

DOMINION ENERGY

PERIODIC SAFETY FACTOR ASSESSMENT

CHESAPEAKE ENERGY CENTER INACTIVE CCR SURFACE IMPOUNDMENT: BOTTOM ASH POND

APRIL 2023

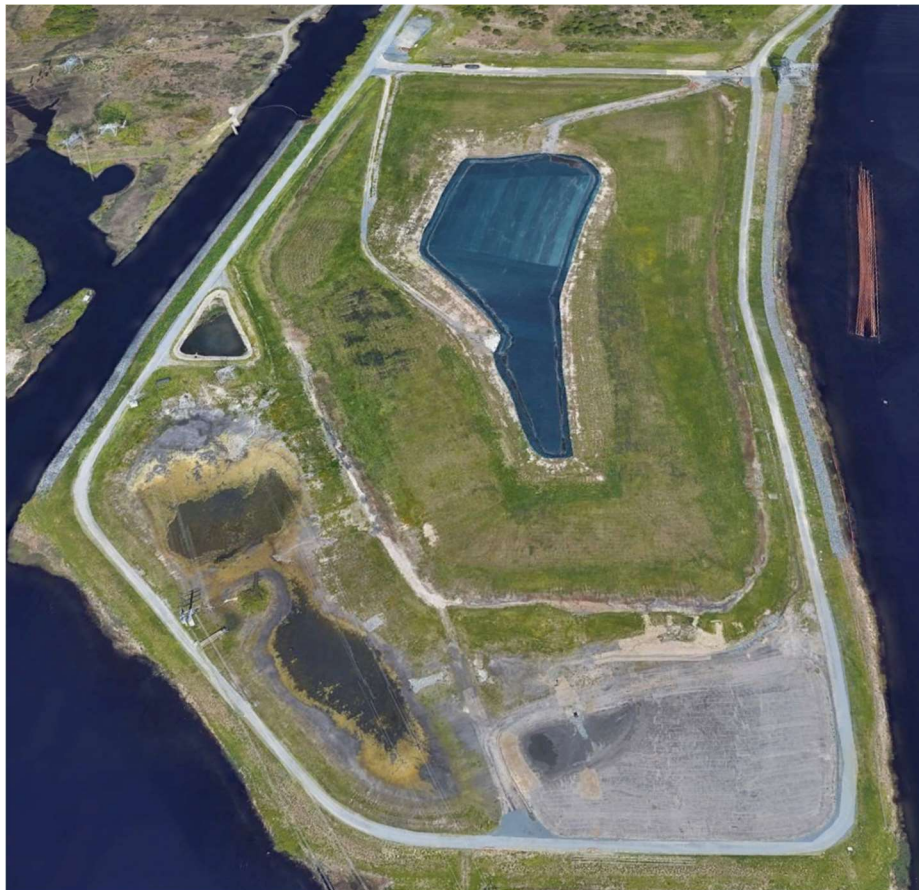




TABLE OF CONTENTS

1	CERTIFICATION.....	1
2	INTRODUCTION	2
3	PURPOSE	3
4	SAFETY FACTOR ASSESSMENT REQUIREMENTS	4
5	SAFETY FACTOR ASSESSMENT.....	5
6	CONCLUSION	6
	REFERENCES	7

1 CERTIFICATION

This periodic Safety Factor Assessment for the Chesapeake Energy Center’s Bottom Ash Pond was prepared by WSP USA Inc. (WSP; formerly d/b/a Golder Associates USA Inc.). The document and Certification/Statement of Professional Opinion are based on and limited to information that WSP has relied on from Dominion Energy and others, but not independently verified, as well as work products previously produced by Golder.

On the basis of and subject to the foregoing, it is my professional opinion as a Professional Engineer licensed in the Commonwealth of Virginia that this document has been prepared in accordance with good and accepted engineering practices as exercised by other engineers practicing in the same discipline(s), under similar circumstances, at the same time, and in the same locale. It is my professional opinion that the document was prepared consistent with the requirements in 40 CFR §257.73(e) of the United States Environmental Protection Agency’s “Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments,” published in the Federal Register on April 17, 2015, with an effective date of October 19, 2015 [40 CFR §257.73(e)], as well as with the requirements in 40 CFR §257.100 resulting from the EPA’s “Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities: Extension of Compliance Deadlines for Certain Inactive Surface Impoundments; Response to Partial Vacatur” published in the Federal Register on August 5, 2016, with an effective date of October 4, 2016 (40 CFR §257.100).

