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Wisconsin Power and Light Company

Edgewater Generating Station
CCR Surface Impoundment Annual Inspection Report
154.018.017.006
Report issued: November 28, 2018

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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 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 the Edgewater Generating Station pertaining to the status and condition of the existing CCR surface impoundments, and discussions with facility personnel who oversee and maintain the operation, maintenance, and inspection activities of the existing 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.

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1. INTRODUCTION

This annual inspection report has been prepared in accordance with the requirements of §257.83(b) 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 existing 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) and 257.83(b)).

1.2 Annual Inspection Applicability

The Wisconsin Power and Light Company (WPL), Edgewater Generating Station (EDG) in Sheboygan, Wisconsin has four existing CCR surface impoundments that meet the requirements of Section 1.1, identified as follows:

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

The annual inspection of the CCR surface impoundments at EDG was completed by a qualified PE on September 18th, 2018. The annual inspection was completed to ensure that the design, construction, operation, and maintenance of the CCR surface impoundments at EDG are consistent with recognized and generally accepted good engineering standards.

The annual inspection of the CCR surface impoundments at EDG 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 EDG (ccr.alliantenergy.com). These files for the CCR surface impoundments at EDG include, but is 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) of the CCR Rule for the existing CCR surface impoundments located at EDG.

2.1 EDG Slag 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 EDG pertaining to the status and condition of the existing CCR surface impoundment, and discussions with EDG 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.

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

Instrumentation that supports the operation of the EDG Slag Pond includes a staff gauge to monitor the water elevation of the CCR surface impoundment. The staff gauge, installed in October 2016, is in the southwest corner of the EDG Slag Pond adjacent to the hydraulic structure.

The staff gauge water elevation data, since the previous annual inspection, was provided by WPL. The staff gauge measurements were collected at the same time as the 7-day inspections. The water elevation data included measurements collected between October 4, 2017 and September 26, 2018. After review of the provided staff gauge water elevation data, the maximum water elevation recorded within the EDG Slag Pond was 606.45 feet (November 2017).

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 EDG Slag Pond since the previous annual inspection were determined using information that was collected during the annual inspection, information that was provided from WPL during the annual inspection, as well as from historical information that was previously provided from WPL.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG Slag Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data collected during the 2017 annual inspection was used in conjunction with information obtained during the annual inspection to approximate minimum, maximum, and present depths and elevations of the impounded CCR and water in the EDG Slag Pond.

Information collected at the time of the annual inspection included the water surface elevation of the CCR surface impoundment. The historical information provided from WPL included staff gauge water elevation data since the previous annual inspection, an ash pond evaluation prepared for EDG by Miller Engineers & Scientists (2011) which included soil boring data near the EDG Slag Pond, as well as the most recent topographic/bathymetric survey of the EDG Slag Pond completed by Cornerstone Surveying and Mapping (2016). Reviewing the information provided within the above-mentioned documents,

as well as the data collected during the annual inspection, the following minimum, maximum, and present depths and elevations were approximated for the impounded CCR and water:

- At the time of the annual inspection, the water surface elevation of the EDG Slag Pond was observed to have a staff gauge elevation of 606 feet, approximately 0.06 feet higher in elevation than that observed during the 2017 annual inspection. The water surface at the time of the annual inspection was approximately 3 feet below the crest of the north and east embankments of the CCR surface impoundment, which had an elevation of approximately 609 feet at the lowest point of the embankments.
- At the time of the prior annual inspection in 2017, the water depths that were measured within the CCR surface impoundment varied between 1.74 feet and 2.45 feet.

The water surface elevation at the time of the annual inspection was approximately 0.06 feet higher than the water surface elevation during the 2017 annual inspection, therefore, the water depths within the CCR surface impoundment would vary between 1.8 feet and 2.51 feet.

