



# Location Restrictions Certification Report

## *NIPSCO Bailly Generating Station Impoundments*

Pursuant to:

40 CFR §257.60

40 CFR §257.61

40 CFR §257.62

40 CFR §257.63

40 CFR §257.64

Submitted to:

**Northern Indiana Public Service Company**

Bailly Station

Chesterton, Indiana

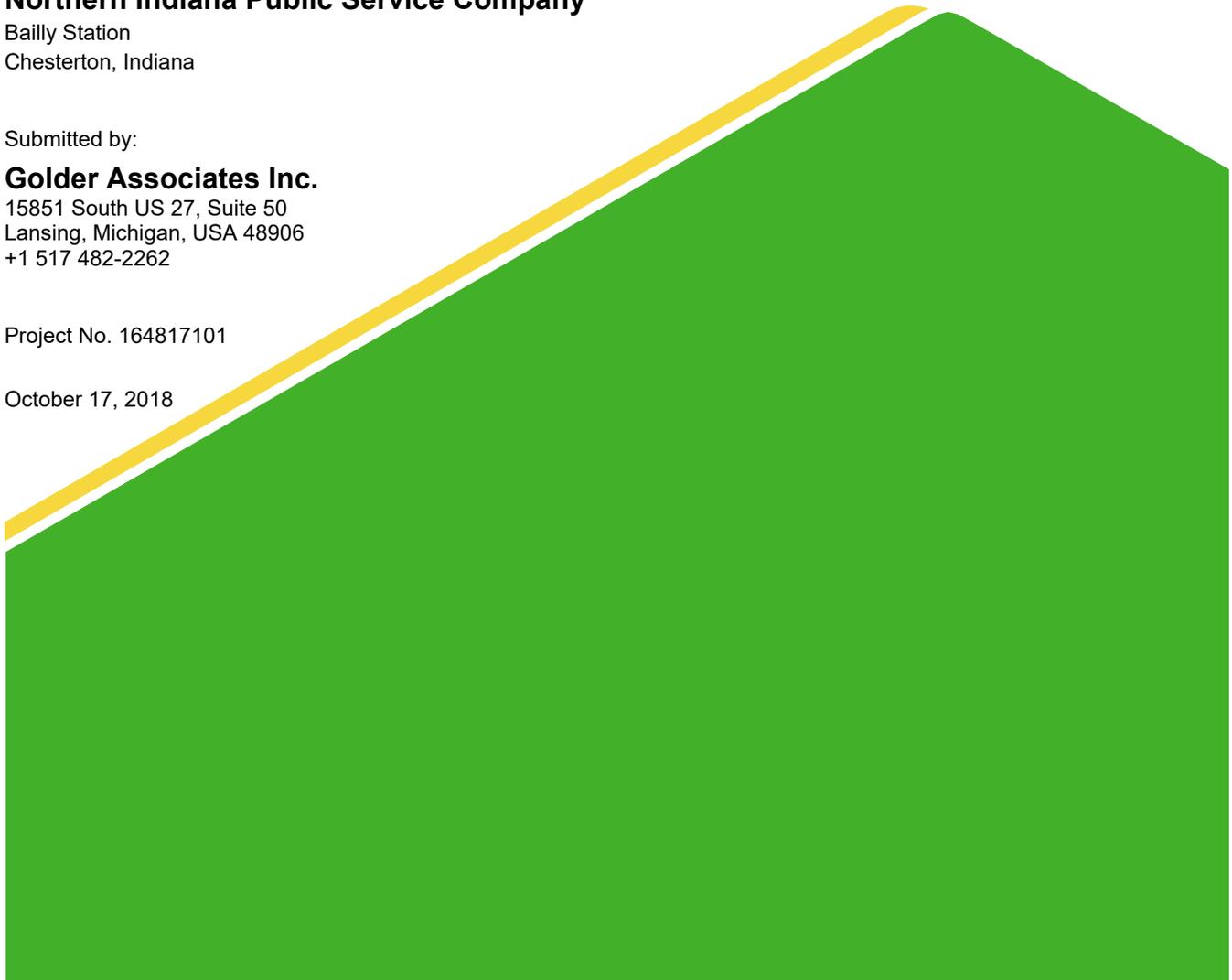
Submitted by:

**Golder Associates Inc.**

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Project No. 164817101

October 17, 2018

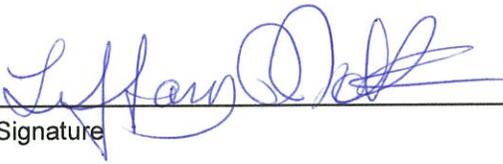


## CERTIFICATION

### Professional Engineer Certification Statement [40 CFR §257.60-64(b)]

I hereby certify that, having reviewed the attached documentation and being familiar with the provisions of Title 40 of the Code of Federal Regulations, Sections 257.60 through 64 (40 CFR §257.60-64), I attest that this NIPSCO Bailly Generating Station Location Restrictions Certification Report is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of 40 CFR §257.60-64.

Golder Associates Inc.

