



REPORT

2025 Professional Engineer Inspection Report

Gerald Gentleman Station Ash Disposal Facility

Submitted to:

Nebraska Public Power District

Gerald Gentleman Station
6089 South Highway 25
Sutherland, Nebraska 69165

Submitted by:

WSP USA Inc.

7245 W. Alaska Drive, Suite 200 Lakewood, Colorado, USA 80026

(303) 980-0540

GLA21457062.3513-002-RPT-0

December 8, 2025



Table of Contents

1.0 INTRODUCTION AND BACKGROUND.....1

2.0 REVIEW OF EXISTING INFORMATION1

2.1 Inspection Reports1

2.2 Liner System1

2.3 Final Cover2

2.4 Water Management.....2

2.4.1 Stormwater2

2.4.2 Contact Water2

3.0 2025 ANNUAL INSPECTION3

3.1 Changes in Geometry3

3.2 Volume of Coal Combustion Residuals3

3.3 Signs of Structural Weakness3

3.4 Other Observations That Could Affect Stability3

3.4.1 Burrowing Animals3

3.4.2 Erosion4

4.0 CLOSING4

5.0 REFERENCES4

FIGURES

Figure 1: Site Layout

APPENDICES

APPENDIX A

Inspection Photographs

1.0 INTRODUCTION AND BACKGROUND

Gerald Gentleman Station (GGS) is a coal-fired electrical generation facility owned and operated by Nebraska Public Power District (NPPD). The plant, which is capable of generating 1,365 megawatts (MW) of power, uses a Type C low sulfur coal from Wyoming's Powder River Basin. Fly ash and bottom ash are the two products of coal combustion at GGS. The majority of the bottom ash is sold; thus, fly ash is the primary product placed in the site's ash disposal facility (Figure 1).

On April 17, 2015, the United States Environmental Protection Agency (USEPA) published the final Coal Combustion Residuals (CCR) Rule in the Code of Federal Regulations (CFR). The CCR Rule was published under 40 CFR Part 257 of the Subtitle D solid waste provisions under the Resource Conservation and Recovery Act (RCRA). This report was prepared to be consistent with the annual inspection requirements for CCR landfills under Part 257.84. The following sections present the findings from the annual inspection of the ash disposal facility performed on November 5, 2025.

2.0 REVIEW OF EXISTING INFORMATION

2.1 Inspection Reports

This is the tenth Professional Engineer (PE) inspection of the ash disposal facility per 40 CFR Part 257.84(b) requirements. Previous inspections did not find signs of structural weakness or changes in geometry. The 2024 inspection report (WSP 2024) noted only minor maintenance items, including burrowing animals, erosion, and continued promotion of vegetative growth on exterior slopes.

NPPD also performs weekly inspections of the ash disposal facility. Observations from the weekly inspections are recorded on inspection forms, which are maintained in the site operating record. The 2025 weekly inspection forms reported the following notable observations and activities:

- Minor erosion was observed on the west slope of Ash Landfill No. 3 and south slopes of Ash Landfill No. 3 and Ash Landfill No. 4.
- Locations of ash deposition and ponded water indicated that the facility is being operated according to design.
- Maintenance activities, including pump maintenance, removal of small saplings, and erosion repairs were ongoing throughout the year.
- The area with erosion on the west slope of Ash Landfill No. 3 was repaired the week of June 25, 2025.

2.2 Liner System

Fly ash is currently disposed at Ash Landfill No. 4 and in the east cell of Ash Landfill No. 3. The liner system design at Ash Landfill No. 4 consists of 60-mil high-density polyethylene (HDPE) geomembrane over compacted subgrade. Prior to geomembrane installation, the existing subgrade was scored to a depth of at least 6 inches and compacted to at least 95% of its maximum dry density (standard Proctor). Smooth HDPE geomembrane was placed on the bottom of the ash landfill, and textured HDPE geomembrane was placed on the side slopes. Golder Construction Services performed construction quality assurance (CQA) for the geomembrane installation, which was completed on November 15, 1994. There is no leachate collection system (LCS) at Ash Landfill No. 4.

Ash Landfill No. 3 was previously closed in 1995 with 2.0 to 7.5 feet of soil cover. This cover was removed, and the area was relined in 2015. The new liner system at Ash Landfill No. 3 consists of a prepared subgrade overlain by a geosynthetic clay liner (GCL) and 60-mil linear low-density polyethylene (LLDPE) geomembrane. Ash Landfill No. 3 also has a 1-foot-thick LCS sand layer, with 4-inch HDPE LCS piping reporting to sumps. Construction of the new permitted Ash Landfill No. 3 liner system was completed in November 2015.