- From the water depth measurements that were collected at the time of the prior annual inspection in 2017, the elevation of the top of CCR/sediment that was measured in the area where water was present varied between an elevation of 604.2 feet and 603.5 feet.
- From staff gauge water surface elevation data provided by WPL since the previous annual inspection, the minimum water surface elevation

within the EDG Slag Pond was recorded to be below 605 feet which is below the lowest readable elevation on the staff gauge. The maximum water surface elevation within the EDG Slag Pond was recorded to be 606.45 feet (November 2017).

- From the 2011 ash pond evaluation, a soil boring installed along the south embankment of the EDG Slag Pond encountered CCR from the ground surface to a bottom elevation of approximately 589 feet. Based on the water depth measurements that were collected at the time of the prior annual inspection in 2017, the depth of the EDG Slag Pond varied between 604.2 feet and 603.5 feet. Comparing the results from the water depth measurements at the time of the 2017 annual inspection to the 2011 ash pond evaluation soil boring data, the deposition thickness in the area where water was present varied between 15.2 feet and 14.5 feet.

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 calculated based on the acreage of the CCR surface impoundment in the area where water was present, and the approximate depth of water within that area of the CCR surface impoundment.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG Slag Pond would not be required on an annual basis due to the minimal changes that have been observed within the

CCR surface impoundment. Therefore, field data collected during the 2017 annual inspection was used in conjunction with information obtained during the annual inspection to approximate the storage capacity of the CCR surface impoundment. The water depth measurement of the CCR surface impoundment was determined based on the observed staff gauge water elevation at the time of the annual inspection compared to the measured water depths collected at the time of the prior annual inspection in 2017.

From the 2016 topographic/bathymetric survey data of the EDG Slag Pond and the observed staff gauge water surface elevation at the time of the annual inspection, the area of the water surface of the CCR surface impoundment was approximately 0.63 acres. From the water depth data that was collected during the prior annual inspection in 2017, the average water depth within the CCR surface impoundment was approximately 2.21 feet. During the annual inspection the water surface elevation was observed to be 606 feet, approximately 0.06 feet higher in elevation than that observed in 2017. Therefore, the average water depth within the CCR surface impoundment at the time of the annual inspection was approximately 2.27 feet. Thus, the water volume within the EDG Slag Pond at the time of the annual inspection was approximately 2,300 cubic yards.

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 EDG Slag Pond at the time of the annual inspection was determined using information that was collected during the annual inspection, as well as from historical information that was previously provided from WPL.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG Slag Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data collected during the 2017 annual inspection was used in conjunction with information obtained during the annual inspection to approximate the volume of impounded CCR and water within the CCR surface impoundment.

Historical information provided from WPL included an ash pond evaluation prepared for EDG by Miller Engineers & Scientists (2011) which included soil boring data near the EDG Slag Pond, as well as the most recent topographic/bathymetric survey of the EDG Slag Pond completed by Cornerstone Surveying and Mapping (2016).

The water surface elevation within the CCR surface impoundment that was observed at the time of the annual inspection was 606 feet. From the 2016 topographic/bathymetric survey of the EDG Slag Pond, as well as the observed water elevation at the time of the annual inspection, the average elevation of the top of CCR/sediment outside the footprint of the water surface was approximately 607.5 feet. From the 2011 ash pond evaluation, a soil boring installed along the south embankment of the EDG Slag Pond encountered CCR from the ground surface to a bottom elevation of approximately 589 feet. Thus, the interior storage height of the EDG Slag Pond (water portion) was

approximately 17 feet and the interior storage height of the CCR/sediment located outside the footprint of the water surface was approximately 18 feet.

The surface area of the EDG Slag Pond, in the area where water was present, was approximately 0.63 acres. Thus, the volume of impounded CCR and water within the EDG Slag Pond, within the area where water was present, was approximately 17,300 cubic yards. The surface area of the EDG Slag Pond, in the area located outside of the footprint of the water portion, was approximately 0.87 acres. Thus, the volume of impounded CCR within the EDG Slag Pond, in the area located outside of the footprint of the water portion, was approximately 25,300 cubic yards. The total volume, not including freeboard, of impounded CCR and water within the EDG Slag Pond at the time of the annual inspection was approximately 42,600 cubic yards.

