



2021 Annual Landfill Inspection

Coyote Station - Blue Pit

Prepared for
Otter Tail Power Company
Beulah, North Dakota



November 2021

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Contents

1.0	Introduction	1
2.0	Review of Existing Information.....	2
2.1	Previous Annual Landfill Inspections	2
2.2	Weekly Inspections	2
3.0	Structural Integrity and Operational Review.....	3
3.1	Visual Inspection of Blue Pit Landfill	3
3.2	Other Changes	4
4.0	Volume of CCR Contained	5
5.0	References	6

List of Tables

Table 3-1	Summary of Visual Inspection	3
Table 4-1	Volume of CCR Contained in Landfill.....	5

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.



Lynne M. Thomsen, PE
Barr Engineering Co.
North Dakota Registration Number PE-7153

Dated this 5th day of November 2021

1.0 Introduction

Otter Tail Power Company (OTP) operates Coyote Station (Coyote), in Beulah, North Dakota. Coyote is a coal-fired steam-electrical generator, the 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 Lynne M. Thomsen, PE, on October 21, 2021, 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

Barr Engineering Co. (Barr) has completed the Annual Landfill Inspection Reports since 2015; all previous reports are located on 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.

2.2 Weekly Inspections

Weekly inspection reports ["intervals not exceeding seven days" §257.84(a)(i)] from November 5, 2020, through October 27, 2021, were reviewed for this report. The reports were dated at intervals not exceeding seven days. One report for October 14, 2021 noted issues with run-off after a large rain event. No other deficiencies were noted other than distressed vegetation due to drought.

3.0 Structural Integrity and Operational Review

An on-site inspection was conducted on October 21, 2021, 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. 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	No issues in the area were noted during the engineer's on-site inspection. OTP plans to evaluate this area for improvements based on an internal weekly inspection finding.
4	Surface water percolation minimized	Yes	Good slopes on cap minimize ponding and surface water percolation.
5	Liner systems properly operated and maintained	Yes	Clay liner is covered and protected.
6	Contact water systems properly operated and maintained	Yes	None.
7	Water quality monitoring systems maintained and operating	Yes	Groundwater monitoring system appeared to be in good condition.
8	Dust adequately controlled	Yes	Winds during the inspection were 0 to 5 miles per hour and no dust issues were observed.
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	Vegetation was stressed at points during the summer due to drought but density was sufficient 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. OTP is exploring the possibility of relocating the haul road, but this modification will not 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

The volume of CCR contained in the landfill was determined by comparing the 2021 survey to the 2020 survey and adding the change in volume to the volume in place determined in 2020. Surfaces were created from survey data in Civil 3D and compared to determine the volume annual fill volume. Since October 12, 2020 (the last inspection), approximately 142,000 cubic yards (CY) of CCR was added to the landfill. The estimated CCR contained in the landfill as of the October 21, 2021, inspection was approximately 3,729,000 CY, as shown in Table 4-1 below.

Table 4-1 Volume of CCR Contained in Landfill

Permitted Design CCR Capacity (CY) (DEQ, September 2019)	Current CCR Contained in the Landfill (CY)	Status of Active Cell
10,104,336	3,729,000	Sequence 6: Active Sequence 7: Active with partial intermediate cover Sequence 8A: Active with partial intermediate cover

5.0 References

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