



J.C. Weadock Generating Facility

Solid Waste Disposal Area - Location Restriction Certification Report

Pursuant to:
40 CFR 257.64

Submitted to:
Consumers Energy Company
1945 Parnall Road
Jackson, Michigan, USA 49201

Submitted by:
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Project No. 1899528

October 2018



CERTIFICATION

Professional Engineer Certification Statement [40 CFR 257.64(c)]

I hereby certify that, having reviewed the attached documentation and being familiar with the provisions of Title 40 of the Code of Federal Regulations Section 257.64 (40 CFR Part 257.64), I attest that this Location Restriction Certification Report is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards and with the requirements of 40 CFR Part 257.64.

Golder Associates Inc.

Signature

October 17, 2018

Date of Report Certification

Jeffrey R. Piaskowski

Name

6201061033

Professional Engineer Certification Number



Table of Contents

CERTIFICATION	C-1
1.0 INTRODUCTION	1
2.0 UNSTABLE AREAS [40 CFR 257.64]	2
3.0 CONCLUSION AND SUMMARY	3
4.0 REFERENCES	4

1.0 INTRODUCTION

On April 17, 2015, the United States Environmental Protection Agency (EPA) issued the Coal Combustion Residual (CCR) Resource Conservation and Recovery Act (RCRA) Rule (40 CFR 257 Subpart D) (“CCR RCRA Rule”) to regulate the solid waste management of CCR generated at electric utilities. Section 257.64 of the CCR RCRA Rule requires the owner or operator of an existing CCR landfill to document that the CCR unit is not located in an unstable area or demonstrate that generally acceptable good engineering practices have been incorporated into the design to ensure the structural integrity of design components will not be disrupted. According to Sections 257.64(c) and 257.64(d)1, the documentation must be certified by a qualified professional engineer no later than October 17, 2018. The documentation must be placed in the facility's operating record and posted to the publicly available website per Section 257.105(e) and Section 257.107(e), respectively.

Golder Associates Inc. (Golder) is submitting this report to certify that the Solid Waste Disposal Area at the Consumers Energy Company (CEC) J.C. Weadock Generating Facility (JC Weadock) is located in an area that meets criteria outlined in 40 CFR 257.64.

2.0 UNSTABLE AREAS [40 CFR 257.64]

Section 257.64 requires that an existing CCR landfill not be located in an unstable area. As outlined in Section 257.64(b), the following must be considered when determining whether an area is unstable:

- Onsite or local soil conditions that may result in significant differential settling
- Onsite or local geologic or geomorphologic features
- Onsite or local human-made features or events (both surface and subsurface)

Previous geotechnical investigations indicate that the native soils in the vicinity of the site consist of loose to compact alluvial sand and silt underlain by glacial till:

- AECOM in 2009 (AECOM 2009)
- Soil and Materials Engineers, Inc. (SME) in 2010 (SME 2010)
- Geosyntec Consultants (Geosyntec) and CTI and Associates, Inc. (CTI) in 2013 (Geosyntec and CTI 2014)
- Golder in 2017 (Golder 2017)

Consolidation testing performed by Geosyntec and CTI demonstrates that the glacial till is over-consolidated. Immediate settlement of the surficial loose to compact sand and silt is anticipated during landfill operations; however, significant differential settlement is not anticipated due to the underlying over-consolidated glacial till.

A desktop study was conducted using GeoWebFace (MDEQ 2018), an online GIS database managed by the Michigan Department of Environmental Quality (MDEQ), which confirmed that no gas wells or underground mines are located in a proximity that would affect the stability of the J.C. Weadock Solid Waste Disposal Area. An oil-bearing lithologic unit is located beneath the southeast portion of the J.C. Weadock Solid Waste Disposal Area; however, nearby oil wells are reportedly 3,000 feet deep in the Dundee Formation and do not present a risk of instability.

Additionally, maps provided by the US Geological Survey (USGS) (USGS 2014) and the Michigan Natural Features Inventory (Albert, et al. 2008) indicate that the J.C. Weadock Solid Waste Disposal Area is not located in an area prone to karst development.

Slope stability analyses of the landfill perimeter dike and landfilled CCR slopes were performed and approved for the JC Weadock Landfill Construction Permit No. 0260 issued by the Michigan Department of Natural Resources (MDNR) on April 21, 1992. Updated slope stability analyses were performed by AECOM in 2009, SME in 2010, and Golder in 2017 and 2018. Results of the stability analyses indicate that the perimeter dike and landfilled CCR slopes have sufficient structural stability (AECOM 2009; SME 2010; Golder 2017; Golder 2018).

The previous geotechnical investigations along with the results of the slope stability analyses and desktop study indicate the J.C. Weadock Solid Waste Disposal Area is not located in an unstable area, satisfying the requirements of Section 257.64.

3.0 CONCLUSION AND SUMMARY

Golder has determined that the J.C. Weadock Solid Waste Disposal Area meets the location restrictions outlined in 40 CFR 257.64. Prior to October 17, 2018, this report must be placed in the facility's operating record in accordance with Section 257.105(e) and must be made available on the facility's publicly accessible internet site in accordance with Section 257.107(e).

Sincerely,

Golder Associates Inc.



Jeffrey R. Piaskowski, PE
Senior Project Geotechnical Engineer



Matthew J. Wachholz, PE
Senior Consultant

4.0 REFERENCES

AECOM. February 13, 2009. Weadock Coal Ash Berm Stability Analysis, Consumers Energy Company, Essexville, MI.

Albert, D.A., Cohen, J.G., Kost, M.A., Slaughter, B.S., and Enander, H.D. 2008. Distribution of Maps of Michigan's Natural Communities. Michigan Natural Features Inventory, Report No. 2008-01, Lansing, MI.

Geosyntec Consultants and CTI and Associates, Inc. (Geosyntec and CTI). March 2014. Feasibility Screening Engineering Study for the Karn/Weadock Complex. J.C. Weadock Solid Waste Disposal Area. Essexville, Michigan.

Golder Associates Inc. February 15, 2018. J.C. Weadock Generating Facility. Slurry Wall Vent Closure Design Report. Essexville, Michigan.

Golder Associates Inc. November 3, 2017. J.C. Weadock Landfill: Discharge Channel Slope Stability Technical Memorandum.

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Soil and Materials Engineers, Inc. (SME). November 23, 2010. Report on Dike Slope Stability Analyses. J.C. Weadock Ash Landfill. Consumers Energy Company. Essexville, Michigan. SME Project No. PD62013.

U.S. Geological Survey (USGS). 2014. Karst in the United States: A Digital Map Compilation and Database.



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