INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN

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INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN

Possum Point Power Station CCR Surface Impoundment: Pond E

Dominion Energy℠

Submitted To: Possum Point Power Station
19000 Possum Point Road
Dumfries, VA 22026

Submitted By: Golder Associates Inc.
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Richmond, VA 23227

April 2018

Project No. 16-62150

Golder Associates

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1.0 CERTIFICATION

This Inflow Design Flood Control System Plan for the Possum Point Power Station's Pond E 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 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(c) 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(c)], 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	Associate and Senior Consultant
Print Name	Title
Daniel McGrath	4/13/18
Signature	Date

2.0 INTRODUCTION

This Inflow Design Flood Control System (FCS) Plan was prepared for the Possum Point Power Station's (Station) inactive Coal Combustion Residuals (CCR) surface impoundment, Pond E. This FCS Plan was prepared in accordance with 40 CFR Part §257, Subpart D and is consistent with the requirements of 40 CFR §257.82.

The Station, owned and operated by Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion), is located in Dumfries, Virginia at 19000 Possum Point Road. The Station includes inactive CCR surface impoundment Pond E, as defined by the Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule (40 CFR §257; the CCR rule). In anticipation of closure, Pond E has been excavated and the material placed in Pond D. This FCS Plan has been developed based on the existing Pond E topography as of April 28, 2017.

3.0 INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN

3.1 Hazard Potential Classification

As indicated in Golder's Hazard Potential Classification Assessment, Pond E is assigned a "Significant" hazard potential rating per 40 CFR §257.73.

3.2 Inflow Design Flood

According to 40 CFR §257.82(a)(3)(ii), a hazard potential rating of Significant requires an evaluation of the pond and appurtenances ability to manage a 1000-year storm event. Per the NOAA Atlas-14, provided in Appendix A, the 1000-year event rainfall total for the 24-hour duration is 13.6 inches.

3.3 Inflow and Outflow Control

Inflow to Pond E is primarily stormwater runoff from within the pond (43.9 ac) and the adjacent wooded areas (50.7 ac). The total drainage area to Pond E is approximately 94.6 acres. The majority of stormwater arrives in Pond E through overland flow. Other than maintaining pre-established runoff control measures, there are no inflow control measures proposed.

Pond E's primary outlet for stormwater is a 6-ft by 6-ft square riser, fitted with stoplogs, that discharges through a 72-inch corrugated metal pipe (CMP) into an unnamed tributary of Quantico Creek. This demonstration assumes that the permanent pool is maintained below the stoplog crest. The stage-storage curve for Pond E was developed using the April 28, 2017 topography, and shows that Pond E has approximately 892.8 acre-feet of available water storage volume at the embankment crest (approximately el. 40.0 ft).

The Pond E stormwater system was modeled in the U.S. Army Corps of Engineers Hydrologic Engineering Center's Hydraulic Modeling System (HEC-HMS), and the analysis is included in

Appendix B. The analysis was conducted using the 24-hour, 1,000-year event, which was modeled as 13.6 inches of rain. Based on this analysis, Pond E's inflow design flood control system is capable of adequately managing the inflow from the 1,000-year event without overtopping the embankment.

Table 1: HEC-HMS Output

Q_{in} (CFS)	Max Hw (Ft El*)	Primary Q_{out} (CFS)
778.4	13.2	0.0

* Top of berm elevation = el. 40.0 ft

4.0 CONCLUSIONS

Through work performed by Golder, both field inspection and document review, it is our opinion that the Pond E inflow design flood control system has sufficient capacity for the 1000-year storm event, as required by 40 CFR §257.82.

