



Periodic Hazard Potential Classification Assessment

Bremo Power Station CCR Surface Impoundment: West Ash Pond

Submitted to:



Bremo Power Station

1038 Bremo Road
Bremo Bluff, VA 23022

Submitted by:

Golder

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Project No. 19-133736

September 2020

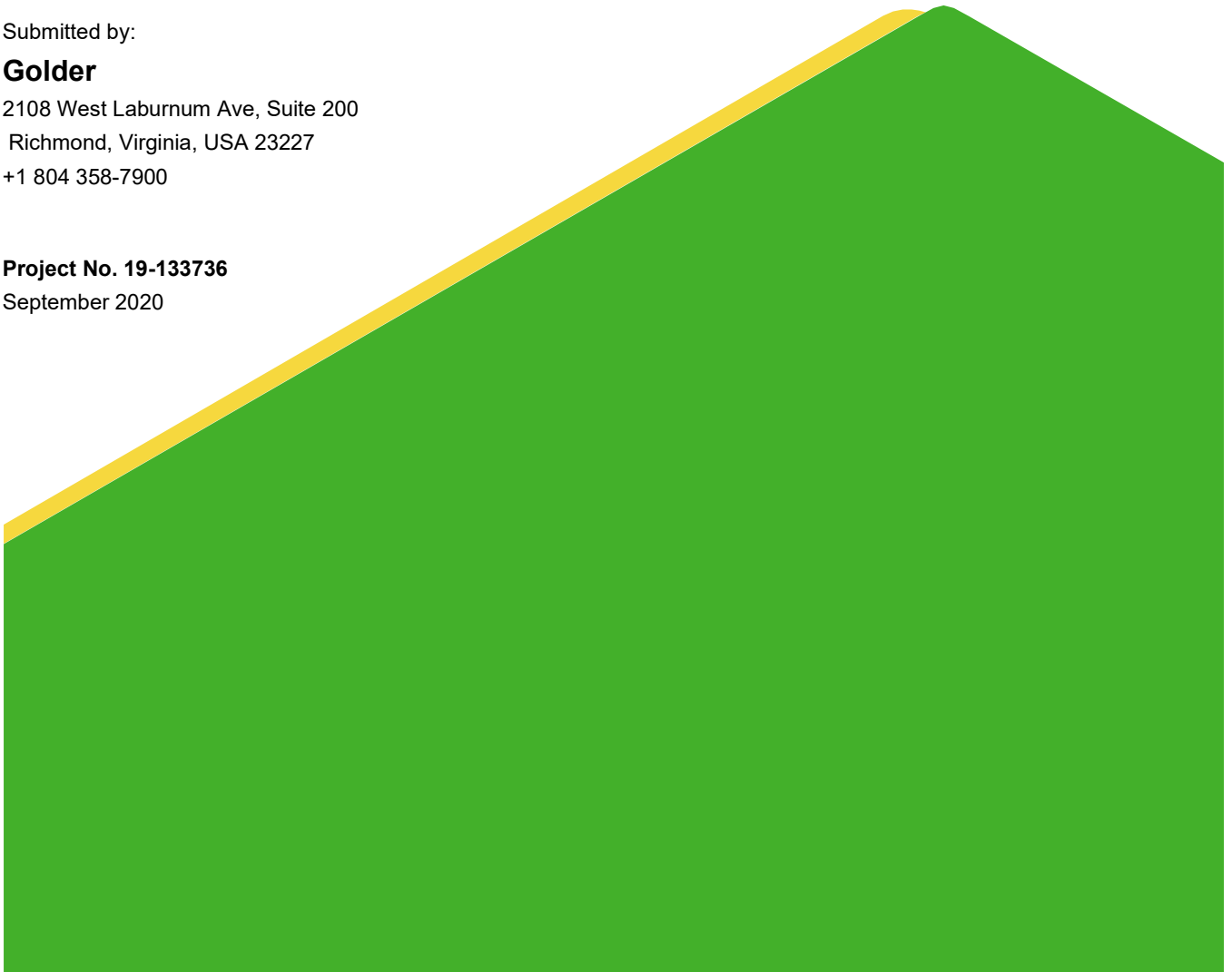


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1.0 CERTIFICATION

This Periodic Hazard Potential Classification Assessment for the Bremo Power Station's West Ash Pond was prepared by Golder Associates Inc. (Golder). The document and Certification/Statement of Professional Opinion are based on and limited to information that Golder has relied on from Dominion Energy and others, but not independently verified, as well as work products 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 §257.73(a)(2) 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(a)(2)], as well as with the requirements in §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.

