



2016 Annual Landfill Inspection

Coyote Station - Blue Pit

Beulah, North Dakota

Prepared for
Otter Tail Power Company

November 2016

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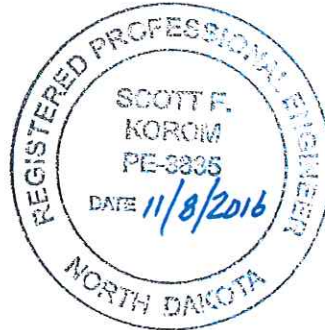


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Certifications

I hereby certify that I have examined the facility and, being familiar with the provisions of 40 CFR 257 Subp. D, attest that Otter Tail Power Company's Coyote Station, Blue Pit landfill design, construction, operation, and maintenance are consistent with recognized and generally accepted good engineering standards, including consideration of applicable industry standards and the requirements of 40 CFR §257.84.



Scott F. Korom, PE 3835
Barr Engineering Co.
North Dakota Registration Number PE-3835

Scott F. Korom

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Dated this 8th day of November, 2016

1.0 Introduction

Otter Tail Power Company (OTP) operates the Coyote Station (Coyote), in Beulah, North Dakota. Coyote, 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 material from Coyote is placed in Blue Pit, the on-site landfill, for disposal.

Blue Pit is required to meet the CCR Rule for landfills, and is therefore subject to annual inspections by a qualified professional engineer. This report documents the annual inspection performed by Scott F. Korom, PE, on October 18, 2016, as required by the CCR Rule.

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 Previous Annual Landfill Inspections

The initial Annual Landfill Inspection Report, dated January 2016, is located at an OTP website (<http://www.ccr-cs.net/blue-pit-sp-182/>). It stated that existing site information was reviewed, a site inspection was completed, and no deficiencies were found.

2.2 Weekly Inspections

The Annual Landfill Inspection Report for 2015 covered OTP weekly landfill inspections by a qualified person through December 23, 2015. For the Annual Landfill Inspection Report for 2016, weekly inspection reports were reviewed from December 30, 2015, through October 13, 2016. Most of the weekly inspections were done by Mr. Justin Sailer, Plant Engineer. The inspection reports were dated at intervals not exceeding seven days and no significant problems in the design, construction, operation, and maintenance of Blue Pit were noted.

The June 22, 2016, report recorded that the North Dakota Department of Health (NDDH) requested that some minor erosion needed to be repaired and also that measures needed to be taken to ensure that water would not flow out of Blue Pit. For the former, Mr. Sailer reported that repair of the minor erosion is scheduled for next spring or summer with the next capping of Blue Pit. For the latter, Mr. Sailer, during the site inspection, pointed out the measures taken to ensure that water would not flow out of Blue Pit. Finally, this report also recorded that Coyote personnel pushed up ash on the east side of Blue Pit in preparation for the next ash-placement zone.

The July 20, 2016, report recorded that bollards for new monitoring wells were painted and that Coyote personnel built an access road for the next ash-placement zone.

The August 1, 2016, report recorded that subsoil and topsoil signs were placed on stockpiles in accordance with a request by NDDH.

The August 8, 2016, report recorded that Coyote personnel mowed the west and north sides of Blue Pit.

3.0 Structural Integrity and Operational Review

An on-site inspection was done on October 18, 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 Blue Pit Landfill

Inspection consisted of on-foot inspection of perimeter berms and embankments, the active landfill face, and final covered areas. Visual inspection items and results are summarized in the following table:

Table 3-1 Summary of Visual Inspection

Item	Visual Inspection Description	Inspected (Yes/No)	Notes
1	Proper placement of waste	Yes	Waste is being properly placed in landfill.
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	Liner systems properly operated and maintained	Yes	No liner systems issues observed at time of inspection.
6	Contact water systems properly operated and maintained	Yes	No systems issues observed at time of inspection.
7	Water quality monitoring systems maintained and operating	Yes	Monitoring wells were visible, accessible, and appeared to be in good condition at time of inspection.
8	Dust adequately controlled	Yes	No dusting during the inspection.
9	Geometry of landfill is unchanged from previous inspection.	Yes	No evidence of any change in the geometry of the landfill.
10	Animal burrows absent or of no significance	Yes	No burrows of significance identified at time of inspection.
11	Adequate vegetation density and vegetation maintenance	Yes	Except for a small patch of erosion on the east side, vegetation appeared well established and well maintained at time of inspection.
12	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 that could affect the stability or operation of the CCR Unit were observed during of the annual inspection.

4.0 Volume of CCR Contained

The 2015 Annual Landfill Inspection Report stated that a topographic survey of the landfill was completed on December 2, 2015. Another survey was completed on July 28, 2016. The volume of CCR added between these two surveys was calculated as 90,460 cy. The average rate of landfill capacity consumed between the two surveys was used to estimate the current CCR capacity consumed (Table 4-1) through the time of the last annual inspection (October 18, 2016). The approximate permitted design CCR capacity has not changed since the last annual report.

Table 4-1 Volume of CCR Contained in Landfill

Approximate Permitted Design CCR Capacity (cy) ¹	Current CCR Capacity Consumed (cy)	Status of Slot/Cell
5,853,000	2,710,000	Closed in the northern portion

¹ Based on the 2013 Blue Pit Facility Permit Renewal, SP-182, for landfill sequences 4 through 10.