



INITIAL HAZARD POTENTIAL CLASSIFICATION REPORT

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GRAND HAVEN BOARD OF LIGHT AND POWER

J.B. SIMS GENERATING STATION

Hazard Potential Classification Assessment and
Visual Inspection Report - RCRA CCR Units

Pursuant to 40 CFR 257.73

Unit 3 East and West Ash Pond Surface
Impoundments



Submitted To: Grand Haven Board of Light and Power
17000 Eaton Drive
Grand Haven, Michigan 49417

Submitted By: Golder Associates Inc.
15851 South US 27, Suite 50
Lansing, MI 48906 USA

March 2017

Project No. 1775416



**CERTIFICATIONS – INITIAL HAZARD POTENTIAL CLASSIFICATION****Professional Engineer Certification Statement [40 CFR 257.73(a)(2)(ii)]**

I hereby certify that having reviewed the attached documentation, and being familiar with the provisions of Title 40 of the Code of Federal Regulations Section 257.73 (40 CFR Part 257.73), I attest that this Hazard Potential Classification Assessment Report is accurate has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of 40 CFR Part 257.73.

Golder Associates Inc.

Signature

Date of Report Certification

Tiffany D. Johnson, P.E.

Name

6201049160

Michigan P.E. #

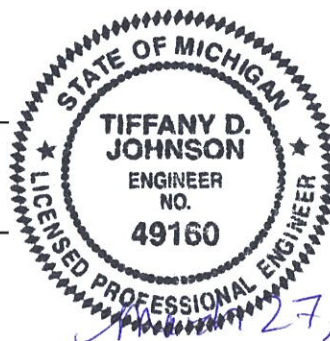




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1. INTRODUCTION

The United States Environmental Protection Agency (EPA) promulgated the Resource Conservation and Recovery Act (RCRA) Coal Combustion Residuals (CCR) Rule (Rule) on April 17, 2015, with an effective date of October 19, 2015. The Rule requires owners or operators of existing CCR surface impoundments to have Periodic Hazard Potential Classification Assessments certified by a qualified professional engineer in accordance with 40 CFR 257.73(a)(2). The initial hazard potential assessments are required to be completed and the results certified (per 40 CFR 257.73(a)(2)(ii)) for CCR surface impoundments. Golder Associates Inc. (Golder) was retained by the Grand Haven Board of Light and Power (GHBLP) to perform the assessment and certification of the Unit 3 East and West Bottom Ash Pond surface impoundments located on Harbor Island at the J.B. Sims Generating Station (JBSGS, Site), see Figures 1 and 2 for site location information.

As per the 40 CFR Preamble - Hazard Potential Ratings, each impoundment assessed was given a Hazard Potential Classification rating of either Less-than-Low, Low, Significant, and High. The hazard potential ratings refer to the potential for loss of life or damage if there is a dam failure. The ratings do not refer to the condition or structural stability of the dam, or the potential for the dam to fail. The four hazard potential classifications are defined as:

- High hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation will probably cause loss of human life.
- Significant hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.
- Low hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment's owner's property.
- Less than low hazard potential means a diked surface impoundment does not pose a high, significant, or low hazard.

Per the CCR Rule, owners and operators of CCR surface impoundments must determine each unit's hazard potential classification through a hazard potential classification assessment. Hazard potential classification assessments must be certified by a qualified professional engineer and documentation must be provided that supports the basis for the current hazard potential rating. An initial hazard potential assessment must be conducted within one year of the effective date of the rule for existing units and prior to the initial receipt of CCR in the unit for new units or lateral expansions.



CCR unit owners/operators must perform the hazard potential classification assessment for the following timeframes, as per the CCR Rule:

- initial assessments must be completed by October 17, 2016; and
- periodic re-assessment every five years.

Golder is submitting this Hazard Potential Classification Assessment Report (Report) to certify a significant hazard potential classification for the Unit 3 East and West Bottom Ash Ponds at the JBSGS per 40 CFR Part 257.73(a)(2).



