

# Closure Plan for CCR Surface Impoundments – Amendment No. 1 Primary Ash Pond Secondary Ash Pond

Columbia Energy Center  
W8375 Murray Road  
Pardeeville, Wisconsin 53954

Prepared for:

Wisconsin Power and Light Company  
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Pardeeville, Wisconsin 53954

**SCS ENGINEERS**

25220183.00 | November 11, 2020

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## PE CERTIFICATION

 <p>11/11/20</p>	<p>I, Eric J. Nelson, hereby certify the following:</p> <ul style="list-style-type: none"> <li>This Closure Plan meets the requirements of 40 CFR 257.102(b)(1)</li> <li>The final cover system described in this Closure Plan meets the design requirements in 40 CFR 257.102(d)(3)</li> </ul> <p>The Closure Plan was prepared by me or under my direct supervision, and I am a duly licensed Professional Engineer under the laws of the State of Wisconsin.</p>
	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">               (signature)         </div> <div style="text-align: center;">             11/11/2020              (date)         </div> </div>
	<p style="text-align: center;">Eric J. Nelson (printed or typed name)</p>
	<p>License number <u>  E-37855-6  </u></p> <p>My license renewal date is July 31, 2022.</p>
	<p>Pages or sheets covered by this seal:</p> <p style="text-align: center;"><b>All pages</b></p>
	<p> </p> <p> </p>

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## 1.0 INTRODUCTION AND PROJECT SUMMARY

On behalf of Wisconsin Power and Light Company (WPL), SCS Engineers (SCS) has prepared this amendment to the closure plan for the coal combustion residual (CCR) surface impoundments at the Columbia Energy Center (COL) as required by 40 CFR 257.102(b). Amendment No. 1 provides updates to the approach for closing the CCR surface impoundments that was described in the Closure Plan for CCR Surface Impoundments issued by Sargent & Lundy, LLC on September 14, 2016 (S&L 2016).

**40 CFR 257.102(b)** *“Written closure Plan – (1) Content of the plan. The owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit at any point during the active life of the CCR unit consistent with recognized and generally accepted good engineering practices. The written closure plan must include, at a minimum, the information specified in paragraphs (b)(1)(i) through (vi) of this section.”*

The COL facility includes two active unlined CCR units that are subject to the requirements of 40 CFR 257.102 and included in this closure plan. The CCR units include:

- COL Primary Ash Pond (existing CCR surface impoundment)
- COL Secondary Ash Pond (inactive CCR surface impoundment)

**Figure 1** shows the site location, and **Figure 2** shows the site layout and location of the Primary Ash Pond and Secondary Ash Pond. WPL is currently planning to close the CCR surface impoundments by removing the CCR and placing it in an onsite CCR landfill for disposal.

WPL is currently working to establish a site-specific alternative deadline for closure of the CCR surface impoundments at COL through the process defined in 40 CFR 257.103(f)(1). The alternative deadline will be established with the US Environmental Protection Agency’s (USEPA’s) pending approval of the CCR surface impoundment operating extension beyond April 11, 2021, as requested by WPL according to 40 CFR 257.103(f)(2).

In addition to this closure plan, WPL will develop design plans and obtain permits/approvals from the State of Wisconsin to close the CCR surface impoundments. Additional information on the COL Primary Ash Pond and COL Secondary Ash Pond is provided below.

### 1.1 PRIMARY ASH POND

The COL Primary Ash Pond is located north of the Columbia Energy Center plant (**Figure 2**). The COL Primary Ash Pond was constructed for the purpose of settling CCR from the COL process wastewater streams and clarification of water. Currently the COL Primary Ash Pond receives CCR and non-CCR wastestreams and water is recirculated back to the plant for reuse. The Primary Ash Pond is approximately 17.6 acres in size (Hard Hat, 2019).

