Annual CCR Surface Impoundment Inspection -
Slag Pond
North Pond A
South Pond A
Pond B

Edgewater Generating Station
3739 Lakeshore Drive
Sheboygan, Wisconsin 53081

Prepared for:

Wisconsin Power and Light Company
Edgewater Generating Station
3739 Lakeshore Drive
Sheboygan, Wisconsin 53081

SCS ENGINEERS

25220121.00 | December 18, 2020

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PE CERTIFICATION

I, Phillip E. Gearing, hereby certify that this Annual CCR Surface Impoundment Inspection Report meets the requirements of 40 CFR 257.83(b)(2), was prepared by me or under my direct supervision, and that I am a duly licensed Professional Engineer under the laws of the State of Wisconsin.

(signature) 12/18/20 (date)

PHILLIP GEARING

(printed or typed name)

License number E-45115

My license renewal date is August 30, 2022.

Pages or sheets covered by this seal:

ALL - ANNUAL EDGEWATER CCR SURFACE IMPOUNDMENT INSPECTION

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1.0 INTRODUCTION

SCS Engineers (SCS) completed an annual inspection of the Wisconsin Power and Light Company (WPL) Edgewater Generating Station (EDG) surface impoundments in Sheboygan, Wisconsin. The annual inspection was completed on October 28, 2020, in accordance with the U.S. Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) rule, 40 CFR 257 Subpart D, in particular 257.83(b)(1).

1.1 PURPOSE

According to 40 CFR 257.83(b)(1), an annual inspection by a qualified professional engineer is required for all existing and new CCR surface impoundments and any lateral expansion of a CCR surface impoundment. The purpose of the annual inspection is to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:

- A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., CCR unit design and construction information required by 257.73(c)(1) and 257.74(c)(1), previous periodic structural stability assessments required under 257.73(d) and 257.74(d), the results of inspections by a qualified person, and results of previous annual inspections).

- A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit or appurtenant structures.

- A visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.

This report has been prepared in accordance with 40 CFR 257.83(b)(2) to document the annual inspection.

1.2 BACKGROUND

The EDG facility includes four existing CCR surface impoundments. The four surface impoundments are located on the same property and include:

- Slag Pond
- North Pond A
- South Pond A
- Pond B

WPL is in the process of closing the surface impoundments, and closure construction began in May 2020. During closure, the four impoundments remain existing CCR surface impoundments under the CCR rule. Based on the December 2019 CCR Surface Impoundment Annual Inspection Report, the inspection requirements in 40 CFR 257.83(b)(1) apply to the four CCR units listed above.

The CCR surface impoundments at the EDG facility are described in detail in the History of Construction report issued by Hard Hat Services (HHS) on September 21, 2016 (HHS, 2016).

Since the September 2018 retirement of Unit 4 and the installation of a dry ash handling system for Unit 5, the CCR surface impoundments have not received additional CCR. At the time of the inspection in October 2020, closure construction was in process and none of the impoundments were receiving additional CCR or wastewater generated by the EDG facility at the time of our inspection.

All four impoundments are scheduled to be closed by the end of 2020 in accordance with the June 3, 2020, Closure Plan for Existing CCR Surface Impoundments - Amendment No. 1 (SCS, 2020), the requirements of the CCR Rule, and approvals received from the Wisconsin Department of Natural Resources. As of the date of this report, all CCR is located under a low permeability soil or other final cover system and topsoil placement is ongoing. Final certification of the pond closures is anticipated soon.

2.0 SUMMARY OF RESULTS AND RECOMMENDATIONS

SCS identified no deficiencies or releases during the annual inspection of the CCR surface impoundments at EDG. Deficiencies and releases must be remedied by the owner or operator as soon as feasible and the remedy documented.

In addition, SCS did not identify any conditions during the annual inspection that, in our opinion, have the potential to become a deficiency if left unaddressed.

3.0 SURFACE IMPOUNDMENT INSPECTION

Mr. Phillip Gearing of SCS completed an annual inspection of active CCR surface impoundments at EDG including Slag Pond, North Pond A, South Pond A, and Pond B on October 28, 2020. Mr. Gearing is a licensed professional engineer in Wisconsin and holds a Bachelor's of Science degree in Geological Engineering. He has over 14 years of experience in the design, construction, and operation of solid waste disposal facilities and impoundments.

The scope of the annual inspection is described in Sections 3.1 and 3.2. The results of the annual inspection are discussed in Section 4.0.

3.1 OPERATING RECORD REVIEW

SCS reviewed the available information in the operating record for EDG. Information reviewed by SCS included operating record materials provided by WPL and the information posted on Alliant Energy's CCR Rule Compliance Data and Information website for the EDG facility.