APPENDIX A – NOAA Atlas 14 Rainfall

NOAA Atlas 14, Volume 2, Version 3
Location name: Dumfries, Virginia, USA*
Latitude: 38.5466°, Longitude: -77.2872°
Elevation: 15.59 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.356** (0.322-0.393)	**0.427** (0.387-0.471)	**0.508** (0.459-0.560)	**0.567** (0.511-0.625)	**0.642** (0.575-0.708)	**0.698** (0.623-0.770)	**0.754** (0.669-0.833)	**0.808** (0.712-0.895)	**0.878** (0.765-0.977)	**0.933** (0.807-1.04)
10-min	**0.569** (0.515-0.628)	**0.683** (0.619-0.753)	**0.813** (0.736-0.897)	**0.907** (0.818-1.00)	**1.02** (0.917-1.13)	**1.11** (0.992-1.23)	**1.20** (1.06-1.32)	**1.28** (1.13-1.42)	**1.39** (1.21-1.55)	**1.47** (1.27-1.64)
15-min	**0.711** (0.644-0.784)	**0.859** (0.778-0.946)	**1.03** (0.931-1.14)	**1.15** (1.03-1.26)	**1.30** (1.16-1.43)	**1.41** (1.26-1.55)	**1.51** (1.34-1.67)	**1.62** (1.42-1.79)	**1.75** (1.52-1.95)	**1.84** (1.59-2.06)
30-min	**0.975** (0.882-1.08)	**1.19** (1.07-1.31)	**1.46** (1.32-1.61)	**1.66** (1.50-1.83)	**1.92** (1.72-2.12)	**2.12** (1.89-2.34)	**2.32** (2.06-2.56)	**2.52** (2.22-2.79)	**2.78** (2.42-3.10)	**2.99** (2.58-3.34)
60-min	**1.22** (1.10-1.34)	**1.49** (1.35-1.64)	**1.87** (1.70-2.07)	**2.17** (1.95-2.39)	**2.56** (2.29-2.82)	**2.87** (2.56-3.17)	**3.20** (2.83-3.53)	**3.53** (3.11-3.91)	**3.99** (3.48-4.44)	**4.36** (3.77-4.87)
2-hr	**1.42** (1.28-1.57)	**1.73** (1.56-1.91)	**2.19** (1.98-2.42)	**2.56** (2.29-2.82)	**3.06** (2.74-3.39)	**3.48** (3.09-3.85)	**3.92** (3.45-4.33)	**4.38** (3.83-4.85)	**5.03** (4.35-5.60)	**5.56** (4.76-6.22)
3-hr	**1.53** (1.38-1.71)	**1.86** (1.67-2.08)	**2.36** (2.12-2.64)	**2.76** (2.47-3.08)	**3.33** (2.95-3.70)	**3.79** (3.34-4.22)	**4.29** (3.75-4.77)	**4.81** (4.17-5.37)	**5.57** (4.76-6.24)	**6.19** (5.23-6.96)
6-hr	**1.88** (1.70-2.11)	**2.28** (2.05-2.56)	**2.88** (2.59-3.23)	**3.38** (3.01-3.77)	**4.10** (3.63-4.58)	**4.71** (4.14-5.26)	**5.38** (4.68-6.01)	**6.10** (5.25-6.83)	**7.15** (6.06-8.05)	**8.04** (6.72-9.09)
12-hr	**2.28** (2.04-2.57)	**2.76** (2.47-3.10)	**3.50** (3.12-3.94)	**4.13** (3.67-4.64)	**5.09** (4.48-5.71)	**5.92** (5.16-6.64)	**6.85** (5.90-7.69)	**7.88** (6.69-8.85)	**9.44** (7.86-10.7)	**10.8** (8.84-12.2)