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

After review of available information provided by EDG pertaining to the status and condition of the existing CCR surface impoundment, discussions with EDG 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 identified issues with the structural integrity of the hydraulic structures (four feet wide concrete overflow weir and 48-inch diameter corrugated metal pipe) associated with the EDG Slag Pond.

Regarding the existing conditions of the EDG Slag 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 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 EDG pertaining to the status and condition of the existing CCR surface impoundment, as well as discussions with EDG facility personnel who oversee and maintain the operation, maintenance, and inspection activities of the existing CCR surface impoundment, there have been no other identified changes that have affected the stability or operation of the EDG Slag Pond since the previous annual inspection.

2.2 EDG North A-Pond

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

After conducting the annual inspection, as well as review of available information provided by EDG pertaining to the status and condition of the existing CCR surface impoundment, and discussions with EDG 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.

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

Instrumentation that supports the operation of the EDG North A-Pond includes a Parshall flume discharge structure and equipment to measure the flow of the combined discharged water of the EDG North A-Pond and EDG South A-Pond, as well as a staff gauge to monitor the water elevation of the EDG North A-Pond. The Parshall flume and flow metering equipment is located west of the EDG North A-Pond and EDG South A-Pond and is not associated with the

WPDES Outfall at EDG. Note, the hydraulic structure located in the southwest corner of the EDG North A-Pond has been plugged since the prior annual inspection in 2017, therefore, the Parshall flume flow data is associated with only the flow from the EDG South A-Pond.

The staff gauge is in the southwest corner of the CCR surface impoundment. The staff gauge water elevation data, since the previous annual inspection, was provided by WPL. The staff gauge measurements were collected at the same time as the 7-day inspections. The water elevation data included measurements collected between October 04, 2017 and September 26, 2018. After review of the provided staff gauge water elevation data, the maximum water elevation recorded within the EDG North A-Pond was 607.37 feet (November 2017). Note, there was no available staff gauge water elevation data available for review after the January 17, 2018 7-day inspection as the water surface elevation within the EDG North A-Pond had receded below the lowest readable elevation on the staff gauge, which was an elevation of 605.85 feet.

2.2.3 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 EDG North A-Pond since the previous annual inspection were determined using information that was collected during the prior annual inspection in 2017, information that was provided from WPL during the annual inspection, as well as from historical information that was previously provided from WPL.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface

elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG North A-Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data collected during the prior annual inspection in 2017 was used in conjunction with information provided by WPL during the annual inspection to approximate minimum, maximum, and present depths and elevations of the impounded CCR and water in the EDG North A-Pond.

The historical information provided from WPL included staff gauge water elevation data since the previous inspection, an ash pond evaluation prepared for EDG by Miller Engineers & Scientists (2011) which included soil boring data near the EDG North A-Pond, as well as the most recent topographic/bathymetric survey of the EDG North A-Pond completed by Cornerstone Surveying and Mapping (2016). Reviewing the information provided within the above-mentioned documents, the following minimum, maximum, and present depths and elevations were approximated for the impounded CCR and water:

- At the time of the prior annual inspection in 2017, the water surface elevation of the EDG North A-Pond was surveyed to be 604.48 feet, approximately 6.52 feet below the crests of the surrounding embankments of the CCR surface impoundment, which had an elevation of approximately 611 feet at the lowest point of the embankments.

Based on visual observation during the annual inspection, the water surface elevation appeared to be lower than that observed during the 2017 annual inspection.

- At the time of the prior annual inspection in 2017, the water depths within the CCR surface impoundment were estimated to be approximately 1.0 feet or less. The water depths were unable to be accurately measured at that time due to the significant reduction in the water elevation since the 2016 annual inspection. The reduction in the water elevation limited the ability to access the water depth measurement locations previously designated in 2016.

