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Wisconsin Power and Light Company

Columbia Energy Center

CCR Surface Impoundment Annual Inspection Report

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Executive Summary

This annual inspection report has been prepared in accordance with the requirements of the United States Environmental Protection Agency published Final Rule for Hazardous and Solid Waste Management System – Disposal of Coal Combustion Residual (CCR) from Electric Utilities (40 CFR Parts 257 and 261, also known as CCR Rule) and Extension of Compliance Deadlines for Certain Inactive Surface Impoundments.

This annual inspection report has been prepared to assess the condition of existing and inactive CCR surface impoundments. Primarily, the annual inspection report is focused on the structural stability of the CCR surface impoundments and to ensure that the operation and maintenance of the CCR surface impoundments is in accordance with recognized and generally accepted good engineering standards.

After conducting the annual inspection, as well as review of available information provided by Wisconsin Power and Light Company pertaining to the status and condition of the CCR surface impoundments, and discussions with facility personnel who oversee and maintain the operation, maintenance, and inspection activities of the CCR surface impoundments, there are no operating deficiencies and there have been no changes that have affected the stability or operation of the CCR surface impoundments since the previous annual inspection. The surface impoundments no longer receive process water or CCR materials.

Since the previous annual inspection, the plant has initiated closure activities for the COL Primary Ash Pond and continued closure activities for the COL Secondary Ash Pond, which include removal of the CCR and placement within the onsite landfill.

Table of Contents

1. INTRODUCTION.....	2
1.1 CCR Rule Applicability.....	2
1.2 Annual Inspection Applicability.....	2
2. ANNUAL INSPECTION REPORTING CRITERIA.....	4
2.1 COL Primary Ash Pond.....	4
2.1.1 Changes in Geometry (§257.83(b)(2)(i)).....	4
2.1.2 Existing Instrumentation (§257.83(b)(2)(ii)).....	4
2.1.3 Depth and Elevation of Impounded CCR and Water (§257.83(b)(2)(iii)).....	5
2.1.4 Storage Capacity of Impounding Structure (§257.83(b)(2)(iv)).....	6
2.1.5 Volume of Impounded CCR and Water (§257.83(b)(2)(v)).....	6
2.1.6 Structural Weaknesses and Disruptive Conditions (§257.83(b)(2)(vi)).....	6
2.1.7 Other Changes Affecting Stability or Operation of Impounding Structure (§257.83(b)(2)(vii)).....	7
2.2 COL Secondary Ash Pond.....	7
2.2.1 Changes in Geometry (§257.83(b)(2)(i) and §257.100(a)).....	7
2.2.2 Existing Instrumentation (§257.83(b)(2)(ii) and §257.100(a)).....	7
2.2.3 Depth and Elevation of Impounded CCR and Water (§257.83(b)(2)(iii)).....	8
2.2.4 Storage Capacity of Impounding Structure (§257.83(b)(2)(iv)).....	8
2.2.5 Volume of Impounded CCR and Water (§257.83(b)(2)(v)).....	8
2.2.6 Structural Weaknesses and Disruptive Conditions (§257.83(b)(2)(vi) and §257.100(a)).....	8
2.2.7 Other Changes Affecting Stability or Operation of Impounding Structure (§257.83(b)(2)(vii) and §257.100(a)).....	9
3. CERTIFICATION.....	10

1. INTRODUCTION

This annual inspection report has been prepared in accordance with the requirements of §257.83(b) and §257.100(a) of the United States Environmental Protection Agency (USEPA) published Final Rule for Hazardous and Solid Waste Management System – Disposal of Coal Combustion Residual (CCR), herein referenced as the CCR Rule.

1.1 CCR Rule Applicability

The CCR Rule requires annual inspections by a qualified professional engineer (PE) for both existing and inactive CCR surface impoundments with a height of 5 feet or more and a storage volume of 20 acre-feet or more or the CCR surface impoundment has a height of 20 feet or more (40 CFR §§ 257.73(b), 257.73(d), 257.83(b) and 257.100(a)).

1.2 Annual Inspection Applicability

The Wisconsin Power and Light Company (WPL), Columbia Energy Center (COL) in Pardeeville, Wisconsin has two CCR surface impoundments that meet the requirements of Section 1.1. They are identified as the COL Primary Ash Pond (existing) and the COL Secondary Ash Pond (inactive). The 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 annual inspection of the CCR surface impoundments at COL was completed by a qualified PE on September 21st, 2023. The annual inspection was completed to ensure that the design, construction, operation, and maintenance of the CCR surface impoundments at COL are consistent with recognized and generally accepted good engineering standards.