24-hr	**2.57** (2.33-2.88)	**3.12** (2.83-3.49)	**4.03** (3.65-4.51)	**4.83** (4.36-5.39)	**6.05** (5.41-6.72)	**7.12** (6.33-7.88)	**8.33** (7.35-9.19)	**9.70** (8.48-10.7)	**11.8** (10.2-12.9)	**13.6** (11.6-14.9)
2-day	**2.98** (2.70-3.32)	**3.62** (3.28-4.03)	**4.67** (4.23-5.20)	**5.58** (5.03-6.20)	**6.95** (6.22-7.68)	**8.14** (7.25-8.98)	**9.47** (8.36-10.4)	**11.0** (9.59-12.1)	**13.2** (11.4-14.5)	**15.2** (12.9-16.7)
3-day	**3.16** (2.87-3.52)	**3.84** (3.48-4.27)	**4.94** (4.47-5.49)	**5.88** (5.31-6.53)	**7.30** (6.55-8.07)	**8.54** (7.62-9.41)	**9.91** (8.76-10.9)	**11.4** (10.0-12.6)	**13.7** (11.9-15.1)	**15.7** (13.5-17.3)
4-day	**3.35** (3.04-3.72)	**4.06** (3.68-4.51)	**5.21** (4.72-5.78)	**6.19** (5.60-6.86)	**7.66** (6.88-8.46)	**8.93** (7.98-9.85)	**10.3** (9.17-11.4)	**11.9** (10.5-13.1)	**14.3** (12.4-15.7)	**16.3** (14.0-17.9)
7-day	**3.89** (3.56-4.27)	**4.69** (4.30-5.16)	**5.94** (5.43-6.52)	**6.99** (6.38-7.67)	**8.57** (7.78-9.38)	**9.92** (8.95-10.8)	**11.4** (10.2-12.4)	**13.0** (11.6-14.2)	**15.5** (13.6-16.8)	**17.5** (15.2-19.1)
10-day	**4.46** (4.10-4.87)	**5.35** (4.92-5.85)	**6.68** (6.14-7.29)	**7.78** (7.13-8.48)	**9.37** (8.56-10.2)	**10.7** (9.74-11.6)	**12.1** (11.0-13.2)	**13.7** (12.3-14.9)	**15.9** (14.2-17.3)	**17.8** (15.7-19.3)
20-day	**6.00** (5.58-6.49)	**7.15** (6.64-7.72)	**8.64** (8.02-9.32)	**9.85** (9.14-10.6)	**11.5** (10.7-12.4)	**12.9** (11.9-13.9)	**14.3** (13.1-15.4)	**15.8** (14.4-17.0)	**17.8** (16.2-19.2)	**19.5** (17.5-21.0)
30-day	**7.37** (6.88-7.91)	**8.72** (8.15-9.36)	**10.4** (9.69-11.1)	**11.7** (10.9-12.5)	**13.5** (12.6-14.5)	**15.0** (13.9-16.0)	**16.4** (15.2-17.6)	**17.9** (16.5-19.2)	**20.0** (18.3-21.4)	**21.6** (19.6-23.1)
45-day	**9.27** (8.70-9.84)	**10.9** (10.3-11.6)	**12.8** (12.0-13.6)	**14.2** (13.4-15.1)	**16.1** (15.1-17.1)	**17.5** (16.4-18.6)	**18.9** (17.7-20.1)	**20.3** (18.9-21.6)	**22.1** (20.5-23.5)	**23.4** (21.6-24.9)
60-day	**11.0** (10.4-11.6)	**12.9** (12.2-13.7)	**15.0** (14.1-15.8)	**16.5** (15.5-17.4)	**18.4** (17.4-19.5)	**19.9** (18.7-21.0)	**21.2** (19.9-22.5)	**22.5** (21.1-23.9)	**24.2** (22.6-25.6)	**25.4** (23.6-26.9)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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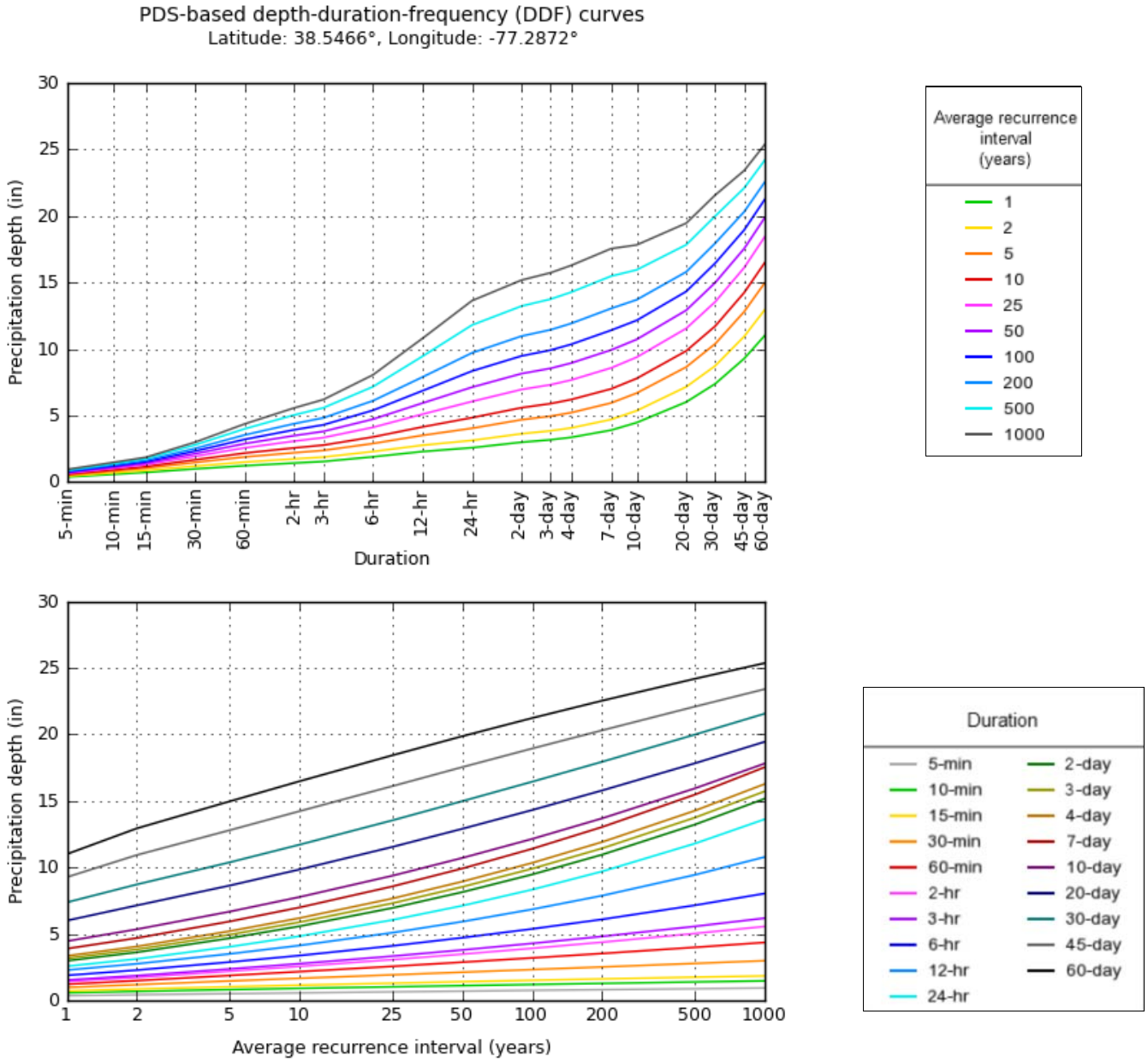
PF graphical



