

## TECHNICAL MEMORANDUM

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**Project No.** 21451133B

**TO** Erik Heinen  
Great River Energy

**CC** Shane Stockdill (Great River Energy), Craig Schuettepelz (Golder)

**FROM** Todd Stong

**EMAIL** [tstong@golder.com](mailto:tstong@golder.com)

### **PERIODIC UPDATE TO CCR FACILITY PLANS AND ASSESSMENTS, BOTTOM ASH CCR SURFACE IMPOUNDMENT AND BOTTOM ASH CCR LANDFILL AT GREAT RIVER ENERGY'S STANTON STATION**

The United States Environmental Protection Agency's (USEPA's) Coal Combustion Residual (CCR) Rule, 40 Code of Federal Regulations (CFR) Part 257 (USEPA 2015) requires that several plans and assessments be revisited every 5 years (or more regularly, if applicable). At Great River Energy's (GRE's) Stanton Station, this requirement applies to the Bottom Ash CCR Surface Impoundment (Bottom Ash Impoundment) and the Bottom Ash CCR Landfill (Bottom Ash Landfill). Initial plans and assessments for these existing CCR facilities were completed in 2016 and include:

#### Bottom Ash Landfill

- Run-on and Run-off Control System Plan (40 CFR 257.81)

#### Bottom Ash Impoundment

- Inflow Design Flood Control System Plan (40 CFR 257.82)
- Hazard Potential Classification Assessment, Structural Stability Assessment, and Safety Factor Assessment (40 CFR 257.73)

This memo describes the current post-closure status of these two facilities and why the requirements to maintain these plans are no longer applicable.

## **1.0 CLOSURE AND CURRENT STATUS**

GRE's Stanton Station ceased operation in February 2017. Deconstruction and demolition of plant facilities was completed in 2019 and site restoration was completed in 2020, including closure of the Bottom Ash Landfill and Bottom Ash Impoundment. Ongoing maintenance of the site will be performed in accordance with the closure and post-closure plans (Golder 2019a,b).

### **1.1 Bottom Ash Landfill Closure Certification**

The Bottom Ash Landfill was closed with CCRs left in place in accordance with the requirements of 40 CFR Part 257.102(d). Waste in the Bottom Ash Landfill was compacted to a firm and unyielding surface and re-graded to slopes between 3% and 15% to direct stormwater off and away from the closed and covered landfill. After re-

grading of waste materials, a final cover system consisting of the following components (from bottom to top) was completed in July of 2020 (Golder 2020b):

- A minimum 18-inch infiltration layer with a hydraulic conductivity no greater than  $1 \times 10^{-5}$  cm/sec; and
- A minimum 6-inch topsoil erosion layer that is capable of sustaining native plant growth.

Construction quality assurance (CQA) activities were performed at the Bottom Ash Landfill to confirm closure met the requirements of 40 CFR Part 257.102(d) of the CCR Rule as well as those of the closure and post-closure plan (Golder 2019b).

## 1.2 Bottom Ash Impoundment Closure Certification

The north and center cells of the Bottom Ash Impoundment were closed by removal of CCR and impacted liner components in accordance with requirements of 40 CFR Part 257.102(c). The removal of CCR and associated portions of the liner system within the north and center cells of the Bottom Ash Impoundment was completed in the fall of 2019 and final work associated with closure, including tying closure by removal grades into overall site restoration grades and seeding and mulching, occurred from fall 2019 through July 2020 (Golder 2020a).

The south cell of the Bottom Ash Impoundment was closed with CCRs left in place in accordance with the requirements of 40 CFR Part 257.102(d). Water was removed from the south cell and waste was compacted to a firm and unyielding surface and re-graded to slopes between 3% and 15% to direct stormwater off and away from the closed and covered impoundment. After re-grading of waste materials, a final cover system consisting of the following components (from bottom to top) was completed in July of 2020 (Golder 2020a):

- A geosynthetic clay liner (GCL);
- A 60-mil high density polyethylene (HDPE) geomembrane liner;
- A minimum 30-inch plant root zone (growth medium) layer; and
- A minimum 6-inch topsoil erosion layer that is capable of sustaining native plant growth.