2.3 Final Cover

Final cover was placed on a portion of the south slope of Ash Landfill No. 4 during construction of Phase 2 of the ash disposal facility in 2015. The final cover design at Ash Landfill No. 4 is consistent with the operating permit and is composed of 2 feet of soil as a growth medium.

The Bottom Ash Landfill was closed, and final cover was installed over the area in 2018. The final cover system consisted of an 18-inch-thick infiltration layer (permeability less than 1×10^{-5} centimeters per second) overlain by a 6-inch-thick erosion layer (topsoil). The cover was seeded and mulched to establish vegetation. The final cover system was consistent with the operating permit and the CCR Rule. Bottom ash handling has been moved to the east side of Ash Landfill No. 4.

2.4 Water Management

Stormwater and contact water are managed at the ash disposal facility. Stormwater is water that does not come into contact with ash, and water that does come into contact with ash is classified as contact water. Water management methods are presented in the following sections.

2.4.1 Stormwater

Precipitation that falls outside the landfill footprint is diverted away from the ash disposal area by soil berms to prevent contact with ash. Stormwater is shed from the area towards natural surface water draws located north and south of the landfill.

Perimeter berms and terrace channels have been constructed on the final cover slope at Ash Landfill No. 4 to control stormwater and limit erosion of the final cover soils. The perimeter berms and terrace channels divert stormwater to a downchute channel that is lined with articulated concrete block. The downchute channel discharges to a hydraulic jump basin, which then directs stormwater to a natural drainage south of the landfill.

2.4.2 Contact Water

Contact water includes precipitation that falls within the landfill and leachate as defined in Title 132 of the Nebraska Administrative Code. Contact water is managed within the lined footprint. Ash is placed to promote contact water flow on the surface of the ash from the landfill perimeter toward the east end of Ash Landfill No. 4 to the designated contact water storage area. The contact water storage area is managed to keep adequate freeboard (typically greater than 5 feet of freeboard).

The new liner system at Ash Landfill No. 3 includes an LCS. Water collected from the LCS during active ash placement may be pumped back into the active footprint where it will drain to the lined contact water storage area on the east side of Ash Landfill No. 4. Modeling of the system indicates that a minimal amount of water will drain to the LCS once the ash facility has received sufficient ash to cover the footprint. After closure, water that is collected in the LCS will be pumped to lined evaporation ponds or pumped to trucks for disposal or treatment.

3.0 2025 ANNUAL INSPECTION

Jacob Sauer, Nebraska PE (E-15119), of WSP USA Inc. (WSP), performed an inspection of the ash disposal facility per 40 CFR Part 257.84(b) requirements on November 5, 2025. The inspection was supported by Brendan Purcell from WSP. The inspection consisted of a site reconnaissance around the crest and toe of the perimeter berms, active deposition areas, final cover, and outer embankment slopes. The annual inspection also included discussions with NPPD staff and review of their weekly inspection forms and observations. Photographs were taken and are presented in Appendix A. The following sections provide a summary of the observations made during the 2025 annual inspection.

3.1 Changes in Geometry

The geometry of the ash disposal facility was found to be in general conformance with the design. Ash disposal grades, outer embankment slopes, and contact water channels were observed to be consistent with the permitted design. Unexpected changes in geometry such as sloughing or differential settlement were not found during the inspection.

3.2 Volume of Coal Combustion Residuals

The sources and materials deposited at the ash disposal facility consist of fossil fuel combustion ash, defined pursuant to Title 132 of the Nebraska Administrative Code. Coal fly ash from GGS is the predominant type of ash placed in the ash disposal facility. The daily quantity of fly ash placed varies due to generation levels and ash marketing.

Based on data from 2014 through 2018, GGS generates an average of approximately 198,400 tons of fly ash each year. Of that total, an average of approximately 154,700 tons has historically been sold annually, and approximately 43,700 dry tons were placed in the ash disposal facility each year on average. GGS generated approximately 109,700 tons of fly ash and 24,200 tons of bottom ash from January 1, 2025, through October 31, 2025. Of this amount, 23,800 tons of fly ash were disposed in the ash disposal facility. No bottom ash was permanently disposed on site in 2025. The current estimated remaining capacity at the facility is 5.3 million cubic yards (cy). Ash will be placed in seven phases over a period of approximately 57 years.