Based on visual observation during the annual inspection, the water surface elevation appeared to be lower than that observed during the 2017 annual inspection, which would result in an approximated water depth less than that observed during the 2017 annual inspection.

- From the estimated water depths at the time of the prior annual inspection in 2017, the elevation of the top of CCR/sediment in the area where water was present was at an elevation of approximately 603.48 feet.
- From staff gauge water surface elevation data provided by WPL since the previous annual inspection, the minimum water surface elevation within the EDG North A-Pond was recorded to be below 605.85 feet which is below the lowest readable elevation on the staff gauge. The maximum water surface elevation within the EDG North A-Pond was recorded to be 607.37 feet (November 2017).

- From the 2011 ash pond evaluation, soil borings installed along the north, west, and south embankments of the EDG North A-Pond encountered CCR from the ground surface to an average bottom elevation of approximately 588 feet. The depth of the EDG North A-Pond in the area where water was present was approximately 603.48 feet. Comparing the results from the water depth measurements at the time of the prior annual inspection in 2017 to the 2011 ash pond evaluation soil boring data, the deposition thickness in the area where water was present was approximately 15.48 feet.

2.2.4 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 calculated based on the acreage of the CCR surface impoundment in the area where water was present, and the approximate depth of water within that area of the CCR surface impoundment.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG North A-Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data that was collected during the prior annual inspection in 2017 was used in conjunction with information provided by WPL during the annual inspection to approximate the storage capacity of the CCR surface impoundment. The water depth measurement of the CCR surface impoundment was determined based on the surveyed water

elevation at the time of the prior annual inspection in 2017 compared to the measured water depths collected at the time of the prior annual inspection in 2017.

From the 2016 topographic/bathymetric survey data and the 2017 surveyed water elevation data, as well as observations made during the annual inspection, the area of the water surface of the CCR surface impoundment was approximately 0.5 acres. From the water depth data that was collected during the prior annual inspection in 2017, the average water depth within the CCR surface impoundment was estimated to be approximately 1.0 feet. Thus, the water volume within the EDG North A-Pond at the time of the annual inspection was approximately 800 cubic yards.

2.2.5 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 EDG North A-Pond at the time of the annual inspection was determined using information that was collected during the prior annual inspection in 2017, as well as from historical information that was previously provided from WPL.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG North A-Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data collected during the prior

annual inspection in 2017 was used in conjunction with information obtained during the annual inspection to approximate the volume of impounded CCR and water within the CCR surface impoundment.

Historical information provided from WPL included an ash pond evaluation prepared for EDG by Miller Engineers & Scientists (2011) which included soil boring data near the EDG North A-Pond, as well as the most recent topographic/bathymetric survey of the EDG North A-Pond completed by Cornerstone Surveying and Mapping (2016).

The surveyed elevation of the top of water within the CCR surface impoundment at the time of the prior annual inspection in 2017 was 604.48 feet. From the 2016 topographic/bathymetric survey of the EDG North A-Pond, as well as the surveyed water elevation at the time of the prior annual inspection in 2017, the average elevation of the top of CCR/sediment outside the footprint of the water surface was approximately 607.25 feet. From the 2011 ash pond evaluation, soil borings installed along the north, west, and south embankments of the EDG North A-Pond encountered CCR from the ground surface to an average bottom elevation of approximately 588. Thus, the interior storage height of the EDG North A-Pond (water portion) was approximately 16.48 feet and the interior storage height of the CCR/sediment located outside the footprint of the water surface was approximately 19.25 feet.

The surface area of the EDG North A-Pond, in the area where water was present, was approximately 0.5 acres. Thus, the volume of impounded CCR and water within the EDG North A-Pond, within the area where water was present, was approximately 13,300 cubic yards. The surface area of the EDG North A-Pond, in the area located outside of the footprint of the water portion,

was approximately 1.35 acres. Thus, the volume of impounded CCR within the EDG North A-Pond, in the area located outside of the footprint of the water portion, was approximately 42,000 cubic yards. The total volume, not including freeboard, of impounded CCR and water within the EDG North A-Pond at the time of the annual inspection was approximately 55,300 cubic yards.