NOAA Atlas 14, Volume 2, Version 3

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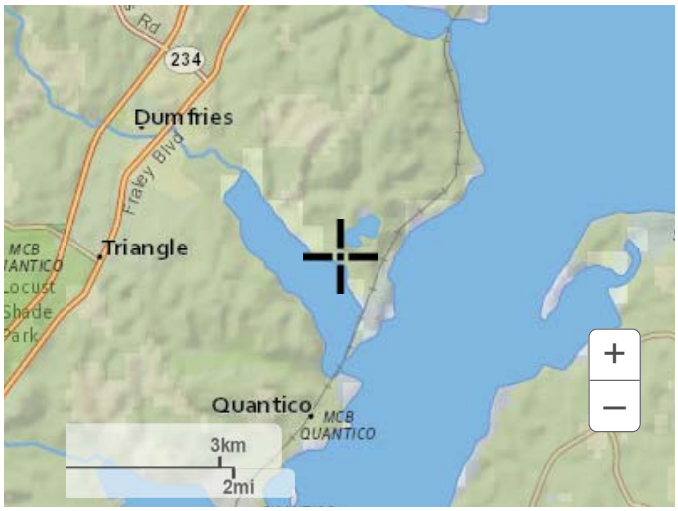
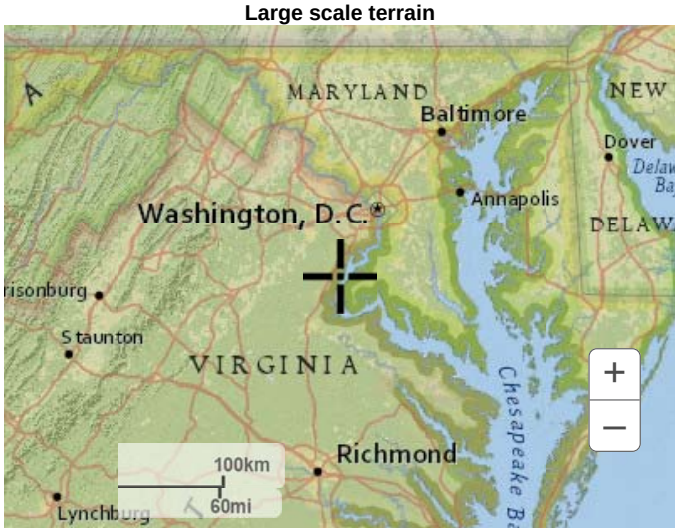
Maps & aerials