As noted above, the south cell of the Bottom Ash Impoundment was closed with permitted wastes remaining in-place. Waste materials placed in the south cell of the Bottom Ash Impoundment during closure included both saturated and unsaturated materials. A sump was constructed to remove “free water” that may accumulate above the composite liner system during the post-closure care period. “Free water” removed from the sump at the base of the facility will be pumped into tanks and/or trucks to be hauled offsite for proper containment/disposal.

Therefore, throughout the post-closure care period, the Bottom Ash Impoundment will be operated as a CCR landfill, where water collected along the base of the facility will be removed as necessary. No areas of impounded water exist in the post-closure care period as the final cover is graded to promote drainage of surface water away from the facility cover and perimeter embankments.

## 2.0 PLAN AND ASSESSMENT APPLICABILITY

The requirements to maintain the Run-on and Run-off Control System Plan, Inflow Design Flood Control System Plan, or Hazard Potential Classification Assessment, Structural Stability Assessment, and Safety Factor Assessment are not applicable to the Bottom Ash Landfill and Bottom Ash Impoundment that are closed and have posted closure certifications, as described below:

- Run-on and Run-off Control System Plan (40 CFR 257.81) – This condition specifically applies to run-on and run-off from the “...active portion of the CCR unit...”
  - Since the facilities are in post-closure care, the Bottom Ash Landfill and Bottom Ash Impoundment (closed as a CCR Landfill) no longer have active containment areas.
- Inflow Design Flood Control System Plan (40 CFR 257.82) – This condition applies to CCR surface impoundments and describes inflow “...into the CCR unit...” and “...from the CCR unit...”
  - The final cover system of the Bottom Ash Impoundment was graded to promote stormwater off and away from the facility and there is no depression, excavation, or diked area for water to flow to or from.
- Hazard Potential Classification Assessment, Structural Stability Assessment, and Safety Factor Assessment (40 CFR 257.73) – These conditions are applicable to CCR surface impoundments.
  - The north and center cells of the Bottom Ash Impoundment were closed by removal and the south cell of the Bottom Ash Impoundment was closed with CCRs in place, does not have an area of impounded water, and therefore no longer operates as a CCR surface impoundment.

### 3.0 SUMMARY AND CONCLUSIONS

This memo describes the current post-closure status of the Bottom Ash Landfill and Bottom Ash Impoundment at GRE's Stanton Station in relation to CCR Rule requirements associated with updating several plans and assessments. In accordance with the post-closure plans (Golder 2019a,b), the site is inspected regularly, and maintenance is performed as required to maintain the integrity of the cover systems associated with each facility.

#### Golder Associates Inc.



Craig Schuettpelz, PE  
Senior Engineer



Todd Stong, PE  
Associate and Senior Consultant

## 4.0 REFERENCES

- Golder (Golder Associates Inc.). 2019a. Closure and Post-Closure Plan, Revision 1 – Bottom Ash CCR Surface Impoundment – Stanton Station. September 5, 2019.
- Golder (Golder Associates Inc.). 2019b. Closure and Post-Closure Plan, Revision 1 – Bottom Ash CCR Landfill – Stanton Station. September 5, 2019.
- Golder (Golder Associates Inc.). 2020a. Notification of Closure – Bottom Ash CCR Surface Impoundment – Stanton Station. August 31, 2020.
- Golder (Golder Associates Inc.). 2020b. Notification of Closure – Bottom Ash CCR Landfill – Stanton Station. August 31, 2020.
- United States Environmental Protection Agency (USEPA). 2015. Code of Federal Regulations Title 40 Part 257: Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities. April 17, 2015.

[https://golderassociates.sharepoint.com/sites/140115/project files/6 deliverables/21451133b/techmemos/4-tm-plan\\_updates/4-tm-0/21451133b-4-tm-0-plan\\_updates\\_13oct21.docx](https://golderassociates.sharepoint.com/sites/140115/project%20files/6%20deliverables/21451133b/techmemos/4-tm-plan_updates/4-tm-0/21451133b-4-tm-0-plan_updates_13oct21.docx)