solutions and action

Interstate Power and Light Company
Columbia Energy Center
CCR Surface Impoundment Inflow Design Flood Control Plan – Revision 2
154.018.028.005
Report issued: May 2, 2026

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Executive Summary

This Inflow Flood Control Plan (Report) for the Columbia Energy Center (COL) in Pardeeville, Wisconsin has been prepared in accordance with the requirements of the United States Environmental Protection Agency (USEPA) published Final Rule for Hazardous and Solid Waste Management System – Disposal of Coal Combustion Residual from Electric Utilities (40 CFR Parts 257 and 261, also known as the CCR Rule) published on April 17, 2015 (effective October 19, 2015) and subsequent amendments.

This Report serves as the second periodic review since the initial report dated September 19, 2016, at the Columbia Energy Center in Pardeeville, Wisconsin. It assesses the hydrologic and hydraulic capacity requirements for the former COL Secondary Ash Pond in accordance with §257.82 of the CCR Rule. Primarily, the Report documents how the inflow design flood control system has been designed and constructed to meet the CCR Rule section §257.82.

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1. INTRODUCTION

The owner or operator of the Coal Combustion Residual (CCR) unit must conduct an initial and periodic inflow design flood control system plan to determine if each CCR unit adequately manages flow into and from each CCR unit during and following the peak discharge of the inflow design flood. The inflow design flood is selected based on the hazard potential classification (§257.73(a)(2)) for each CCR unit.

1.1 CCR Rule Requirements

The CCR Rule requires an initial and periodic inflow design flood control system plan certified by a qualified professional engineer (PE) for all inactive, existing, and legacy CCR surface impoundments.

1.2 Hydrologic and Hydraulic Capacity Applicability

The Wisconsin Power and Light Company (WPL) Columbia Energy Center (COL) in Pardeeville, Wisconsin (Figure 1) has one closed and one inactive CCR surface impoundment, identified as follows:

- Former COL Primary Ash Pond (closed)
- Former COL Secondary Ash Pond (inactive)

The former COL Secondary Ash Pond has not received CCR after October 2015. In 2023, closure earthwork was completed within both impoundments which involved dewatering, removal of CCR, backfilling, restoration and CCR placement into the onsite landfill. The former COL Secondary Ash Pond is subject to the hydrologic and hydraulic capacity requirements of the CCR Rule.

2. FACILITY DESCRIPTION

COL is located southeast of the City of Portage on the eastern shore of the Wisconsin River in Columbia County at W8375 Murray Road, Pardeeville, Wisconsin (Figure 1). Wisconsin River backwaters are located north of the generating station, while Lake Columbia, south of the generating plant, is a 480-acre non-contact cooling water pond.

COL is a fossil-fueled electric generating station that initiated operations in 1975. COL consists of two steam electric generating units. Sub-bituminous coal is the primary fuel for producing steam. The burning of coal produces a by-product of CCR. The CCR at COL includes bottom ash, fly ash, and spray dryer absorber waste from scrubbers. The fly ash can also be subdivided into two types; economizer fly ash and precipitator fly ash.

General Facility Information:

Date of Initial Facility Operations:	1975	
WPDES Permit Number:	WI-0002780-10-0	
Latitude / Longitude:	43° 29’ 9.73” N	89° 25’ 8.40” W
Unit Nameplate Ratings:	Unit 1 (1975): 512 MW	
	Unit 2 (1978): 511 MW	

2.1 Former COL Primary Ash Pond (Closed)

The former COL Primary Ash Pond was located north of the generating plant and west of the former COL Secondary Pond. The COL Primary Ash Pond was the primary receiver of process flows from the generating plant. When the impoundment was active, process flows included CCR sluice water (bottom ash and economizer fly ash), boiler/precipitator wash water, plant floor drains, ash line freeze protection flows, bottom ash area sump water, demineralizer area sump water, and air heater sump water. The former COL Primary Ash Pond area currently receives storm water runoff from the surrounding area, inclusive of the closed ash landfill, located south of the former CCR surface impoundments.

Prior to closure, the western half of the COL Primary Ash Pond was a CCR handling area. A shallow narrow drainage channel was located along the south, west, and north sides of the CCR handling area. The sluiced CCR was discharged into the southeast corner of the western half of the former COL Primary Ash Pond. The sluiced CCR settled out through the water column as it follows the flow of the narrow channel around the southern, western, and northern sides of the CCR surface impoundment. The water in the channel flowed to the east and discharged through a narrow cut-out of an interior dike into the northwest corner of the large open area in the eastern half of the former COL Primary Ash Pond.

The majority of the CCR that was discharged into the former COL Primary Ash Pond was removed during routine maintenance dredging activities of the shallow narrow channel. The CCR that was dredged was stockpiled in the western half of the COL Primary Ash Pond for dewatering. Once dewatered, the CCR was run through a sieve shaker machine to separate the coarsely graded CCR from the finely graded CCR. The CCR was then transported off-site for beneficial reuse or transported to the on-site active dry ash landfill.