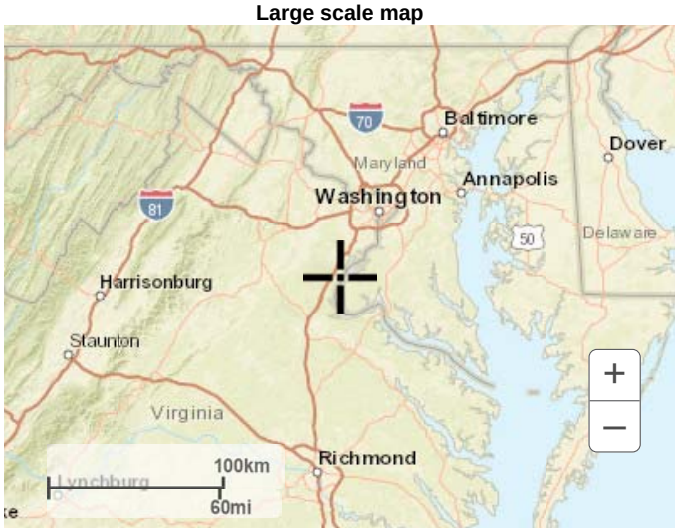
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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Disclaimer

APPENDIX B

Hydraulic Modeling Analysis

CALCULATIONS

Date:	February 7, 2018	**Made by:**	KAL
Project No.:	16-62150	**Checked by:**	SDRM
Subject:	PPPS Pond E Inflow Design Flood Analysis	**Reviewed by:**	DPM
Project:	**POSSUM POINT POWER STATION POND E – EXISTING CONDITION**		

The purpose of this evaluation is to determine the hydraulic performance of the existing Pond E CCR impoundment at the Possum Point Power Station (PPPS) during the 1,000-year storm event. This evaluation is in support of the Inflow Design Flood Control System Plan, and is based on a "Significant" hazard potential classification as defined in §257.53 of the *CCR Rule*.

1.0 CALCULATIONS

1.1 Pond Storage Volume

Pond E's storage volume was computed based on the existing condition, as surveyed in April 2017, which is excavated of CCR. The maximum available storage in the pond is approximately 892.8 acre-feet at elevation 40.0. Attachment 1 contains the stage storage rating table used in the HMS model.

1.2 Outlet Design and Capacity

The existing Pond E outfall structure consists of a rectangular riser box fitted with stoplogs to adjust the pond's permanent pool. For this analysis, the pond was conservatively evaluated with a permanent pool at elevation 0.0 ft (approximately 3.0 ft of water) and no discharge through the riser structure.

1.3 Storm Routing Calculations

Analysis of the Pond E stormwater system 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 pond is 94.6 acres. The predominant soil types in the area are Hydrologic Soil Group (HSG) B soils.

Per §257.82(a)(3)(ii), the impoundment is required to adequately manage flow resulting from the 1,000-Yr storm event. The 24-hour, 1,000-Yr storm event precipitation amount was obtained from the Precipitation Frequency Data Server (PFDS, ref #2) for Dumfires, Virginia, as 13.6 inches.

Figure 1 illustrates the connectivity of the stormwater elements and the data inputs as modeled in HEC-HMS.

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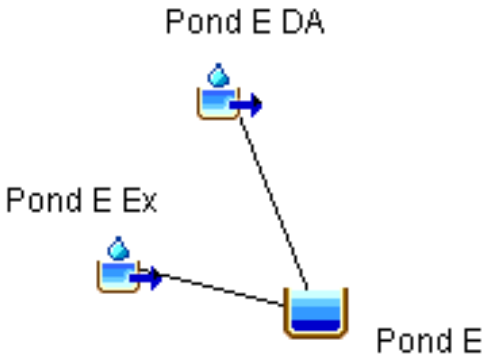


Figure 1 – PPPS Pond E HEC-HMS Model

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

Table 1: Pond E HEC-HMS Output

Q_{in} (CFS)	Max Hw (Ft El*)	Primary Q_{out} (CFS)
778.4	13.2	0.0

* Top of berm elevation = el. 40.0 ft

2.0 CONCLUSIONS

Based on the calculations presented herein, Pond E can pass the 1,000-Yr event without overtopping.

