



Liner System Certification Report

J.H. CAMPBELL GENERATING FACILITY

BOTTOM ASH POND 1-2 LINER SYSTEM CERTIFICATION REPORT

West Olive, Michigan

Pursuant to 40 CFR 257.71

Submitted To: Consumers Energy Company
1945 W. Parnall Road
Jackson, Michigan 49201

Prepared By: Golder Associates Inc.
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October 2016

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CERTIFICATION

Professional Engineer Certification Statement [40 CFR 257.71(b)]

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 257.71 (40 CFR Part 257.71), I attest that this Liner System 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 257.71.

Golder Associates Inc.

Signature

October 14, 2016

Date of Report Certification

Jeffrey R. Piaskowski, PE

Name

6201061033

Professional Engineer Certification Number



10/14/16



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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 beneficial use and disposal of CCR materials generated at coal-fired electrical power generating complexes. Section 257.71 of the CCR RCRA Rule requires the owner or operator of an existing CCR surface impoundment to document whether or not the unit was constructed with a liner system meeting criteria outlined in Section 257.71(a)(1). According to Section 257.71(b), the documentation must be certified accurate by a qualified professional engineer (QPE) in the State of Michigan.

Golder Associates Inc. (Golder) is submitting this report to certify that no liner constructed per the requirements of 40 CFR 257.71 exists beneath Bottom Ash Ponds 1-2 CCR surface impoundment (Bottom Ash Ponds 1-2) at the Consumers Energy Company (CEC) J.H. Campbell Generating Facility (JH Campbell) in West Olive, Michigan.



2.0 HISTORICAL DOCUMENTATION

Golder performed a review of the following historic documentation relative to Bottom Ash Ponds 1-2:

- Potential Failure Mode Analysis (PFMA) Report (AECOM 2009)
- Aerial photographs dated:
 - 1956
 - 1968
 - 1969

No evidence was found from review of the historic documentation that would indicate Bottom Ash Ponds 1-2 was constructed with a liner system as described in 40 CFR 257.71 liner design criteria for existing CCR surface impoundments as follows:

- A liner consisting of a minimum of two feet of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec as required in Section 257.71(a)(1)(i);
- A composite liner that meets the requirements of Section 257.70(b); or
- An alternative composite liner that meets the requirements of Section 257.70(c).



3.0 BOTTOM ASH PONDS 1-2 INVESTIGATION

During May 2016, Golder sampled at seven locations in Bottom Ash Ponds 1-2. The sampling effort targeted depths ranging from 15 to 26 feet below mudline. A sonic rig was used to advance the investigation, which is summarized in Table 3.0.1 – Bottom Ash Ponds 1-2 Borehole Summary.

Table 3.0.1 – Bottom Ash Ponds 1-2 Borehole Summary

Boring ID	Latitude	Longitude	Elevation	Borehole Depth (ft)
JHC-BH-16005	42.90807	-86.19438	605.1	15.1
JHC-BH-16005A	42.90806	-86.19445	605.1	18.2
JHC-BH-16006	42.90733	-86.19453	605.1	19.1
JHC-BH-16007	42.90687	-86.19504	614.4	15.1
JHC-BH-16007A	42.90678	-86.19505	614.4	17.8
JHC-BH-16007B	42.90653	-86.19492	614.4	26.0
JHC-BH-16008	42.90678	-86.19404	614.4	16.4

Note: Coordinates are given in NAD83
Elevation datum is NGVD29

The boreholes were terminated approximately 2 to 14 feet into native material underlying the CCR. Native material was composed of poorly-graded, fine- to medium-grained sand. No liner material meeting the criteria defined in Section 257.71(a)(1) was encountered in the boreholes.



4.0 CONCLUSIONS AND SUMMARY

Based on the subsurface investigation and review of available historic documentation related to Bottom Ash Ponds 1-2, Golder has determined there is no liner beneath Bottom Ash Ponds 1-2 at JH Campbell that meets the criteria provided in 40 CFR 257.71(a)(1)(i) – (iii). This report must be placed in the facility's operating record in accordance with Section 257.105(f) and must be made available on the facility's publicly accessible internet site in accordance with Section 257.107(f).

Sincerely,

GOLDER ASSOCIATES INC.

Megan Jehring, E.I.T.
Geotechnical Engineer

Jeff Piaskowski, P.E.
Project Engineer



5.0 REFERENCES

AECOM, 2009. Potential Failure Mode Analysis (PFMA) Report: J.H. Campbell Generating Facility Ash Dike Risk Assessment – November 2009.

USEPA (Environmental Protection Agency). 2015. Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. 40 CFR Part 257. Effective Date October 19, 2015.

Established in 1960, Golder Associates is a global, employee-owned organization that helps clients find sustainable solutions to the challenges of finite resources, energy and water supply and management, waste management, urbanization, and climate change. We provide a wide range of independent consulting, design, and construction services in our specialist areas of earth, environment, and energy. By building strong relationships and meeting the needs of clients, our people have created one of the most trusted professional services organizations in the world.

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