### 1.2 SECONDARY ASH POND

The Secondary Ash Pond is located north of the Columbia Energy Center plant and east of the COL Primary Ash Pond (**Figure 2**). Historically the COL Secondary Ash Pond received bottom ash and economizer ash from the plant and water from the COL Primary Ash Pond. Currently, the COL Secondary Ash Pond receives storm water runoff from the surrounding area and does not receive

any other CCR or Non-CCR wastestreams. The COL Secondary Ash Pond is approximately 10.1 acres in size (Hard Hat, 2019).

## 2.0 PROPOSED CLOSURE PLAN NARRATIVE

**40 CFR 257.102(b)(1)(i)** *“A narrative description of how the CCR unit will be closed in accordance with this section.”*

The surface impoundments will be closed by removal of CCR as further described in **Section 3.0**. CCR will be placed in an onsite CCR landfill.

The Primary Ash Pond and Secondary Ash Pond closures will meet the requirements of the Federal CCR Rule and State Regulations. The closure will include the following tasks:

- Dewatering of ponds, where required to meet 40 CFR 257.102(d)(2)(i).
- Excavation of CCR from the surface impoundments.
- Hauling and placement of CCR from the surface impoundments into an onsite CCR landfill for disposal.
- Restoration of all areas disturbed during construction.

## 3.0 CCR REMOVAL

**40 CFR 257.102(b)(1)(ii)**. *“if closure of the CCR unit will be accomplished through removal of CCR from the CRR unit, a description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with paragraph (c) of this section.”*

*“(c) Closure by removal of CCR. An owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit. CCR removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to 257.95(h) for constituents listed in appendix IV to this part.”*

The COL Primary Ash Pond and the COL Secondary Ash Pond will be closed by CCR removal. The specific procedures used to remove the CCR from the unit will be determined during the design phase of the pond closures, but will likely include mechanical excavation, hydraulic dredging, or a combination of those approaches. Prior to excavation of CCR, the ponds will be dewatered. All dewatering discharges will be managed according to the individual Wisconsin Pollutant Discharge Elimination System (WPDES) permit for COL.

As of the date of this amendment, there have been no statistically significant groundwater monitoring results above the groundwater monitoring protection standards established for these ponds. Thus, it is anticipated that closure will be completed shortly after removal of the CCR from these units.

## 4.0 MAXIMUM INVENTORY OF CCR

**40 CFT 257.102(b)(1)(iv)**. *“An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.”*

The estimated maximum inventory of CCR ever on site in the COL Primary Ash Pond, over the active life of the pond, was estimated to be 900,000 cubic yards (cy) by Sargent and Lundy, LLC, in the 2016 Closure Plan (S&L 2016). Currently, the volume of CCR in the COL Primary Ash Pond is approximately 418,200 cy from the annual inspection report by Hard Hat Services on December 16, 2019 (Hard Hat, 2019).

The estimated maximum inventory of CCR ever on site in the COL Secondary Ash Pond, over the active life of the pond is 209,120 cy as provided by Sargent and Lundy, LLC, in the 2016 Closure Plan (S&L 2016). The maximum inventory is the same as the current volume of CCR in the COL Secondary Pond.

## **5.0 LARGEST AREA OF CCR UNIT REQUIRING FINAL COVER**

**40 CFR 257.102(b)(1)(v).** *“An estimate of the largest area of the CCR unit ever requiring a final cover as required by paragraph (d) of this section at any time during the CCR unit’s active life.”*

The COL Primary Ash Pond and COL Secondary Ash Pond will be closed by removing CCR in accordance with 40 CFR 257.102(c), which does not require final cover under paragraph (d). Therefore, this section is not applicable.

## **6.0 SCHEDULE OF SEQUENTIAL CLOSURE ACTIVITIES**

**40 CFR 257.102(b)(1)(vi).** *“A schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed.”*

The preliminary schedule for closure of the COL Primary Ash Pond and COL Secondary Ash Pond is provided in **Appendix A**.

## **7.0 COMPLETION OF CLOSURE ACTIVITIES**

**40 CFR 257.102(f)(1).** *“Except as provided for in paragraph (f)(2) of this section, the owner or operator must complete closure of the CCR unit:*

- (i) For existing and new CCR landfills and any lateral expansion of a CCR landfill, within six months of commencing closure activities.”*

This does not apply to the COL Primary Ash Pond or COL Secondary Ash Pond.