The total estimated amount of ash placed to date in the active areas of the ash disposal facility (Ash Landfill Nos. 3 and 4) is approximately 3 million cy.

3.3 Signs of Structural Weakness

No signs of structural weakness were observed during the November 5, 2025, inspection.

3.4 Other Observations That Could Affect Stability

3.4.1 Burrowing Animals

Evidence of burrowing animals was observed at several locations around the perimeter of Ash Landfill Nos. 3 and 4. The animal burrowing appeared to be more prevalent than previous inspections, with burrows located in several areas around the perimeter slopes. NPPD inspects the embankments weekly, and signs of burrowing animals are documented. Animal burrows on the embankment slopes should continue to be addressed and repaired, as necessary. Animal burrowing did not pose a threat to the structural stability of the facility at the time of the annual inspection.

3.4.2 Erosion

Erosion was observed on the outer embankment slopes on the west and south sides of Ash Landfill No. 3 and the south side of Ash Landfill No. 4. Erosion of the exterior slopes should be monitored, and NPPD should continue to perform routine maintenance on the slopes. NPPD performed significant maintenance on the area on the west side of Ash Landfill No. 3 in June of 2025. This area should be monitored as vegetation is reestablished. NPPD should also address the area on the south exterior slopes of Ash Landfill No. 3 and south side of Ash Landfill No. 4 that have experienced erosion so that vegetation can be established to minimize future erosion.

The terrace channels and down chute channel on the final cover appear to be functioning as designed.

4.0 CLOSING

An annual inspection was performed for the ash disposal facility at GGS on November 5, 2025. The inspection met the requirements for CCR landfills under 40 CFR Part 257.84. The inspection found no indication of major structural deficiencies. Minor maintenance items that should be addressed include erosion and continued promotion of vegetative growth on exterior slopes.

WSP appreciates the opportunity to provide NPPD with assistance related to the ash disposal facility at GGS. Please let us know if you have any questions or need additional support.

5.0 REFERENCES

WSP (WSP USA Inc.). 2024. 2024 Annual Inspection Report – Nebraska Public Power District, Gerald Gentleman Station Ash Disposal Facility, December 3, 2024.

Signature Page

WSP USA Inc.



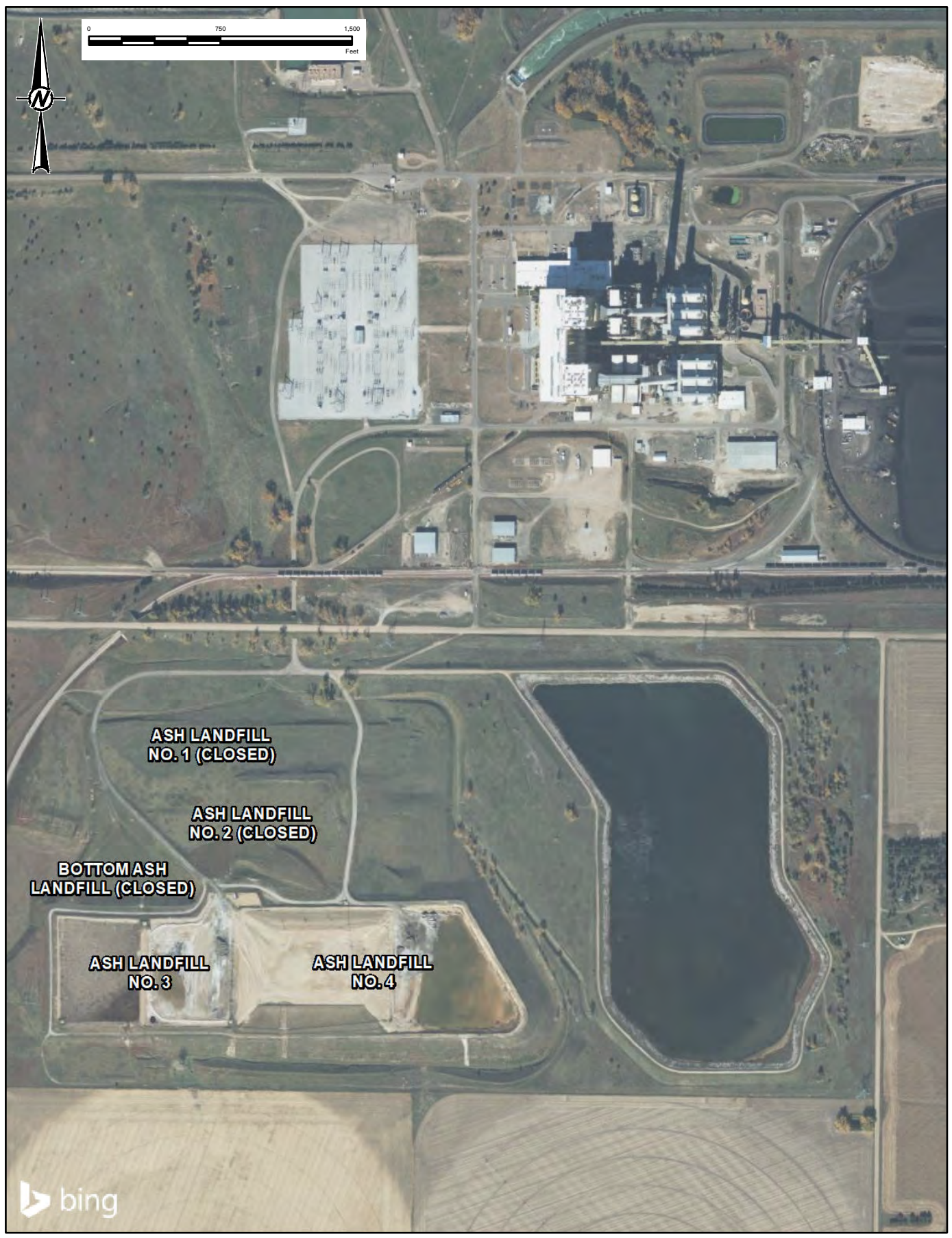
Jacob Sauer, PE
Vice President, Senior Lead Consultant