The annual inspection of the CCR surface impoundments at COL included a review of available information regarding the status and condition of the CCR surface impoundments. The information reviewed included all relevant files available in the operating record at the time of the annual inspection, as well as the Alliant Energy CCR Rule Compliance Data and Information website entries for COL (ccr.alliantenergy.com). These files for the CCR surface impoundments at COL include, but are not limited to, CCR surface impoundment design and construction information (history of construction), hazard potential classification, structural stability assessment, safety factor assessment, hydrologic and hydraulic capacities (inflow flood control plan), results of 7-day inspections and instrumentation monitoring by a qualified person, and results of the previous annual inspection.

The annual inspection also included a visual inspection of the CCR surface impoundments to identify signs of distress or malfunction of the CCR surface impoundments and appurtenant structures. Additionally, the visual inspection included hydraulic structures underlying the base of the CCR surface impoundments or passing through the dikes of the CCR surface impoundments for structural integrity and continued safe and reliable operation.

2. ANNUAL INSPECTION REPORTING CRITERIA

The following sub-sections address the annual inspection reporting criteria per §257.83(b)(2) and §257.100(a) of the CCR Rule for the existing and inactive CCR surface impoundments located at COL.

2.1 COL Primary Ash Pond

2.1.1 Changes in Geometry (§257.83(b)(2)(i))

After conducting the annual inspection, as well as review of available information provided by COL pertaining to the status and condition of the existing CCR surface impoundment, and discussions with COL facility personnel who oversee and maintain the operation, maintenance, and inspection activities of the existing CCR surface impoundment, there have been no identified changes in the geometry since the previous annual inspection other than the closure activities.

2.1.2 Existing Instrumentation (§257.83(b)(2)(ii))

Instrumentation that supported the operation of the COL Primary Ash Pond included a submersible hydrostatic level transducer for monitoring water elevations in the eastern portion of the COL Primary Ash Pond (CCR settling pond area). The instrumentation equipment was in the northeast corner of the COL Primary Ash Pond. The submersible hydrostatic level transducer was installed in 2010 and provided measurement readings from the elevation of the ultrasonic gauge (805.16 feet) to the elevation of the water surface of the COL Primary Ash Pond. This system was removed during the closure activities.

The water elevation data from August 1, 2022 to June 16, 2023, from the submersible hydrostatic level transducer, was provided by WPL. The impoundment was dewatered after June 16, 2023 due to the closure activities. Recirculation of the ash sluice water ended in

October of 2022, while other inflows were permanently stopped in March of 2023. Reviewing the provided water elevation data, the maximum water elevation recorded within the COL Primary Ash Pond was 798.38 feet (November 28, 2022).

2.1.3 Depth and Elevation of Impounded CCR and Water (§257.83(b)(2)(iii))

The approximate minimum, maximum, and present depths and elevations of the impounded CCR and water in the COL Primary Ash Pond since the previous annual inspection were determined using information that was collected during the annual inspection, as well as from historical information that was previously provided from IPL.

- At the time of the annual inspection, water was not observed to be present within the COL Primary Ash Pond due to the dewatering from the closure activities. Therefore, the minimum and present depth and elevation of water within the CCR surface impoundment was unable to be recorded.
- From the 1975 original design drawing contours of the COL Primary Ash Pond, the original design bottom contour elevation of the CCR surface impoundment was approximately 780 feet. During the annual inspection, CCR was in the process of being removed and placed into the onsite landfill.
- From the submersible hydrostatic level transducer water surface elevation data provided by WPL since the previous annual inspection, the maximum water surface elevation within the eastern portion of the COL Primary Ash Pond was recorded to be 798.38 feet (November 28, 2022), 3.62 feet below the crest of the embankment of the CCR surface impoundment, which had an elevation of approximately 802 feet at the lowest point.

2.1.4 Storage Capacity of Impounding Structure (§257.83(b)(2)(iv))

The storage capacity (i.e. water volume) of the CCR surface impoundment at the time of the annual inspection was not estimated because the impoundment had been dewatered as part of the ongoing closure activities.

2.1.5 Volume of Impounded CCR and Water (§257.83(b)(2)(v))

The volume of impounded CCR and water (i.e. total volume, not including freeboard) within the COL Primary Ash Pond at the time of the annual inspection was not estimated because the impoundment had been dewatered as part of the ongoing closure activities. At the time of the annual inspection, the CCR was in the process of being removed and a determination of remaining CCR could not be obtained from the information provided.

2.1.6 Structural Weaknesses and Disruptive Conditions (§257.83(b)(2)(vi))

After review of available information provided by COL pertaining to the status and condition of the existing CCR surface impoundment, discussions with COL facility personnel who oversee and maintain the operation, maintenance, and inspection activities of the existing CCR surface impoundment, as well as conducting the on-site visual inspection of the existing CCR surface impoundment, there have been no identified appearances of an actual or potential structural weakness of the existing CCR surface impoundment. Additionally, there were no visual inspection issues with the structural integrity of the hydraulic structures (permanently closed 18-inch corrugated metal pipe) associated with the COL Primary Ash Pond.