- (ii) “For existing and new CCR impoundments and any lateral expansion of a CCR surface impoundment, within five years of commencing closure activities.”*

Closure of the surface impoundments will be completed by mid-October 2023.

**40 CFR 257.102(f)(3).** *“Upon completion, the owner or operator of the CCR unit must obtain a certification from a qualified professional engineer verifying that closure has been completed in accordance with the closure plan specified in paragraph (b) of this section and the requirements of this section.”*

A qualified professional engineer will oversee CCR removal activities. The engineer will verify and oversee removal methods, any material testing, and restoration. At the end of construction, the



engineer will provide a report summarizing and documenting construction and will certify compliance with the requirements.

## **8.0 REFERENCES**

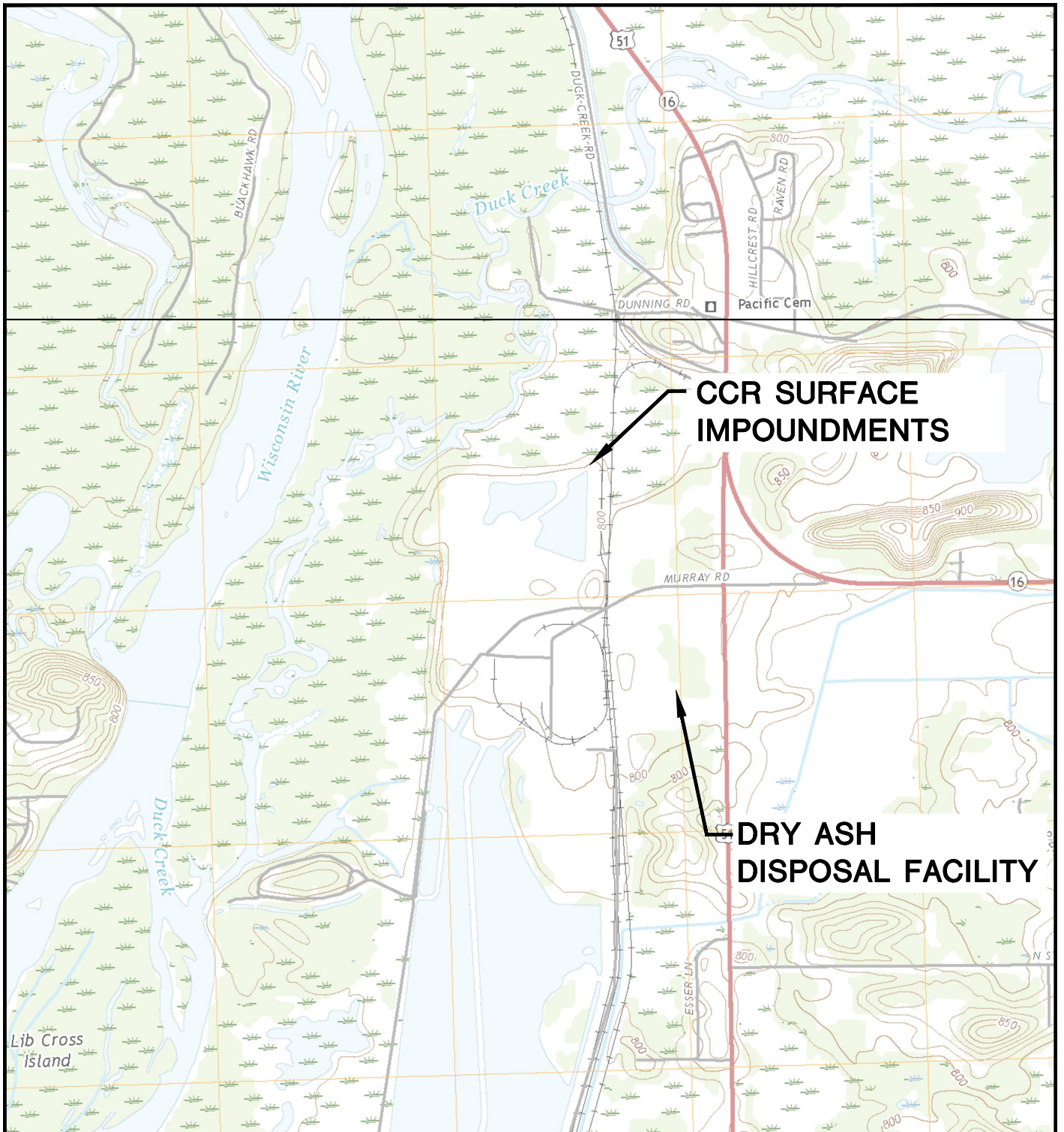
40 CFR Part 257, Subtitle D – Environmental Protection Agency Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities.

