HARD HAT SERVICES™
Engineering, Construction and Management Solutions

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VIA EMAIL

September 19, 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 – Columbia Energy Center
Pardeeville, 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) Columbia Energy Center in Pardeeville, Wisconsin.

Background Information
In accordance with the requirements set forth in §257.73(a)(2) of the CCR Rule, an owner or operator of a CCR surface impoundment must conduct initial and periodic hazard potential classification assessments of their CCR surface impoundment, except for those 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 – Columbia Energy Center (COL) is located at W8375 Murray Road, Pardeeville, WI 53954. Figure 1 provides both a topographic map and an aerial of the COL facility location, with the approximate property boundary of the facility identified. COL has two CCR surface impoundments, which are identified as follows:

- Existing CCR surface impoundment: COL Primary Ash Pond
- Inactive CCR surface impoundment: COL Secondary Ash Pond

COL Primary Ash Pond

The COL Primary Ash Pond is located north of the generating plant and west of the COL Secondary Pond. The COL Primary Ash Pond is the primary receiver of process flows from the generating plant. Process flows include CCR sluice water (bottom ash and economizer fly ash), boiler/precipitator wash water, plant floor drains, ash line freeze protection flows, bottom ash area sump water, reverse osmosis reject water, demineralizer reject water, and air heater sump water. Additionally, the COL Primary Ash Pond receives storm water runoff from the surrounding area, inclusive of the closed ash landfill, located south of the CCR surface impoundment.

The western half of the COL Primary Ash Pond is a CCR handling area. A shallow narrow drainage channel is located along the south, west, and north sides of the CCR handling area. The sluiced CCR is discharged into the southeast corner of the western half of the COL Primary Ash Pond. The sluiced CCR settles out through the water column as it follows the flow of the narrow channel around the southern, western, and northern sides of the existing CCR surface impoundment. The water in the channel flows to the east and discharges through a narrow cut-out of an interior dike into the northwest corner of the large open area in the eastern half of the COL Primary Ash Pond.

The majority of the CCR that is discharged into the COL Primary Ash Pond is removed during routine maintenance dredging activities of the shallow narrow channel. The CCR that is dredged is stockpiled in the western half of the COL Primary Ash Pond for dewatering. Once dewatered the CCR is ran through a triple deck screen and wash plant to separate the coarsely graded CCR from the finely graded CCR. The CCR is then transported off-site for beneficial reuse or to the on-site active dry ash landfill.

The water in the COL Primary Ash Pond is recirculated to the generating plant via effluent pumps located in the ash recirculating pump house in the northeast corner of the eastern half of the COL Primary Ash Pond. The recirculating pumps return the water to the generating plant for reuse within the power plant water systems. Instrumentation associated with the pump house

in the northeast corner of the COL Primary Ash Pond includes a submersible hydrostatic level transducer, as well as a visual staff gauge, for monitoring water elevations in the COL Primary Ash Pond. An 18-inch diameter corrugated metal pipe is located immediately south of the pump house, along the interior dike between the COL Primary Ash Pond and COL Secondary Pond. The hydraulic structure is no longer used. The influent end of the hydraulic structure, on the COL Primary Ash Pond side, consists of a manually operated gate valve which is closed.

West and north of the COL Primary Ash Pond, the U.S. Fish and Wildlife Service National Wetlands Inventory has identified both "Freshwater Forested/Shrub Wetland" (over 500 acers) and "Freshwater Emergent Wetland" (2.93 acres) with Classification Codes: PSS1Bg, PSS1/EMBg, PFO1Bg, PSS1/UB, PFO1Bg, PFO1/EMBg, and PEMF. The Wisconsin River is approximately 2,000 feet west of the COL Primary Ash Pond.

The surface area of the COL Primary Ash Pond is approximately 14.7 acres and has an embankment height of approximately 23 feet from the crest to the toe of the downstream slope. The interior storage depth of the COL Primary Ash Pond is approximately 15 feet. The total volume of impounded CCR and water within the COL Primary Ash Pond is approximately 330,000 cubic yards.

COL Secondary Ash Pond

The COL Secondary Pond is located north of the generating plant and east of the COL Primary Ash Pond. The COL Secondary Pond was previously a downstream receiver of influent flows from the COL Primary Ash Pond. The water within the COL Secondary Pond, prior to 2004, was pumped to a surface impoundment identified as the polishing pond. The polishing pond was located east of the generating plant. The water pumped to the polishing pond would flow to the south through the facility's WPDES Outfall 002 into mint ditch and eventually flow into the backwaters of the Wisconsin River. Presently, the COL Secondary Pond acts as a storm water detention impoundment with the only influent sources being precipitation and storm water runoff from the surrounding area. The water within the COL Secondary Pond either infiltrates or evaporates. The water within the COL Secondary Pond has significantly decreased in elevation since it ceased receiving influent flows from the COL Primary Ash Pond.