Andrew North

Senior Civil Engineer

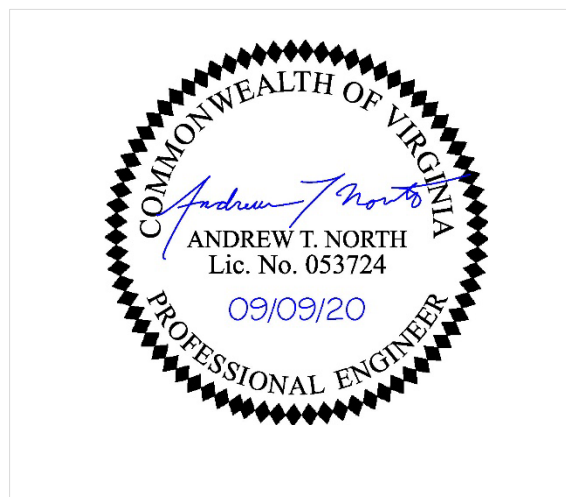
Print Name

Title

09/09/2020

Signature

Date



2.0 HAZARD CLASSIFICATION ASSESSMENT

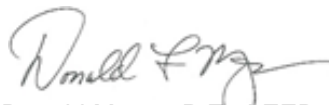
This Periodic Hazard Classification Assessment was prepared for the West Ash Pond (WAP) at the Bremono Power Station (Station). This Assessment was prepared in accordance with 40 CFR Part §257, Subpart D and is consistent with the requirements of 40 CFR §257.73(a)(2). The WAP is located in Bremono Bluff, Virginia as a part of Dominion Energy Virginia's Bremono Power Station. It is located on the south side of Bremono Road and is bounded on the south side by a railroad embankment and the James River, on the west by undeveloped wooded areas, and on the east by low-lying areas of Holman Creek with the Bremono Power Station beyond. The WAP was constructed partially by excavation and embankment construction, such that the bottom of the pond is below the surrounding terrain. The pond was constructed in the late 1970's and used for sluiced Coal Combustion Residuals (CCR) until the Station's conversion to natural gas in 2014. The effective embankment height is approximately 19 feet.

Pursuant to 40 CFR §257.73, a CCR unit is classified as a Low Hazard Potential where failure or mis-operation of the dam results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property. The potential inundation zone downstream of the WAP dam does not contain occupied structures, nor is it regularly occupied by plant personnel. Per Golder's 2018 *Initial Hazard Potential Classification Assessment* (Attachment 1), an initial classification of **SIGNIFICANT** was recommended due to the potential environmental impacts of an impoundment failure. All CCR materials have since been removed in accordance with the Solid Waste Permit (SWP #618) *CCR Surface Impoundment Closure Plan* prepared by Golder and approved by the Virginia Department of Environmental Quality on June 5, 2019. Subsequent to the removal of CCR materials, as documented in the Closure by Removal certification letter (Attachment 2) dated April 17, 2020, a new *CCR Rule* hazard potential classification of **LOW** is recommended.

Golder Associates Inc.



Andrew North, P.E.
Senior Civil Engineer



Donald Mayer, P.E., LEED AP
Associate and Practice Leader



golder.com

Attachment 1: Initial Hazard Potential Classification



INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

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INITIAL HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Bremo Power Station CCR Surface Impoundment:
West Ash Pond



**Dominion
Energy**SM

Submitted To: Bremo Power Station
1038 Bremo Bluff Road
Bremo Bluff, VA 23022

Submitted By: Golder Associates Inc.
2108 W. Laburnum Avenue, Suite 200
Richmond, VA 23227

April 2018

Project No. 15-20347





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1.0 CERTIFICATION

This Initial Hazard Potential Classification Assessment for the Bremo Power Station's West Ash Pond was prepared by Golder Associates Inc. (Golder). The document and Certification/Statement of Professional Opinion are based on and limited to information that Golder has relied on from Dominion Energy and others, but not independently verified, as well as work products 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 §257.73(a)(2) 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(a)(2)], as well as with the requirements in §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).

