2018 Annual Landfill Inspection

Coyote Station - Blue Pit

Prepared for
Otter Tail Power Company
Beulah, North Dakota

November 2018

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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, 2018

Scott F. Korom
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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 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 September 9, 2018, 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 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). All three reports are located at OTP's CCR website (http://www.ccr-cs.net/blue-pit-sp-182/). They stated that existing site information was reviewed, a site inspection was completed, and no deficiencies were found.

2.2 Weekly Inspections

Weekly inspection reports from November 7, 2017, through October 29, 2018, 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 significant problems in the design, construction, operation, and maintenance of Blue Pit were noted. The following comments were noted on the weekly inspection reports:

The report on February, 28, 2018, recorded that Baranko Brothers, Inc. was onsite to build up the berm on the south side of the active landfill area to separate the contact and non-contact water.

The report on March 7, 2018, recorded that Baranko Brothers, Inc. had finished the berm on the south side of sequence 8.

The report on August 23, 2018, recorded that the capped area had been hayed and baled.

Otherwise, nothing noteworthy was documented on the weekly inspection reports provided by OTP.

3.0 Structural Integrity and Operational Review

An on-site inspection was done on September 9, 2018, 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. Other than the berm work on the south side of sequence 8, the geometry of Blue Pit is unchanged from the 2017 inspection. 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	None.
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	Damp conditions existed during the inspection.
9	Geometry of landfill is unchanged from previous inspection.	Yes	None.
10	Animal burrows absent or of no significance	Yes	None.
11	Adequate vegetation density and vegetation maintenance	Yes	The newest portion of the cover (10.2 acres) was seeded in September 2017 and this vegetation needs more time to become as established as it is on the rest of the cover; however, its progress was satisfactory at the time of inspection.
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

OTP provided two recent surveys, dated July 26, 2017, and May 6, 2018, of the uncovered portion of the landfill currently receiving CCR. Between these surveys (284 days), the capacity of the active area of the landfill decreased from 678,750 cy to 554,136 cy, resulting in an average fill rate of 438.8 cy/day. Using this rate, the estimated capacity used from the previous inspection (September 6, 2017 to September 9, 2018) is 161,000 cy. Therefore, the estimated CCR contained in the landfill increased from 2,830,000 cy (Barr, November 2017, Table 4-1) to 2,991,000 cy. The approximate permitted design CCR capacity has not changed since the 2017 Annual Landfill Inspection Report.

Table 4-1 Volume of CCR Contained in Landfill

Approximate Permitted Design CCR Capacity (cy)[1]	Current CCR Contained in the Landfill (cy)	Status of Active Cell
5,853,000	2,991,000	Sequence 5: Final closure Sequence 6: Partial closure Sequence 7: Active Sequence 8A: Active

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

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.