HARD HAT SERVICES™
Engineering, Construction and Management Solutions

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VIA EMAIL

September 21, 2016

Mr. Jeffrey Maxted
Alliant Energy – Sr. Environmental Specialist
4902 North Biltmore Lane
Madison, WI 53718-2148

Re: Hazard Potential Classification Assessment - §257.73(a)(2)
Alliant Energy – Wisconsin Power and Light Company
WPL – Edgewater Generating Station
Sheboygan, Wisconsin

Dear Mr. Maxted;

Hard Hat Services (HHS) completed the hazard potential classification assessment for the existing CCR surface impoundments located at the Wisconsin Power and Light Company (WPL) Edgewater Generating Station in Sheboygan, Wisconsin.

Background Information
In accordance with the requirements set forth in §257.73(a)(2) of the CCR Rule, an owner or operator of an existing CCR surface impoundment must conduct initial and periodic hazard potential classification assessments of their CCR surface impoundment, except for those existing CCR surface impoundments that are incised. The owner or operator must determine each CCR surface impoundment hazard potential classification through a hazard potential classification assessment.

FEMA (FEMA Publication 333, Federal Guidelines for Dam Safety, Hazard Potential Classification System for Dams, April 2004) developed a "hazard potential" classification in order to classify surface impoundments based on the probable loss of human life, and the impacts on economic, environmental, and lifeline interests in the event of an unintentional release from a surface impoundment. Three hazard potential classification levels are used, as follows:

1. High Hazard Potential – Assigned to surface impoundments where failure or mis-operation will probably cause loss of human life.
2. Significant Hazard Potential – Assigned to surface impoundments where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, or disruption of lifeline facilities or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural

or agricultural areas but could be located in areas with population and significant infrastructure.

3. Low Hazard Potential – Assigned to surface impoundments where failure or mis-operation has no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

Facility Specific Information

The WPL – Edgewater Generating Station (EDG) is located at 3739 Lakeshore Drive, Sheboygan, WI 53081. Figure 1 provides both a topographic map and an aerial of the EDG facility location, with the approximate property boundary of the facility identified. EDG has four existing CCR surface impoundments, which are identified as follows:

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

EDG Slag Pond

The EDG Slag Pond is located southwest of the generating plant and north of the EDG North A-Pond. The EDG Slag Pond receives influent flow from the generating plant via the Unit 4 boiler slag tanks. The water-slag slurry discharges into the southwest portion of the EDG Slag Pond. The slag is dredged out of the EDG Slag Pond and stockpiled in a containerized area adjacent to the existing CCR surface impoundment for dewatering. The slag is then screened to separate the coarsely graded material from the finely graded material prior to being transported off-site for beneficial reuse. The water in the EDG Slag Pond flows to the southwest where it gravity flows through a V-notch weir and through a four feet wide concrete structure into a 48-inch diameter corrugated metal pipe. The water from the EDG Slag Pond, which combines with flows from the EDG North A-Pond and EDG South A-Pond in the 48-inch diameter corrugated metal pipe, flows to the south into the northwest corner of the EDG B-Pond.

The U.S. Fish and Wildlife Service National Wetlands Inventory has identified both "Freshwater Forested/Shrub Wetland" (approximately 60 acers) and "Freshwater Emergent Wetland" (approximately 20 acres) with Classification Codes: PSS1Bg, PSS1F, PSS1/EMF, PFO1C, PEMC, PEMF, PFO1/SS1A, PEMA and PEMC. The wetlands are located predominantly west, south, and east of the impoundments.

The surface area of the EDG Slag Pond is approximately 2.2 acres and has an embankment height of approximately 12 feet from the crest to the toe of the downstream slope. The interior storage depth of the EDG Slag Pond is approximately 17 feet. The total volume of impounded CCR and water within the EDG Slag Pond is approximately 47,000 cubic yards.

EDG North A-Pond

The EDG North A-Pond is located southwest of the generating plant and south of the EDG Slag Pond. Historically, the EDG North A-Pond has received influent flows from the surge tank. Water in the surge tank includes excess process water from the Unit 5 hydrobin, steam water treatment reject water, and water from the facility floor drains. Therefore, the EDG North A-Pond has likely received residual bottom ash from the hydrobin system, de minimis quantities of fly ash from routine maintenance operations, coal fines, and other materials from the plant floor drains. The water was pumped from the surge tank to the EDG North A-Pond via a 10-inch diameter steel pipe. The steel pipe, at a location northeast of the EDG North A-Pond, splits into two separate 10-inch diameter pipes. Each pipe then discharged into the northeast corner of both the EDG North A-Pond and EDG South A-Pond. Currently, EDG North A-Pond does not receive operational process discharges from the generating plant, although it still has the ability to be routed to the EDG North A-Pond.