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

After review of available information provided by EDG pertaining to the status and condition of the existing CCR surface impoundment, discussions with EDG 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 identified issues with the structural integrity of the hydraulic structure (18-inch diameter corrugated plastic pipe) associated with the EDG North A-Pond.

Regarding the existing conditions of the EDG North A-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 existing CCR surface impoundment.

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

After review of available information provided by EDG pertaining to the status and condition of the existing CCR surface impoundment, as well as discussions with EDG facility personnel who oversee and maintain the operation,

maintenance, and inspection activities of the existing CCR surface impoundment, there have been no other identified changes that have affected the stability or operation of the EDG North A-Pond since the previous annual inspection.

2.3 EDG South A-Pond

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

After conducting the annual inspection, as well as review of available information provided by EDG pertaining to the status and condition of the existing CCR surface impoundment, and discussions with EDG 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.

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

Instrumentation that supports the operation of the EDG South A-Pond includes a Parshall flume discharge structure and equipment to measure the flow of the combined discharged water of the EDG North A-Pond and EDG South A-Pond, as well as a staff gauge to monitor the water elevation of the EDG South A-Pond. The Parshall flume and flow metering equipment is located west of the EDG North A-Pond and EDG South A-Pond and is not associated with the WPDES Outfall at EDG. The staff gauge is in the northwest corner of the CCR surface impoundment.

The flow data associated with the EDG North A-Pond and EDG South A-Pond (e.g. maximum daily flow), since the previous annual inspection, was provided by WPL for 2017 and 2018 (October 01, 2017 through August 31, 2018). Reviewing the provided flow data, the maximum daily flow recorded was 2.53

million gallons (November 2017). Note, the hydraulic structure located in the southwest corner of the EDG North A-Pond is plugged, therefore, the flow data is associated with only the flow from the EDG South A-Pond.

The staff gauge water elevation data, since the previous annual inspection, was provided by WPL. The staff gauge measurements were collected at the same time as the 7-day inspections. The water elevation data included measurements collected between October 04, 2017 and September 26, 2018. After review of the provided staff gauge water elevation data, the maximum water elevation recorded within the EDG South A-Pond was 609.43 feet (February 2018 and September 2018).

2.3.3 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 EDG South A-Pond since the previous annual inspection were determined using information that was collected during the annual inspection, information that was provided from WPL during the annual inspection, as well as from historical information that was previously provided from WPL.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG South A-Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data collected during the 2017

annual inspection was used in conjunction with information obtained during the annual inspection to approximate minimum, maximum, and present depths and elevations of the impounded CCR and water in the EDG South A-Pond.

Information collected at the time of the annual inspection included the water surface elevation of the CCR surface impoundment. The historical information provided from WPL included staff gauge water elevation data since the previous annual inspection, an ash pond evaluation prepared for EDG by Miller Engineers & Scientists (2011) which included soil boring data in the area of the EDG South A-Pond, the most recent topographic survey of the EDG South A-Pond completed by Cornerstone Surveying and Mapping (2016), as well as a coal pile runoff pond study by Burns & McDonnell (2015) which included the most recent bathymetric survey data of the EDG South A-Pond. Reviewing the information provided within the above-mentioned documents, as well as the data collected during the annual inspection, the following minimum, maximum, and present depths and elevations were approximated for the impounded CCR and water:

- At the time of the annual inspection, the water surface elevation of the EDG South A-Pond was observed to have a staff gauge elevation of 609.29 feet, approximately 0.24 feet higher in elevation than that observed during the 2017 annual inspection. The water surface at the time of the annual inspection was approximately 1.71 feet below the crests of the surrounding embankments of the CCR surface impoundment, which had an elevation of approximately 611 feet at the lowest point of the embankments.

