Closure Plan for Existing CCR Surface Impoundments

Prepared for Wisconsin Power and Light Company Edgewater Generating Station

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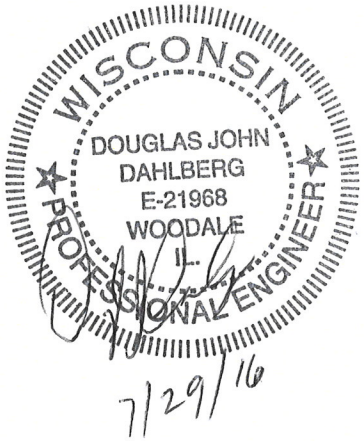

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LEGAL NOTICE

1. INTRODUCTION AND PURPOSE

> **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 [section 257.102]."*

Pursuant to 40 CFR 257.102(b), Sargent & Lundy (S&L), on behalf of Wisconsin Power and Light Company (WPL), has prepared the following Closure Plan for the four existing CCR surface impoundments – Slag Pond, A-Pond North, A-Pond South, B-Pond – at the Edgewater Generating Station located in Sheboygan, WI. WPL intends to close the four existing CCR surface impoundments by leaving the CCR in place and providing a final cover system in compliance with the requirements of 40 CFR 257.102(d). Concurrently with the closure of the four existing CCR surface impoundments, the C-Pond, a non-CCR surface impoundment, will also be closed such that all surface impoundments west of Lake Shore Drive are closed at one time.[1] An annotated aerial photograph of the Station's surface impoundments located west of Lakeshore Drive is included in Figure 1 for reference.

Figure 1: Edgewater Generating Station Surface Impoundments Located West of Lakeshore Dr.

[1] Since C-Pond is not a CCR surface impoundment, its closure will not be detailed further in this report.

2. CLOSURE PLAN NARRATIVE DESCRIPTION

40 CFR 257.102(b)(1)(i) – *"A narrative description of how the CCR unit will be closed in accordance with [section 257.102]."*

The Edgewater Generating Station consists of three coal-fired units – Units 3 (retired), 4 and 5. The first step to closure of the Station's CCR surface impoundments will be to reroute, cap and/or remove all existing CCR discharge piping from Units 3, 4, or 5 to the existing CCR surface impoundments. The slag discharge pipes which discharge into the Slag Pond will be partially removed, and the abandoned portion to remain capped. Wastewater discharge pipes, which currently discharge into A-Ponds North and South, will be partially removed and rerouted to recycle and/or discharge the wastewater into other permitted wastewater management ponds located elsewhere on site. Similarly, all interconnected culvert piping between the existing CCR surface impoundments will be removed.

Once the existing CCR surface impoundments cease to receive wastewater from the Station, the surface impoundments will be dewatered by routing the free liquids to C-Pond, then ultimately to Lake Michigan through WPDES Outfall 004. The outfall from B-Pond to C-Pond is an overflow weir structure that skims water from the surface of B-Pond. The elevation of this overflow weir will be adjusted incrementally downward until most of the water has been removed from the ponds. A temporary pump may be necessary to complete the dewatering process. As part of the low water level pumping activities, sediment and filtration BMPs will be employed so as to comply with NPDES limits. Some of this liquid may be retained for dust control or trucked offsite due to significant TSS. Additionally, portions of the interior dikes between the Slag Pond, the A-Ponds, and B-Pond may be removed to enhance the dewatering process. Free liquids will be removed to the extent possible, and the existing CCR materials within the CCR surface impoundments will be sufficiently stabilized as required to support the placement of the final fill and cover as required by 40 CFR 257.102(d)(2).

The site will be regraded to achieve final grades that optimize the soil material present near the existing CCR surface impoundments and minimize the amount of borrowed soil to be relocated from offsite. First, the top portions of the interior and exterior dikes will be excavated and this reclaimed soil used to fill in the remaining available storage capacity of the four existing CCR surface impoundments. Next, fill material will be reclaimed from the surface of the Slag Stockpile Area. Any beneficial use material piled on the surface of the Slag Stockpile Area will be transferred offsite prior to commencing the pond closure activities. It is anticipated that the surface of the Slag Stockpile Area has been impacted with CCR; therefore, the top layer of soil within this area will be relocated to the existing CCR surface impoundments to be used as fill and assist in forming the final grades. All fill will be placed in 2 foot layers and compacted appropriately. During detailed design, the design engineer will determine the required level of compaction and final grades and confirm slope stability of the final grades.