3.2 VISUAL INSPECTION

SCS completed a visual inspection of the Slag Pond, North Pond A, South Pond A, and Pond B to identify signs of distress or malfunction of the CCR unit. The hydraulic structures passing through the impoundments embankments had been removed or abandoned as part of closure construction activities to date. The CCR surface impoundments are being closed with CCR remaining in place and final cover subgrade elevations are being established through regrading of the site and import of non-CCR fill materials. At the time of inspection, the impoundments were partially filled (Pond B) or completely filled (North Pond A, South Pond A, and Slag Pond) to planned final cover subgrade elevations. Therefore, an inspection of the structural integrity and continued safe and reliable operation of the former hydraulic structures could not be completed per 40 CFR 257.83(b)(1)(iii).

4.0 INSPECTION RESULTS

The results of the annual inspection are summarized in the following sections.

4.1 CHANGES IN GEOMETRY

The interior geometry of the four impoundments has changed significantly during the closure construction from that described in the operating record documents and previous annual inspection reports. At the time of the inspection the Slag Pond, North Pond A, and South Pond A have been filled with on-site CCR or other non-CCR fill materials, and Pond B had been partially filled to create the subgrade for a final cover system.

The exterior geometry of the impoundments embankments has been modified during closure construction along the north, east and south boundaries. The embankment elevations have been lowered and the exterior slopes flattened to approximately 3H:1V to 4H:1V.

4.2 INSTRUMENTATION

No instrumentation remains at the impoundments. Based on the previous annual inspection report, instrumentation supporting the impoundment operation included:

- A flow meter
- 4 staff gauges

The listed instrumentation has been removed as part of the closure construction.

The impoundments were dewatered during closure construction. Each impoundment was dewatered, if water was present, to prepare the impoundments for the placement of fill materials required to create the subgrade for a final cover system. The dewatering and treatment system was equipped with a separate flow meter. Treated water from the impoundment dewatering operations was discharged in accordance with the EDG facility Wisconsin Pollutant Discharge Elimination System (WPDES) permit.

4.3 IMPOUNDED WATER AND CCR CONDITIONS

The approximate minimum, maximum, and October 28, 2020, impounded water depths and elevations of the impoundments since the previous annual inspection are summarized below.

Surface Impoundment	Minimum Water Depth (feet)	Maximum Water Depth (feet)	Current Water Depth (feet)
Slag Pond	0	0	0
North Pond A	0	0	0
South Pond A	0	0.9	0
Pond B	0	0.62	0

Surface Impoundment	Minimum Water Elevation (feet amsl)	Maximum Water Elevation (feet amsl)	Current Water Elevation (feet amsl)
Slag Pond	Dry	605.00*	Dry**
North Pond A	Dry	605.00*	Dry**
South Pond A	Dry	608.72	Dry**
Pond B	Dry	598.91	Dry**

amsl = above mean sea level
* = approximate bottom of impoundment elevation
** = impoundment has been dewatered and backfilled for closure

Depths and elevations summarized above are based on staff gauge readings recorded by WPL during 7-day inspections over the period of August 28, 2019, through October 28, 2020, and top of sediment elevations from the 2015 and 2016 bathymetric survey.

4.4 CURRENT STORAGE CAPACITY

The impoundments were in the process of closure construction; therefore, there was no operational storage capacity in the Slag Pond, North Pond A, and South Pond A. Pond B had some limited storage capacity at the time of inspection.

Surface Impoundment	Estimated Volume of Impounded Water (cubic yards)	Estimated Storage Capacity (cubic yards)	Basis for Estimate and Source
Slag Pond	0	0	CCR unit was dry at the time of inspection and had been filled with CCR, onsite fill and imported fill.
North Pond A	0	0	CCR unit was dry at the time of inspection and had been filled with CCR, onsite fill and imported fill.
South Pond A	0	0	CCR unit was dry at the time of inspection and had been filled with CCR, onsite fill and imported fill.
Pond B	~0	9,673	CCR unit was nearly dry at the time of inspection. Limited standing water due to recent rain. The pond had been filled with CCR, onsite fill and imported fill. There remained approximately 2 feet of freeboard in the pond limits at the time of the inspection.

4.5 VOLUME OF IMPOUNDED WATER AND CCR

A change in the impounded CCR volume is anticipated based on the closure activities of the CCR surface impoundments. The volume of impounded CCR and water is summarized below based on the CCR volumes reported in the 2019 Annual Inspection and the conditions at the time of the current annual inspection.

