks or containers as conditions warrant. CCR material may also be transported in vacuum trucks and other covered containers. The haul routes are shown on Figure 1. GGS has both paved and unpaved haul roads. Fugitive dust will be controlled on the haul roads by covering loads and applying water to the roads with a water truck and operating the water truck when hauling of CCRs occurs with an exception for freezing conditions. During freezing conditions alternatives may be used to control dust as warranted. Alternatives for minimizing CCRs from becoming airborne on roadways include:

- Paving and sweeping roads
- Application of chemical dust suppressants or binders
- Application of sand or gravel
- Reducing speed limits on haul roads
- Reducing or halting operations during high winds.

2.3 Placement

Placement of CCRs occurs at the GGS landfill. Fugitive dust at landfills is controlled by:

- Placing fly ash conditioned with water or an appropriate chemical dust suppression agent to achieve minimization of dust without the creation of free liquids.
- Compacting the fly ash after placement. Compaction may be achieved by making a pass over spread materials with a haul truck. The fly ash forms a crust that helps to prevent re-entrainment of fly ash from the wind.

- Operating a water truck and/or water sprayer pivot over recently placed CCRs, except during freezing conditions.
- Reducing or halting operations during high winds.
- Placing fly ash that has not been moisture conditioned will only be done if conditions are favorable and the method of transport requires it, such as unloading vacuum trucks.
- Water will be applied or other similar provisions will be made to control fugitive dust during placement of dry fly ash.

2.4 Control Measure Explanations

The measures identified above for controlling CCR fugitive dust at GGS are applicable and appropriate for the site conditions. The reason for selecting each control measure is explained subsequently.

Conditioning – Conditioned CCR means adding moisture to the CCR with water or other liquid to a moisture content that will prevent wind dispersal, but will not result in free liquids (40 CFR 257.80(b)(2)). Liquids bind to the fly ash creating pozzolonic (i.e. cementing) properties in the fly ash, thus minimizing the fly ash from becoming airborne.

Water Misting – Water misting the area in the vicinity of CCR

Partial enclosure – A partial enclosure will help to control fugitive dust by containing airborne dust within the enclosure.

Fall distance minimization – Minimizing the fall distance at the drop point will contain the flow of material into a confined area reducing the radius of debris and dust.

Telescopic Spout – The telescoping spout will minimize the fall distance and confine the fly ash.

Air Socks – The air sock is flexible and can easily hang down over the railcar to direct and confine the fly ash.

Road Applications –Sweeping paved roads will minimize dust and applying chemical suppressants or non-erodible materials in the winter will help minimize dust.

Dust Suppressant – Dust suppressants bind with the CCRs to prevent wind dispersal.

Covered Haul Trucks – Covered haul trucks will minimize CCRs becoming airborne during transport.

Reducing Speed Limits – The speed limit for transporting CCRs is 25 miles per hour (mph) to minimize wind dispersal during transport.

High Winds – Reducing or halting operations during periods of high wind would reduce the potential for CCRs to become airborne. High winds are defined as sustained winds over 25 miles per hour (mph) or wind gusts up to 35 mph.

Compacting CCRs After Placement – Compaction of moisture conditioned CCRs helps establish a crust at the ground surface, which can be effective for limiting the generation of fugitive dust.

Applying Water to CCRs After Placement – Applying water to compacted CCRs helps establish a crust at the ground surface, which can be effective for limiting the generation of fugitive dust

3.0 EFFECTIVENESS EVALUATION

The effectiveness evaluation will be performed by NPPD operations staff. Operations staff will make visual observations to assure that fugitive dust at the site is controlled. NPPD operations staff making visual emission observations will perform routine functions and observations to assure that CCR fugitive dust is adequately controlled. Descriptions of these activities are as follows:

- Weather conditions will be monitored daily for wind and precipitation events. If high winds are expected, additional measures will be taken to minimize CCRs from becoming airborne. Operation of a water truck will be determined based on expected precipitation or freezing events.
- Routine observations will be conducted to determine whether dust is becoming airborne in such quantities and concentrations that it remains visible in the ambient air beyond the premises where it originates. Corrective action will be taken if visible emissions approach the property boundary.
- Conditioned CCR will be assessed periodically to ensure that it is being placed in such a manner as to prevent the formation of fugitive dust.
- The fabric dust collectors are monitored continuously per the Title V permit to determine whether fabric dust collectors are functioning properly.