2. INITIAL HAZARD POTENTIAL CLASSIFICATION BREACH ANALYSIS

2.1 Potential Breach Inundation Areas

The GHBLP JBSGS Unit 3 East and West Bottom Ash Ponds are located on Harbor Island, Grand Haven, Michigan and are situated between the power plant to the south and Grand Haven Island City Park to the north. There are no commercial or residential buildings on the island, and no public roadways nearby. Therefore, in the event of a catastrophic failure of the Unit 3 East and West Bottom Ash Ponds, there is no probable loss of life.

The potential path of breach flows based on site topography are shown in Figure 3. Breach flows from a catastrophic breach occurring on the north or east side of the Unit 3 East and West Bottom Ash Ponds would be directed towards the north into the adjacent wetlands, and ultimately into the Grand River. Breach flows from a catastrophic breach occurring on the west or south side of the Unit 3 East and West Bottom Ash Ponds would be directed towards the west into the Grand River adjacent to the Unit 3 East and West Bottom Ash Ponds.

The wetlands to the north are part of the Grand Harbor Island City Park, and is an important fishery for the area. The Grand River is bordered by the Kitchel-Lindquist Dunes Preserve, Grand Haven State Park, Mulligans Hollow Park, US Coast Guard Base, and a number of public marinas and boat launches. Because of the potential for environmental losses due to impacts to the adjacent wetlands and fisheries, and because of the potential economic loss due to impacts to commerce and tourism within the Grand River, the GHBLP JBSGS Unit 3 East and West Bottom Ash Ponds meet the definition of a Significant Hazard according to the CCR Rules.



3. SUBSEQUENT CCR RULE REQUIREMENTS OF SIGNIFICANT HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

For the GHBLP JBSGS Unit 3 East and West Bottom Ash Pond surface impoundments, a Significant Hazard potential classification assessment for existing CCR surface impoundments triggers the use of the 1,000-year flood event in the inflow design flood control system as required in 40 CFR 257.82. It also triggers an emergency action plan be developed as required in 40 CFR 257.73(a)(3).



4. CLOSING

This report has been prepared in general accordance with normally accepted civil engineering practices to fulfill the Resource Conservation and Recovery Act (RCRA) reporting requirements in accordance with 40 CFR 257.73(a)(2). Based on our review of the information provided by GHBLP and the Hazard Potential Classification documentation, the Bottom Ash Pond surface impoundments are a Significant Hazard. Golder's assessment is limited to the information provided to us by GHBLP. Golder cannot attest to the condition of subsurface or submerged structures.