The water in the former COL Primary Ash Pond was recirculated to the generating plant via effluent pumps located in the ash recirculating pump house in the northeast corner of the eastern half of the COL Primary Ash Pond. The recirculating pumps returned water to the generating plant for reuse and/or treatment and disposal per the facility's Wisconsin Pollution Discharge Elimination System (WPDES) permit.

The surface area of the former COL Primary Ash Pond is approximately 14.7 acres and has an embankment height of approximately 23 feet from the crest to the toe of the downstream slope. The interior storage depth of the COL Primary Ash Pond was approximately 15 feet. In 2023, the CCR was removed and placed into the on-site dry ash landfill. Closure construction activities have been completed, and the impoundment has been certified as closed. Therefore, the former CCR impoundment is not discussed further as part of this Report.

2.2 Former COL Secondary Ash Pond (Inactive)

The former COL Secondary Pond is located north of the generating plant and east of the former COL Primary Ash Pond. The former COL Secondary Ash Pond was previously a downstream receiver of influent flows from the COL Primary Ash Pond. The water within the former COL Secondary Pond, prior to 2004, was pumped to a surface impoundment identified as the polishing pond. The polishing pond was located east of the generating plant. The water pumped to the polishing pond would flow to the south through the facility's WPDES Outfall 002 into "Mint Ditch" and eventually flow into the backwaters of the Wisconsin River. This system is no longer in operations.

Presently, the former COL Secondary Pond acts as a storm water detention impoundment with the only influent sources being precipitation and storm water runoff from the surrounding area. The water within the former COL Secondary Pond either infiltrates or evaporates. The water elevation within the former COL Secondary Pond is typically near the ground water elevation in that area.

The surface area of the former COL Secondary Ash Pond is approximately 9.6 acres and has an embankment height of approximately 23 feet from the crest to the toe of the downstream slope.

The interior storage depth of the former COL Secondary Ash Pond is approximately 12 feet. In 2023, the CCR was removed and placed into the on-site dry ash landfill. Closure construction activities have been completed, although the former CCR impoundment has not been certified as closed.

3. HYDROLOGIC AND HYDRAULIC CAPACITY- §257.82(a)

This Report provides hydrologic and hydraulic capacity information for the inflow design flood control systems which is to:

1. Adequately manage flow into each CCR unit during and following the peak discharge inflow of the specified design flood,
2. Adequately manage flow from each CCR unit to collect and control the peak discharge resulting from the inflow design flood; and,
3. Handle discharge from the CCR unit in accordance with NPDES regulations 40 CFR §257.3-3.

3.1 Hazard Classification and Design Storm

The former COL Secondary Ash Pond is classified as a low hazard potential. Therefore, the inflow design flood (or storm) for the impoundment is the 100-year return event SCS Type II 24-hour storm as defined in §257.82(a)(3)(ii). The total rainfall for the event selected from the National Oceanographic and Atmospheric Administration's probabilistic map for the COL site coordinates is 6.6 inches for the 100-year event, Appendix A.

3.2 Hydrologic and Hydraulic Capacity Methods

The former impoundments receive rainfall from a total watershed of 92 acres. The watershed is at the north end of the COL and includes the closed landfill, impoundments and the former CCR handling area. The watershed is further subdivided into a 55-acre subarea which drains to the former COL Primary Ash Pond and a 37-acre subarea which drains to the former COL Secondary Ash Pond, Figure 2.

Since the former COL Secondary Ash Pond does not discharge water during storm events, the impoundment is considered a zero liquid discharge impoundment. The capacity of the impoundment for the design storm is found by comparing the volume of rainfall produced by the design storm to the capacity of the impoundment above normal operating elevation in the impoundment.

3.3 Hydrologic and Hydraulic Capacity Input and Assumptions

Because the storm routing is by full containment of the storm water volume, the following simplifying assumptions are made in the analysis of the impoundment's capacity to contain the storm without distress.

1. The full volume of rainfall accumulates into the impoundment without consideration of the infiltration that occurs into the closed ash landfill or the former product recycling areas.
2. The available volume is calculated as the area of the impoundment at normal water operating elevation projected vertically without considering the increase in area with depth of water in the impoundment.
3. The impoundment is analyzed separately with only the drainage subarea contributing and no overflow of water from former COL Primary Ash Pond to former COL Secondary Ash Pond is considered (the interior berm between the impoundments is crest elevation 802 feet which is four feet lower than the exterior embankment elevation).
4. The former COL Secondary Ash Pond bottom is a sand aquifer with water elevation at approximately 785 feet. The impoundment bottom is reported to have a permeability of 0.01 to 0.005 cm/sec[1]. The impoundments will drain back to normal operating elevations soon after the end of the storm event.

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[1] SCS Engineers, " Columbia Station, Monitoring Well Construction Documentation, February 9, 2016

4. INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN

The operating water elevation for the former COL Secondary Ash Pond is 783 feet, which is approximately the normal ground water elevation. During the design storm, the former COL Secondary Ash Pond accumulates 20.35 acre-feet of water. At the end of the storm the water elevation in the former COL Secondary Ash Pond will be approximately 787 feet with 17 feet of freeboard remaining on the embankment. The calculation of volumes and storage elevation are included in Appendix B.

5. QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

To meet the requirements of 40 CFR 257.82(c)(5), I Mark W. Loerop hereby certify that I am a licensed professional engineer in the State of Wisconsin; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in 40 CFR 257.82.

By:__________

Name: MARK LOEROP

Date: MAY 2, 2026

MARK W.
LOEROP
E-43783-6
NAPERVILLE
IL

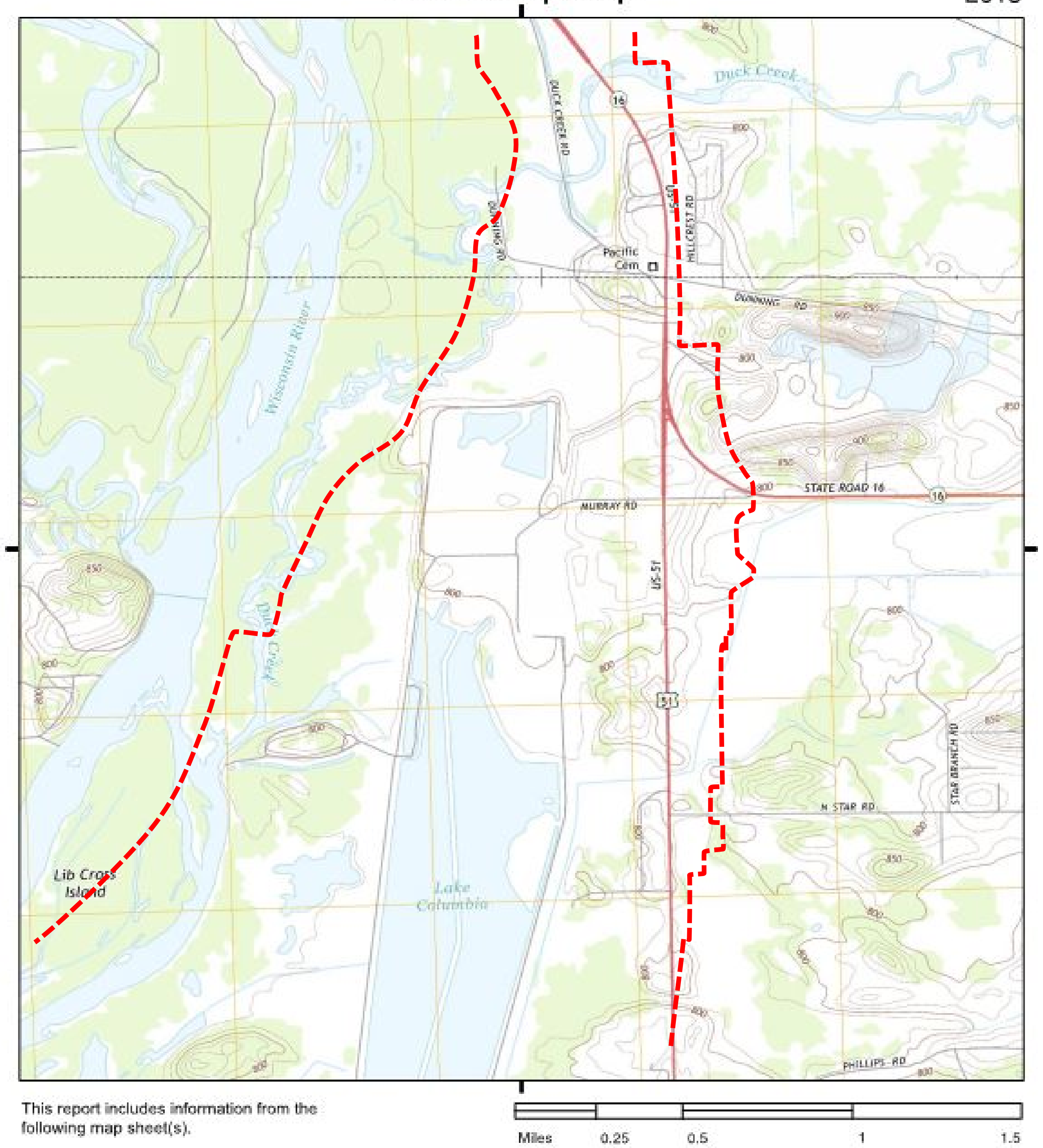
FIGURES

Alliant Energy
Wisconsin Power and Light Company
Columbia Energy Center
Pardeeville, Wisconsin

Inflow Design Flood Control System Plan

Historical Topo Map

2013



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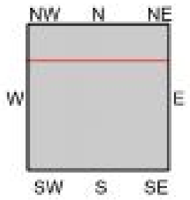


TP, Poynette, 2013, 7.5-minute

N, Portage, 2013, 7.5-minute

SITE NAME: Columbia Energy Center
ADDRESS: W8375 Murray Road
Pardeeville, WI 53954
CLIENT: Environmental Site Assessors