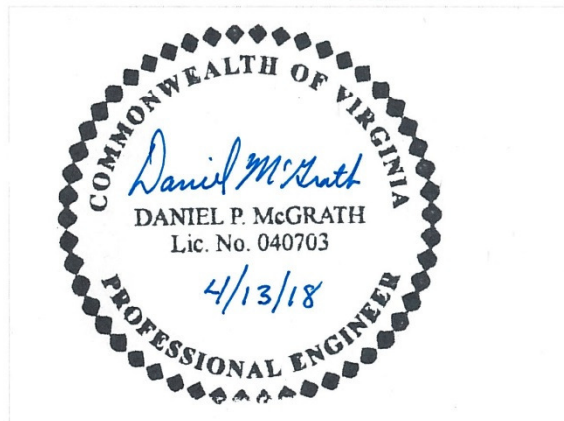
The use of the word "certification" and/or "certify" in this document shall be interpreted and construed as a Statement of Professional Opinion, and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Daniel McGrath
Print Name

Associate and Senior Consultant
Title

Daniel McGrath
Signature

4/13/18
Date



2.0 INTRODUCTION

This Initial Hazard Potential Classification Assessment was prepared for the Bremo Power Station's (Bremo) inactive Coal Combustion Residuals (CCR) surface impoundment, the West Ash Pond. This Initial Hazard Potential Classification Assessment was prepared in accordance with 40 CFR Part §257, Subpart D and is consistent with the requirements of 40 CFR §257.73(a)(2) and 40 CFR §257.100(e)(3)(v).

The Station, owned and operated by Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion), is located in Fluvanna County at 1038 Bremo Road, east of Route 15 (James Madison Highway) and north of the James River. The Station includes an inactive CCR surface impoundment, the WAP, as defined by the Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule and Direct Final Rule (40 CFR §257; the CCR rule).

This analysis details the purpose, data sources, method of analysis, and development of a figure showing the inundation level expected downstream given a breach event occurs at the WAP. The potential inundation areas were compared with various map sources to determine what, if any, effect on downstream structures could be expected from a breach of the impoundment. This evaluation covers the current condition of the pond, as surveyed at the end of 2017. All elevations stated in this report are in feet relative to the North American Vertical Datum of 1988 (NAVD-88).

3.0 PURPOSE

This certification is required under 40 CFR §257.100(e)(3)(v) and 40 CFR §257.73(a)(2), *Periodic Hazard Potential Classification Assessments*, regarding the hazard potential classification assessment of the WAP, for the purpose of recommending a hazard potential classification.

Sources of data used in the analysis included:

- 1) United States Geological Survey (USGS) topographical map (Arvonias quad sheet 2013);
- 2) Statistical rainfall data from NOAA Atlas 14 (NOAA's Precipitation Frequency Data Server);
- 3) Maps and aerial photos of area roads and structures from the Google Earth Pro;
- 4) Aerial survey of the WAP and surrounding areas performed by H&B Surveying and Mapping, LLC, dated December 2017;
- 5) Flood map information from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Panel # 51065C0260C dated 5/16/2008. (Accessed through ArcGIS – FEMA's National Flood Hazard Layer mapping system);
- 6) Web Soil Survey 2.1, Natural Resources Conservation Service
(<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>)

4.0 ASSESSMENT

4.1 Description of the Impounding Structure

The 17-acre impoundment is located west of the Bremo Power Station and is bounded on the south side by a railroad embankment and the James River, on the north side by Bremo Road, on the west by undeveloped wooded areas, and on the east by low-lying areas of Hollman Creek with the Bremo Power Station beyond. The WAP was constructed partially by excavation and embankment construction, such that the bottom of the pond is below the surrounding terrain. The pond was constructed in the late 1970's and used for sluiced CCR until the Station's conversion to natural gas in 2014. The upstream and downstream sideslopes are 2 horizontal to 1 vertical (2H:1V). The effective embankment height is 19 feet. CCR removal activities are substantially complete and the pond bottom is irregular, with depths as low as elevation 200.

The existing spillway structure is a square concrete intake tower located in the southeast corner of the pond. The tower structure is approximately 5'-6" in width and has a lowest weir opening (stoplog) at elevation of approximately 226.14 feet. The outlet pipe is a 42-inch diameter corrugated metal pipe with an inlet invert elevation of 209.15 feet. Under normal conditions, the water level is kept low enough such that stormwater flow does not reach the lowest discharge elevation. Stormwater that enters the pond is pumped to the on-site treatment system.