- At the time of the prior annual inspection in 2017, the water depths that were measured within the CCR surface impoundment varied between 0.27 feet in the eastern half of the CCR surface impoundment and 6.85 feet in the western half of the CCR surface impoundment.

The water surface elevation at the time of the annual inspection was approximately 0.24 feet higher than the water surface during the 2017 annual inspection, therefore, the water depths within the CCR surface impoundment would vary between 0.51 feet and 7.09 feet.

- From the water depth measurements that were collected at the time of the prior annual inspection in 2017, the elevation of the top of CCR/sediment that was measured varied between an elevation of 608.78 feet and 602.21 feet.
- From staff gauge water surface elevation data provided by WPL since the previous annual inspection, the minimum water surface elevation within the EDG South A-Pond was recorded to be 608.93 feet (June 2018). The maximum water surface elevation within the EDG South A-Pond was recorded to be 609.43 feet (February 2018 and September 2018).
- From the 2011 ash pond evaluation, soil borings installed along the north, west, and south embankments of the EDG South A-Pond encountered CCR from the ground surface to an average bottom elevation of approximately 585. The depth of the EDG South A-Pond varied between 608.78 feet and 602.21 feet. Comparing the results from the water depth measurements at the time of the prior annual inspection in 2017 to the 2011 ash pond evaluation soil boring data, the deposition thickness varied between 23.78 feet and 17.21 feet.

2.3.4 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 calculated based on the acreage of the CCR surface impoundment in the area where water was present, and the approximate depth of water within that area of the CCR surface impoundment.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG South A-Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data collected during the 2017 annual inspection was used in conjunction with information obtained during the annual inspection to approximate the storage capacity of the CCR surface impoundment. The water depth measurement of the CCR surface impoundment was determined based on the observed staff gauge water elevation at the time of the annual inspection compared to the measured water depths collected at the time of the prior annual inspection in 2017.

From the 2016 topographic survey data of the EDG South A-Pond and the observed staff gauge water surface elevation at the time of the annual inspection, the area of the water surface of the CCR surface impoundment was approximately 1.75 acres. From the water depth data that was collected during the prior annual inspection in 2017, the average water depth within the CCR surface impoundment was approximately 3.55 feet. During the annual inspection the water surface elevation was observed to be 609.29 feet,

approximately 0.24 feet higher in elevation than that observed in 2017. Therefore, the average water depth within the CCR surface impoundment at the time of the annual inspection was approximately 3.79 feet. Thus, the water volume within the EDG South A-Pond at the time of the annual inspection was approximately 10,700 cubic yards.

2.3.5 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 EDG South A-Pond at the time of the annual inspection was determined using information that was collected during the annual inspection, as well as from historical information that was previously provided from WPL.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG South A-Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data collected during the 2017 annual inspection was used in conjunction with information obtained during the annual inspection to approximate the volume of impounded CCR and water within the CCR surface impoundment.

Historical information provided from WPL included an ash pond evaluation prepared for EDG by Miller Engineers & Scientists (2011) which included soil boring data near the EDG South A-Pond, the most recent topographic survey

of the EDG South A-Pond completed by Cornerstone Surveying and Mapping (2016), as well as a coal pile runoff pond study by Burns & McDonnell (2015) which included the most recent bathymetric survey data of the EDG South A-Pond.

The water surface elevation within the CCR surface impoundment that was observed at the time of the annual inspection was 609.29 feet. From the 2016 topographic survey of the EDG South A-Pond, as well as the observed water elevation at the time of the annual inspection, the average elevation of the top of CCR/sediment outside the area of the water surface was approximately the same elevation as the observed water surface at the time of the annual inspection. From the 2011 ash pond evaluation, soil borings installed along the north, west, and south embankments of the EDG South A-Pond encountered CCR from the ground surface to an average bottom elevation of approximately 585. Thus, the interior storage height of the EDG South A-Pond was approximately 24.29 feet.