Finally, a final cover system will be placed over the graded CCR material, which includes the Slag Stockpile Area, as required per 40 CFR 257.102(d)(3). The intended final cover system is described in Section 3.

3. FINAL COVER SYSTEM DESCRIPTION

40 CFR 257.102(b)(1)(iii) – *"If the closure of the CCR unit will be accomplished by leaving CCR in place, a description of the final cover system designed in accordance with paragraph (d) of [section 257.102], and methods and procedures to be used to install the final cover. The Closure Plan must also discuss how the final cover system will achieve the performance standards specified in paragraph (d) of [section 257.102]."*

The final cover system shall meet the minimum requirements of 40 CFR 257.102(d)(3)(i)(A) thru (D). It shall consist, from bottom to top, of a compacted 18" thick "infiltration layer" of appropriate low-permeability material having a hydraulic conductivity of no more than 10^{-5}cm/s, followed by a 6" thick "erosion layer" of uncompacted soil capable of sustaining a vegetative cover, with a suitable seed mixture.

The existing CCR material located within the impoundments will be stabilized, graded, and compacted as required to be able to support the overlying materials of the final cover system. The overlying materials will be placed and compacted so as to minimize infiltration, limit erosion and future maintenance, and maintain positive drainage. Soil properties, compaction, permeability, and thickness testing will be performed to confirm compliance with the Rule. Final surface slopes will be designed to accommodate settling and subsidence while maintaining proper drainage. Regular maintenance of the seeding will take place until the vegetative cover is established and self-sustaining, in order to limit erosion of the topmost layer.

All other areas that are disturbed during the surface impoundment closure activities will be restored, either by providing a vegetative cover or an aggregate surface.

4. MAXIMUM INVENTORY OF CCR ESTIMATE

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

A conservative estimate of the maximum inventory of CCR ever stored within the Station's CCR surface impoundments can be calculated by summing together the volume of the previously closed ash landfill (see Figure 1) and the total storage capacity of the existing CCR surface impoundments assuming that each CCR surface impoundment was at one time completely filled up to the top of existing dike elevations. Understanding that the perimeter berms were constructed with native soils, a conservative estimated volume of the maximum CCR ever stored on site is approximately 1,044,000 cubic yards. Given that the existing CCR surface impoundments have never been completely filled with CCR, it can be confidently concluded that the actual amount of CCR ever stored within the Station's CCR surface impoundments is less than the above value. Table 1 provides a breakdown of this estimated maximum volume for each impoundment and the previously closed ash landfill.

TABLE 1: ESTIMATED MAXIMUM QUANTITY OF CCR PER IMPOUNDMENT/AREA

Impoundment/Area	Estimated Maximum Quantity of CCR (cy)
Slag Pond	72,000
A-Pond North	83,000
A-Pond South	83,000
B-Pond	115,000
Previously Closed Ash Landfill (Includes Slag Stockpile Area)	691,000

5. FINAL COVER SURFACE AREA ESTIMATE

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 [section 257.102] at any time during the CCR unit's active life."*

The final cover system required to close the CCR surface impoundments will encapsulate an area of roughly 16.6 acres, which includes the Slag Stockpile Area and areas adjacent to the existing dike crests. Table 2 provides a breakdown of this estimated value.

TABLE 2: ESTIMATED SURFACE AREAS REQUIRING THE FINAL COVER SYSTEM

Area Requiring Final Cover System	Estimated Surface Area (acres)
Slag Pond	2.2
A-Pond North	2.6
A-Pond South	2.6
B-Pond	4.8
Slag Stockpile Area	4.4

6. SCHEDULE

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."*

Closure of the existing CCR surface impoundments is anticipated to require approximately 22 months. The schedule provided in Table 3 assumes an initiation date of January 1, 2020 with completion of closure by November 1, 2021.

