2015 Annual Landfill Inspection

Big Stone Plant – Boiler Slag Laydown Area

Big Stone City, South Dakota

Prepared for
Otter Tail Power Company

January 2016

Minneapolis, MN, Bismarck, ND

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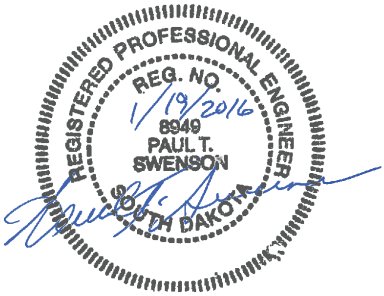
Contents

List of Tables

Certifications

I hereby certify that I have examined the facility and, being familiar with the provisions of 40 CFR 257 Subp. D, attest that this Annual Landfill Inspection report has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR §257.84.



Paul T. Swenson
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Paul T. Swenson, P.E.
Barr Engineering Co.
Registration Number 8949

Dated this 18th day of January, 2016

1.0 Introduction

Otter Tail Power Company (OTP) operates the Big Stone Plant (Big Stone), located near Big Stone City, South Dakota. Big Stone is a coal-fired electrical generator that results in production of coal combustion residuals (CCR). CCR management is subject to Federal Standards for Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments per 40 CFR 257 Subpart D (CCR Rule). OTP currently excavates and hauls CCR material from the Slag Pond Area to the Boiler Slag Laydown Area where it dries prior to disposal. Slag is then either transported off-site for beneficial use or placed in the on-site landfill.

The Boiler Slag Laydown Area is required to meet the CCR Rule for landfills, and is therefore subject to annual inspections by a qualified professional engineer (QPE). This report documents the first annual inspection performed by Paul T. Swenson, P.E. on November 10th, 2015, as required by the CCR Rule. Other annual inspection duties, including a review of the available information regarding the status and condition of the CCR Unit and storage capacity evaluations, were performed prior and following the on-site inspection.

2.0 Review of Existing Information

A review of existing information was performed to confirm that the design, construction, operation and maintenance of the landfill is consistent with recognized and generally accepted good engineering standards. No deficiencies were found and the existing information reviewed is described in following subsections.

2.1 Results of Weekly Inspections

OTP commenced weekly landfill inspections by a qualified person on October 19, 2015. Weekly inspection reports from October 19, 2015 through December 31, 2015 were reviewed as part of this annual inspection.

2.2 Results of Previous Annual Inspections

This report is the first annual inspection report required by the CCR Rule; the results of previous annual inspections are therefore not available. A review and summary of pertinent information contained in previous inspection reports will be included in future reports.

3.0 Structural Integrity and Operational Review

An on-site inspection was performed on November 10, 2015 to visually identify signs of distress or malfunction of the CCR Unit. The results of the inspection are included in the following subsections.

3.1 Visual Inspection of Ash Fill Disposal Area Landfill

Inspection consisted of on-foot inspection of perimeter berms and embankments, the active storage pad. Visual inspection items and results are summarized in the following table:

Table 3-1 Summary of Visual Inspection

Item	Visual Inspection Description	Visibly Observed (Yes/No)	Notes
1	Proper placement of waste	Yes	No issue with placement of waste at time of inspection.
2	Adequate slope stability and erosion control	Yes	No significant erosion identified at time of inspection.
3	Run-on and Run-off controls properly functioning	Yes	Surface water controls appeared adequate at time of inspection.
4	Surface water percolation minimized	Yes	No surface water ponding or excessive leachate generation observed at time of inspection.
5	Contact water systems properly operated and maintained	Yes	No systems issues observed at time of inspection.
6	Water quality monitoring systems maintained and operating	Yes	Plans for installation of a groundwater quality monitoring well network at the Boiler Slag Laydown Area were in progress.
7	Dust adequately controlled	Yes	No dusting was observed when wind gusts kicked up at time of inspection.
8	Geometry of Slay Laydown Area is unchanged from previous inspection.	NA	2015 inspection is first inspection conducted under the CCR Rule. Future annual inspections will compare geometry to 2015 baseline.
9	Animal burrows absent or of no significance	Yes	No burrows of significance identified at time of inspection.
10	Adequate vegetation density and vegetation maintenance	Yes	Entire site was covered with a thin layer of stable slag.
11	Debris controlled or absent	Yes	No debris present at time of inspection.

3.2 Other Changes

No other changes to the CCR Unit design, maintenance, or operations were observed as part of the annual inspection that could affect the stability or operation of the CCR Unit.

4.0 Volume of CCR Contained

Based upon field measurements taken as part of the November 10, 2015 annual inspection, the estimated volume of CCR contained in the CCR Unit at the time of the inspection is approximately 400 to 600 cubic yards.