



**VIA EMAIL**

September 21, 2016

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

**Re: Liner Design Criteria for Existing CCR Surface Impoundments  
Wisconsin Power and Light Company (WPL)  
Edgewater Generating Station  
Sheboygan, Wisconsin**

Dear Mr. Maxted;

Hard Hat Services (HHS) assessed the liner design criteria for the existing CCR surface impoundment located at the Edgewater Generating Station in Sheboygan, WI.

### **Background Information**

In accordance with the requirements set forth in §257.71(a) of the CCR Rule (40 CFR 257.50-107), an owner or operator of an existing CCR surface impoundment must document whether or not the CCR unit was constructed with a liner that meets, at a minimum, one of the following three categories:

- i. A liner consisting of a minimum of two feet of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec,
- ii. A composite liner that meets the requirements of §257.70(b) - A composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner, and the lower component consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec. Geomembrane liner components consisting of high density polyethylene must be at least 60-mil thick. The geomembrane liner or upper liner component must be installed in direct and uniform contact with the compacted soil or lower liner component. The composite liner must meet the requirements specified in §257.70(b)(1) through (4).
- iii. An alternative composite liner that meets the requirements of §257.70(c). An alternative composite liner shall meet the following requirements:

- An alternative composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner, and a lower component, that is not a geomembrane, with a liquid flow rate no greater than the liquid flow rate of two feet of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec. Geomembrane liner components consisting of high density polyethylene must be at least 60-mil thick. If the lower component of the alternative liner is compacted soil, the geomembrane liner must be installed in direct and uniform contact with the compacted soil.
- The owner or operator must obtain certification from a qualified professional engineer that the liquid flow rate through the lower component of the alternative composite liner is no greater than the liquid flow rate through two feet of compacted soil with a hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec. The hydraulic conductivity for the two feet of compacted soil used in the comparison shall be no greater than  $1 \times 10^{-7}$  cm/sec. The hydraulic conductivity of any alternative to the two feet of compacted soil must be determined using recognized and generally accepted methods.
- The alternative composite liner must meet the requirements specified in §257.70 (b)(1) through (4).

### **Facility Specific Information**

The WPL – Edgewater Generating Station (EDG) is located at 3739 Lakeshore Drive, Sheboygan, Wisconsin. Figure 1 provides both a topographic map and an aerial of the EDG facility location, with the approximate property boundary of the facility identified. Figure 2 identifies each CCR Unit and illustrates the storm water and process water route. 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

As determined by WPL, process water discharging from the EDG B-Pond does not contain a significant quantity of CCR, and downstream impoundments contain only de minimis quantities of CCR.

### **Liner Determination**

After review of the reasonably and readily available documentation, the following CCR Units are determined to not meet the requirements of §257.71(a)(1)(i), (ii), or (iii):

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

- EDG B-Pond

All existing unlined CCR surface impoundments are subject to the closure or retrofit requirements of §257.101(a).

### Qualified Professional Engineer Certification

The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer attesting that the documentation as to whether a CCR unit meets the requirements §257.71(a) is accurate.

To meet the requirements of §257.71(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 §257.71(a).