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 ATTACHMENTS

1) Stage-Storage Table
2) Outlet Discharge
3) HEC-HMS

Pond E Stage-Storage Table

Elevation	Area		Volume		Cumulative Volume		
(ft)	(sqft)	(acres)	(cuft)	(CY)	(CY)	(cuft)	(ac-ft)
40.00	1656480.0	*38.028*	*3287953.38*	*121776.05*	*1440415.08*	*38891207*	*892.82*
38.00	1631505.0	*37.454*	*3236438.74*	*119868.10*	*1318639.03*	*35603254*	*817.34*
36.00	1604970.0	*36.845*	*3179831.64*	*117771.54*	*1198770.93*	*32366815*	*743.04*
34.00	1574909.0	*36.155*	*3113602.06*	*115318.59*	*1080999.38*	*29186983*	*670.04*
32.00	1538763.0	*35.325*	*3041332.50*	*112641.94*	*965680.79*	*26073381*	*598.56*
30.00	1502641.0	*34.496*	*2960293.62*	*109640.50*	*853038.84*	*23032049*	*528.74*
28.00	1457766.0	*33.466*	*2856264.43*	*105787.57*	*743398.34*	*20071755*	*460.78*
26.00	1398702.0	*32.110*	*2743351.65*	*101605.62*	*637610.77*	*17215491*	*395.21*
24.00	1344826.0	*30.873*	*2618523.85*	*96982.36*	*536005.15*	*14472139*	*332.23*
22.00	1274017.0	*29.247*	*2466408.63*	*91348.47*	*439022.79*	*11853615*	*272.12*
20.00	1192837.0	*27.384*	*2113342.44*	*78271.94*	*347674.32*	*9387207*	*215.50*
18.00	926123.0	*21.261*	*1725850.10*	*63920.37*	*269402.38*	*7273864*	*166.98*
16.00	801234.0	*18.394*	*1492305.41*	*55270.57*	*205482.00*	*5548014*	*127.36*
14.00	692395.0	*15.895*	*1251074.27*	*46336.08*	*150211.43*	*4055709*	*93.11*
12.00	560982.0	*12.878*	*885038.08*	*32779.19*	*103875.35*	*2804634*	*64.39*
10.00	333827.0	*7.664*	*561417.09*	*20793.23*	*71096.16*	*1919596*	*44.07*
8.00	230753.0	*5.297*	*410592.97*	*15207.15*	*50302.93*	*1358179*	*31.18*
6.00	180852.0	*4.152*	*317532.34*	*11760.46*	*35095.79*	*947586*	*21.75*
4.00	137661.0	*3.160*	*248431.20*	*9201.16*	*23335.33*	*630054*	*14.46*
2.00	111239.0	*2.554*	*198584.65*	*7354.99*	*14134.17*	*381623*	*8.76*
0.00	87807.0	*2.016*	*140080.32*	*5188.16*	*6779.19*	*183038*	*4.20*
-2.00	53667.0	*1.232*	*42957.73*	*1591.03*	*1591.03*	*42958*	*0.99*
-3.00	33075.0	*0.759*	-	-	-	-	-

Basin Elevations		
Invert	-3	ft
Embankment	40	ft

1. Dewatering Device		
Type:	[None]	
Invert		*ft*
Width		*in*
Cd (orifice)	0.6	
Cw (weir)	3.33	
Orifice Area	0.00	*ft2*
Multiple Rows? (Y or N)		N

