



# GRAND HAVEN BOARD OF LIGHT AND POWER - J.B. SIMS GENERATING STATION

## CCR SURFACE IMPOUNDMENT - NO ALTERNATIVE DISPOSAL CAPACITY DOCUMENTATION

*Pursuant to 40 CFR 257.103(b)(1)*

Submitted to:

**Grand Haven Board of Light and Power**

17000 Eaton Drive  
Grand Haven, Michigan 49417

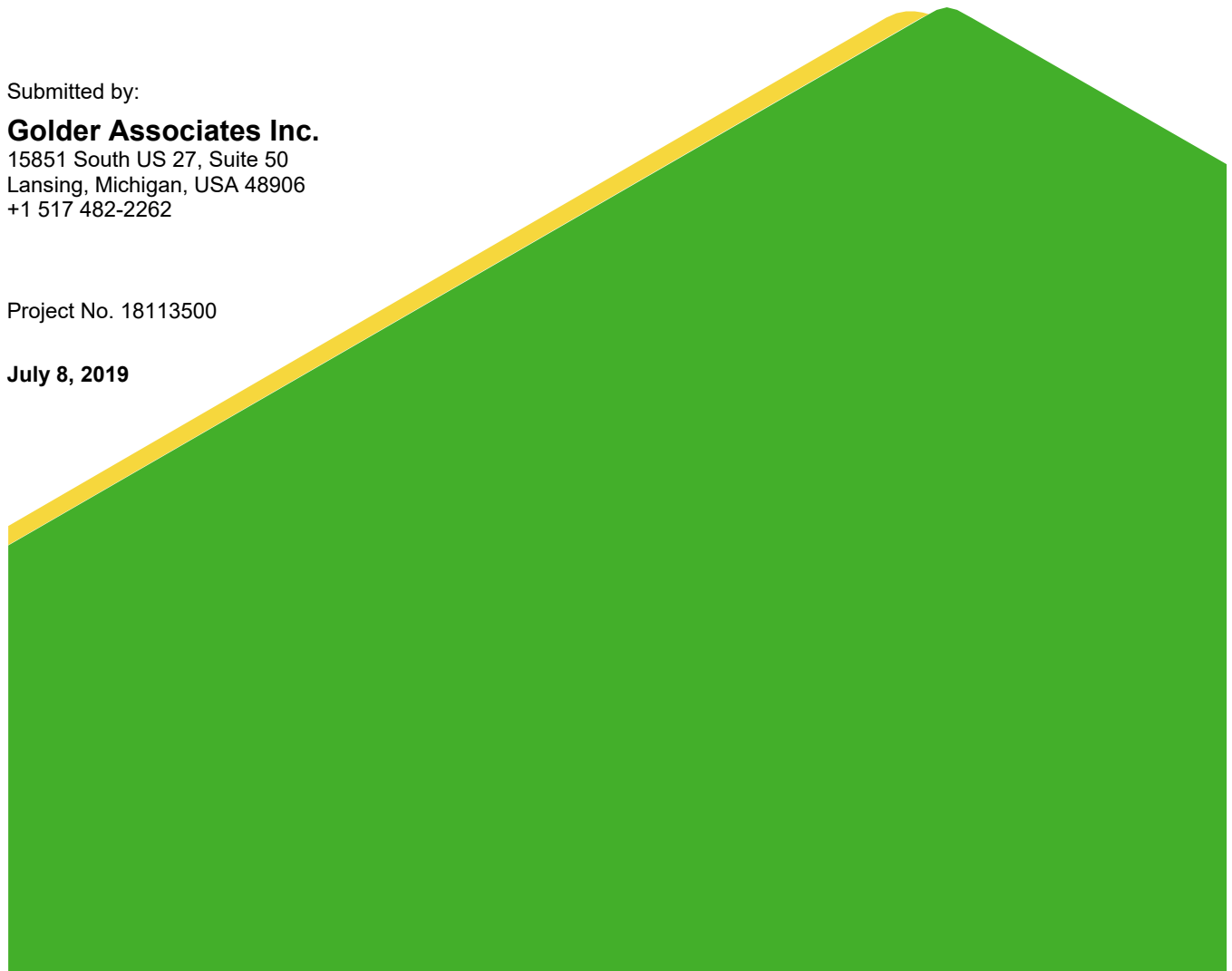
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**July 8, 2019**



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## ATTACHMENTS

Figure 1 – Site Location Map

Figure 2 – Overall Site Plan

## 1.0 INTRODUCTION

### 1.1 Background

The Grand Haven Board of Light and Power (GHBLP) J.B. Sims Generating Station (JB Sims or Site) manages coal combustion residuals (CCR) in two separate and distinct active surface impoundments referred to as the Unit 3 East and West Bottom Ash Ponds, as shown on Figures 1 and 2. The Units 1 and 2 Ash Ponds are inactive and no longer receive CCR.