Figure 1 - December 2017 West Ash Pond Aerial Photo

4.2 Drainage Area and Hazard Analysis Area Descriptions

The drainage area for the WAP consists entirely of the pond area only (17.1 acres). There are no other contributing drainage areas due to the pond’s elevated construction. A Runoff Curve Number (CN) as defined by the Natural Resource Conservation Service (NRCS) of 91 was used for the hydraulic model.

The lower portion of the WAP is excavated into natural terrain and the surrounding areas outside the pond are uphill from the pond. The perimeter ground elevation outside of the pond is approximately 16 feet above the bottom of the pond (elevation 216) and 10.4 feet above the modeled high water level (elevation 205.6); therefore, a breach event with a water release during the 1,000-year event is improbable. There are no occupied structures downstream of the impoundment.

4.3 Method of Analysis

To model the flows into and out of the impoundment, a numerical model was created using the Hydraulic Engineering Center’s Hydrologic Modeling System (HEC-HMS) Version 4.2.1 to generate the anticipated runoff hydrograph from the 24-hour, 1,000-year storm event. Table 1 outlines the resulting inflow and outflow for the non-breach scenario analysis.

Table 1: West Ash Pond HEC-HMS Output

West Ash Pond		
Q _{in} (CFS)	Max Hw (Ft El*)	Q _{out} (CFS)
269.4	205.6	0

*Top of berm elevation = 234.0 feet

Modeling of the existing WAP for the 1,000-year event shows the calculated high water elevation to be 205.6 feet, which indicates the pond does not overtop the embankment. Due to the CCR excavation, this high water elevation is below the elevation of the outside toe of the embankment all around the perimeter of the pond. A breach of the embankment would have an uphill gradient to escape the pond; therefore, a breach and release from the WAP is considered highly improbable and therefore was not modeled.

A “sunny day” breach is assumed to be due to the piping of soils through the embankment when the water level in the reservoir is at its normal pool elevation; however, there typically is not a normal pool in the WAP, so this evaluation was not performed. A seismic analysis was not performed, nor were other sudden failure type scenarios considered, as this evaluation is for the potential downstream impacts due to an embankment breach during the design storm event (1,000-yr event).

4.4 Spillway Adequacy

If a structural embankment failure does not occur, the existing pond is capable of receiving and storing the runoff volume from the 1,000-year event without overtopping the embankment and without a discharge. The pond would have 28.4 feet of freeboard.

5.0 HAZARD CLASSIFICATION

Pursuant to 40 CFR §257.73, a CCR unit is classified as a Significant Hazard Potential where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. Significant Hazard Potential classification impoundments are often located in predominantly rural or agricultural areas, but could be located in areas with population and significant infrastructure. The potential inundation zone downstream of the WAP embankments does not contain occupied structures, nor is it regularly occupied by plant personnel.

6.0 CONCLUSIONS

The results of this analysis show a breach of this impounding structure during the modeled storm event is highly improbable. There are no potential downstream impacts to manmade structures, and failure or mis-operation would be unlikely to result in loss of human life. Environmental damage from a potential release would be the likeliest result, as the pond is not officially closed. Therefore, the WAP in its current condition is assigned a hazard potential rating of “Significant” for this reason under 40 CFR §257.73.

APPENDIX A - Figures

Figure 2 – West Ash Pond 1,000-Yr Event High Water Elevations

Figure 3 – 100-Yr Flood Map (FIRM)

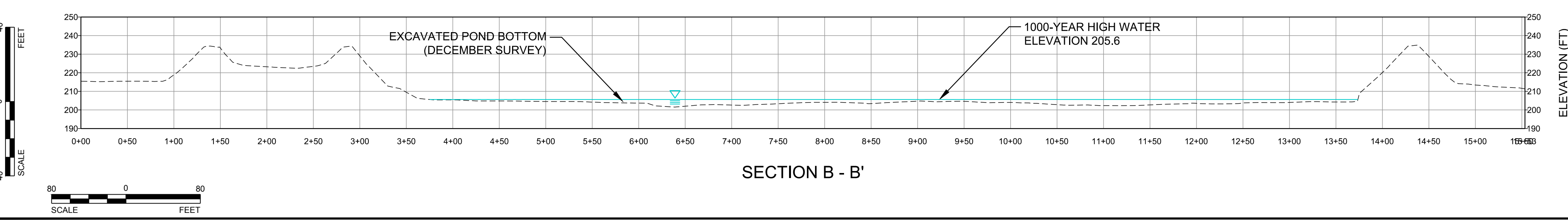
Path: C:\Plant Production Data Files\Drawing Data Files\15-20347QA - Misc Drawings\Civil\3d\Working\1,000 Year Event WAP.dwg