Previously, water within the EDG North A-Pond flowed to the west. The EDG North A-Pond discharge consists of an 18-inch diameter corrugated plastic pipe located in the southwest corner of the existing CCR surface impoundment. The water would flow through the corrugated plastic pipe to the west into a concrete sluice box. The water within the sluice box flows through a Parshall flume prior to discharging into a 48-inch diameter corrugated metal pipe, which also receives influent flow from the EDG Slag Pond and EDG South A-Pond, prior to gravity flowing to the south into the northwest corner of the EDG B-Pond. Presently, no water within the EDG North A-Pond discharges through the 18-inch diameter corrugated plastic pipe as the pipe has been plugged.

The U.S. Fish and Wildlife Service National Wetlands Inventory has identified both "Freshwater Forested/Shrub Wetland" (approximately 60 acers) and "Freshwater Emergent Wetland" (approximately 20 acres) with Classification Codes: PSS1Bg, PSS1F, PSS1/EMF, PFO1C, PEMC, PEMF, PFO1/SS1A, PEMA and PEMC. The wetlands are located predominantly west, south, and east of the impoundments.

The surface area of the EDG North A-Pond is approximately 2.2 acres and has an embankment height of approximately 18 feet from the crest to the toe of the downstream slope. The interior storage depth of the EDG Secondary Ash Pond is approximately 21 feet. The total volume of impounded CCR and water within the EDG North A-Pond is approximately 73,000 cubic yards.

EDG South A-Pond

The EDG South A-Pond is located southwest of the generating plant and south of the EDG North A-Pond. As currently configured, the EDG South A-Pond receives influent flows from the surge tank. Water in the surge tank includes excess process water from the Unit 5 hydrobin, steam water treatment reject water, and water from the facility floor drains. Therefore, the EDG North A-Pond has likely received residual bottom ash from the hydrobin system, de minimis quantities of fly ash from routine maintenance operations, coal fines, and other materials from the plant floor drains. The water is pumped from the surge tank to the EDG South A-Pond via a 10-inch diameter steel pipe. The steel pipe, at a location northeast of the EDG North A-Pond, splits into two separate 10-inch diameter pipes. Each pipe then discharges into the northeast

corner of both the EDG North A-Pond and EDG South A-Pond. Note, the EDG North A-Pond no longer receives operational process flows from the generating plant.

The water within the EDG South A-Pond flows to the west. The EDG South A-Pond consists of an 18-inch diameter corrugated plastic pipe located in the northwest corner of the existing CCR surface impoundment. The water flows through the corrugated plastic pipe to the west into a concrete sluice box. The water within the sluice box flows through a Parshall flume prior to discharging into a 48-inch diameter corrugated metal pipe, which also receives influent flow from the EDG Slag Pond, prior to gravity flowing to the south into the northwest corner of the EDG B-Pond.

The U.S. Fish and Wildlife Service National Wetlands Inventory has identified both "Freshwater Forested/Shrub Wetland" (approximately 60 acers) and "Freshwater Emergent Wetland" (approximately 20 acres) with Classification Codes: PSS1Bg, PSS1F, PSS1/EMF, PFO1C, PEMC, PEMF, PFO1/SS1A, PEMA and PEMC. The wetlands are located predominantly west, south, and east of the impoundments.

The surface area of the EDG South A-Pond is approximately 2.2 acres and has an embankment height of approximately 18 feet from the crest to the toe of the downstream slope. The interior storage depth of the EDG South A-Pond is approximately 25 feet. The total volume of impounded CCR and water within the EDG South A-Pond is approximately 90,500 cubic yards.

EDG B-Pond

The EDG B-Pond is located southwest of the generating plant and south of the EDG South A-Pond. The EDG B-Pond receives influent flow via a 48-inch diameter corrugated metal pipe from the EDG Slag Pond and EDG South A-Pond. Additionally, the EDG B-Pond receives storm water drainage from the closed ash landfill located west of the EDG B-Pond. The storm water from the closed ash landfill discharges into the west side of the EDG B-Pond via a small corrugated plastic pipe.