The use of the word “Certification” and/or “certify” in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Donald Mayer, PE

Print Name



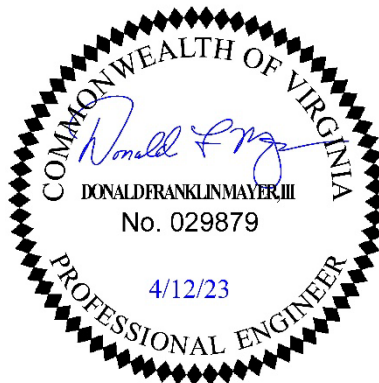
Signature

Vice President

Title

4/12/2023

Date



2 INTRODUCTION

This periodic Safety Factor Assessment (Assessment) was prepared for the Chesapeake Energy Center's (CEC) Coal Combustion Residuals (CCR) inactive surface impoundment known as the Bottom Ash Pond (BAP). This periodic Safety Factor Assessment was prepared in accordance with 40 CFR Part §257, Subpart D and is consistent with the requirements of 40 CFR §257.73(e).

CEC, owned and operated by Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion Energy), is located in the City of Chesapeake, Virginia, at 2701 Vepco Street. As stated above, the CEC's BAP is an inactive CCR surface impoundment as defined by the Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule and Direct Final Rule (40 CFR §257; the CCR Rule) and is subject to a series of periodic operating criteria updates including an update of the Safety Factor Assessment. The BAP is also regulated as a dam by the Virginia Department of Conservation and Recreation (DCR) with Inventory Number 550002 (DCR Dam Permit).

3 PURPOSE

This periodic Assessment is prepared pursuant to the requirements in the CCR Rule, 40 CFR §257.73(e)(1). The initial Safety Factor Assessment was completed in April 2018 and is required to be updated every five (5) years pursuant to 40 CFR §257.73(f)(3).

4 SAFETY FACTOR ASSESSMENT REQUIREMENTS

In accordance with §257.73(e)(1), the owner or operator of a CCR surface impoundment must conduct periodic safety factor assessments and document whether the calculated factors of safety achieve the minimum safety factors specified for the critical cross-section of the embankment. The safety factor assessments must be supported by appropriate engineering calculations. The minimum safety factors specified in §257.73(e)(1)(i) through (iv) include:

- The calculated static factor of safety under the long-term, maximum storage pool loading condition must equal or exceed 1.50.
- The calculated static factor of safety under the maximum surcharge pool loading condition must equal or exceed 1.40.
- The calculated seismic factor of safety must equal or exceed 1.00.
- For dikes constructed of soils that have susceptibility to liquefaction, the calculated liquefaction factor of safety must equal or exceed 1.20.

5 SAFETY FACTOR ASSESSMENT

The initial Safety Factor Assessment conducted in 2018 was reviewed for continued applicability and consistency. In 2021, an emergency spillway was constructed on the western side of the adjacent Sediment Pond which shares a common separation berm with the BAP. Otherwise, no operational or configurational changes have occurred at the BAP since the initial Safety Factor Assessment in 2018. As such, the analysis conducted in 2018 remains applicable. Calculated safety factors meet or exceed the requirements detailed in Section 4.0 for both the current existing conditions and proposed post-closure conditions. Safety factors are summarized in Table 1 and Table 2, reproduced from the initial BAP Safety Factor Assessment (Golder, 2018).

Table 1 Scenario A - Existing Conditions

Analysis Case	Normal Storage Pool	Maximum Surcharge Pool	Seismic
Target Factor of Safety	1.5	1.4	1.0
Cross-Section	Calculated Factor of Safety		
A-A'	1.7	1.6	1.7
B-B'	1.9	1.6	1.8
C-C'	1.8	1.8	1.7
D-D'	1.7	1.7	1.7
E-E'	1.8	1.8	1.8
F-F'	1.6	1.5	1.6

Table 2 Scenario B - Post-Closure Conditions

Analysis Case	Normal Storage Pool	Maximum Surcharge Pool	Seismic
Target Factor of Safety	1.5	1.4	1.0
Cross-Section	Calculated Factor of Safety		
A-A'	1.7	1.6	1.5
B-B'	1.9	1.8	1.8
C-C'	1.8	1.8	1.7
D-D'	1.7	1.7	1.7
E-E'	1.8	1.8	1.8
F-F'	1.6	1.5	1.6

6 CONCLUSION

Based on a review of the existing conditions and the previously calculated factors of safety, the Bottom Ash Pond at the Chesapeake Energy Center meets or exceeds the required stability factors of safety under the four loading condition scenarios presented in 40 CFR §257.73(e)(1):

- Normal Pool Storage (40 CFR §257.73(e)(1)(i))
- Maximum Pool Surcharge (40 CFR §257.73(e)(1)(ii))
- Seismic Loading Conditions (40 CFR §257.73(e)(1)(iii))
- Post-Seismic Liquefaction Conditions (when liquefaction susceptible materials are present; 40 CFR §257.73(e)(1)(iv))

REFERENCES

- Golder Associates. Safety Factor Assessment, Chesapeake Energy Center Inactive CCR Surface Impoundment: Bottom Ash Pond. April 2018.
- Virginia DCR Dam Permit, Inventory No. 550002.