N

4555570 - 7 page 4

Historical Aerial Photo 6/12/2014

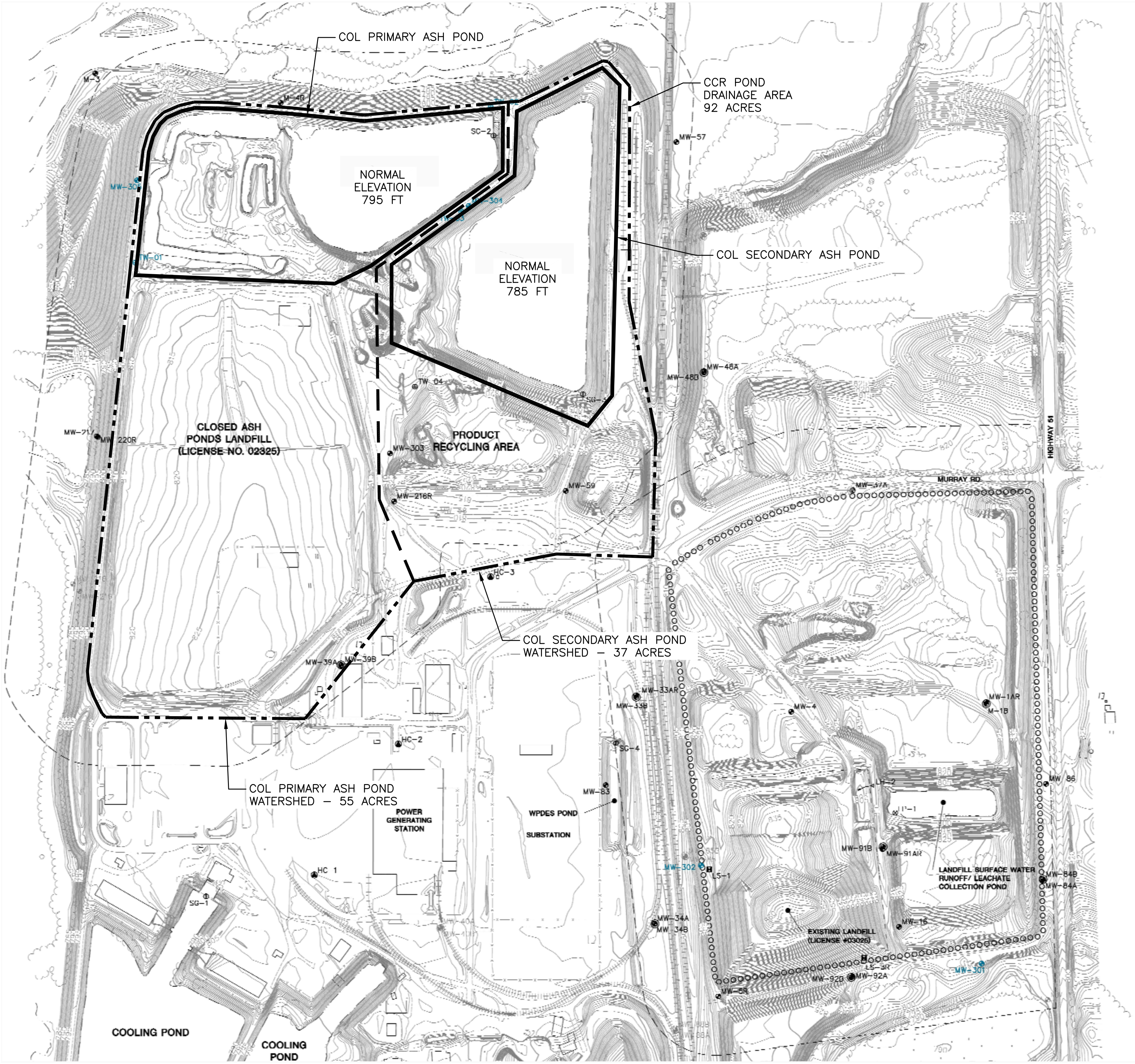
Approximate Property Boundary

hard hat
SERVICES

Site Location
Columbia Energy Center
Wisconsin Power and Light Company

Drawing
Figure 1

Date
4/30/2026



MAP SOURCE:
SCS ENGINEERS
COLUMBIA ASH PONDS AND DRY
ASH DISPOSAL FACILITIES;
WELL LOCATION MAP; FIGURE 2
REV. DATE 2-2-16

LEGEND

——810——	EXISTING MAJOR CONTOUR (10' INTERVAL)
————	EXISTING MINOR CONTOUR (2' CONTOUR)
—x—x—x—x—	EXISTING FENCELINE
++++++++++	EXISTING TRACKS
————	EXISTING PAVED ROAD
- - - - - -	EXISTING UNPAVED ROAD
—··—··—	EDGE OF WATER
— — — — —	DESIGN MANAGEMENT ZONE
·OOOOOOOOO	APPROVED LIMITS OF WASTE
—·—·—·—·	CONSTRUCTED LIMITS OF WASTE
●	WATER SUPPLY WELL
⦶	STAFF GAUGE
●	WATER TABLE WELL
◉	PIEZOMETER
⊗	SURFACE WATER SAMPLE LOCATION
■	LYSIMETER
●	ABANDONED WATER TABLE WELL
◉	ABANDONED PIEZOMETER
◁	LEACHATE HEADWELL
⊕	TEMPORARY WELL
●	NEW WATERTABLE WELL