LEGEND	
	DOMINION PROPERTY BOUNDARY
	EX. TOPOGRAPHIC CONTOURS (2' INTERVALS)
	EX. UNPAVED ROAD
	EX. RAILROAD
	EX. TREE LINE
	EX. FENCE
	EX. OVERHEAD UTILITY LINE
	CREEK/STREAM CENTERLINE
	COMPUTED EXTENTS OF 1,000-YR HIGH WATER

NOTES

- MONTHLY EXCAVATION SURVEY PREPARED BY H&B SURVEYING AND MAPPING LLC. TOPOGRAPHY COLLECTED ON DECEMBER 29, 2017.



CLIENT DOMINION ENERGY BREMO POWER STATION FLUVANNA COUNTY, VIRGINIA	CONSULTANT GOLDER ASSOCIATES INC. 2108 WEST LABURNUM AVENUE SUITE 200 RICHMOND, VA 23227 (804) 358-7900 www.golder.com	PROJECT CCR SURFACE IMPOUNDMENT CLOSURE WEST ASH POND EXCAVATION	PROJECT NO. 15-20347QA
		TITLE 1000-YEAR EVENT MODELED HIGH WATER ELEVATIONS	REV. 0

REV. MMIDDY DESCRIPTION
 DPM ABR SDRM DFM
 DESIGN CADD CHECK REVIEW

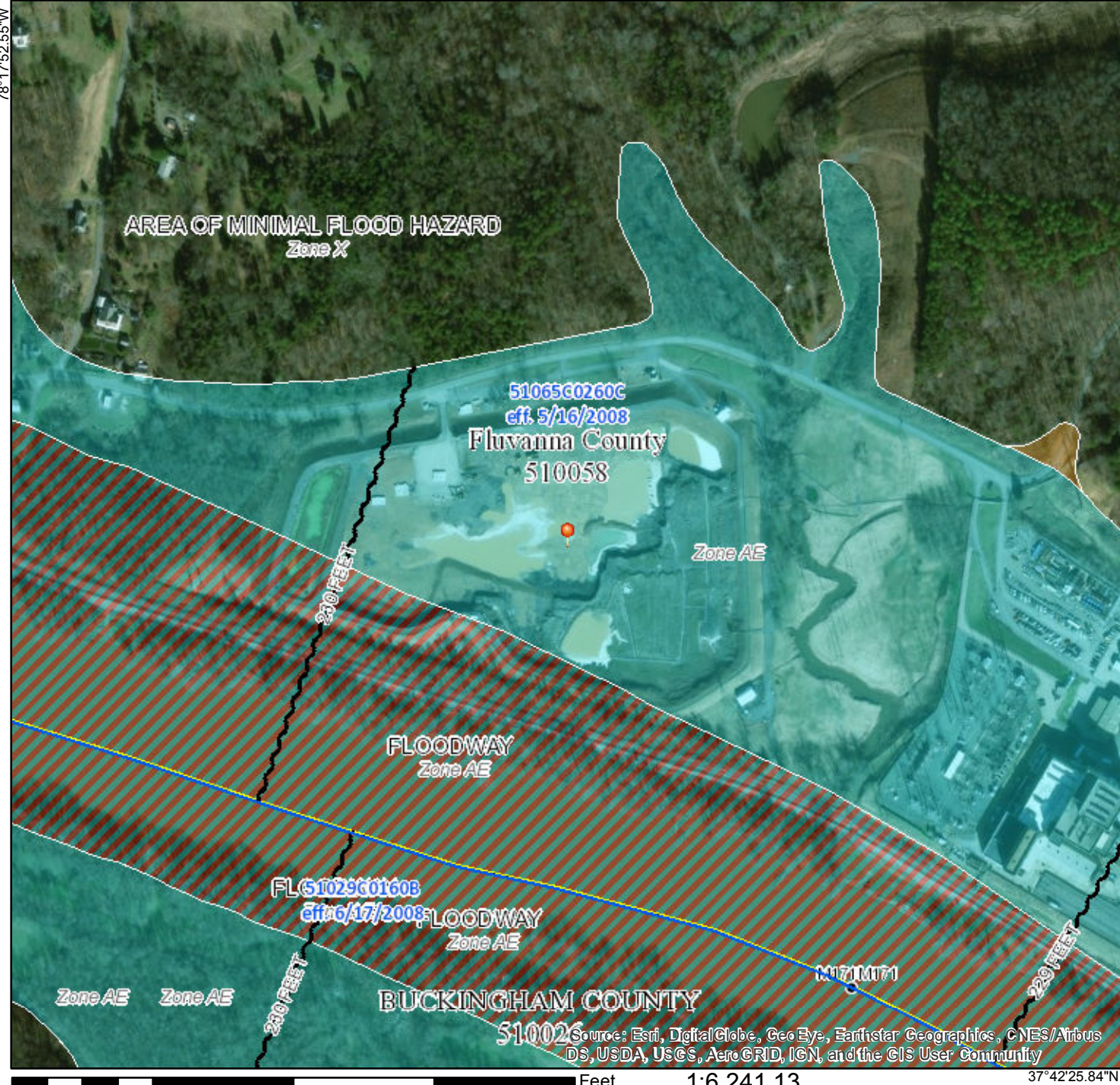
1 in. = 100 FT. IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3/D