CCR Unit	Estimated Volume of Impounded CCR - Previous Annual Inspection Report (cubic yards)	Estimated Volume of Impounded CCR and non-CCR Fill– Current Inspection (cubic yards)	Basis for Estimate and Source
Slag Pond	40,300	41,500	Estimated volume of impounded CCR from the previous annual inspection. The Slag Pond was dry at the time of inspection on October 28, 2020, and has been filled with excavation materials from Pond C, on-site CCR, on-site fill, and imported fill (1,200 cy) to reach cover system subgrade.
North Pond A	54,500	61,400	Estimated volume of impounded CCR from the previous annual inspection. The North Pond A was dry at the time of inspection on October 28, 2020, and has been filled with on-site CCR, fill, and imported fill (6,900 cy) to reach cover system subgrade.
South Pond A	63,800	69,500	Estimated volume of impounded CCR from the previous annual inspection. The South Pond A was dry at the time of inspection on October 28, 2020, and has been filled with on-site CCR, fill, and imported fill (5,700 cy) to reach cover system subgrade.
Pond B	31,000	57,400	Estimated volume of impounded CCR from the previous annual inspection. Pond B was dry at the time of inspection on October 28, 2020, and has been filled with on-site CCR, fill, and imported fill (26,400 cy) to a level approximately 2 feet below subgrade.

4.6 APPEARANCE OF STRUCTURAL WEAKNESS

The inspection included a review of the appearance of an actual or potential structural weakness of the CCR units. The visual inspection included a review of CCR fill areas including the top slopes, internal side slopes, external side slopes, and internal ramps/haul roads for the presence of the following conditions:

- Seepage
- Signs of surface movement or instability
  - Sloughing, slumping, or sliding
  - Surface cracking
  - Excessive settlement
- Inappropriate vegetation growth
- Animal burrows
- Erosion damage

- Failing riprap
- Failing outlet or outfall structures

4.6.1 Seepage

No active seeps or signs of seepage such as open pathways in slopes or around outlet pipes, boils, or sinkholes were noted during the inspection.

4.6.2 Sloughing, Slumping, or Sliding

No sloughing, slumping, or sliding of the impoundment embankments were noted during the inspection.

4.6.3 Surface Cracking

No surface cracking of the impoundment embankments were noted during the inspection.

4.6.4 Excessive Settlement

No excessive settlement was noted during the inspection.

4.6.5 Inappropriate Vegetation Growth

No inappropriate vegetation growth impacting the CCR unit was noted during the inspection of the impoundments.

4.6.6 Animal Burrows

No animal activity affecting the stability of the impoundments was noted during the inspection.

4.6.7 Erosion Damage

No erosion damage of the impoundment embankments indicative of structural weakness was noted during the inspection.

4.6.8 Failing Riprap

No failing riprap was noted during the inspection of the impoundments.

4.6.9 Failing Outlet or Outfall Structures

No failing outlet or outfall structures were noted during the inspection of the impoundments.

4.7 DISRUPTIVE CONDITIONS

4.7.1 Existing Disruptive Conditions

4.7.1.1 Current Inspection

No existing conditions that were disrupting the operation and safety of the CCR units were noted during the annual inspection.

4.7.1.2 Previous Inspection

No existing conditions that were disrupting the operation and safety of the CCR units were noted during the previous inspection.

4.7.2 Potentially Disruptive Conditions

4.7.2.1 Current Inspection

No potentially disruptive conditions were noted during the inspection of CCR surface impoundments.

4.7.2.2 Previous Inspection

No potentially disruptive conditions were noted during the inspection of the CCR surface impoundments in the previous annual inspection.

4.8 OTHER CHANGES SINCE PREVIOUS ANNUAL INSPECTION

The CCR surface impoundments are no longer operating. The site is currently under construction for closure of the impoundments. Vibrating wire piezometers were installed before construction activities began and were monitored throughout closure construction for stability issues. Based on observations made on October 28, 2020, there was no visual evidence that indicated the modifications to the impoundments made during closure construction had affected the stability of the impounding structures.

5.0 FUTURE INSPECTIONS

5.1 EXISTING CCR SURFACE IMPOUNDMENTS

As stated in 40 CFR 257.83(b)(4), the owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the inspection report is the basis for establishing the deadline to complete the next subsequent inspection. Any required inspection may be conducted prior to the required deadline, provided the owner or operator places the completed inspection report into the facility's operating record, within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. The owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record.

The next annual inspection of the CCR surface impoundments (Slag Pond, North Pond A, South Pond A, and Pond B) must be completed within 1 year of the placement of this inspection report in the operating record for the facility; however, if the impoundments complete closure before the inspection is due, then no additional inspections are necessary.

6.0 REFERENCES

Hard Hat Services (HHS), 2016, History of Construction Report, Wisconsin Power and Light Company, Edgewater Generating Station. September 21, 2016.

SCS Engineers (SCS), 2020, Closure Plan for Existing CCR Surface Impoundments - Amendment No. 1, Wisconsin Power and Light Company, Edgewater Generating Station, June 3, 2020.