Location Restrictions
Unit 3 Landfill
Sherburne Country Generating Plant

Introduction

This report presents documentation and certification for the location standards for the Unit 3 Landfill (U3LF) at the Sherburne County Generating Plant (Sherco) in Becker, Minnesota. The U3LF is an "existing" (i.e. received coal combustion residuals both before and after October 14, 2015) lined coal combustion residual (CCR) landfill. This document addresses the requirements of 40 CFR Section 257.64 (Rules), i.e. location standard requirements, for CCR landfills and demonstrates the U3LF's compliance with the requirements.

Location Restrictions

The sections below provide substantiation of compliance for each of the location restrictions.

Compliance with §257.64, Unstable Areas

To comply with §257.64, the owner or operator must demonstrate that:

(a) An existing or new CCR landfill, existing or new CCR surface impoundment, or any lateral expansion of a CCR unit must not be located in an unstable area...

(b) The owner or operator must consider all of the following factors, at minimum, when determining whether an area is unstable:

(1) On-site or local soil conditions that may result in significant differential settling;

(2) On-site or local geologic or geomorphologic features; and

(3) On-site or local human-made features or events (both surface and subsurface).

The Sherco Dry Ash Disposal Facility Hydrogeologic Evaluation (Xcel Energy, 2008) describes the soils and geology beneath the U3LF. The U3LF site is located on the Anoka Sand Plain, a physiographic region which occupies large portions of Sherburne, Anoka, and Isanti counties and is characterized by widespread sand and gravel deposits underlain by glacial till. Unconsolidated sediments beneath the U3LF consist primarily of fine- to coarse-grained sand with gravel along with a layer of silty to sandy, dense glacial till. These soils are stable and are well-suited to support the landfill foundation. Standard penetration blow counts (N-values) taken from soil borings surrounding the U3LF range from 8 to 15 near the surface to over 100 in the till. No soft soils, areas susceptible to mass movements, or karst terrains were reported in the investigation area.

The topography surrounding the U3LF is flat to very gently rolling and slopes gradually (one to three percent slope) south and west to the Mississippi River approximately 3,600 feet south of the U3LF.

The arrangement of soils and topography provide a stable base not prone to differential settling or mass movements. Additionally, landfill construction practices such as removal of all topsoil and vegetation, soil compaction, and geotechnical testing of the base and embankments ensure the underlying soils are capable of supporting the landfill's structural components (composite liner, leachate collection system, future final cover, run-on/run-off systems).

The land on which the U3LF is constructed was formerly used for farming and portions were excavated for soil borrow during previous landfill construction. There were some human-made features located in the surface or subsurface near U3LF (telephone cable, abandoned electrical, etc.). Those were terminated and removed prior to construction of the landfill.

Conclusion

The Unit 3 Landfill meets all of the location restrictions listed under 40 CFR §257.64 and there are no apparent conditions that would cause underlying soils to move or impact the structure of the unit and cause risk to human health or the environment through structural failures.

Certification

I hereby certify under penalty of law that this report was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

October 17, 2018
Date

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References

Xcel Energy, 2008. Sherco Dry Ash Disposal Facility Hydrogeologic Evaluation Phase II – Field Investigation. Xcel Energy, March, 2008.