Regarding the existing conditions of the COL Primary Ash Pond, there were no conditions identified along the upstream and downstream slopes of the embankments that were disrupting or have the potential to disrupt the operation and safety of the existing CCR surface impoundment.

2.1.7 Other Changes Affecting Stability or Operation of Impounding Structure (§257.83(b)(2)(vii))

After review of available information provided by COL pertaining to the status and condition of the CCR surface impoundment, as well as discussions with COL facility personnel who oversee and maintain the operation, maintenance, and inspection activities of the existing CCR surface impoundment, other than the closure activities, there have been no other identified changes that have affected the stability or operation of the COL Primary Ash Pond since the previous annual inspection.

2.2 COL Secondary Ash Pond

2.2.1 Changes in Geometry (§257.83(b)(2)(i) and §257.100(a))

After conducting the annual inspection, as well as review of available information provided by COL pertaining to the status and condition of the CCR surface impoundment, and discussions with COL facility personnel who oversee and maintain the operation, maintenance, and inspection activities of the CCR surface impoundment, there have been no identified changes in the geometry since the previous annual inspection. Closure activities have been initiated, which include removal of the CCR and placement of cover soil to fill a portion of the impoundment. Neither the footprint nor the embankment height had been modified.

2.2.2 Existing Instrumentation (§257.83(b)(2)(ii) and §257.100(a))

The COL Secondary Ash Pond does not have permanent instrumentation that supports the operation of the CCR surface impoundment. WPL has interviewed the staff who conducted the inspections and based on these interviews, no accumulated water was observed, and the impoundment was dewatered in September of 2021. CCR has been removed and placed into the onsite landfill. Therefore, no water elevations have been recorded within this impoundment.

2.2.3 Depth and Elevation of Impounded CCR and Water (§257.83(b)(2)(iii) and §257.100(a))

The approximate minimum, maximum, and present depths, and elevations of the impounded CCR and water in the COL Secondary Ash Pond since the previous annual inspection were determined using information that was collected during the annual inspection, as well as from historical information that was previously provided from WPL.

At the time of the annual inspection, CCR had been removed, fill material placed, and only a part of the impoundment had standing storm water. Water levels were not collected, due to the progress of the closure activities.

2.2.4 Storage Capacity of Impounding Structure (§257.83(b)(2)(iv) and §257.100(a))

The storage capacity (i.e. water volume) of the CCR surface impoundment at the time of the annual inspection couldn't be calculated because the impoundment was dewatered in September 2021. CCR has been removed and placed within the onsite landfill. Therefore, the storage capacity of impounding structure has not been calculated.

2.2.5 Volume of Impounded CCR and Water (§257.83(b)(2)(v) and §257.100(a))

The volume of impounded CCR and water (i.e. total volume, not including freeboard) within the COL Secondary Ash Pond at the time of the annual inspection was not determined because the CCR had been removed and placed into the onsite landfill.

2.2.6 Structural Weaknesses and Disruptive Conditions (§257.83(b)(2)(vi) and §257.100(a))

After review of available information provided by COL pertaining to the status and condition of the CCR surface impoundment, discussions with COL facility personnel who oversee and maintain the operation, maintenance, and inspection activities of the CCR surface impoundment, as well as conducting the on-site visual inspection of the CCR surface impoundment, there have been no identified appearances of an actual or potential structural

weakness of the CCR surface impoundment. Additionally, there were no visual inspection issues with the structural integrity of the hydraulic structures (permanently closed 18-inch corrugated metal pipe) associated with the COL Primary Ash Pond.

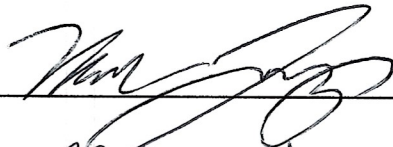
Regarding the existing conditions of the COL Secondary Ash Pond, there were no existing conditions identified along the upstream and downstream slopes of the embankments that were disrupting or have the potential to disrupt the operation and safety of the CCR surface impoundment.

2.2.7 Other Changes Affecting Stability or Operation of Impounding Structure (§257.83(b)(2)(vii) and §257.100(a))

After review of available information provided by COL pertaining to the status and condition of the CCR surface impoundment, as well as discussions with COL facility personnel who oversee and maintain the operation, maintenance, and inspection activities of the CCR surface impoundment, there have been no other identified changes that have affected the stability or operation of the COL Secondary Ash Pond since the previous annual inspection.

3. CERTIFICATION

To meet the requirements of 40 CFR §§ 257.83(b) and 257.100(a), 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 §§ 257.83(b) and 257.100(a).

By: 
Name: MARK LOEROP
Date: DEC 18, 2023