Hard Hat Services, 2019, CCR Surface Impoundment Annual Inspection Report, Columbia Energy Center, Wisconsin Power and Light Company, December 16, 2019.

Sargent & Lundy, 2016, Closure Plan for CCR Surface Impoundments, Columbia Energy Center, Wisconsin Power and Light Company, September 14, 2016.

## Figures

- 1 Site Location Map
- 2 Site Plan



**CCR SURFACE  
IMPOUNDMENTS**

**DRY ASH  
DISPOSAL FACILITY**

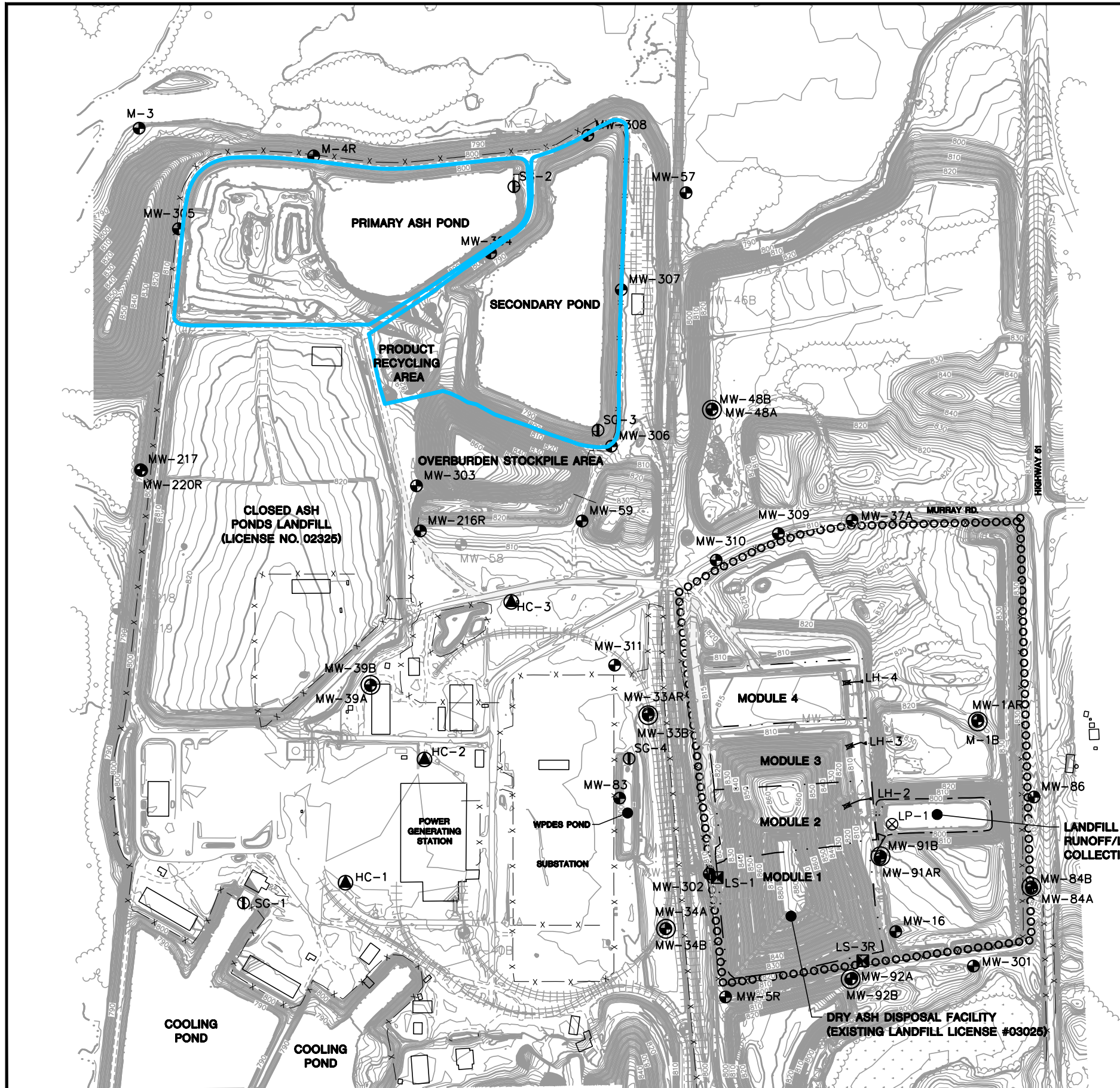


POYNETTE QUADRANGLE  
WISCONSIN-COLUMBIA CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)  
2018  
SCALE: 1" = 2,000'



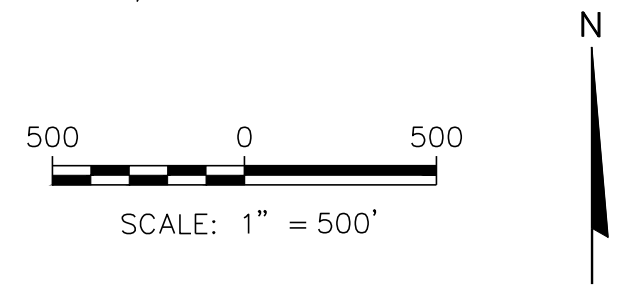
CLIENT	WISCONSIN POWER AND LIGHT COMPANY COLUMBIA ENERGY CENTER W8375 MURRAY ROAD PARDEEVILLE, WI 53954		SITE	WISCONSIN POWER AND LIGHT COLUMBIA ENERGY CENTER PARDEEVILLE, WI		ENGINEER	SITE LOCATION MAP	