### 1.2 Liner Documentation

As noted in the Liner Documentation Report (GHBLP, January 2018), the Unit 3 West Bottom Ash Pond has a liner system that meets the requirements of Title 40 of the Code of Federal Regulations Section 257.71 (40 CFR §257.71) with:

- A liner consisting of a minimum of two feet of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  centimeters per second (cm/sec) as required in Section §257.71(a)(1)(i).

The Unit 3 West Bottom Ash Pond has a documented 3-foot thick (minimum) compacted soil liner with a hydraulic conductivity of  $2.6 \times 10^{-8}$  cm/sec.

The Unit 3 East Bottom Ash Pond has a documented 3-foot thick (minimum) compacted soil liner with a hydraulic conductivity of  $3 \times 10^{-7}$  cm/sec.

Therefore, according to the Federal Standard the Unit 3 East Bottom Ash Pond is considered unlined, while the Unit 3 West Bottom Ash Pond meets the requirement for a lined pond.

### 1.3 Location Restrictions

The Unit 3 East and West Bottom Ash impoundments failed to successfully demonstrate the groundwater separation location restriction) standard of 40 CFR §257.60 and as a result, must close. In addition, monitoring of groundwater downgradient of the Unit 3 East and West Bottom Ash Ponds per 40 CFR §257.95(g) indicates releases in exceedance of the ground water protection standards, requiring assessment of corrective measures and closure.

In accordance with 40 CFR §257.103(b)(2), GHBLP is allowed to continue using the Unit 3 East and West Bottom Ash Ponds to manage CCR waste streams until the planned retirement of the power plant which is scheduled for June 2020.

### 1.4 Purpose

As stated in the Preamble of the Title 40 of the Code of Federal Regulations Section 257 (40 CFR §257), Section (C)(V)(M)(4)(b)(iii)(c) (page 21423 of the rule):

“c. Alternative Closure Requirements: The Agency is finalizing alternative closure requirements in two narrow circumstances for a CCR landfill or CCR surface impoundment that would otherwise have to cease receiving CCR and close, consistent with the requirements of § 257.101(a), (b)(1), or (d). The first is where the owner or operator can certify that CCR must continue to be managed in that CCR unit due to the absence of both on-site and off-site alternative disposal capacity. § 257.103(a). The second is where the owner or operator of a facility certifies that the facility will cease operation of the coal-fired boilers no later than the dates specified in the rule, but lacks

alternative disposal capacity in the interim. § 257.103(b). Under either of these alternatives, CCR units may continue to receive CCR under the specified conditions explained below. In addition, under either alternative, the owner or operator must continue to comply with all other requirements of the rule, including the requirement to conduct any necessary corrective action.

*1. No alternative CCR disposal capacity (§ 257.103(a)).* The Agency recognizes that the circumstance may arise where a facility's only disposal capacity, both on-site and off-site, is in a CCR unit that has triggered the closure requirements in § 257.101(a), (b)(1), or (d). As a result, the facility may be faced with either violating the closure requirements in § 257.101 by continuing to place CCR in a unit that is required to close, or having to cease generating power at that facility because there is no place in which to dispose of the resulting waste. For example, while it is possible to transport dry ash off-site to alternate disposal facility that simply is not feasible for wet-generated CCR. Nor can facilities immediately convert to dry handling systems. As noted previously, the law cannot compel actions that are physically impossible, and it is incumbent on EPA to develop a regulation that does not in essence establish such a standard."

The Preamble and 40 CFR §257.103(b)(1) outline specific conditions that must be met to qualify for continued operation of the Unit 3 East and West Bottom Ash Ponds at JB Sims. Golder Associates Inc. (Golder) has prepared this report to provide documentation pursuant to 40 CFR §257.103(b)(1)(i) that demonstrates the lack of existing alternative disposal capacity on- or off-Site, without consideration of increase in costs or inconvenience to GHBLP.