NOTES;

1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014.
2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND AUGUST 2012.
3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
4. THE LOCATIONS OF THE ASH PONDS FACILITY DESIGN MANAGEMENT ZONE DEMARCATION LINES ARE APPROXIMATE AND BASED ON THE WATER TABLE MAP (OCTOBER 2012) FIGURE BY RMT.
5. THE LOCATION OF THE ACTIVE DRY ASH LANDFILL DESIGN MANAGEMENT ZONE DEMARCATION LINE IS BASED ON A 300 FOOT OFFSET FROM THE DESIGN LIMITS OF ASH EXCEPT WHERE OFFSET WOULD EXTEND LINE BEYOND PROPERTY LINE.

0 250' 500'
SCALE: 1"=250'

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REV	DATE	BY	DESCRIPTION
5			
4			
3			
2			
1			

hard hat™
SERVICES

SCALE:	AS SHOWN
DATE:	8-1-16
DRAWN BY:	JFD
CHKD BY:	TJH
APRVD BY:	MWL

CLIENT / LOCATION
WISCONSIN POWER AND LIGHT (WPL) COMPANY
COLUMBIA ENERGY CENTER
PARDEEVILLE, WISCONSIN

DRAWING DESCRIPTION
INFLOW FLOOD CONTROL PLAN
CCR SURFACE INPOUNDMENTS
STORM WATER ROUTING

JOB	154.010.025
SHT.	FIGURE 2
DWG.	154.010.025–D1

APPENDIX A – NOAA Storm Frequency Tabulation

Alliant Energy
Wisconsin Power and Light Company
Columbia Energy Center
Pardeeville, Wisconsin

Inflow Design Flood Control System Plan

NOAA Atlas 14, Volume 8, Version 2
Location name: Pardeeville, Wisconsin, US*
Latitude: 43.4930°, Longitude: -89.4205°
Elevation: 796 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

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	**0.366** (0.319–0.431)	**0.416** (0.362–0.490)	**0.503** (0.436–0.594)	**0.581** (0.501–0.688)	**0.696** (0.582–0.855)	**0.791** (0.644–0.982)	**0.891** (0.699–1.13)	**0.999** (0.749–1.30)	**1.15** (0.826–1.53)	**1.27** (0.885–1.70)
10-min	**0.536** (0.467–0.631)	**0.609** (0.530–0.718)	**0.737** (0.639–0.870)	**0.851** (0.733–1.01)	**1.02** (0.853–1.25)	**1.16** (0.943–1.44)	**1.31** (1.02–1.65)	**1.46** (1.10–1.90)	**1.68** (1.21–2.24)	**1.86** (1.30–2.49)
15-min	**0.654** (0.570–0.770)	**0.743** (0.647–0.875)	**0.899** (0.779–1.06)	**1.04** (0.894–1.23)	**1.24** (1.04–1.53)	**1.41** (1.15–1.75)	**1.59** (1.25–2.02)	**1.78** (1.34–2.31)	**2.05** (1.48–2.73)	**2.27** (1.58–3.04)
30-min	**0.906** (0.789–1.07)	**1.03** (0.896–1.21)	**1.25** (1.08–1.47)	**1.44** (1.24–1.71)	**1.73** (1.45–2.13)	**1.97** (1.60–2.44)	**2.22** (1.74–2.81)	**2.49** (1.87–3.23)	**2.87** (2.06–3.81)	**3.17** (2.21–4.25)
60-min	**1.15** (1.00–1.35)	**1.32** (1.15–1.56)	**1.63** (1.41–1.92)	**1.91** (1.64–2.26)	**2.32** (1.94–2.86)	**2.66** (2.17–3.31)	**3.03** (2.38–3.85)	**3.43** (2.57–4.45)	**3.99** (2.87–5.30)	**4.44** (3.09–5.95)
2-hr	**1.40** (1.22–1.63)	**1.62** (1.41–1.89)	**2.01** (1.75–2.36)	**2.37** (2.05–2.79)	**2.91** (2.45–3.57)	**3.36** (2.76–4.16)	**3.84** (3.04–4.85)	**4.37** (3.30–5.64)	**5.11** (3.70–6.75)	**5.71** (4.00–7.59)
3-hr	**1.54** (1.36–1.79)	**1.80** (1.58–2.09)	**2.25** (1.97–2.63)	**2.67** (2.32–3.13)	**3.31** (2.80–4.05)	**3.85** (3.17–4.75)	**4.43** (3.51–5.57)	**5.06** (3.84–6.52)	**5.96** (4.33–7.85)	**6.69** (4.71–8.86)
6-hr	**1.82** (1.61–2.10)	**2.11** (1.86–2.43)	**2.63** (2.32–3.05)	**3.13** (2.74–3.64)	**3.90** (3.34–4.75)	**4.56** (3.79–5.60)	**5.28** (4.22–6.62)	**6.07** (4.64–7.78)	**7.21** (5.29–9.45)	**8.14** (5.78–10.7)
12-hr	**2.14** (1.90–2.45)	**2.43** (2.16–2.78)	**2.98** (2.64–3.42)	**3.51** (3.09–4.04)	**4.34** (3.75–5.27)	**5.08** (4.25–6.20)	**5.88** (4.74–7.33)	**6.78** (5.23–8.64)	**8.08** (5.97–10.5)	**9.15** (6.54–12.0)
24-hr	**2.44** (2.19–2.78)	**2.77** (2.48–3.16)	**3.40** (3.02–3.87)	**3.99** (3.53–4.56)	**4.91** (4.26–5.90)	**5.71** (4.81–6.91)	**6.59** (5.35–8.14)	**7.56** (5.87–9.56)	**8.96** (6.67–11.6)	**10.1** (7.28–13.1)
2-day	**2.73** (2.46–3.08)	**3.18** (2.86–3.59)	**3.97** (3.55–4.49)	**4.68** (4.17–5.32)	**5.75** (4.99–6.82)	**6.65** (5.62–7.95)	**7.61** (6.20–9.30)	**8.65** (6.74–10.8)	**10.1** (7.57–12.9)	**11.3** (8.19–14.6)
3-day	**3.00** (2.71–3.37)	**3.48** (3.14–3.91)	**4.32** (3.88–4.86)	**5.07** (4.53–5.74)	**6.19** (5.39–7.29)	**7.12** (6.03–8.47)	**8.11** (6.63–9.85)	**9.17** (7.18–11.4)	**10.7** (8.01–13.6)	**11.9** (8.64–15.2)