	PROJECT NO.	25220067.00		DRAWN BY:	RJG		SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE
DRAWN:	12/02/2019	CHECKED BY:	PG	APPROVED BY:	EJN			
REVISED:	10/12/20							

I:\25220183.00\Drawings\1\_SITE LOCATION.dwg, 10/12/2020 11:43:24 AM



- LEGEND**
- EXISTING MAJOR CONTOUR (10' INTERVAL)
  - EXISTING MINOR CONTOUR (2' CONTOUR)
  - x - EXISTING FENCELINE
  - ||||| EXISTING TRACKS
  - ==== EXISTING PAVED ROAD
  - EXISTING UNPAVED ROAD
  - · - · - EDGE OF WATER
  - APPROVED LIMITS OF WASTE (DRY ASH LANDFILL)
  - · · - CONSTRUCTED LIMITS OF WASTE (CCR UNITS)
  - ⊕ WATER SUPPLY WELL
  - ⊙ STAFF GAUGE
  - ⊗ WATER TABLE WELL
  - ⊕ PIEZOMETER
  - ⊗ SURFACE WATER SAMPLE LOCATION
  - ⊠ LYSIMETER
  - ⊕ ABANDONED WATER TABLE WELL
  - ⊕ ABANDONED PIEZOMETER
  - ⚡ LEACHATE HEADWELL
  - CCR SURFACE IMPOUNDMENT