Per 40 CFR §257.103(b)(2), "for a CCR surface impoundment that is 40 acres or smaller, the coal-fired boiler must cease operation and the CCR surface impoundment must have completed closure no later than October 17, 2023". The GHBLP JB Sims Board has certified and announced that CCR operations will cease no later than June 2020, with plant operations ceasing as early as February 2020, as required by 40 CFR §257.103(b)(1) and (b)(2).

## 2.0 DOCUMENTATION

To satisfy the requirements of 40 CFR §257.103(b)(1) the following sections have been prepared: 1) detail the construction and current use of the Unit 3 East and West Bottom Ash Ponds, 2) estimate average daily flows into existing impoundments based on current use, and 3) evaluate existing on- and off-Site alternative disposal options.

### 2.1 Unit 3 East and West Bottom Ash Ponds

The two distinct and separate Unit 3 East and West Bottom Ash Ponds are located adjacent to each other and are formed by earthen embankments or ring dikes with a common embankment between them, as shown on Figure 2. The impoundment areas range from 175 to 190 feet long by 71 to 80 feet wide with an approximate surface area of 0.2 and 0.3 acres for the east and west ponds, respectively. The ponds were designed by Black & Veatch in 1981 and are constructed with compacted clay embankments with three horizontal to one vertical (3H:1V) exterior slopes and 2H:1V interior slopes with an approximately 10 feet wide crest. The embankments are not regulated as dams by the Michigan Dam Safety office.

Both ponds were constructed with minimum 3 feet of compacted clay over the floor and are approximately 9 feet deep. The design bottom elevation of the ponds is Elevation (EI) 585 feet (NGVD 29 datum and site benchmarks) and the current crest elevation ranges from 591.2 to 592.7 feet. Based on discussions with GHBLP personnel, normal operating conditions maintain a pond elevation of approximately EI 588 to 590 feet (1.2 to 4.7 feet of

freeboard). The estimated storage capacity of each pond (with two feet of freeboard) is approximately 68,000 and 77,000 cubic feet for the east and west ponds, respectively.

The ponds currently receive sluiced bottom ash and blowdown water (which includes flue gas desulfurization (FGD) waste and coal pile runoff) from the plant. Dewatered bottom ash is excavated from these ponds via crane or excavator and transported off-site to the Ottawa County Farms Landfill. Periodically, GHBLP relines the ash ponds with clay to replace the clay liner that is removed during pond cleaning.

## 2.2 Capacity Estimate

As described above, the Unit 3 East and West Bottom Ash Ponds receive CCR-associated water and other water from multiple sources. Upon review, it has been determined to be impractical to separate the CCR associated flows from the non-CCR associated flows and therefore identified that the alternate disposal options need to provide capacity for the combined total of all flow sources discharging to these impoundments. GHBLP provided Site flow data that estimates average flows from each main source described above. As some sources were intermittent and/or minimal, Golder focused the daily flow estimate on normal operational flow volumes, knowing that during certain events, flows to the impoundments would be greater.

Golder estimates that during normal operations approximately 325,700 gallons per day (gpd), or 43,540 cubic feet per day, will need alternate disposal if the Unit 3 East and West Bottom Ash Ponds are both taken off-line and closed. This estimate is based on contributing flows from:

- Unit 3 Blowdown (321,800 gpd)
- Unit 3 Bottom Ash Sluice/Slag (3,900 gpd)

## 2.3 Existing On-Site Disposal Options

40 CFR §257.103(b)(1)(i) indicates that GHBLP must demonstrate that there is no available existing on-Site containment that could accept the rerouted 325,700 gpd of flow that is currently discharged into the Unit 3 East and West Bottom Ash Ponds. Golder has evaluated the existing containment structures that are on-Site and found that there is no existing structure meeting the applicable requirements of 40 CFR Part 257, Subpart D- Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments.

## 2.4 Existing Off-Site Disposal Options

40 CFR §257.103(b)(1)(i) indicates that GHBLP must demonstrate that there is no available existing off-Site disposal options that could accept the rerouted 327,700 gpd of flow that is currently discharged into the Unit 3 East and West Bottom Ash Ponds. Golder has concluded that for a viable off-Site disposal option, all of the flow (325,700 gpd) would need to be hauled offsite via wastewater tanker trucks. Typical tanker trucks vary in size from approximately 5,000 to 10,000 gallons. Based on the volume of flow required and an average tanker truck capacity of 7,500 gallons, Golder calculated that GHBLP would need to accommodate off-hauling at a maximum rate of 43 trucks per day (5 trucks per hour), operating 8 hours a day, 7 days a week.

