

2017 Annual Landfill Inspection

R.M. Heskett Station Coal Ash Landfill

Prepared for
Montana-Dakota Utilities Company

January 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 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 9th day of January, 2018

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 third annual landfill inspection performed by Seth W. Hueckman, P.E. on August 23, 2017, 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 December 5, 2015 through November 19, 2016 were reviewed as part of the 2016 annual inspection. Weekly inspection reports from November 26, 2016 through December 2, 2017 were reviewed as part of this annual inspection. No deficiencies were found.

2.2 Results of Previous Annual Inspections

The annual inspection performed in September 2016 identified five deficiencies that were corrected in late 2016.

Deficiency No. 1: Some sand ash material adjacent/overlying the geomembrane anchor trench on south side of active landfill limits.

Action: MDU pulled back sand ash from liner edge in Fall 2016.

Deficiency No. 2: Additional ash grading recommended near haul road entrance to reduce risk of ash-contact run-off from leaving the liner limits as ash fill levels increase above the perimeter embankment.

Action: MDU excavated a deeper surface water sump within the liner limits near the haul road entrance in 2016 to reduce the risk of ash-contact run-off from leaving the liner limits. In 2017, MDU adjusted their ash filling plan to not fill so close to the haul road and focus more on getting the west and south sides of the active ash landfill area to final grade.

Deficiency No. 3: Approximately 1-foot by 3-foot hole and other smaller 1-inch (minus) dia. holes found in geomembrane liner system on south side of active landfill area.

Action: MDU hired geomembrane installer contractor in Fall 2016 to repair the holes in geomembrane liner system.

Deficiency No. 4: Small shrub/brush vegetation present in evaporation pond clay liner.

Action: MDU removed all vegetation in Fall 2016.

Deficiency No. 5: Minor tree/brush growth on perimeter embankment outer slopes on east side and final covered area on north side.

Action: MDU removed tree/brush growth in these areas in Fall 2016.

3.0 Structural Integrity and Operational Review

An on-site inspection was performed on August 23, 2017 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	Waste contained within active landfill limits
2	Adequate slope stability and erosion control	Yes	No significant erosion identified
3	Run-on and Run-off controls properly functioning	Yes	Surface water controls appeared adequate
4	Surface water percolation minimized	Yes	No surface water ponding or excessive leachate generation observed
5	Liner systems properly operated and maintained	Yes	No liner system issues identified
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
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 September 2017 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	956k	194k	Slots 6 & 7 Closed, Slot 8 Partially Closed, Slots 9 & 10 Active
Cells 1-8	1,420k	0	1,420k	Not Yet Constructed