National Flood Hazard Layer FIRMette



FEMA

37°42'55.45"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature
		Digital Data Available
MAP PANELS		No Digital Data Available
		Unmapped

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/7/2018 at 11:18:10 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

0 250 500 1,000 1,500 2,000 Feet

1:6,241.13

37°42'25.84"N

Figure 3

APPENDIX B

West Ash Pond Hydraulic Modeling Analysis

Date:	April 17, 2018	Made by:	KAL
Project No.:	15-20347	Checked by:	SDRM
Subject:	West Ash Pond Breach Analysis	Reviewed by:	DPM
Project:	BREMO WEST ASH POND – EXISTING CONDITION		

The purpose of this evaluation is to determine the hydraulic performance of the existing West Ash Pond CCR impoundment at the Bremo Power Station during the 1,000-year storm event and an associated embankment breach event. This evaluation is in support of the “Significant” hazard potential classification as defined in §257.53 of the *CCR Rule*.

1.0 CALCULATIONS

1.1 Pond Storage Volume

The West Ash Pond storage volume was computed based on the existing conditions, as surveyed in December 2017, being fully excavated. The ash has been excavated, and available water storage was based on the post-excavation surface contours. The bottom of the pond is at elevation 200, which is approximately 16 feet below the surrounding topography outside the pond. The maximum available storage in the pond is 421.6 acre-feet at elevation 234.0. Overtopping occurs above elevation 234.0. Attachment 1 contains the stage-storage rating table used in the HMS model. Typically, the water level in the pond is kept pumped down to a very low level in support of the excavation activity. For this model, the existing (starting) water level was set at elevation 200 feet.

1.2 Outlet Design and Capacity

The existing spillway structure is a square concrete intake tower located in the southeast corner of the pond. The tower is 5'-6" in width and has a weir opening (stoplog) at an elevation of approximately 226.14 feet. The outlet pipe is a 42-inch diameter corrugated metal pipe with an inlet invert elevation of 209.15 feet. Under normal conditions, the water level is kept low enough such that stormwater flow does not reach the discharge elevation. Stormwater that enters the pond is pumped to the on-site treatment system.

1.3 Storm Routing Calculations

The West Ash Pond stormwater system analysis was performed using the US Army Corps of Engineers Hydrologic Engineering Center’s Hydraulic Modeling System (HEC-HMS) software package (ref #1). The direct drainage area to the West Ash Pond is 17.1 acres, consisting of the pond area only. There is no other contributing drainage area to the pond.

Design Storm

Per §257.82(a)(3)(ii), the impoundment is required to adequately manage flow resulting from the 24-hour, 1,000-year storm event. The 24-hour, 1,000-year storm event precipitation quantity was obtained from the Precipitation Frequency Data Server (PFDS, ref #2) for Bremo Bluff, Virginia, and is 12.1 inches.