TABLE 3 – PLANNING LEVEL SCHEDULE FOR CLOSURE OF EXISTING CCR SURFACE IMPOUNDMENTS

Task Description	Anticipated Start Date	Anticipated Completion Date
Place this Initial Closure Plan in the Station's Operating Record	10/16/2016	10/16/2016
Post this Document to the Station's Internet Web Site and Send to the Relevant State Director a Notification of Availability of this Written Closure Plan	10/16/2016	11/16/2016
Place a Post-Closure Care Plan in the Station's Operating Record	10/16/2016	10/16/2016
Post to the Station's Internet Web Site and Send to the Relevant State Director a Notification of Availability of A Written Post-Closure Care Plan	10/16/2016	11/16/2016
Initiation of Close-In-Place Operation	01/01/2020	01/01/2020
Place a Notification of Intent to Close the Existing CCR Surface Impoundments in the Station's Operating Record	01/01/2020	01/01/2020
Post to the Internet Web Site and Send to the Relevant State Director a Notification of Intent to Close the Existing CCR Surface Impoundments	01/01/2020	01/31/2020
Preparation of Bid Documents	01/01/2020	04/01/2020
Bids Due	09/01/2020	09/01/2020
Issue Award and Notice to Proceed	11/01/2020	11/01/2020
Preparation of SWPPP and other State and Local Municipality Permits	11/08/2020	02/28/2021
Contractor Mobilization	03/15/2021	03/15/2021
Dewatering and Stabilization of Existing CCR Surface Impoundments	04/01/2021	04/30/2021
Re-grading and Placement of Fill within the Existing CCR Surface Impoundments	05/01/2021	08/01/2021
Placement of Final Cover Material	06/01/2021	09/01/2021
Completion of Final Site Grading and Vegetation	08/01/2021	10/01/2021
Independent Visual Verification of Close-In-Place Operation Completion	08/01/2021	10/01/2021
Place a Notification of Pond Closure Completion in the Station's Operating Record	10/01/2021	11/01/2021
Post to the Station's Internet Web Site and Send to the Relevant State Director a Notification of Closure Completion	10/01/2021	11/01/2021
Record a Notation of the CCR Impoundment Closure on the Deed of the Property	10/01/2021	11/01/2021
Place a Notification of the Deed Notation in the Station's Operating Record	10/01/2021	11/01/2021
Post to the Station's Internet Web Site and Send to the Relevant State Director a Notification of the Deed Notation	10/01/2021	11/01/2021
Place a Notification of Completion of the Post-Closure Care in the Station's Operating Record	10/01/2051	11/01/2051
Post to the Station's Internet Web Site and Send to the Relevant State Director a Notification of Completion of the Post-Closure Care	10/01/2051	11/01/2051

7. COMPLETION OF CLOSURE ACTIVITIES

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 [section 257.102] and the requirements of [section 257.102]."*

To confirm completion of the close-in-place operation, WPL will retain an qualified professional engineer licensed in the State of Wisconsin to verify that the existing CCR surface impoundments have been closed in accordance with this closure plan and the requirements of 40 CFR 257.102(d). The qualified professional engineer will provide WPL with a written certification stating compliance as required in 40 CFR 257.102(f)(3).

8. CERTIFICATIONS

40 CFR 257.102(b)(4) – *"The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the initial and any amendment of the written closure plan meets the requirements of [section 257.102]."*

It is S&L's opinion that this written closure plan meets the requirements of 40 CFR 257.102(b).

40 CFR 257.102(d)(3)(iii) – *"The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the design of the final cover system meets the requirements of [section 257.102]."*

It is S&L's opinion that the proposed final cover system as described herein meets the design requirements specified by 40 CFR 257.102(d)(3).

9. REFERENCES

1. 40 CFR Part 257; Environmental Protection Agency Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule, Federal Register, Vol. 80, No. 74, Friday, April 17, 2015, as amended by the Technical Amendments published in the Federal Register on July 2, 2015 Page 37988.
2. "Edgewater Generating Station – Ash Management Area." 43°42'42.95"N and 87°42'46.93" W. GOOGLE EARTH PRO v.6.2. June 1, 2015. September 10, 2015.