2019 Annual Landfill Inspection

Coyote Station - Blue Pit

Prepared for
Otter Tail Power Company
Beulah, North Dakota

November 2019

This document was originally issued and sealed by Scott F. Korom, Registration Number PE-3835 on November 8, 2019. The original document has been destroyed and is no longer available.

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Certifications

I hereby certify that I have examined the facility and, being familiar with the provisions of 40 CFR 257 Subpart 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, PhD, PE
Barr Engineering Co.
North Dakota Registration Number PE-3835

Dated this 8th day of November 2019

1.0 Introduction

Otter Tail Power Company (OTP) operates Coyote Station (Coyote), in Beulah, North Dakota. Coyote is a coal-fired steam-electrical generator, operation of which results in coal combustion residuals (CCR) as a by-product. 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).

Blue Pit is a landfill located on the Coyote Station property used for disposal of CCR. Blue Pit is required to meet the CCR Rule requirements for landfills, and is therefore subject to annual inspections by a qualified professional engineer. This report includes the information required by § 257.84(b) *Annual inspections by a qualified professional engineer* and documents the annual inspection performed by Scott F. Korom, PE, on October 16, 2019, 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 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 2019 Permit

The North Dakota Department of Environmental Quality (DEQ) issued a permit renewal and modification on September 19, 2019 (DEQ, September 2019), in response to an application for the modification of Coyote Station Blue Pit (OTP, November 2018). The modifications include a vertical expansion of Blue Pit, increasing the landfill disposal capacity by increasing steepness of the final cover side slopes from 6 percent to 15 percent, thereby increasing the ultimate height by up to 47 feet (OTP, November 2018). These modifications increased the estimated Blue Pit permit capacity from 5,853,000 cubic yards (CY) (OTP, May 2013) to 10,104,336 CY (OTP, November 2018).

2.2 Previous Annual Landfill Inspections

Since 2015, Barr Engineering Co. (Barr) has completed the Annual Landfill Inspection Reports (Barr, January 2016; Barr, November 2016; Barr, November 2017; Barr, November 2018). All four reports are located at OTP's CCR website (http://www.ccr-cs.net/blue-pit/). They stated that existing site information was reviewed, a site inspection was completed, and no deficiencies were found.

2.3 Weekly Inspections

Weekly inspection reports from November 5, 2018, through October 30, 2019, were reviewed for this report. All 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 comments were noted on, or for significant problems with, the design, construction, operation, and maintenance of Blue Pit.

3.0 Structural Integrity and Operational Review

An on-site inspection was conducted on October 16, 2019, to visually identify signs of distress or malfunction of the CCR unit. No deficiencies were found and the results of the inspection are included in the following subsections.

3.1 Visual Inspection of Blue Pit Landfill

The inspection consisted of on-foot inspection of perimeter berms and embankments, the active landfill face, and final covered areas. It was noted that the ash piles on the south side of the landfill were higher than the capped area to the north. Mr. Sailer reported that the North Dakota Department of Environmental Quality (DEQ) recently approved OTP's request to place ash up to 47 feet above the originally-permitted elevation for the existing landfill footprint. As a result, capped areas to the north will be removed as needed to accommodate the additional capacity. This result and other visual inspection items and results are summarized in the following table:

Table 3-1 Summary of Visual Inspection

Item	Visual Inspection Description	Consistent With Good Engineering Standards (Yes/No)	Notes
1	Proper placement of waste	Yes	None.
2	Adequate slope stability and erosion control	Yes	None.
3	Run-on and run-off controls properly functioning	Yes	None
4	Surface water percolation minimized	Yes	Good slopes on cap minimize ponding and surface water percolation.
5	Liner systems properly operated and maintained	Yes	None.
6	Contact water systems properly operated and maintained	Yes	None.
7	Water quality monitoring systems maintained and operating	Yes	None.
8	Dust adequately controlled	Yes	Melting snow from the storm last week caused damp conditions. Justin Sailer stated that bottom ash is piled onto fly ash if the latter may become airborne.
9	Geometry of landfill is unchanged from previous inspection.	Yes	The landfill geometry has changed according the recent DEQ permit, noted in Section 2.1.
10	Animal burrows absent or of no significance	Yes	None.
11	Adequate vegetation density and vegetation maintenance	Yes	Vegetation density is sufficient.
12	Debris controlled or absent	Yes	None.

3.2 Other Changes

No other changes to the CCR unit design, maintenance, or operations were observed or reported by OTP as part of the annual inspection that could affect the stability or operation of the CCR unit. The annual inspection did not reveal any conditions that would cause concern with regard to actual or potential structural weakness of the CCR unit, or any existing conditions that are disrupting, or have the potential to disrupt, the operation and safety of the CCR unit.

4.0 Volume of CCR Contained

As explained in the 2018 inspection report (November 2018), the 2018 average Blue Pit fill rate based on the two most recent surveys is 438.8 CY/day. Using this rate, about 50,000 CY of CCR were placed in the landfill from the inspection in 2018 through the end of 2018. The reported volume placed in the landfill during the first three quarters of 2019 was 347,448 CY (OTP, 2019), with about 13,000 CY added from October 1 through October 16, 2019, the date of the last inspection. Therefore, the estimated CCR contained in the landfill increased from 2,991,000 CY (Barr, November 2018, Table 4-1) to 3,401,000 CY, as shown on Table 4-1.

Table 4-1 Volume of CCR Contained in Landfill

Approximate Permitted Design CCR Capacity (CY) (OTP, November 2018)	Current CCR Contained in the Landfill (CY)	Status of Active Cell
10,104,336	3,401,000	Sequence 6: Partial Closure Sequence 7: Active Sequence 8A: Active

5.0 References

Barr, January 2016. 2015 Annual Landfill Inspection, Coyote Station – Blue Pit, Beulah, North Dakota.

Barr, November 2016. 2016 Annual Landfill Inspection, Coyote Station – Blue Pit, Beulah, North Dakota.

Barr, November 2017. 2017 Annual Landfill Inspection, Coyote Station – Blue Pit, Beulah, North Dakota.

Barr, November 2018. 2018 Annual Landfill Inspection, Coyote Station – Blue Pit.

DEQ, September 2019. Permit for Solid Waste Management Facility, Coyote Station (Blue Pit) (0182).

OTP, May 2013. 2013 Coyote Station Blue Pit – Facility Permit Renewal No. SP-182.

OTP, November 2018. Coyote Station Blue Pit (SP-182) Permit Modification Application.

OTP, October 2019. 3rd Quarter 2019 Ash Report, submitted electronically to Solidwaste@nd.gov.