By:   
Name: MARK LOEROP  
Date: 10/5/2016

cc: Tony Morse, Alliant Energy

att: Figure 1 – Site Location  
Figure 2 – Storm Water Routing

MWL/tjh/CTS

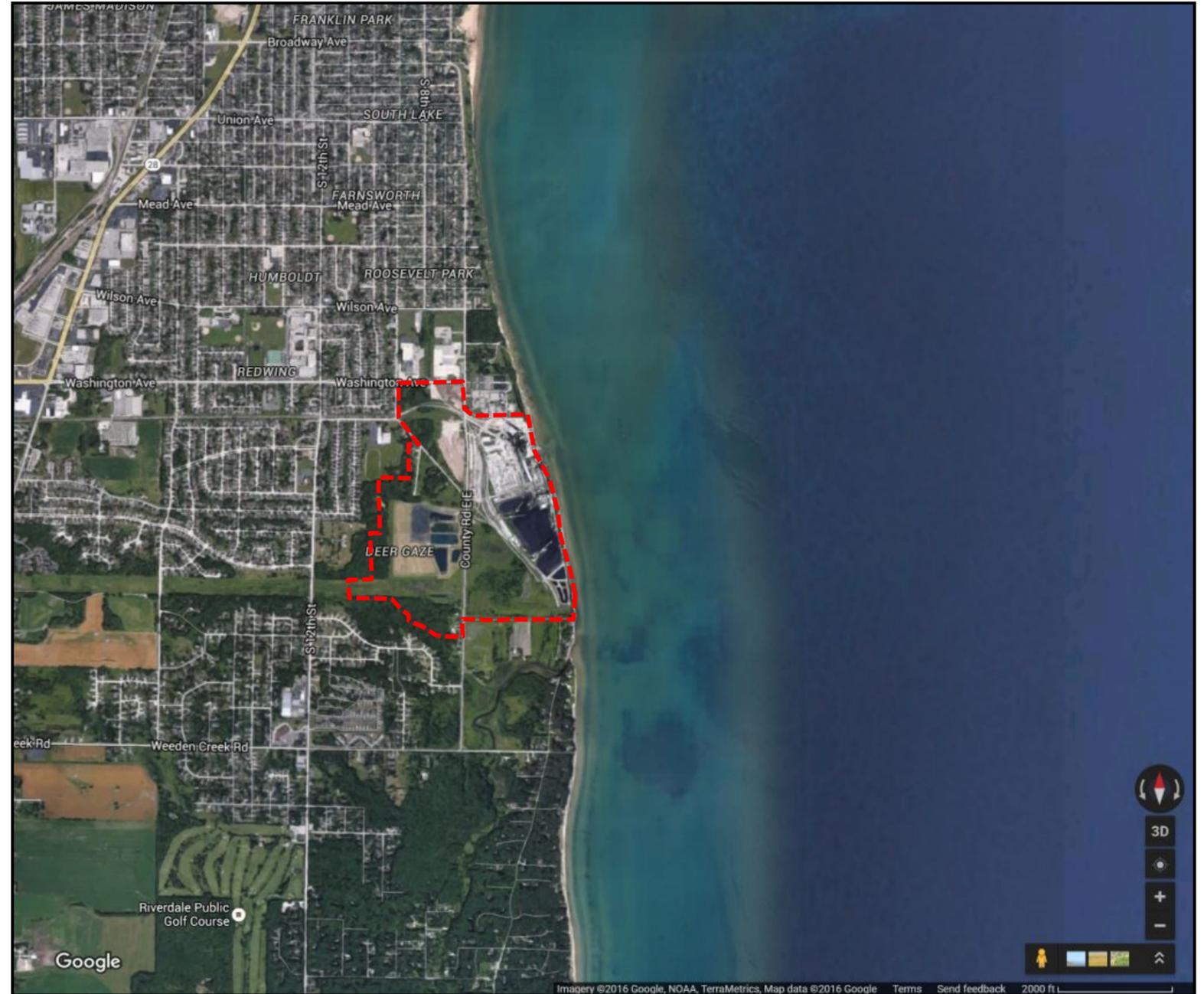
C:\Egnyte\Shared\Projects\154 - Alliant Energy\154.018 - CCR Projects\012 - 2016 CCR Compliance Program\006 - EDG\Liner Determination Letter\EDG Liner Design Criteria - FINAL.docx

### Historical Topo Map

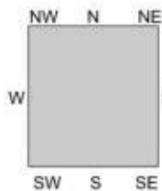
2013



### Historical Aerial Photo



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



TP, Sheboygan South, 2013, 7.5-minute

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



----- Approximate Property Boundary



Site Location  
 Edgewater Generating Station  
 Wisconsin Power and Light Company

