REPORT

Post-Closure Care Plan

Permit Number 0043

Great River Energy – Stanton Station

Submitted to:

North Dakota Department of Environmental Quality

Division of Waste Management
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Submitted by:

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1.0 INTRODUCTION

Great River Energy (GRE) is submitting this Post-Closure Care Plan to the North Dakota Department of Environmental Quality (NDDEQ) for Permit Number 0043, which governs the Coal Combustion Residual (CCR) Surface Impoundment (Bottom Ash Impoundment), CCR Landfill (Bottom Ash Landfill), and closed special waste landfill (Ponds B and C) at GRE's Stanton Station site. Stanton Station was a coal-fired electrical generation facility located in Mercer County, approximately 3 miles southeast of the city of Stanton along the Missouri River, which ceased power production in 2017.

Figure 1 shows the locations of the Bottom Ash Impoundment, Bottom Ash Landfill, and closed special waste landfill at the Stanton Station site.

Figure 1: Solid Waste Management Units under Permit Number 0043 at Stanton Station (Aerial Image: NAIP 2021).

2.0 CLOSURE

Stanton Station ceased power production in February of 2017 and deconstruction and demolition of the plant facilities was completed in 2019, with site restoration completed in 2020. The Bottom Ash Impoundment and Bottom Ash Landfill were closed and covered in 2020 and the closed special waste landfill was closed and covered in 1997. The following sections briefly summarize closure and construction of final cover at each of these units to provide background for post-closure care. Additional information is included in the Construction Quality Assurance Documentation and Certification report associated with the Bottom Ash Landfill and Bottom Ash Impoundment (Golder 2021) and Closed Special Waste Landfill (UPA 1998).

2.1 Bottom Ash Impoundment

Closure of the Bottom Ash Impoundment included closure by removal of the north and center cells and construction of a composite cover in the south cell over regraded waste. Construction of the approximately 4.5-acre south cell composite final cover system began in October 2019 and was completed at the end of July 2020. Closure by removal of the north and center cells followed a similar timeline.

Coal Combustion Residual (CCR) removal from the north and center cells of the Bottom Ash Impoundment was performed in accordance with the procedures outlined in the permit modification documents (Golder 2018a and Golder 2018b) approved by the NDDEQ on October 9, 2019 (NDDEQ 2019). Verification of removal of CCR and associated portions of the liner system was generally performed as described in the permit modification documents.

A composite final cover system compliant with both Chapter 33.1-20-08-07 of the NDAC (NDDEQ 2020) and Part 257.102 of the Federal CCR Rule (USEPA 2015) was placed over in-place waste at the south cell of the Bottom Ash Impoundment, which consists of (from bottom to top):

- Geosynthetic clay liner (GCL)
- 60-mil textured high density polyethylene (HDPE) geomembrane
- 30-inch-thick growth medium
- 6-inch-thick topsoil cover

The composite final cover system had final grades of approximately 7% to accommodate the quantity of material contained and was tied into the existing 60-mil HDPE geomembrane liner system along the sides of the south cell.

2.2 Bottom Ash Landfill

Construction activities associated with the closure of the Bottom Ash Landfill included regrading and compacting waste and construction of a final cover system in compliance with both Chapter 33.1-20-08-07 of the NDAC (NDDEQ 2020) and Part 257.102 of the Federal CCR Rule (USEPA 2015). Construction of the approximately 11-acre final cover area began in May 2020 and was completed in July 2020.

After construction of a containment berm along the west side of the consolidated Bottom Ash Landfill footprint, the final cover for the Bottom Ash Landfill consists of the following components (from bottom to top):

- 18 inches of clay-rich, plant root zone soil (growth medium), with maximum hydraulic conductivity of $3x10^{-6}$ centimeters per second (cm/s)

- 6 inches of topsoil capable of sustaining native plant growth

The Bottom Ash Landfill final cover has maximum 15% and minimum 3% grades.

2.3 Closed Special Waste Landfill

In the mid-1990s, a dry fly ash handling system was incorporated into operations at Stanton Station and the original ash pond disposal areas (Ash Ponds A, B, and C) were reclaimed and/or closed. CCR from an onsite ash disposal area and Pond A were excavated and hauled to Ponds B and C for disposal. Ash Ponds B and C were consolidated and closed as a special waste landfill in the fall of 1997 with a final protective soil cover consisting of 3 feet of soil cover overlying 2 feet of clay fill (UPA 1996, UPA 1998). Based on the date of closure for the closed special waste landfill (final cover construction was completed in the fall of 1997), this unit is not under the purview of the NDAC CCR rules (Chapter 33.1-20-08, NDDEQ 2020).

2.4 Closure Notification and Verification

Following final closure, reports were submitted to the NDDEQ and certified by a Professional Engineer registered in the state of North Dakota verifying that closure was completed in substantial compliance with the approved closure plan (Golder 2020a, Golder 2020b, UPA 1998). A copy of these reports was placed in each unit's operating record.