4-day	**3.25** (2.94–3.64)	**3.74** (3.38–4.19)	**4.60** (4.15–5.17)	**5.38** (4.82–6.06)	**6.52** (5.69–7.65)	**7.47** (6.34–8.85)	**8.48** (6.94–10.3)	**9.56** (7.50–11.8)	**11.1** (8.34–14.1)	**12.3** (8.98–15.7)
7-day	**3.88** (3.53–4.32)	**4.42** (4.02–4.92)	**5.36** (4.85–5.97)	**6.18** (5.57–6.93)	**7.41** (6.48–8.61)	**8.41** (7.18–9.88)	**9.47** (7.80–11.4)	**10.6** (8.36–13.0)	**12.2** (9.23–15.4)	**13.5** (9.89–17.1)
10-day	**4.45** (4.06–4.93)	**5.03** (4.59–5.58)	**6.04** (5.49–6.71)	**6.92** (6.25–7.72)	**8.22** (7.21–9.49)	**9.27** (7.93–10.8)	**10.4** (8.56–12.4)	**11.5** (9.13–14.1)	**13.2** (10.0–16.5)	**14.5** (10.7–18.3)
20-day	**6.08** (5.58–6.68)	**6.82** (6.26–7.50)	**8.07** (7.37–8.89)	**9.12** (8.29–10.1)	**10.6** (9.34–12.1)	**11.8** (10.1–13.6)	**13.0** (10.8–15.4)	**14.3** (11.3–17.3)	**16.0** (12.2–19.8)	**17.3** (12.9–21.8)
30-day	**7.47** (6.89–8.17)	**8.37** (7.71–9.17)	**9.85** (9.04–10.8)	**11.1** (10.1–12.2)	**12.8** (11.3–14.4)	**14.1** (12.1–16.1)	**15.4** (12.8–18.0)	**16.7** (13.3–20.1)	**18.4** (14.1–22.8)	**19.8** (14.8–24.8)
45-day	**9.26** (8.57–10.1)	**10.4** (9.61–11.3)	**12.2** (11.2–13.3)	**13.7** (12.5–15.0)	**15.7** (13.8–17.6)	**17.1** (14.8–19.5)	**18.6** (15.5–21.6)	**20.0** (16.0–23.9)	**21.8** (16.8–26.7)	**23.1** (17.4–28.9)
60-day	**10.8** (10.0–11.7)	**12.2** (11.3–13.2)	**14.3** (13.2–15.6)	**16.0** (14.7–17.5)	**18.2** (16.1–20.3)	**19.9** (17.2–22.5)	**21.4** (17.9–24.8)	**22.9** (18.4–27.3)	**24.8** (19.1–30.3)	**26.2** (19.7–32.6)