- NOTES:**
1. BASE MAP CREATED FROM AERIAL SURVEY BY KBM, FLOWN DECEMBER 1, 2014, AND GROUND SURVEY BY SCS ENGINEERS IN MAY 2016, JUNE 2016, OCTOBER 2016, NOVEMBER 2016, APRIL 2017, NOVEMBER 2017, JULY 2018, AUGUST 2018, FEBRUARY 2019, AND MAY 2019.
  2. MONITORING WELL LOCATIONS AND ELEVATIONS SURVEYED BY WISCONSIN POWER AND LIGHT, INC. IN DECEMBER 1994, NOVEMBER 1996, APRIL 2003, AND JANUARY 2016, AND BY SCS ENGINEERS IN FEBRUARY 2018.
  3. SUPPLY WELL LOCATIONS ARE APPROXIMATE AND ASSUMED BASED ON JANUARY 2013 DRAWINGS BY TRC.
  4. MONITORING WELLS MW-301 THROUGH MW-305 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 11-13, 2015.
  5. MONITORING WELLS MW-306 THROUGH MW-308 INSTALLED BY BADGER STATE DRILLING ON NOVEMBER 14-15, 2016.
  6. MONITORING WELLS MW-309 THROUGH MW-311 INSTALLED BY BADGER STATE DRILLING ON FEBRUARY 13-14, 2018.



PROJECT NO.	25220183.00	DRAWN BY:	RJG	<b>SCS ENGINEERS</b> 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT WISCONSIN POWER AND LIGHT COMPANY COLUMBIA ENERGY CENTER W8375 MURRAY ROAD PARDEEVILLE, WI 53954	SITE WISCONSIN POWER AND LIGHT COMPANY COLUMBIA ENERGY CENTER MODULE 4 DRY ASH DISPOSAL FACILITY PARDEEVILLE, WI	FIGURE 2
DRAWN:	12/02/2019	CHECKED BY:	MDB				
REVISED:	10/13/2020	APPROVED BY:	EJN				

Attachment A  
Pond Closure Schedule

Estimated Pond Closure Schedule  
Columbia Energy Center  
Wisconsin Power and Light Company

ID	Task Name	Duration	Start	Finish	2021												2022												2023																							
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec									
1	CCR Surface Impoundment Closure	771 days	Fri 10/30/20	Fri 10/13/23	[Gantt bar from Oct 2020 to Oct 2023]																																															
2	Landfill Unit Development for COL Secondary Ash Pond CCR	217 days	Tue 2/16/21	Wed 12/15/21	[Gantt bar from Feb 2021 to Dec 2021]																																															
3	Design	42 days	Tue 2/16/21	Wed 4/14/21	[Gantt bar from Feb 2021 to Apr 2021]																																															
4	Procurement	43 days	Thu 4/15/21	Mon 6/14/21	[Gantt bar from Apr 2021 to Jun 2021]																																															
5	Unit Construction	86 days	Tue 6/15/21	Tue 10/12/21	[Gantt bar from Jun 2021 to Sep 2021]																																															
6	Documentation and Local Approval	46 days	Wed 10/13/21	Wed 12/15/21	[Gantt bar from Oct 2021 to Dec 2021]																																															
7	Landfill Unit Development for COL Primary Pond CCR	527 days	Fri 10/30/20	Mon 11/7/22	[Gantt bar from Oct 2020 to Nov 2022]																																															
8	Design	259 days	Fri 10/30/20	Wed 10/27/21	[Gantt bar from Oct 2020 to Oct 2021]																																															
9	Procurement	67 days	Thu 10/28/21	Fri 1/28/22	[Gantt bar from Nov 2021 to Jan 2022]																																															
10	Unit Construction	127 days	Fri 5/13/22	Mon 11/7/22	[Gantt bar from May 2022 to Nov 2022]																																															
11	Impoundment Closure Construction	401 days	Fri 4/1/22	Fri 10/13/23	[Gantt bar from Apr 2022 to Oct 2023]																																															
12	COL Secondary Pond Closure	60 days	Fri 4/1/22	Thu 6/23/22	[Gantt bar from Apr 2022 to Jun 2022]																																															
13	COL Primary Pond Closure	140 days	Mon 4/3/23	Fri 10/13/23	[Gantt bar from Apr 2023 to Oct 2023]																																															