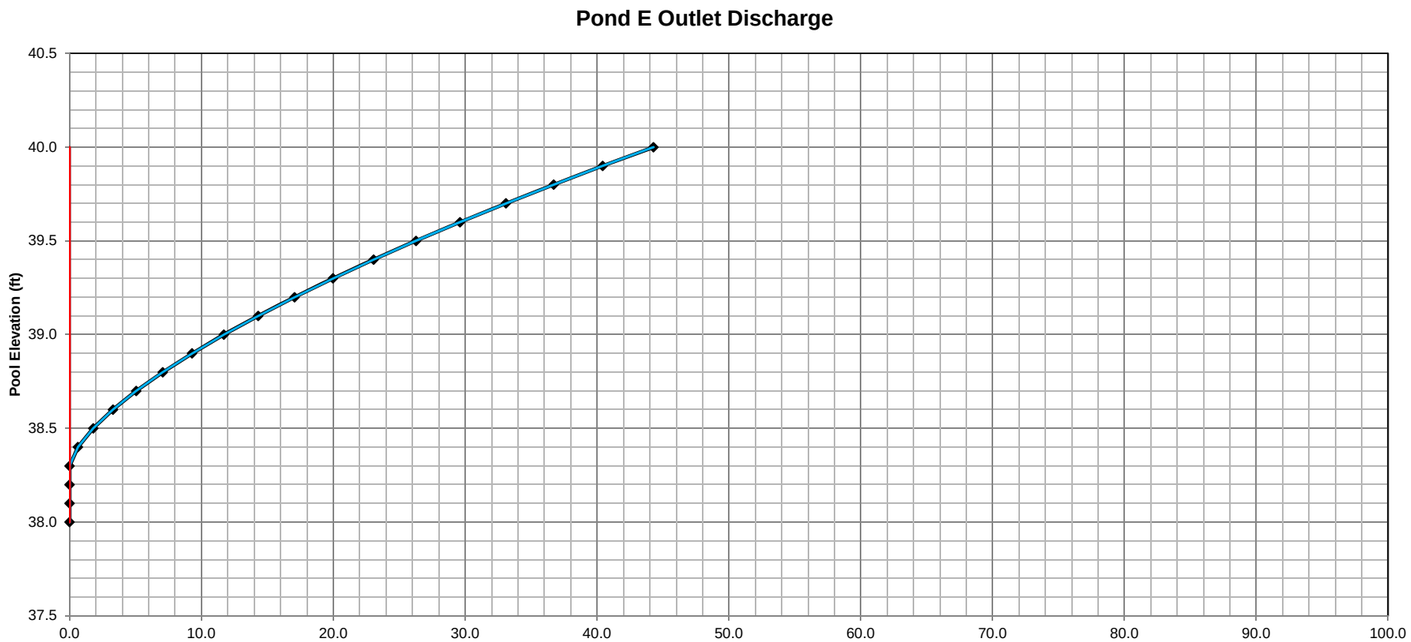
2. Principal Spillway		
Type:	Rect. Weir	
Crest	38.3	*ft*
Width	72	*in*
Cd (orifice)	0.6	
Cw (weir)	3.33	
Orifice Area	27.00	*ft2*
Number of Spillways:		1

3. Secondary Spillway		
Type:	Riser (Box)	
Connect to PS?	Yes	
Crest	42.8	*ft*
Width	72	*in*
Cd (orifice)	0.6	
Cw (weir)	3.33	
Riser Area	36.00	*ft2*
Number of Spillways:		1

4. Discharge Pipe		
Invert	9.22	*ft/ft*
Diameter	72	*in*
Slope	0.0054	*ft/ft*
Length	140	*ft/ft*
Material	CMP	
Manning n	0.024	

