Coal Combustion Residual Landfill Annual Inspection Report

Boardman Generating Facility

Prepared by: Mathew Quigley, P.E.

December 2018
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Introduction
This Coal Combustion Residual (CCR) Annual Inspection Report fulfills the requirements of 40 CFR §257.84(b)(2) for a qualified professional engineer to prepare a report following each annual inspection. The report must address any changes in geometry of the structure since the previous annual inspection; the approximate volume of CCR contained in the unit at the time of the annual inspection; any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit; and any other changes which may have affected the stability or operation of the CCR unit since the previous annual inspection.

Field Observations
An annual inspection of the Boardman Power Plant CCR landfill was conducted by Mathew Quigley, P.E., on November 26th, 2018. Site conditions were clear skies and cool temperatures with little wind. No precipitation had fallen on the landfill site in the days immediately prior to the inspection. An inspection was conducted of the landfill perimeter roads, perimeter ditches, ash disposal area, and storm water retention area. Inspections consisted of visual observations only; no other metrics are available in the field for review. Reference Appendix A for photos taken during the inspection.

The CCR landfill was observed to contain fly ash, economizer ash, and bottom ash. The fly and economizer ashes occupy approximately 80 percent of the landfill area, with the bottom ash occupying approximately 20 percent along the southern edge of the area. All fly ash and economizer ash were observed to be wetted and generally compacted. New procedures used by the onsite contractor responsible for handling ash materials involve the use of a large box-blade grader to spread newly deposited and wetted ash. This provides a much more evenly distributed and compacted product. Ash deposition activities were not underway during the site inspection, but conditions of deposited materials suggest ash disposal activities are in conformance with site procedures for systematically building the overall ash pile and managing dust to the greatest extent possible.

The perimeter roadway encompassing the CCR landfill site and serving as a means for maintaining storm water runoff onsite, was found to be in generally good condition and sufficient for continued service. Storm water conveyance systems appear to be functioning as required with no apparent signs of erosion or ponding apart from one location requiring corrective action noted below. The landfill storm water retention area located at the western side of the landfill appears to be in acceptable condition and fit for continued use. Some minor deficiencies requiring action were observed and are noted below.
The following deficiencies requiring corrective action were noted;

- The perimeter ditch along the north side of the landfill appears to both not meet the required profile and slope as stipulated in the site Run-On and Run-Off Control Plan (Rev 1). This issue appears to be primarily along the eastern half of the ditch.
- Animal burrows were noted in several locations around the exterior edge of the perimeter roadway.
- Minor brush has built up in some ditches.

**Evaluation of Monitoring Methods**

PGE implements a weekly visual inspection of the CCR landfill by trained PGE staff present at the Boardman Generating Facility. The weekly inspection logs are designed to itemize key areas to be reviewed and easily list deficiencies noted.

As part of this annual inspection, previous weekly inspection logs available for 2018 have been reviewed. For 2018 no notable observations requiring corrective action were noted. Physical copies of the weekly logs are maintained on site for future reference.

The weekly visual inspection form and inspection process is sufficient for continued monitoring of the CCR landfill pursuant to 40 CFR §257.84.

**Corrective Actions**

The following corrective actions need to be undertaken by PGE in 2019.

- The perimeter ditch along the north side of the landfill needs to be surveyed and re-graded as necessary to meet the profile and slope requirements stipulated in the site Run-On and Run-Off Control Plan. The ditch profile should be sufficient to pass 1.5 feet of water with side slopes of 4H:1V at a longitudinal slope of 0.30%.
- Animal borrows at several locations along the exterior edge of the perimeter roadway should be dug out and backfilled with a gravel fill like that used for the roadway.
- As seasonal restrictions permit, brush should continue to be removed from the perimeter ditches.
CCR Quantities

Appendix B contains figures of the CCR landfill depicting the previous and current topographic surveys of the landfill completed by Portland General Electric, as recorded on November 26th, 2018. The previous survey of the landfill topography was completed on December 5th, 2017. From December 5th, 2017 to November 26th, 2018, approximately 25,806 cubic yards of material have been deposited on the landfill. Original landfill site topography data from 1980 is incomplete but has been approximated to estimate that to date around 728,215 cubic yards of deposited material are present within the landfill. The aerial extents of the landfill have not increased. Ash disposition has generally increased the surface elevation of the landfill throughout the site.

PGE intends to conduct ongoing annual topographic surveys of the landfill to monitor any changes in geometry of the landfill.
Certification
This report is prepared by Mathew Quigley, a Civil Engineer in Portland General Electric’s Power Supply Engineering Services (PSES). Licensed as a Professional Engineer in the State of Oregon, in 2014, Mathew has over 8 years of civil engineering experience and has provided civil engineering support of PGE’s CCR landfill at the Boardman Generating Facility since 2011.

Prepared by: Mathew Quigley, P.E.
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Date: 12/26/2018
Appendix A: Inspection Photos
CCR landfill at division between fly/economizer ash (white) and bottom ash (black), viewing east.
CCR landfill storm water retention area at west end of the landfill site, view northwest
Ditch between perimeter roadway and landfill along north side of the site (viewing west) requiring regrading to insure storm water conveyance to the retention area.
Typical animal burrows observed around exterior edge of the perimeter roadway.
New grading equipment deployed at the landfill site for improved ash deposition and compaction.
Appendix B: Supporting Drawings/Figures