JS/af

https://wsponlinenam.sharepoint.com/:w:/r/sites/US-2025US433513-2025/Shared%20Documents/Project%20Files/6_Deliverables/002-RPT-GGS_2025_PE_Inspection_Report/Rev0/GLA21457062.3513-002-RPT-0-GGS_2025_PE_Inspection_Report_08DEC25.docx

Figure

PATH: M:\NPPD_GeraldGentlemanStation Mapping\8.5x11 - 18 10 263_AnnualPE InspectionReport_Fig01.mxd PRINTED ON: 2022-11-22 AT: 11:58:30 AM



PROJECT
NEBRASKA PUBLIC POWER DISTRICT
GERALD GENTLEMAN STATION

TITLE
ANNUAL PE INSPECTION REPORT

FIGURE
1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI/A

APPENDIX A

Inspection Photographs

Nebraska Public Power District - Gerald Gentleman Station

2025 CCR Facility PE Inspection



Photograph 1
Erosion repairs west of Ash Landfill No. 3



Photograph 2
West (inactive) cell of Ash Landfill No. 3

Nebraska Public Power District - Gerald Gentleman Station

2025 CCR Facility PE Inspection



Photograph 3
Area with thin vegetation on south of Ash Landfill No. 3



Photograph 4
Contact water evaporation pond

Nebraska Public Power District - Gerald Gentleman Station**2025 CCR Facility PE Inspection**

Photograph 5
Active deposition area of Ash Landfill No. 3.



Photograph 6
North slope of Ash Landfill No 3 and closed Bottom Ash Landfill

Nebraska Public Power District - Gerald Gentleman Station**2025 CCR Facility PE Inspection**

Photograph 7
Sump area in east cell of Ash Landfill No. 3



Photograph 8
Ash contact water containment berm south side of Ash Landfill No. 3

Nebraska Public Power District - Gerald Gentleman Station

2025 CCR Facility PE Inspection



Photograph 9
Edge of liner marker on Ash Landfill No. 4



Photograph 10
South exterior slope and drainage channel at Ash Landfill No. 4

Nebraska Public Power District - Gerald Gentleman Station**2025 CCR Facility PE Inspection**

Photograph 11
South exterior slope at Ash Landfill No. 4



Photograph 12
Southeast corner exterior slope at Ash Landfill No. 4

Nebraska Public Power District - Gerald Gentleman Station**2025 CCR Facility PE Inspection**

Photograph 13
East exterior slope at Ash Landfill No. 4



Photograph 14
Contact water evaporation pond and bottom ash handling area

Nebraska Public Power District - Gerald Gentleman Station**2025 CCR Facility PE Inspection**

Photograph 15
Bottom ash handling area



Photograph 16
North exterior slope of Ash Landfill No. 4

