2021 Annual Landfill Inspection

R.M. Heskett Station Coal Ash Landfill

Prepared for
Montana-Dakota Utilities Company

January 2022

Minneapolis, MN, Bismarck, ND

2021 Annual Landfill Inspection

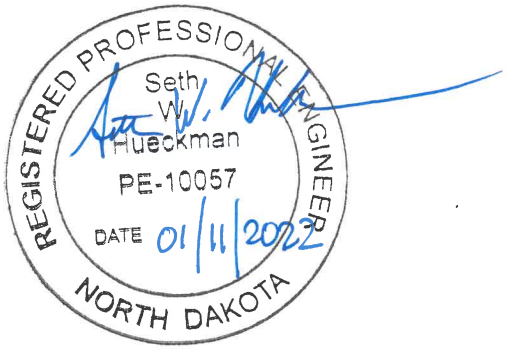
January 2022

Contents

List of Tables

Certifications

I hereby certify that I have examined the facility and, being familiar with the provisions of 40 CFR 257 Subp. D, attest that this Annual Landfill Inspection report has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR §257.84.



Seth W. Hueckman
Barr Engineering Co.
ND Registration Number PE-10057

Dated this 11th day of January, 2022

Seth W. Hueckman

Digitally signed by Seth W. Hueckman
Date: 2022.01.12 15:02:22 -06'00'

1.0 Introduction

Montana-Dakota Utilities Co. (MDU) operates the R.M. Heskett Station (Heskett), in Mandan, North Dakota. MDU operates two coal-fired boilers at Heskett, resulting 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). MDU currently hauls dry CCR material from the Heskett plant to the on-site landfill. Under 40 CFR §257.84, CCR landfills are subject to annual inspections by a qualified professional engineer (QPE). This report documents the annual landfill inspection performed by Seth W. Hueckman, P.E. on September 22, 2021, as required by the CCR Rule. Other annual inspection duties, including a review of the available information regarding the status and condition of the CCR unit and storage capacity evaluations, were performed prior and following the on-site inspection.

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.

2.1 Results of Weekly Inspections

Weekly inspection reports from January 1, 2021 through December 31, 2021 were reviewed as part of this annual inspection. On April 20, 2021, a nickel-sized hole was observed in the geomembrane cover flap near the crest of the surface water control berm on the southeast corner of the active landfill limits. No CCR material was observed near the hole. The hole was repaired on May 4, 2021. No other deficiencies were found.

2.2 Results of Previous Annual Inspections

The annual inspection performed in September 2020 was reviewed as part of this annual inspection. The annual inspection documented the following visual observations and associated remedial activities:

- Surface water controls appeared adequate. Clean surface water culvert on the northwest corner of the evaporation pond partially obstructed with sediment. MDU removed sediment from culvert.
- Vegetation appeared well established and well maintained. Phase 1 Cover area vegetation mowed and nearing full coverage (Phase 1 Cover constructed in 2019). MDU re-seeded a couple small areas in Fall 2020. Minor tree/brush growth on perimeter embankment outer slopes on east side and final covered area on north side. MDU removed tree/brush growth in these areas in Fall 2020.

3.0 Structural Integrity and Operational Review

An on-site inspection was performed on September 22, 2021 to visually identify signs of distress or malfunction of the landfill. The inspection consisted of an on-foot inspection of the perimeter embankments, the active landfill face, final covered areas, and the evaporation pond. 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 – Except as Noted	Waste contained within active landfill limits. A couple piles of ash starting to encroach on the final cover limits on the west side of the active landfill limits. MDU pulled back those piles of ash in Fall 2021.
2	Adequate slope stability and erosion control	Yes	No significant erosion identified.
3	Run-on and Run-off controls properly functioning	Yes – Except as Noted	Surface water controls appeared adequate. Southwest corner of the active landfill limits appeared to be an area where ash-contact run-off could run-on to the final cover during a large rain event. No evidence of ash-contact run-off leaving the active landfill limits was observed. MDU re-graded the southwest corner in Fall 2021 to mitigate this potential issue.
4	Surface water percolation minimized	Yes	No surface water ponding or excessive leachate generation observed.
5	Liner systems properly operated and maintained	Yes	Liner and cover system in good condition at time of inspection.
6	Leachate collection systems properly operated and maintained	Yes	No leachate collection system issues identified.
7	Water quality monitoring systems maintained and operating	Yes	Existing monitoring wells were accessible and appeared to be in good condition.
8	Dust adequately controlled	Yes	No dust issues present at time of inspection.
9	Landfill geometry consistent with facility plan	Yes	No geometry changes observed.
10	Animal burrows absent or of no significance	Yes	No burrows of significance identified.
11	Adequate vegetation density and vegetation maintenance	Yes	Vegetation appeared well established and well maintained. Phase 1 Cover area vegetation not as well established as other previously closed portions of the landfill but appeared adequate.
12	Debris controlled or absent	Yes	No debris present.

No appearances of an actual or potential structural weakness of the landfill, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the landfill, were observed during the inspection. Furthermore, no other changes to the landfill design, maintenance, or operations were observed that could affect the stability or operation of the landfill.

4.0 Volume of CCR Contained

A topographic survey of the landfill was performed in October 2021 to calculate volumes of CCR contained in the CCR unit and capacity remaining. The following table summarizes the volume of CCR contained in the landfill:

Table 4-1 Volume of CCR Contained in Landfill

Slot/Cell	Approximate Permitted Design CCR Capacity (cy)	Current CCR Capacity Consumed (cy)	Approximate Remaining CCR Capacity (cy)	Status of Slot/Cell
Slots 1-5	700k	700k	0	Closed
Slots 6-10	1,150k	1,150k	0k	Slots 6 & 7 Closed, Slots 8, 9, & 10 Partially Closed and Partially Active
Cells 1-8	1,420k	121k	1,299k (See Note 1)	Entered Vertical Expansion Space to Construct Phase 1 Cover in 2019

Notes:
1) R.M. Heskett Station Landfill is currently in a permit modification/renewal process that would reduce the vertical expansion space. The Approximate Remaining CCR Capacity would be reduced to 66kcy if the draft permit is issued as-is.