The water in the EDG B-Pond flows to the east through a weir structure. The elevated weir prevents CCR that has settled in the EDG B-Pond and upstream ponds from flowing out of the pond. The water gravity flows to the east through a 24-inch diameter corrugated metal pipe where it discharges into the west side of the EDG C-Pond. The water in the EDG C-Pond gravity flows a significant length to the east into the EDG F-Pond. The water in the EDG F-Pond flows through the facility's Wisconsin Pollution Discharge Elimination System (WPDES) Outfall 004 and discharges into Lake Michigan.

The U.S. Fish and Wildlife Service National Wetlands Inventory has identified both "Freshwater Forested/Shrub Wetland" (approximately 60 acers) and "Freshwater Emergent Wetland" (approximately 20 acres) with Classification Codes: PSS1Bg, PSS1F, PSS1/EMF, PFO1C, PEMC, PEMF, PFO1/SS1A, PEMA and PEMC. The wetlands are located predominantly west, south, and east of the impoundments.

The water surface area of the EDG B-Pond is approximately 1.9 acres and has an embankment height of approximately 20 feet from the crest to the toe of the downstream slope. The interior

storage depth of the EDG B-Pond is approximately 15 feet. The total volume of impounded CCR and water within the EDG B-Pond is approximately 46,500 cubic yards.

Hazard Potential Classification
Each existing CCR surface impoundment has been assigned a hazard potential classification, as identified below.

EDG Slag Pond
EDG Slag Pond has been assigned a **Significant Hazard Potential** classification. A single family residence is located approximately 350 feet north of the impoundment. Given the minimal elevation differential, mis-operation or failure will likely not result in loss of life. The west side of the impoundment is incised. A release to the north would follow the natural topography and flow to the east toward County Road EE. A release to the east has the potential to engulf County Road EE, which is a disruption of lifeline. A release to the south would combine with EDG North A-Pond. In all cases, a release from the CCR surface impoundment would principally be limited to the facility property with exception to the impacts to County Road EE and the wetland east of County Road EE.

EDG North A-Pond
EDG North A-Pond has been assigned a **Significant Hazard Potential** classification. Mis-operation or failure will likely not result in loss of life as there are no occupied buildings or residences located in the immediate vicinity of the CCR surface impoundment. The west side of the impoundment is incised. A release to the north would not occur because the EDG Slag Pond is higher in elevation. A release to the east has the potential to engulf County Road EE, which is a disruption of lifeline. A release to the south would combine with EDG South A-Pond. In all cases, a release from the CCR surface impoundment would principally be limited to the facility property with exception to the impacts to County Road EE and the wetland east of County Road EE.

EDG South A-Pond
EDG South A-Pond has been assigned a **Significant Hazard Potential** classification. Mis-operation or failure will likely not result in loss of life as there are no occupied buildings or residences located in the immediate vicinity of the CCR surface impoundment. The west side of the impoundment is incised. A release to the north would be contained within the EDG North A-Pond. A release to the east has the potential to engulf County Road EE, which is a disruption of lifeline. A release to the south would combine with EDG B-Pond. In all cases, a release from the CCR surface impoundment would principally be limited to the facility property with exception to the impacts to County Road EE and the wetland east of County Road EE and the wetland east of County Road EE.

EDG B-Pond
EDG B-Pond has been assigned a **Significant Hazard Potential** classification. Mis-operation or failure will likely not result in loss of life as there are no occupied buildings or residences located in the immediate vicinity of the CCR surface impoundment. The west side of the impoundment is incised. A release to the north would not occur as the EDG South A-Pond is higher in elevation. A release to the east has the potential to engulf EDG C-Pond and potentially

County Road EE, which is a disruption of lifeline. A release to the south would impact the wetland area south of the impoundment. In all cases, a release from the CCR surface impoundment would principally be limited to the facility property with exception to the impacts to County Road EE, the wetland east of County Road EE, and the wetland south of the impoundment.

Qualified Professional Engineer Certification

To meet the requirements of 40 CFR 257.73(a)(2)(ii), 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 257.73(a)(2).