5. Emergency Spillway		
B. Width	358	*ft*
Side Slope	10	:1
Invert	40	*ft*
Top Width	358	*ft*

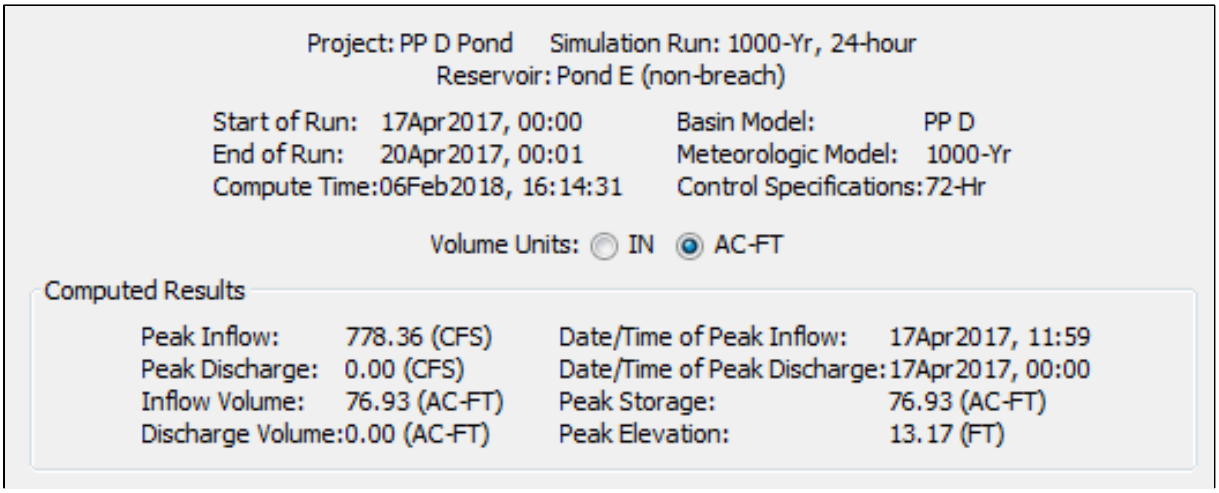
Min. Elev.	38	ft
Interval	0.1	ft



Water Elevation	Inlet-Controlled Discharge															Outlet-Controlled Discharge					Depth	Total Discharge
	Dewatering Device: [None]					Principal Spillway: Rect. Weir					Secondary Spillway: Riser (Box)					Barrel-Controlled Discharge	Controlling Condition	Actual Discharge	Emergency Spillway			
	Head	Discharge			Controlling Discharge	Head	Discharge		Controlling Condition	Controlling Discharge	Head	Discharge		Controlling Condition	Controlling Discharge				Head	Discharge		
		Skimmer	*Orifice*	*Weir*			*Orifice*	*Weir*				*Orifice*	*Weir*									
(ft)	*(ft)*	*(cfs)*	*(cfs)*	*(cfs)*	*(cfs)*	*(ft)*	*(cfs)*	*(cfs)*		*(cfs)*	*(ft)*	*(cfs)*	*(cfs)*		*(cfs)*	*(cfs)*		*(cfs)*	*(ft)*	*(cfs)*	*(ft)*	*(cfs)*
38.00					0.00					0.00					0.00	650.78	Inlet	0.00	0	0.00	**41.00**	**0.00**
38.10					0.00					0.00					0.00	652.13	Inlet	0.00	0	0.00	**41.10**	**0.00**
38.20					0.00					0.00					0.00	653.48	Inlet	0.00	0	0.00	**41.20**	**0.00**
38.30					0.00	0.00		0.00	Weir	0.00					0.00	654.91	Inlet	0.00	0	0.00	**41.30**	**0.00**
38.40					0.00	0.10		0.63	Weir	0.63					0.00	656.26	Inlet	0.63	0	0.00	**41.40**	**0.63**
38.50					0.00	0.20		1.79	Weir	1.79					0.00	657.61	Inlet	1.79	0	0.00	**41.50**	**1.79**
38.60					0.00	0.30		3.28	Weir	3.28					0.00	659.04	Inlet	3.28	0	0.00	**41.60**	**3.28**
38.70					0.00	0.40		5.05	Weir	5.05					0.00	660.39	Inlet	5.05	0	0.00	**41.70**	**5.05**
38.80					0.00	0.50		7.06	Weir	7.06					0.00	661.74	Inlet	7.06	0	0.00	**41.80**	**7.06**
38.90					0.00	0.60		9.29	Weir	9.29					0.00	663.09	Inlet	9.29	0	0.00	**41.90**	**9.29**
39.00					0.00	0.70		11.70	Weir	11.70					0.00	664.44	Inlet	11.70	0	0.00	**42.00**	**11.70**
39.10					0.00	0.80		14.30	Weir	14.30					0.00	665.78	Inlet	14.30	0	0.00	**42.10**	**14.30**
39.20					0.00	0.90		17.06	Weir	17.06					0.00	667.13	Inlet	17.06	0	0.00	**42.20**	**17.06**
39.30					0.00	1.00		19.98	Weir	19.98					0.00	668.48	Inlet	19.98	0	0.00	**42.30**	**19.98**
39.40					0.00	1.10		23.05	Weir	23.05					0.00	669.83	Inlet	23.05	0	0.00	**42.40**	**23.05**
39.50					0.00	1.20		26.26	Weir	26.26					0.00	671.18	Inlet	26.26	0	0.00	**42.50**	**26.26**
39.60					0.00	1.30		29.61	Weir	29.61					0.00	672.53	Inlet	29.61	0	0.00	**42.60**	**29.61**
39.70					0.00	1.40		33.10	Weir	33.10					0.00	673.88	Inlet	33.10	0	0.00	**42.70**	**33.10**
39.80					0.00	1.50		36.71	Weir	36.71					0.00	675.22	Inlet	36.71	0	0.00	**42.80**	**36.71**
39.90					0.00	1.60		40.44	Weir	40.44					0.00	676.49	Inlet	40.44	0	0.00	**42.90**	**40.44**
40.00					0.00	1.70		44.29	Weir	44.29					0.00	677.84	Inlet	44.29	0	0.00	**43.00**	**44.29**

Pond E HEC-HMS

Drainage Area	Area (ac)	CN	Lag Time (min)
Pond E Ex	43.9	82	6.0
Pond E DA	50.7	60	30.1



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Engineering Earth's Development, Preserving Earth's Integrity