Breach Event

Modeling of the high water elevation of the pond during the 1,000-year event during a non-breach scenario shows the high water elevation to be 205.6. This high water elevation within the pond is



approximately 10.4 feet lower than the outside toe of the embankment. A breach of the embankment would have an uphill gradient in any direction to escape the pond; therefore, a breach and release from the West Ash Pond is considered highly improbable and therefore was not modeled.

HMS Model Input

Figure 1 illustrates the connectivity of the stormwater elements and the data inputs as modeled in HEC-HMS. The 17.1-acre drainage area was modeled with a runoff Curve Number (CN) of 91 and a Lag Time of 3.6 minutes.

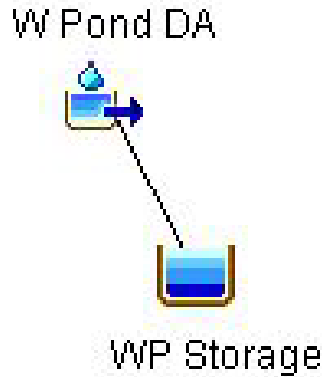


Figure 1 – West Ash Pond HEC-HMS Model

HMS Model Output

The following table summarizes the results of the HEC-HMS analysis for the 1,000-year storm event.

Table 1: West Ash Pond HEC-HMS Output

West Ash Pond		
Q _{in} (CFS)	Max Hw (Ft El*)	Q _{out} (CFS)
269.4	205.6	0

* Top of berm elevation = 234.0 feet

2.0 CONCLUSIONS

Based on the calculations presented herein, the existing West Ash Pond at the Brema Power Station can accept and store the 1,000-year event without overtopping or causing an unregulated discharge due to a breach event.

3.0 REFERENCES

- 1) U.S. Army Corps of Engineers Hydrologic Engineering Center – Hydrologic Modeling System (HEC-HMS) release 4.2.1
- 2) Precipitation Frequency Data Server (NOAA Atlas 14) <https://hdsc.nws.noaa.gov/hdsc/pfds/>

4.0 ATTACHMENT

- 1) West Ash Pond Stage-Storage Rating Tables

Bremo Power Station - West Ash Pond
 Stage-Storage Rating Tables

April 2018

West Ash Pond Grades as of 12/31/17

Elevation	Area (SF)	Volume, ft ³	AC-FT	Total
234	742,645	1,473,741	33.83	421.57
232	731,113	1,449,186	33.27	387.74
230	718,094	1,423,290	32.67	354.47
228	705,217	1,397,739	32.09	321.80
226	692,543	1,372,217	31.50	289.71
224	679,695	1,345,650	30.89	258.21
222	665,980	1,316,395	30.22	227.32
220	650,447	1,283,098	29.46	197.10
218	632,693	1,247,287	28.63	167.64
216	614,639	1,203,397	27.63	139.01
214	588,851	1,132,122	25.99	111.38
212	543,574	1,047,627	24.05	85.39
210	504,299	960,339	22.05	61.34
208	456,439	860,369	19.75	39.29
206	404,455	615,056	14.12	19.54
204	219,901	203,963	4.68	5.42
202	19,897	32,245	0.74	0.74
200	12,623	0	0	0



Contours as of December 2017

Golder Associates Inc.