The observations and routine functions listed above are standard practice at GGS. Visual emissions are observed daily during operations to assure that fugitive dust at the site is controlled. Personnel involved in CCR handling and placement are instructed to ensure compliance with the permits, facility plans and appropriate regulations. When conditions are not in line with the site standards for fugitive dust emissions, designated facility personnel are notified and corrective action is taken as needed. Observations and corrective actions will be documented in the annual Dust Control Review and will be placed in the Operating Record.

4.0 CITIZEN COMPLAINTS LOG

Citizen complaints should be submitted in writing to NPPD at the following address:

Nebraska Public Power District
Attn: Environmental Protection Supervisor
PO Box 499
Columbus, NE 68602-0499

Complaints that are received will be forwarded to the NPPD Corporate Environmental Department for review and coordination of response and corrective measures. The response and corrective measures to each complaint will be determined on a case by case basis.

A copy of each complaint and its resolution, including a summary of corrective action taken, will be provided to GGS for inclusion in its operating record. Each complaint and resolution will be included in the annual GGS dust control report.

5.0 REPORTING

The recordkeeping, notification, and posting of information to a publicly accessible website required for this Plan are presented in the following sections.

5.1 Fugitive Dust Control Plan

The initial Plan will be placed in the Operating Record on or before October 19, 2015. The NDEQ will be notified before the close of business on the day the Plan is placed in the Operating Record. The initial Plan and amended Plans will be certified by a professional engineer licensed in Nebraska.

The Plan can be amended at any time and the most recent Plan will be maintained in the Operating Record. Notification will be provided before the close of business on the day an amended Plan is placed in the Operating Record. Within 30 days of placing the Plan in the Operating Record, the most recent Plan will be posted to a publicly accessible website.

5.2 Annual Report

The following items will be addressed in the annual CCR fugitive dust control report:

- Descriptions of all actions taken to control CCR fugitive dust.
- A record of citizen complaints.
- A summary of any corrective measures taken to address complaints.

The first report will be submitted within 14 months after placement of the Plan within the Operating Record. Subsequent reports will be completed within one year of the previous report.

The NDEQ will be notified before the close of business on the day the report is placed in the Operating Record. Within 30 days of placing a report in the Operating Record, the report will be posted to a publicly accessible website. Annual reports will be retained and posted to the website for at least five years.

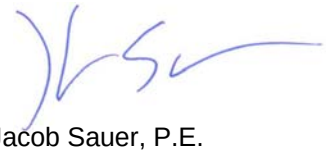
6.0 CERTIFICATION

The statements and conclusions presented in this report are true and accurate to the best of our knowledge. Please direct inquiries to:

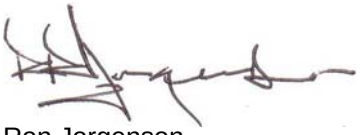
Nebraska Public Power District
Gerald Gentleman Station
6089 South Highway 25
Sutherland, Nebraska 69165
(308) 386-2441

Nebraska Public Power District
1414 15th Street
P.O. Box 499
Columbus, Nebraska 68602
1-877-ASK-NPPD (275-6773)

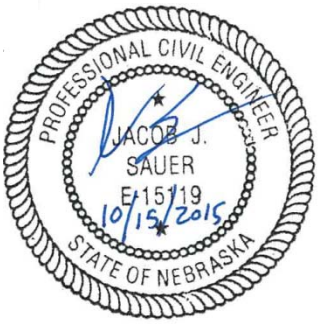
GOLDER ASSOCIATES INC.