West and north of the COL Secondary Ash Pond, the U.S. Fish and Wildlife Service National Wetlands Inventory has identified both "Freshwater Forested/Shrub Wetland" (over 500 acers) and "Freshwater Emergent Wetland" (2.93 acres) with Classification Codes: PSS1Bg, PSS1/EMBg, PFO1Bg, PSS1/UB, PFO1Bg, PFO1/EMBg, and PEMF. The Wisconsin River is approximately 2,000 feet west of the COL Secondary Ash Pond.

The surface area of the COL Secondary Ash Pond is approximately 9.6 acres and has an embankment height of approximately 23 feet from the crest to the toe of the downstream slope. The interior storage depth of the COL Secondary Ash Pond is approximately 12 feet. The total volume of impounded CCR and water within the COL Secondary Ash Pond is approximately 185,000 cubic yards.

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

COL Primary Ash Pond
COL Primary Ash Pond has been assigned a **Low 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. There are no public road or highways in the located in the immediate vicinity of the CCR surface impoundment. The south and west sides of the CCR impoundment are incised. A release to the north would likely be limited to the wetland areas north of the CCR surface impoundment. A release to the east would be limited to the COL Secondary Ash Pond. In all cases, a release from the CCR surface impoundment would principally be limited to the facility property with low economic losses and environmental damages.

COL Secondary Ash Pond
COL Primary Ash Pond has been assigned a **Low 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. There are no public road or highways in the located in the immediate vicinity of the CCR surface impoundment. The south and east sides of the CCR impoundment are incised. A release to the north would likely be limited to the wetland areas north of the CCR surface impoundment. A release to the west would limited to the COL Primary Ash Pond. In all cases, a release from the CCR surface impoundment would principally be limited to the facility property with low economic losses and environmental damages.

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: Sep. 19, 2016

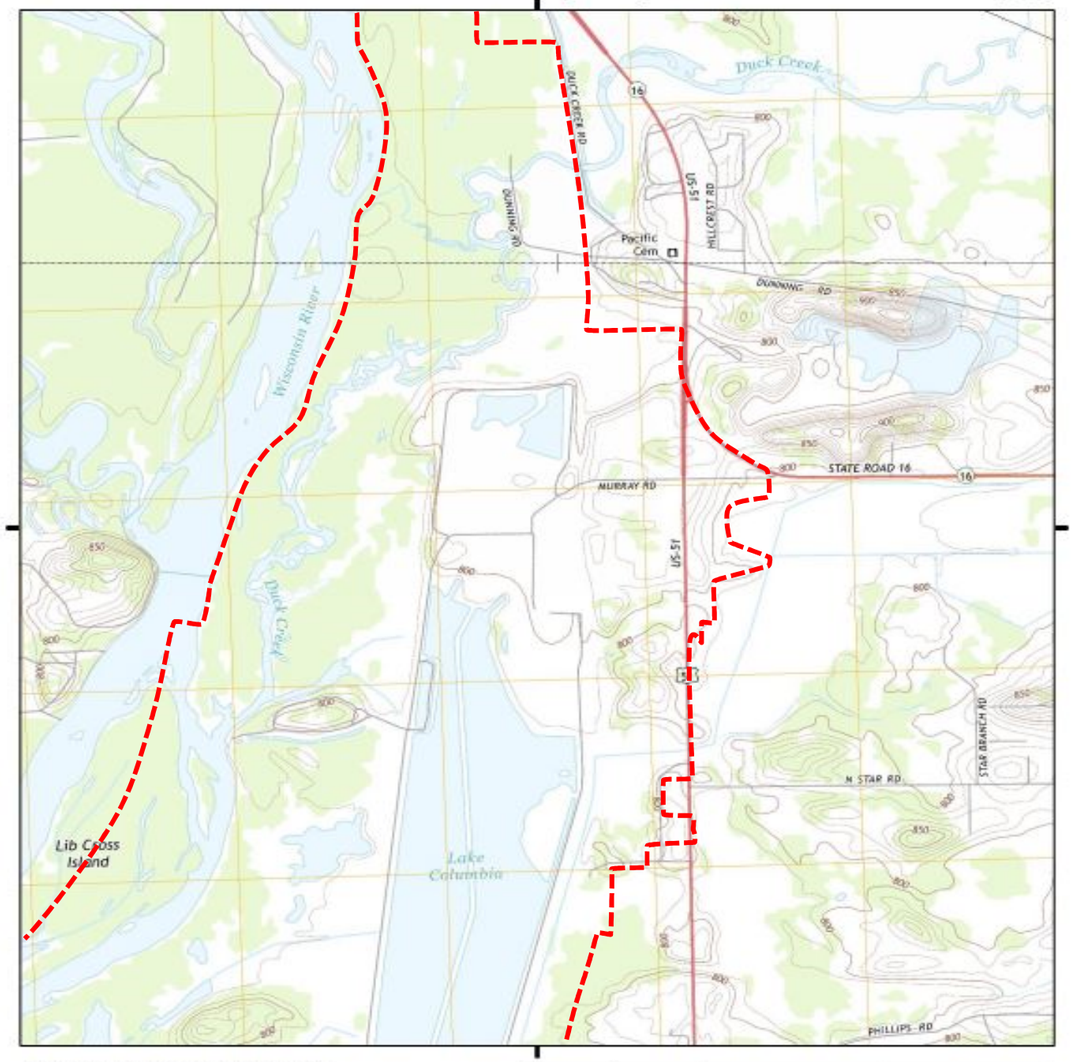
cc: Nate Sievers, WPL – Columbia Energy Center
Tony Morse, Alliant Energy