3.0 POST-CLOSURE CARE

3.1 Overview

Following final closure, the Bottom Ash Impoundment and Bottom Ash Landfill will continue to be monitored and maintained. In addition, the closed special waste landfill will continue to be monitored and maintained through its post-closure care period; however, this unit is not under the purview of the NDAC CCR rules. Post-closure care will be conducted in accordance with NDAC requirements and will include the following:

- The final cover will be monitored for signs of erosion, settlement, and adequate vegetation. Cover maintenance will be performed as necessary for a period of 30 years after the completion of final closure.
- The Bottom Ash Impoundment south cell sump shall be monitored and dewatered as required for a period of 30 years after the completion of final closure.
- Unauthorized access to the site will continue to be prohibited via fencing, restricted access, etc. for a period of 30 years after the completion of final closure.
- Groundwater will continue to be monitored for up to 30 years following final closure, in accordance with Section 33.1-20-08-06 of the NDAC (NDDEQ 2020).

Any inquiries concerning the units during the post-closure period should be directed to:

Great River Energy
12300 Elm Creek Boulevard
Maple Grove, Minnesota 55369
(763) 445-5000

Note that GRE no longer has active facilities or personnel at the Stanton Station site on a full-time basis.

The following sections describe the post-closure inspection and monitoring activities, as required by the NDAC.

3.2 Facility Inspection

During the first five years of the post-closure period as vegetation is becoming established, semi-annual inspections of the units will be made, typically in the spring and fall. Once healthy vegetation is established (the remaining 25 years), inspections of the units will be made annually, typically in the spring or fall. These inspections will be conducted with the aim of ensuring that the liner, sump and sump riser piping, final cover, surface water features, vegetation, and access controls are functioning as designed during the post-closure period.

The semi-annual or annual inspections and post-closure care will include the following items:

- The final cover will be inspected for areas of bare soil, dead/poor vegetation, ponding of surface water, seepage, erosion, woody vegetation, animal burrows, and other issues that would compromise the effectiveness of the final cover.
- The final cover will be repaired as required by filling in erosion rills, installing additional temporary and/or permanent erosion controls, removing woody vegetation, applying additional seed and mulch, removing rodent burrows, and other repairs as determined by the regular inspections.
- Any evidence of damage to geosynthetic and/or soil components of the final cover system for each unit will be noted and repaired as required.
- Mowing will be performed in spring or fall, as needed.
- Any evidence of damage to the liner will be noted and repaired as required.
- As required, water will be regularly pumped from the sump within the Bottom Ash Impoundment south cell and removed from site.
- Groundwater monitoring wells will be examined and repaired as required.
- Surface water features will be repaired, if necessary, and cleared of debris so that flow is not impeded.
- Access gates will be repaired, as required, to prevent unauthorized access to the facility.

3.3 Post-Closure Groundwater Monitoring

Groundwater will continue to be monitored for 30 years following closure in accordance with NDAC Section 33.1-20-04.1-09, Part 5.b and Section 33.1-20-08-07, Part 5.c. During post-closure, groundwater monitoring will be conducted in accordance with the groundwater sampling and analysis plan in effect at the time of closure, unless or until an alternative plan is submitted to and approved by the NDDEQ. The groundwater monitoring network will be maintained throughout the post-closure period. If groundwater impacts occur during the post-closure period of the unit, the approved groundwater plan will be followed in accordance with the NDAC requirements. If GRE is operating under assessment monitoring at the conclusion of the post-closure care period, GRE will continue to conduct post-closure care until it can return to detection monitoring.

3.4 Recordkeeping and Reporting

Documentation of semi-annual or annual inspections will be placed in the site's operating record throughout the post closure period. The inspection date, observations, and recommended repairs will be documented.

Documentation will also be kept in the site's operating record regarding maintenance and repairs performed on the final cover including the sump riser piping in the south cell of the Bottom Ash Impoundment and surface water control features.

Within 60 days following the completion of the post-closure care period, GRE will notify the NDDEQ and prepare a notification certified by a qualified professional engineer that post-closure care has been completed in accordance with the post-closure plan and will place the notification in the operating record.

The results of post-closure groundwater monitoring will be placed in the operating record and submitted annually to the NDDEQ.

3.5 Planned Property Usage

The closed units will be designated as open space during the post-closure period and will be controlled via earthworks grading features, gates, and/or signage. No agricultural, recreational, public, or otherwise active uses are planned for the facility during the post-closure care period. Post-closure property uses will be conducted such that the final cover will not be disturbed unless it is determined that the disturbance will not endanger human health or the environment and is approved by the NDDEQ.

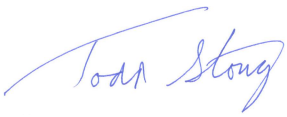
4.0 CERTIFICATION

This document provides an update to the Post-Closure Care Plan for the Surface Impoundment (Bottom Ash Impoundment), Inert Waste Landfill (Bottom Ash Landfill), and closed special waste landfill at GRE's Stanton Station site, which are governed under NDDEQ Permit Number 0043.

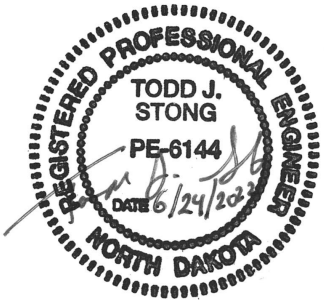
The undersigned attest to the completeness and accuracy of this post-closure plan and certify that the plan meets the requirements of Part 5.d. of NDAC 33.1-20-08-07.

Golder Associates USA Inc.

Craig Schuettpelz
Lead Consultant



Todd Stong
Director



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