Jacob Sauer, P.E.
Senior Project Engineer



Ron Jorgenson
Principal and Senior Practice Leader



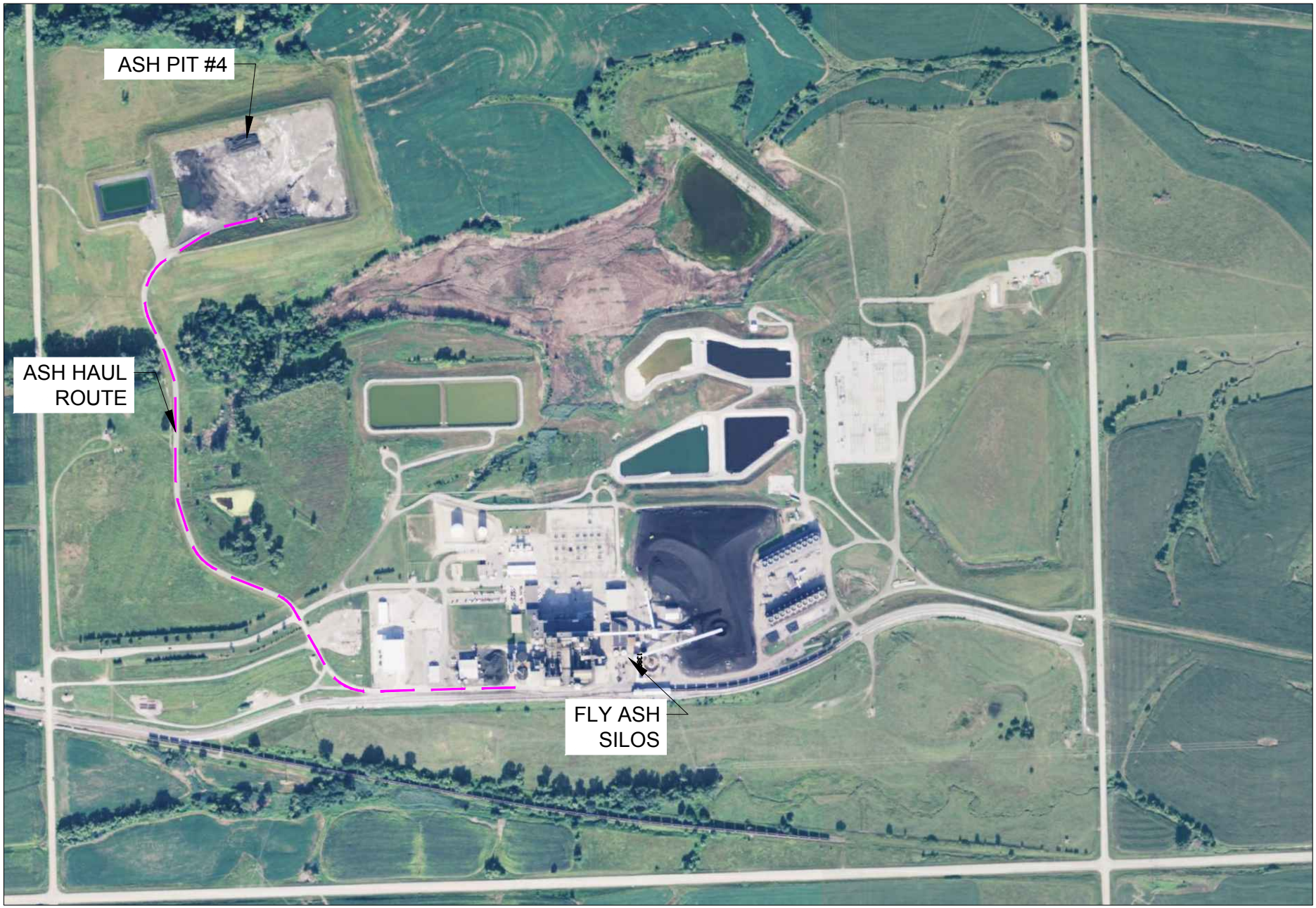
7.0 REFERENCES

Criteria for Classification of Solid Waste Disposal Facilities and Practices, Subpart D – Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, 40 Code of Federal Regulations (CFR) § 257, Subpart D (2015).

Nebraska Department of Environmental Quality (NDEQ) (2015). Air Quality Class I Operating Permit, Permit Number: OP14M1-040, Nebraska Public Power District – Gerald Gentleman Station. Received March 5, 2015.

Title 129 - Nebraska Air Quality Regulations, Nebraska Administrative Code, Nebraska Department of Environmental Quality. Effective July 6, 2015.

FIGURE



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NEBRASKA PUBLIC POWER DISTRICT
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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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Engineering Earth's Development, Preserving Earth's Integrity