GHBLP currently disposes of the dry bottom ash at the Ottawa County Farms Landfill which is approximately 15.3 miles (23 minutes' drive) from the Site. Based on discussions with Ottawa County Farms Landfill, they will not accept the bottom ash unless it is dry and cannot accept the required volume of trucks (approximately 5 trucks per hour for 8 hours per day). Golder has also reviewed the logistics of filling 5 trucks per hour and this option is not technically feasible given the time it would take to fill five 5,000 to 10,000-gallon tanker trucks. Additionally, time also needs to be taken into account to get the tanker trucks onto the Site, through security, following the posted

speed limits, and into a staging area for filling, transporting offsite, unloading, and then going back to the power plant for another load. The time requirements logistically needed, if a site was available for disposal, make this option infeasible due to the transportation requirements alone.

Golder has contacted other Type II landfills proximate to the JB Sims site and they will not accept the waste stream either. In Michigan, Type II and Type III Landfills are not permitted to take liquid waste without approval from the Michigan Department of Environment, Great Lakes and Energy (EGLE) and must be solidified prior to disposal in the landfill.

Finally, the health and safety risks of the additional truck traffic both on-Site and on the public roads in the tourist town of Grand Haven, Michigan makes the off-hauling of wet CCR not a viable option.

### 3.0 CERTIFICATION

Golder has prepared this report to provide the necessary documentation pursuant to 40 CFR §257.103(b)(1)(i) and (2) that evaluates the existing alternative disposal capacity on- or off-Site, without consideration of increase in costs or inconvenience to GHBLP.

### 4.0 CLOSING

It is Golder's opinion that the information contained herein is true, accurate and has been prepared in accordance with good engineering practices and that the documentation provided, in accordance with 40 CFR §257.103(b)(1)(i) and (2), supports that there is no existing alternative disposal capacity on- or off-Site that could accept the flow currently being impounded in the Unit 3 East and West Bottom Ash Ponds at the GHBLP.

**Golder Associates Inc.**

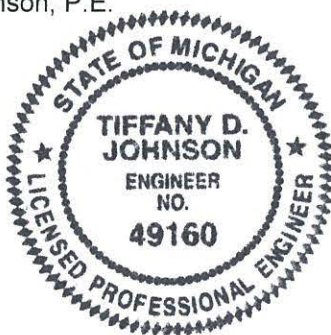


Tiffany D. Johnson, P.E.  
Associate



David M. List, P.E.  
Principal

TDJ/dml



## 5.0 REFERENCES

GHBLP, Documentation of Liner Construction, Pursuant to 40 CFR 257.71, Units 1 and 2 Inactive Ash Ponds and Unit 3 Active East and West Ash Pond Surface Impoundments, prepared by Golder Associates Inc., dated January 2018.

GHBLP, Annual Groundwater Monitoring & Corrective Action Report, prepared by Golder Associates Inc., dated January 2019

GHBLP, Location Restrictions Certification Report, Units 1&2 and Unit 3 East and West Surface Impoundments, Pursuant to 40 CFR 257.60 through 64, prepared by Golder Associates Inc., dated September 2018.

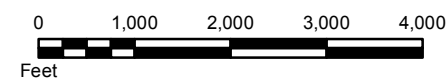
USEPA (US Environmental Protection Agency). 2015. Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. 40 CFR Part 257. Effective Date October 19, 2015, amended July 2018.

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## Figures





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



GOLDER

PREPARED JJS

DESIGN JJS

REVIEW DMI

APPROVED TDJ

PROJECT No.  
1789024

CONTROL  
1775461A000-GIS.mxd

Rev.  
0

FIGURE  
1





UNIT 3 WEST  
BOTTOM ASH  
POND

UNIT 3 EAST  
BOTTOM ASH  
POND

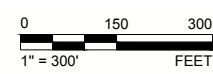
UNIT 1 ASH POND

UNIT 2 ASH POND

J.B.SIMS  
GENERATING  
STATION

GRAND  
RIVER

NPDES OUTFALL  
LOCATION



**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**



YYYY-MM-DD	2017-03-20
DESIGNED	JJS
PREPARED	JJS
REVIEWED	DML
APPROVED	TDJ

**PROJECT**

CCR RULE COMPLIANCE

**TITLE**

OVERALL SITE PLAN

PROJECT NO.	CONTROL	REV.	FIGURE
1789024			2



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