The surface area of the EDG South A-Pond, in the area where both water and CCR was present, was approximately 1.9 acres. Thus, the total volume, not including freeboard, of impounded CCR and water within the EDG South A-Pond at the time of the annual inspection was approximately 74,500 cubic yards.

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

After review of available information provided by EDG pertaining to the status and condition of the existing CCR surface impoundment, discussions with EDG 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 identified issues with the structural integrity of the hydraulic structure (18-inch diameter corrugated plastic pipe) associated with the EDG South A-Pond.

Regarding the existing conditions of the EDG South A-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 existing CCR surface impoundment.

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

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

2.4 EDG B-Pond

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

After conducting the annual inspection, as well as review of available information provided by EDG pertaining to the status and condition of the existing CCR surface impoundment, and discussions with EDG 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.

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

Instrumentation that supports the operation of the EDG B-Pond includes a staff gauge to monitor the water elevation of the CCR surface impoundment. The staff gauge, installed in 2016, is in the northwest corner of the EDG B-Pond.

The staff gauge water elevation data, since the previous annual inspection, was provided by WPL. The staff gauge measurements were collected at the same time as the 7-day inspections. The water elevation data included measurements collected between October 04, 2017 and September 26, 2018. After review of the provided staff gauge water elevation data, the maximum water elevation recorded within the EDG B-Pond was 598.73 feet (November 2017).

2.4.3 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 EDG B-Pond since the previous annual inspection were determined using information that was collected during the annual inspection, information that was provided from WPL during the annual inspection, as well as from historical information that was previously provided from WPL.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined

that physical measurements of the EDG B-Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data collected during the 2017 annual inspection was used in conjunction with information obtained during the annual inspection to approximate minimum, maximum, and present depths and elevations of the impounded CCR and water in the EDG B-Pond.

Information collected at the time of the annual inspection included the water surface elevation of the CCR surface impoundment. The historical information provided from WPL included staff gauge water elevation data since the previous inspection, an ash pond evaluation prepared for EDG by Miller Engineers & Scientists (2011) which included soil boring data in the area of the EDG B-Pond, the most recent topographic survey of the EDG B-Pond completed by Cornerstone Surveying and Mapping (2016), as well as a coal pile runoff pond study by Burns & McDonnell (2015) which included the most recent bathymetric survey data of the EDG B-Pond. Reviewing the information provided within the above-mentioned documents, as well as the data collected during the annual inspection, the following minimum, maximum, and present depths and elevations were approximated for the impounded CCR and water:

- At the time of the annual inspection, the water surface elevation of the EDG B-Pond was observed to have a staff gauge elevation of 598.54 feet, approximately 0.14 feet higher in elevation than that observed during the 2017 annual inspection. The water surface at the time of the annual inspection was approximately 9.46 feet below the crests of the south and east embankments of the CCR surface impoundment, which had an elevation of approximately 608 feet at the lowest point of the embankments.

- At the time of the prior annual inspection in 2017, the water depths that were measured within the CCR surface impoundment varied between 2 feet and 7.3 feet.

The water surface elevation at the time of the annual inspection was approximately 0.14 feet higher than the water surface elevation during the 2017 annual inspection, therefore, the water depths within the CCR surface impoundment would vary between 2.14 feet and 7.44 feet.

- From the water depth measurements that were collected at the time of the prior annual inspection in 2017, the elevation of the top of CCR/sediment that was measured varied between an elevation of 596.4 feet and 591.1 feet.
- From staff gauge water surface elevation data provided by WPL since the previous annual inspection, the minimum water surface elevation within the EDG B-Pond was recorded to be 598.36 feet (October 2017 and February 2018). The maximum water surface elevation within the EDG B-Pond was recorded to be 598.73 feet (November 2017).
- From the 2011 ash pond evaluation, soil borings installed along the north and west embankments of the EDG B-Pond encountered CCR from the ground surface to an average bottom elevation of approximately 583 feet. The bottom elevation of the EDG B-Pond varied between 596.4 feet and 591.1 feet. Comparing the results from the water depth measurements at the time of the prior annual inspection in 2017 to the 2011 ash pond evaluation soil boring data, the deposition thickness varied between 13.4 feet and 8.1 feet.