By: _____

Name: Mark Loerop

Date: 10/5/2016

cc: Jim Jakubiak, WPL Edgewater Generating Station
Tony Morse, Alliant Energy

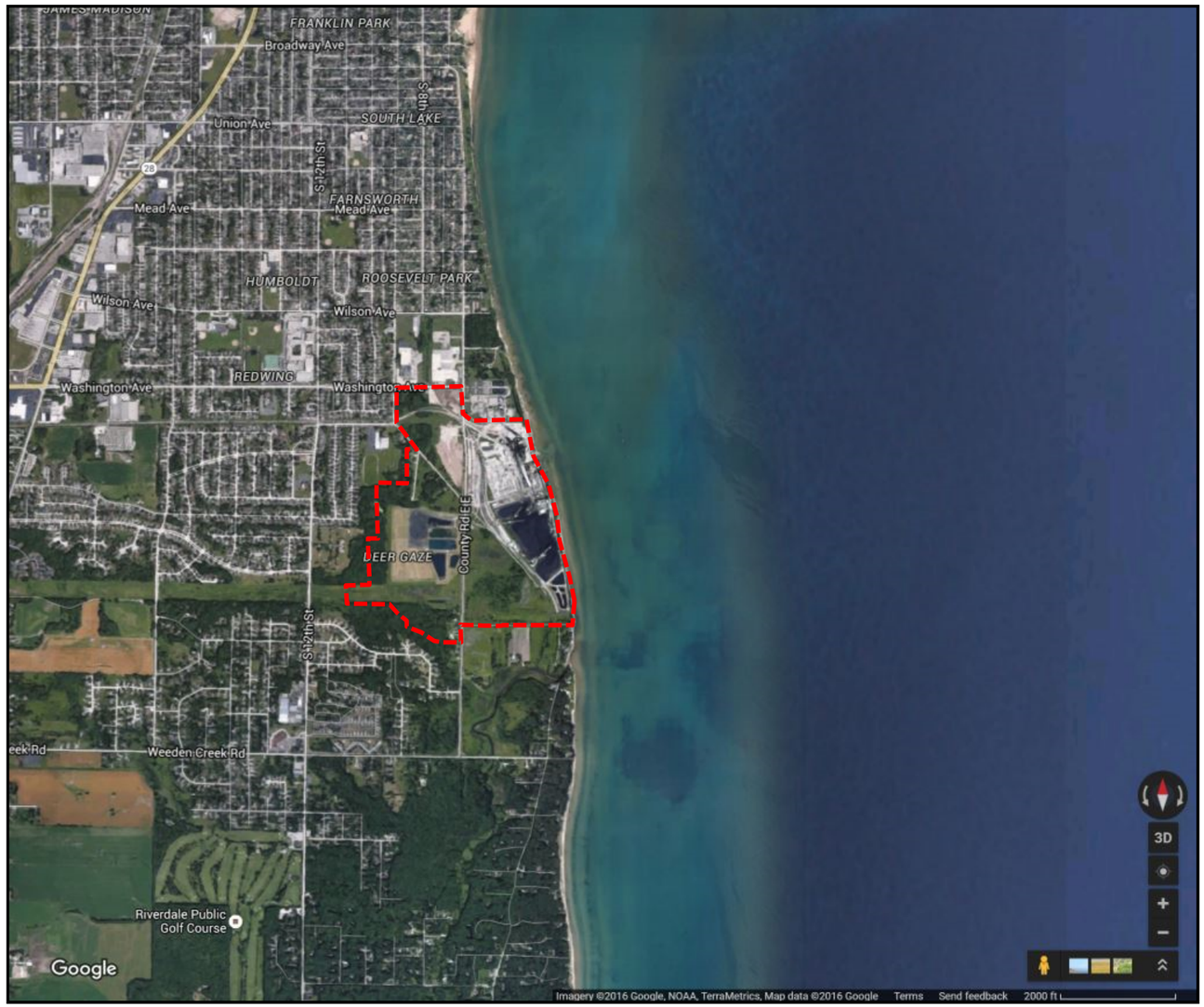
att: Figure 1 – Facility Location Map
Figure 2 – Wetland Map

MWL/tjh/CTS
C:\Egnyte\Shared\Projects\154 - Alliant Energy\154.018 - CCR Projects\012 - 2016 CCR Compliance Program\006 - EDG\Hazard Potental Classification\EDG Hazard Potential Analysis - FINAL.docx

Historical Topo Map

2013

Historical Aerial Photo



This report includes information from the following map sheet(s).

Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Sheboygan South, 2013, 7.5-minute

SITE NAME: Edgewater Generating Station
ADDRESS: 3739 Lakeshore Drive
Sheboygan, WI 53081
CLIENT: Environmental Site Assessors

N

Approximate Property Boundary

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Site Location
Edgewater Generating Station
Wisconsin Power and Light Company

Drawing
Figure 1

Date
7/12/2016

Approximate Property Boundary
EDG Slag Pond
EDG North A-Pond
EDG South A-Pond
EDG B-Pond

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Wetland Location Map
Edgewater Generating Station
Intersate Power and Light Company

Drawing
Figure 2

Date
7/12/2016