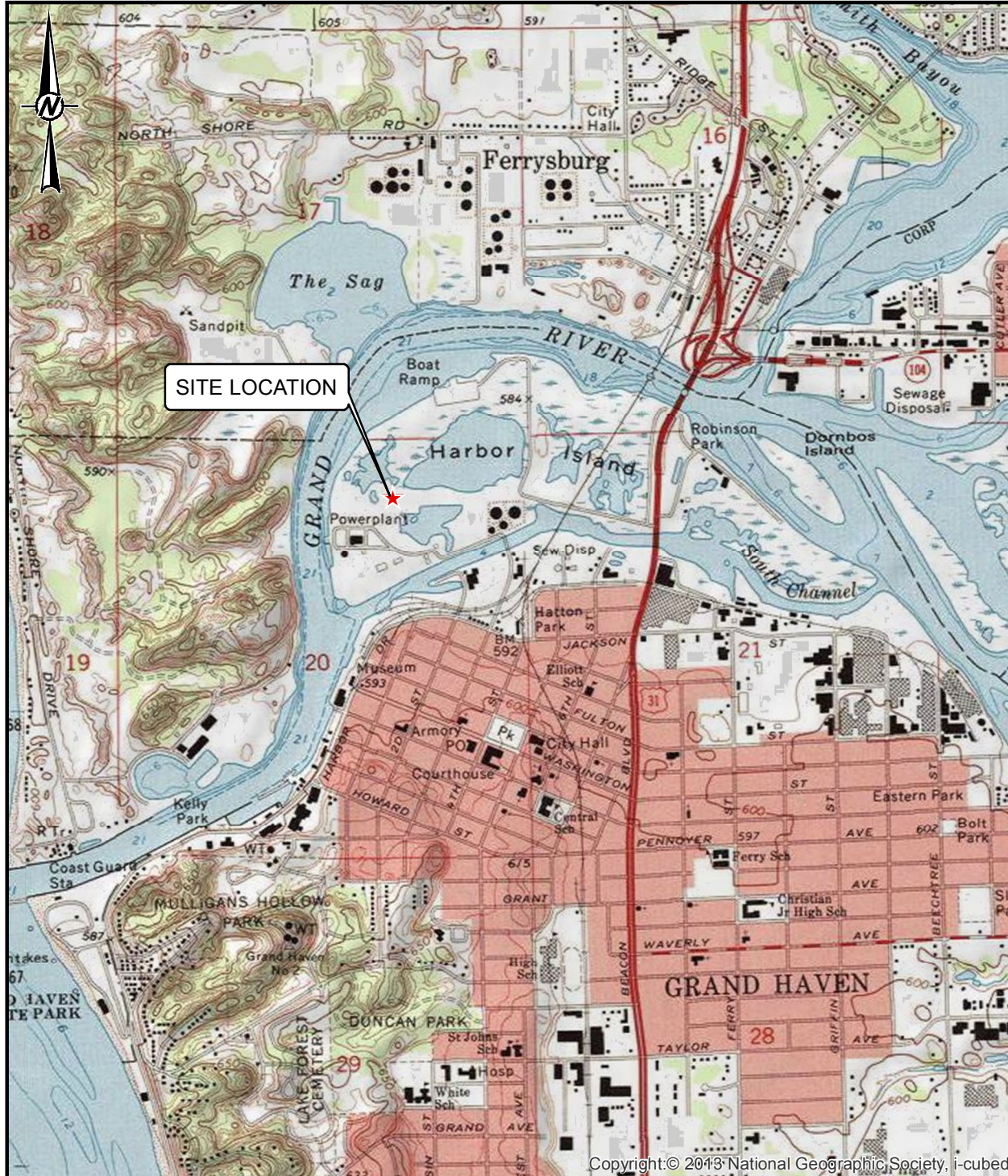
This report must be placed in the facility's operating record in accordance with 257.105(f) and must be made available on the facility's publicly accessible internet site in accordance with 257.107(f).

Sincerely,

GOLDER ASSOCIATES INC.

Tiffany D. Johnson, P.E.
Senior Consultant

David M. List, P.E.
Principal



CLIENT
GRAND HAVEN BOARD OF LIGHT AND POWER
HARBOR ISLAND DRIVE
GRAND HAVEN, MI

PROJECT
CCR RULE COMPLIANCE

TITLE
SITE LOCATION MAP

CONSULTANT



YYYY-MM-DD 2017-03-20

PREPARED JJS

DESIGN JJS

REVIEW

APPROVED

PROJECT No.
1775461

CONTROL
1775461A000-GIS.mxd

Rev.
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FIGURE
1



REFERENCE(S)

Service Layer Credits: Source: ESRI, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community.