Drawing  
 Figure 1  
 Date  
 7/12/2016

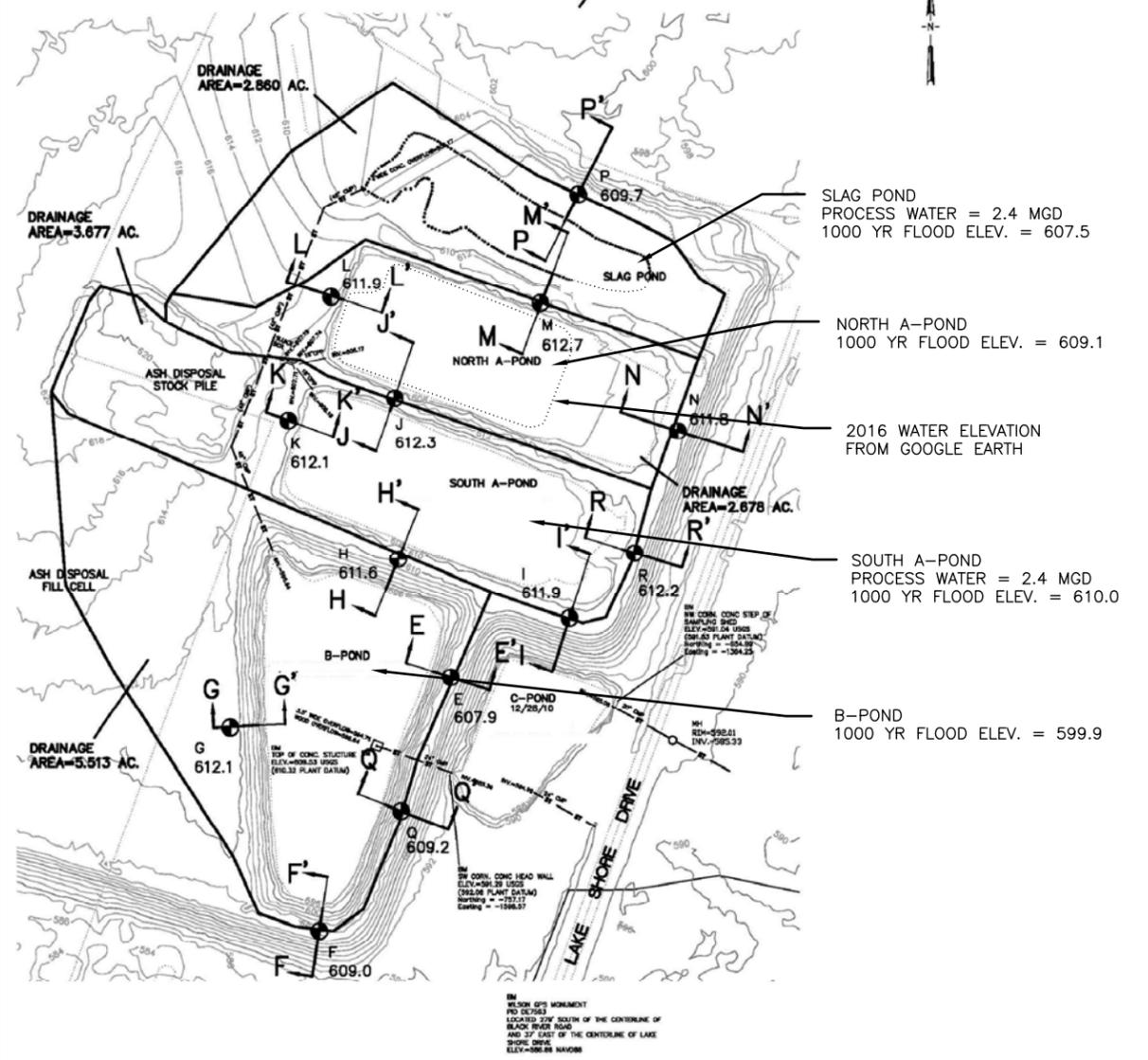
MAP SOURCE:  
 MODIFIED FROM MILLER ENGINEERS  
 SCIENTISTS, ASH POND SLOPE STABILITY  
 EVALUATION, IMPOUNDMENT ANALYSIS,  
 SHEET 1 OF 5, FEB. 25, 2011.

**LEGEND**

- A 589.5 MILLER ENGINEERS & SCIENTISTS JANUARY AND FEBRUARY 2011 SOIL EXPLORATION BORINGS & GROUND ELEVATION MEASUREMENTS
- A A' BERM CROSS SECTION LOCATION



SITE LOCATION MAP



ELEVATIONS IN NGVD DATUM  
 UNLESS NOTED OTHERWISE  
 PLANT DATUM= NGVD+ 0.78'

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REV	DATE	BY	DESCRIPTION



SCALE: AS SHOWN  
 DATE: 7-13-16  
 DRAWN BY: JFD  
 CHKD BY: ---  
 APRVD BY: ---

CLIENT / LOCATION  
 INTERSTATE POWER AND LIGHT (IPL)  
 OTTUMWA GENERATING STATION  
 OTTUMWA, IA

DRAWING DESCRIPTION  
**Liner Design Criteria**  
 STORM AND PROCESS WATER ROUTING

JOB: -----  
 SHT. FIGURE 2  
 DWG. -----