[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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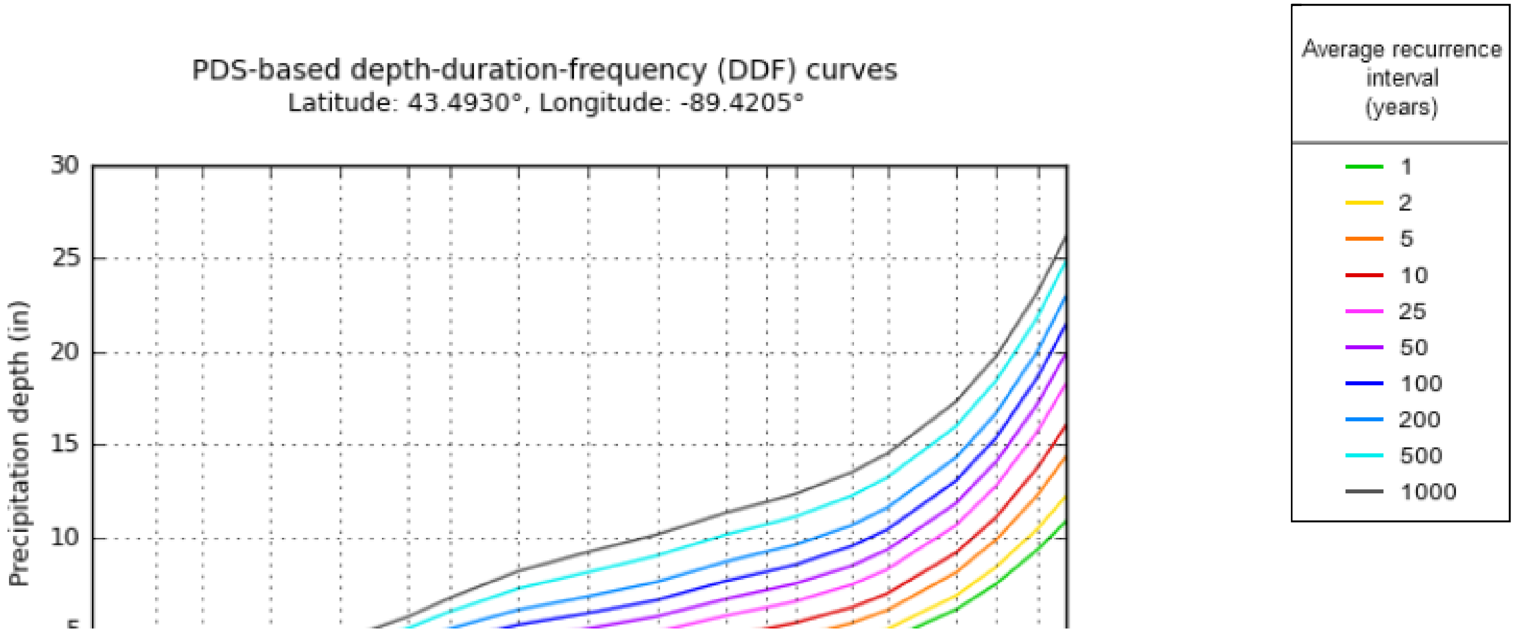
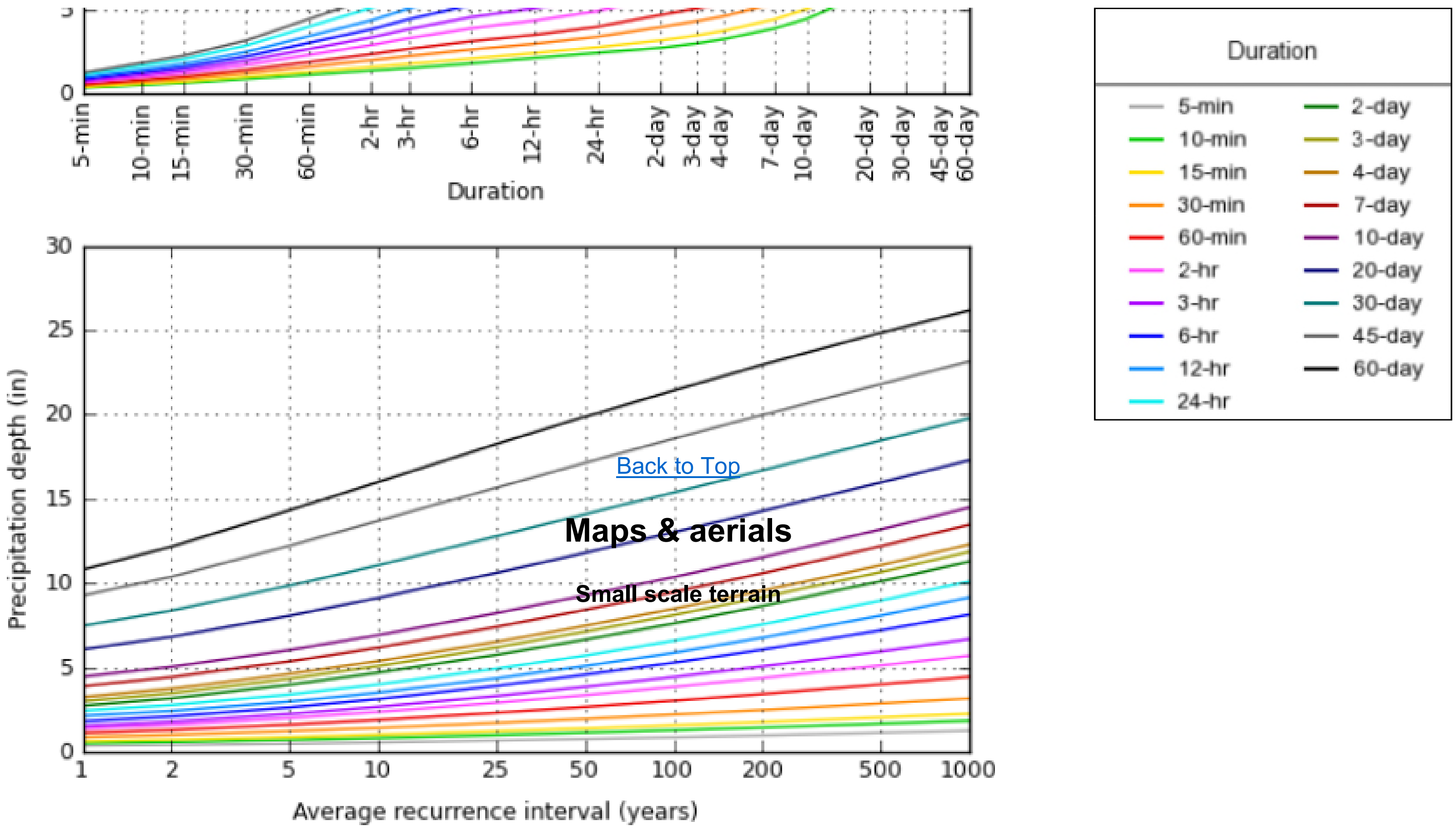
PF graphical





