



2016 Annual Landfill Inspection

Big Stone Plant – CCR Temporary Storage Area

Big Stone City, South Dakota

Prepared for
Otter Tail Power Company

December 2016

2015 Annual Landfill Inspection - CCR Temporary Storage Area

December 2016

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Certifications

I hereby certify that I, or someone under my direct supervision, have examined the Big Stone Plant Ash Disposal Area CCR Landfill, and, being familiar with the provisions of 40 CFR 257 Subp. D and standard practices of the industry, I have determined that the Ash Disposal Area design, construction, operation, and maintenance are consistent with generally accepted good engineering standards.



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Swenson
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Barr Engineering Co.
Registration Number 8949

Dated this 19th day of December, 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). CCR generated by the plant is placed in an on-site landfill or sent off-site for beneficial use. CCR is sluiced to an incised impoundment on site. It is then excavated from the impoundment and temporarily stored in a location adjacent to the impoundment until it is either transported off-site for beneficial use or placed in the on-site landfill. The storage area is referred to as the Temporary Storage Area (TSA).

The TSA is required to meet applicable portions of the CCR Rule for landfills, and is therefore subject to annual inspections by a qualified professional engineer (QPE). This report documents the 2016 annual inspection, as required by the CCR Rule.

2.0 Review of Existing Information

Existing information was reviewed to confirm that the design, construction, operation and maintenance of the TSA are 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

Weekly inspections were conducted by a qualified person during 2016. Inspection reports from January 1, 2016 through October 8, 2016 were reviewed as part of the QPE annual inspection.

2.2 Results of Previous Annual Inspections

The 2015 annual inspection report was reviewed in preparing this 2016 report. The 2015 report concluded that the facility was in conformance with industry practices and state permit and rule requirements.

3.0 Structural Integrity and Operational Review

An on-site inspection was performed on October 13, 2016 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 TSA

Inspection consisted of on-foot inspection of perimeter berms and embankments, the active temporary storage area. 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	Small areas of surface water ponding or were observed at time of inspection. Actions were taken after the inspection to grade the TSA for positive drainage toward the surface impoundment.
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	Existing monitoring wells were accessible and appeared to be in good condition at time of inspection.
7	Dust adequately controlled	Yes	No dusting was observed at time of inspection.
8	Geometry of TSA is unchanged from previous inspection.	NA	The geometry of the TSA is unchanged from 2015, although work has been done to better define the TSA limits through construction of berms at the perimeter of the TSA.
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 October 13, 2016 annual inspection, the estimated volume of CCR contained in the CCR Unit at the time of the inspection was approximately 10,000 cubic yards.