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\005 - COL\Hazard Potental Classification\COL Hazard Potential Analysis - FINAL.docx

Historical Topo Map

2013



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, Poynette, 2013, 7.5-minute

N, Portage, 2013, 7.5-minute

SITE NAME: Columbia Energy Center
ADDRESS: W8375 Murray Road
Pardeeville, WI 53954
CLIENT: Environmental Site Assessors

N

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Historical Aerial Photo 6/12/2014

Approximate Property Boundary

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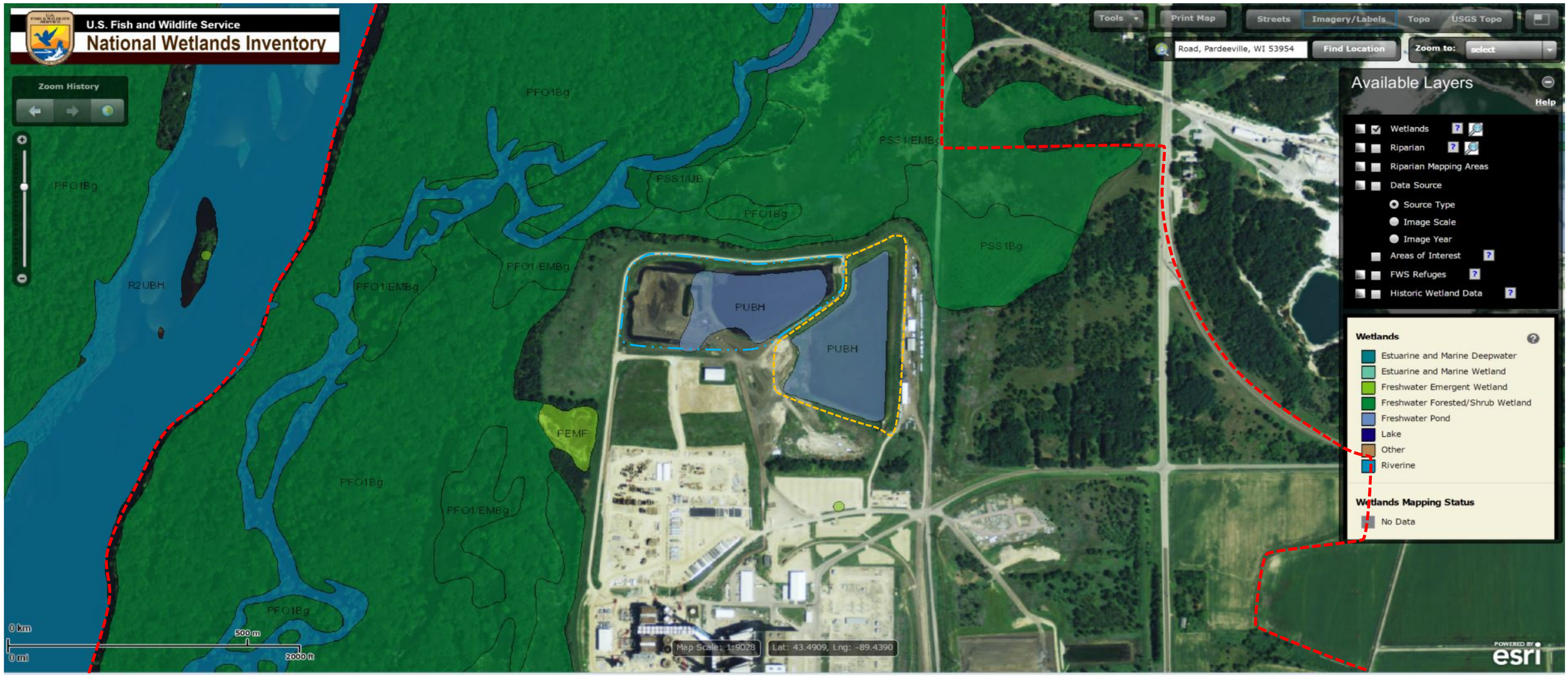
Site Location
Columbia Energy Center
Wisconsin Power and Light Company

Drawing
Figure 1

Date
7/12/2016



Approximate Property Boundary
COL Primary Ash Pond
COL Secondary Ash Pond

HARD HAT SERVICES™
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Wetland Location Map
Columbia Energy Center
Wisconsin Power and Light Company

Drawing
Figure 2

Date
7/12/2016