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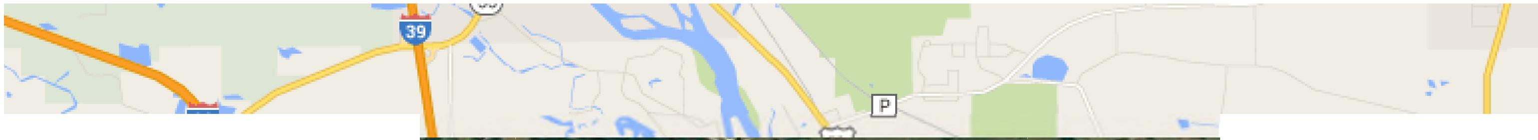
Maps & aerials

Small scale terrain

NOAA Atlas 14, Volume 8, Version 2

Created (GMT): Tue Jul 19 13:44:54 2016

Large scale map



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX B – Inflow Flood Control Analysis

Alliant Energy
Wisconsin Power and Light Company
Columbia Energy Center
Pardeeville, Wisconsin

Inflow Design Flood Control System Plan

By TJH Date 7/20/16 Subject COLUMBIA STATION Sheet No. 1 of 2
Chk: ____ Date ____ ZERO DISCHARGE CCR PONDS Proj. # 154.018.012.005
1/4" x 1/4"

- PRIMARY AND SECONDARY ASH PONDS ACCUMULATE DESIGN 100 YEAR RAINFALL (6.6 INCHES) WITHOUT DISCHARGE

- PRIMARY POND RECEIVES APPROXIMATELY 1.3 MGD OF PROCESS WATER WHICH IS RECYCLED FOR BOTTOM ASH SLUICING

- PONDS ARE CONSTRUCTED IN SAND WITH A PERMEABILITY OF 10^{-2} cm/SEC

- WATERSHED AREA IS 92 ACRES WHICH FORMERLY DISCHARGED TO WPDES 002 (AREA INCLUDES CLOSED FLY ASH LANDFILL AND BOTTOM ASH HANDLING AREA WEST OF GENERATING STATION

- SECONDARY ASH POND RECEIVES 40% OF RAINFALL FROM (0.4 × 92 ACRES = 37 ACRES). PRIMARY ASH POND RECEIVES (92 ACRES − 37 ACRES = 55 ACRES).

VOLUME OF DESIGN STORM (NO INFILTRATION)

PRIMARY ASH POND $55\text{ ACRES} \times 6.6\text{ IN} / 12\text{ IN/FT} = 30.25\text{ ACRE-FT}$

SECONDARY ASH POND $37\text{ ACRES} \times 6.6\text{ IN} / 12\text{ IN/FT} = 20.35\text{ ACRE-FT}$

HE&C
Harrington Engineering & Construction, Inc.

By TJH Date 7/20/16 Subject COLUMBIA STATION Sheet No. 2 of 2
Chk: Date ZERO DISCHARGE CCR PONDS Proj. # 154.018.012.005
1/4" x 1/4"

PRIMARY POND VOLUME

AREA @ 795' APPROXIMATELY 6.5 ACRES

IGNORING SIDE SLOPE VOLUME INCREASE
REQUIRED STORAGE = 30.25 AC-FT / 6.5 ACRES = 4.65 ft

FINAL ELEVATION = $795^{ft} + 4.65^{FT} = 799.7^{FT}$ (USE 799^{FT})
FREEBOARD = 804' − 799.' = 5 FEET

SECONDARY POND VOLUME

AREA @ 785' APPROXIMATELY 9.0 ACRES

IGNORING SIDE SLOPE VOLUME INCREASE
REQUIRED STORAGE = 20.35 ACRE-ft / 9.0 ACRES = 2.25^{Ft}

FINAL ELEVATION = $785^{FT} + 2.25^{ft} = 787.25'$ (USE 787^{FT})
FREEBOARD = 804' − 787' = 17 FEET