CLIENT

GRAND HAVEN BOARD OF LIGHT AND POWER
HARBOR ISLAND DRIVE
GRAND HAVEN, MI

CONSULTANT



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DESIGNED JJS

PREPARED JJS

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PROJECT

CCR RULE COMPLIANCE

TITLE

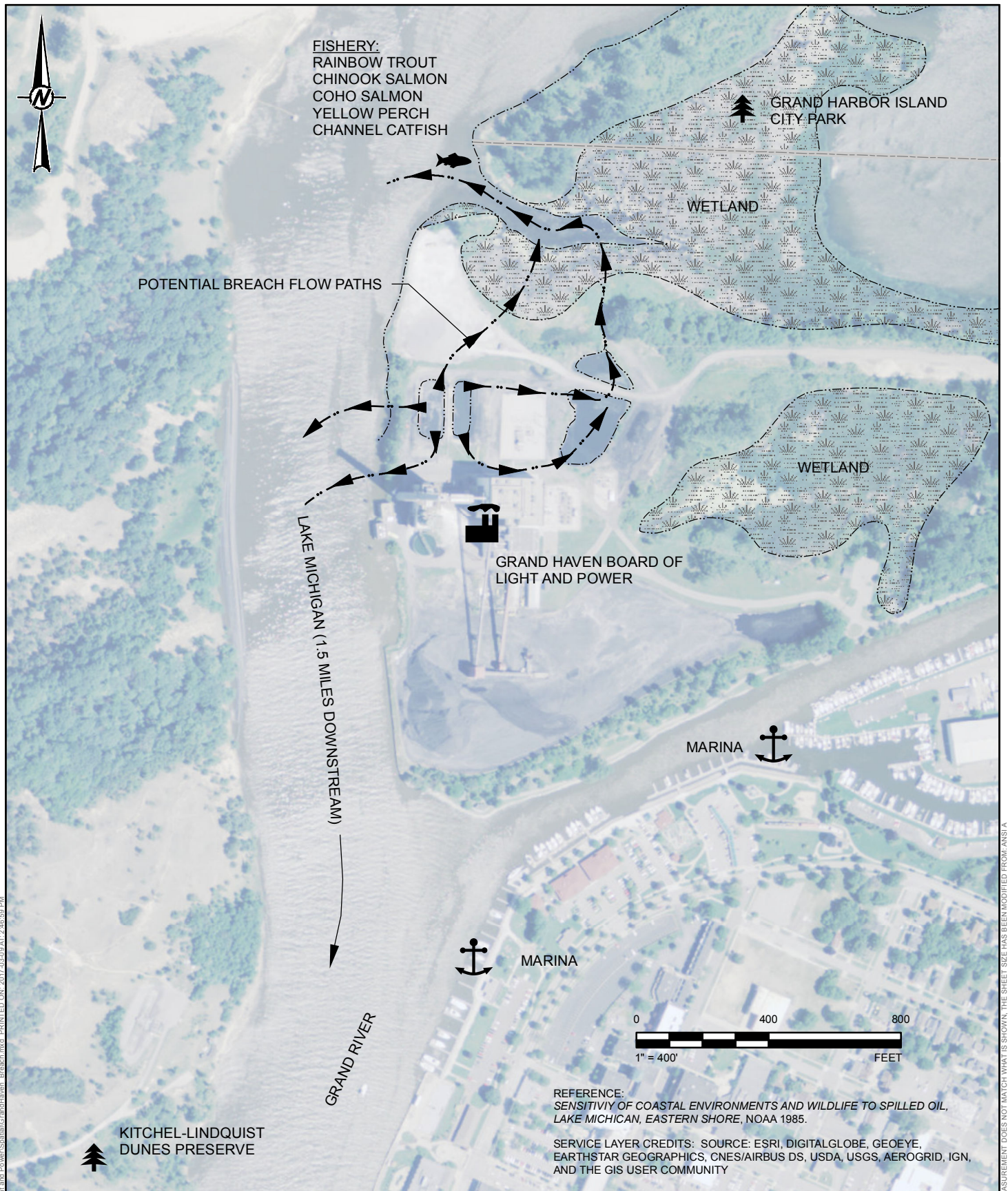
OVERALL SITE PLAN

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FIGURE
2



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YYYY-MM-DD 2017-03-10

DESIGNED MTC

PREPARED MTC

REVIEWED TDJ

APPROVED DML

PROJECT
 HAZARD CLASSIFICATION

TITLE
POTENTIAL BREACH FLOW PATHS

PROJECT NO.
 1775416

CONTROL
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FIGURE
3

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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