2.4.4 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 calculated based on the acreage of the CCR surface impoundment in the area where water was present, and the approximate depth of water within that area of the CCR surface impoundment.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG B-Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data collected during the 2017 annual inspection was used in conjunction with information obtained during the annual inspection to approximate the storage capacity of the CCR surface impoundment. The water depth measurement of the CCR surface impoundment was determined based on the observed staff gauge water elevation at the time of the annual inspection compared to the measured water depths collected at the time of the prior annual inspection in 2017.

From the 2016 topographic survey data of the EDG B-Pond and the observed staff gauge water surface elevation at the time of the annual inspection, the area of the water surface of the CCR surface impoundment was approximately 2.0 acres. From the water depth data that was collected during the prior annual inspection in 2017, the average water depth within the CCR surface impoundment was approximately 5.8 feet. During the annual inspection the water surface elevation was observed to be 598.54 feet, approximately 0.14

feet higher in elevation than that observed in 2017. Therefore, the average water depth within the CCR surface impoundment at the time of the annual inspection was approximately 5.94 feet. Thus, the water volume within the EDG B-Pond water volume at the time of the annual inspection was approximately 19,200 cubic yards.

2.4.5 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 EDG B-Pond at the time of the annual inspection was determined using information that was collected during the annual inspection, as well as from historical information that was previously provided from WPL.

Note that the annual inspections that were previously completed in 2016 and 2017 included the collection of field data such as surveying of the water surface elevation, as well as on-water GPS depth measurements from the water surface to the top of CCR/sediment to determine depths/elevations. Based on the information obtained during the prior annual inspections, it was determined that physical measurements of the EDG B-Pond would not be required on an annual basis due to the minimal changes that have been observed within the CCR surface impoundment. Therefore, field data collected during the 2017 annual inspection was used in conjunction with information obtained during the annual inspection to approximate the volume of impounded CCR and water within the CCR surface impoundment.

Historical information provided from WPL included an ash pond evaluation prepared for EDG by Miller Engineers & Scientists (2011) which included soil boring data near the EDG B-Pond, the most recent topographic survey of the EDG B-Pond completed by Cornerstone Surveying and Mapping (2016), as well

as a coal pile runoff pond study by Burns & McDonnell (2015) which included the most recent bathymetric survey data of the EDG B-Pond.

The water surface elevation within the CCR surface impoundment that was observed at the time of the annual inspection was 598.54 feet. From the 2011 ash pond evaluation, soil borings installed along the north and west embankments of the EDG B-Pond encountered CCR from the ground surface to an average bottom elevation of approximately 583 feet. Thus, the interior storage height of the EDG B-Pond was approximately 15.54 feet.

The surface area of the EDG B-Pond, in the area where both water and CCR was present, was approximately 2.0 acres. Thus, the total volume, not including freeboard, of impounded CCR and water within the EDG B-Pond at the time of the annual inspection was approximately 50,200 cubic yards.

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

After review of available information provided by EDG pertaining to the status and condition of the existing CCR surface impoundment, discussions with EDG 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 identified issues with the structural integrity of the hydraulic structure (concrete overflow weir and 24-inch diameter corrugated metal pipe) associated with the EDG B-Pond.

Regarding the existing conditions of the EDG B-Pond, there were no existing conditions identified along the upstream and downstream slopes of the

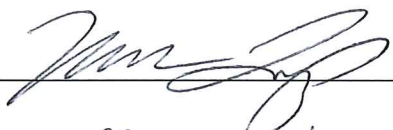
embankments that were disrupting or have the potential to disrupt the operation and safety of the existing CCR surface impoundment.

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

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

3. CERTIFICATION

To meet the requirements of 40 CFR 257.83(b), 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).

By: 
Name: MARK LOEROP
Date: Nov 28, 2018