Bremo Power Station - West Ash Pond
 Stage-Storage Rating Tables

April 2018

Existing West Ash Pond Concrete Riser Structure Rating Table, flows in CFS

Elevation	Weir 1	Weir 2 (O)	Weir 2 (W)	Combined	Culvert Outlet	Riser Rating
226	0.00	0.00	0.00	0.00	181.50	0.00
226.25	0.66	0.00	0.00	0.66	183.00	0.66
226.5	3.92	0.00	0.00	3.92	184.40	3.92
226.75	8.65	0.00	0.00	8.65	185.90	8.65
227	14.48	0.00	0.00	14.48	187.40	14.48
227.25	21.23	0.00	0.00	21.23	188.80	21.23
227.5	28.79	0.00	0.00	28.79	190.30	28.79
227.75	37.08	0.00	0.00	37.08	191.70	37.08
228	46.04	0.00	0.00	46.04	193.10	46.04
228.25	55.63	0.00	0.00	55.63	194.50	55.63
228.5	65.80	0.00	0.00	65.80	195.90	65.80
228.75	76.53	0.00	0.00	76.53	197.30	76.53
229	87.79	0.00	0.00	87.79	198.70	87.79
229.25	99.54	0.00	0.00	99.54	200.00	99.54
229.5	111.79	0.00	0.00	111.79	201.40	111.79
229.75	124.49	0.00	0.00	124.49	202.70	124.49
230	137.64	0.00	0.00	137.64	204.10	137.64
230.25	151.23	0.00	0.00	151.23	205.40	151.23
230.5	165.24	0.00	0.00	165.24	206.70	165.24
230.75	179.65	0.00	0.00	179.65	208.10	179.65
231	194.46	0.00	0.00	194.46	209.40	194.46
231.25	209.66	0.00	0.00	209.66	210.70	209.66
231.5	225.23	0.00	0.00	225.23	211.90	211.90
231.75	241.17	0.00	0.00	241.17	213.20	213.20
232	257.47	0.00	0.00	257.47	214.50	214.50
232.25	274.12	0.00	0.00	274.12	215.80	215.80
232.5	291.11	0.00	0.00	291.11	217.00	217.00
232.75	308.45	0.00	0.00	308.45	218.30	218.30
233	326.11	0.00	0.00	326.11	219.50	219.50
233.25	344.10	0.00	0.00	344.10	220.80	220.80
233.5	362.40	0.00	0.00	362.40	222.00	222.00
233.75	381.03	47.67	1.56	382.58	223.20	223.20
234	399.95	92.65	11.45	411.40	224.40	224.40

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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Asia	+ 852 2562 3658
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Engineering Earth's Development, Preserving Earth's Integrity

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Attachment 2: Closure by Removal Certification



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY VALLEY REGIONAL OFFICE

P.O. Box 3000, Harrisonburg, Virginia 22801
(540) 574-7800 Fax (540) 574-7878

Located at 4411 Early Road, Harrisonburg, VA
www.deq.virginia.gov

David K. Paylor
Director

Amy Thatcher Owens
Regional Director

Matthew J. Strickler
Secretary of Natural Resources

April 17, 2020

Dennis A. Slade, CHMM
Corporate Waste and Remediation Manager
Dominion Energy Services
5000 Dominion Boulevard
Glen Allen, VA 23060

RE: Bremono Bluff Power Station, Solid Waste Permit (SWP) 618
Closure by Removal Construction Report – West Ash Pond
Fluvanna County, Virginia

Dear Mr. Slade:

The Department has reviewed the following documents that were prepared on your behalf by Golder Associate Inc. (Golder) for the West Ash Pond in the Bremono Bluff Power Station, SWP618.

- *Closure by Removal Construction Report – West Ash Pond*, dated March 25, 2020 and received on April 3, 2020.
- A construction quality assurance certification, in accordance with the requirements of 9 VAC 20-81-160.D.4. of the Virginia Solid Waste Management Regulations (VSWMR) signed by Andrew T. North, P.E., of Golder and dated March 25, 2020.

The documentation provided indicates that the Coal Combustion Residuals (CCR) in the west Ash Pond has been visually removed and over-excavated in accordance with the Surface Impoundment Closure Plan, Bremono Power Station-West and East Ash Ponds dated May 11, 2018. In addition, the documentation provided satisfies the facility Permit Condition I.F.9.

A copy of the above-mentioned documents and all record drawings must be retained for SWP 618 until closure of the West and East Ash Ponds has been confirmed by the Department. The

remaining closure activity of the West and East Ash Ponds include the completion of the groundwater monitoring in accordance with the Permit Modules XI and XII.

If you have any questions, please do not hesitate to contact JengHwa Lyang, Solid Waste Permit Writer, at (540) 574-7826 or jenghwa.lyang@deq.virginia.gov.

Sincerely,

A handwritten signature in black ink, reading "Graham H. Simmerman, Jr." in a cursive script.

Graham H. Simmerman, Jr., P.G.
Regional Land Protection Manager

cc: Kathryn J. Perszyk, DEQ CO
Gregory W. Adamson, DEQ VRO
Laura A. Stuart, P.G., DEQ VRO
JengHwa Lyang, Ph.D., P.E., DEQ VRO
DEQ File – SWP 618