  
Signature



10/17/18  
Date of Report Certification

Tiffany D. Johnson, P.E.  
Name

PE11500730  
Indiana Professional Engineer Certification Number

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## 1.0 INTRODUCTION

### 1.1 Background

40 Code of Federal Regulations (CFR) Parts 257 and 261, “Hazardous and Soil Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule” (CCR Final Rule), as amended, and corresponding regulations under 329 Indiana Administrative Code (IAC) 10-9-1 place requirements on the location of CCR management units. Golder Associates Inc. (Golder) on behalf of Northern Indiana Public Service Company (NIPSCO) evaluated the location criteria and prepared this Location Restrictions Certification Report for the Bailly Generating Station (BGS) Boiler Slag Pond (BSP), Primary 1, Primary 2, and Secondary 1 (together, the CCR Units). BGS encompasses approximately 100 acres located at 246 Bailly Station Road in Chesterton, Porter County, Indiana. (Latitude 41° 38' 40" N and Longitude 87° 05' 20" W, see Figure 1). As shown in Figure 2, the CCR Units include:

- BSP is an approximately 3.5-acre lined surface impoundment on the west side of the Site.
- Primary 1 is an approximately six-acre lined surface impoundment to the east of the BSP.
- Primary 2 is an approximately eight-acre lined surface impoundment to the east of Primary 1.
- Secondary 1 is an approximately three-acre lined surface impoundment to the east of Primary 2.

Each CCR unit is lined with a membrane, although the liner system does not meet the current standards of 40 CFR, §257.70.

### 1.2 Purpose

The purpose of this Location Restrictions Certification Report is to provide demonstrations for the certification required by 40 CFR §257.60-64. Location Restrictions criteria include:

- §257.60 Placement above the uppermost aquifer
- §257.61 Wetlands
- §257.62 Fault areas
- §257.63 Seismic impact zones
- §257.64 Unstable areas

## 2.0 LOCATION RESTRICTIONS

The following sections outline NIPSCO’s (“owner”) requirements as presented in 40 CFR §257 Subpart D, Location Restrictions regulations.

### 2.1 Placement Above the Uppermost Aquifer [40 CFR §257.60]

NIPSCO collected groundwater elevation data from monitoring wells surrounding the CCR Units. The data collected indicate the maximum upper limit of the uppermost aquifer was approximately 610 feet mean sea level (ft msl). Golder measured 70 survey locations to determine the approximate elevation of the liner material in each CCR Unit. Results of these activities indicate the bottom elevation of the BSP, Primary 1, Primary 2, and Secondary 1 to be approximately 611 ft msl, 612 ft msl, 609 ft msl, 607 ft msl, respectively. This separation distance does not satisfy the requirements set forth in 40 CFR 257.60(a).

## 2.2 Wetlands [40 CFR §257.61]

To evaluate the location of the BGS CCR Units relative to wetlands, Golder reviewed readily available information:

- US Geological Survey (USGS) topographic map
- National Wetland Inventory (NWI) map
- US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey map
- Aerial imagery
- Federal Emergency Management Agency (FEMA) floodplain map

In addition to the desktop data review, Golder staff completed a field reconnaissance to evaluate the presence or absence of wetlands at the Site. Wetlands are mapped in areas adjacent to the Site (NWI Map). The BGS CCR Units are located in areas mapped as non-hydric soil types (NRCS Web Soil Survey). Visual observation during the Site visit indicated that there were no wetlands within the footprint of the Boiler Slag Pond, Primary 1, Primary 2, and Secondary 1. Based on Site reconnaissance and information compiled by Golder, the BGS CCR Units are not located within wetlands and meet the requirements of 40 CFR §257.61.

## 2.3 Fault Areas [40 CFR §257.62]

Based on Indiana Geological Survey Miscellaneous Map 85 (Gray and Steinmetz, 2012) the closest fault that has displaced during Holocene time is the 'Royal Center Fault' which is located approximately 60 miles southeast of the BGS. Therefore, the CCR Units at the Site are not located within 200 feet of the outermost damage zone of a Holocene fault and meets the requirements of 40 CFR §257.62.

## 2.4 Seismic Impact Zones [40 CFR §257.63]

The United States Geological Survey (USGS) reports peak horizontal ground acceleration (PGA) at BGS to be approximately 0.05 g with a 2% probability of exceedance in 50 years using the values from the 2015 National Earthquake Hazards Reduction Program Recommended Seismic Provisions for New Buildings and Other Structures (USGS, 2018). Therefore, the CCR Units at the Site are not located within a seismic impact zone as defined by 40 CFR 257.63, thereby meeting this requirement.

## 2.5 Unstable Areas [40 CFR §257.64]

Based on research conducted through the Indiana Geological Survey information website (<http://igs.indiana.edu/>), the USGS, and historical reports prepared by Golder and others for the BGS site, the following unstable areas information was identified.

### 2.5.1 Petroleum Fields/Wells

There are two dry petroleum well zones located at the Site. The well zones are as deep as 1,300 feet. The closest zone is identified 0.4 miles east of the Site.

### 2.5.2 Sand and Gravel Pit

There are three abandoned sand/gravel pits identified approximately 1.5 miles south and west of the Site.

### 2.5.3 Active Mineral

There are three active industrial mineral sites identified within three miles of the Site. The closest identified industrial mineral site is approximately one mile south of the Site.

### 2.5.4 Karst

There are no karst terrain locations mapped near the Site.

### 2.5.5 Liquefaction Potential

The CCR Units at the Site are incised so there are no slopes or berms subject to liquefaction potential.

### 2.5.6 Surface Mine

There are no surface mines identified near the Site.

### 2.5.7 Underground Mine

There are no underground coal mines identified near the Site.

### 2.5.8 Steep Slope

The CCR Units at the Site are incised so there are no slopes or berms.

### 2.5.9 Abandoned Quarries

There are no abandoned quarries identified near the Site.

### 2.5.10 Differential Settlement

According to DAppolonia (1980), there is an inclined clay layer, named "Unit 2", beneath the CCR Units. The layer is present at an approximate depth of 30 to 40 feet below ground surface (ft bgs) and has been fully consolidated since the CCR units were built decades ago. Therefore, differential settlement is not expected.

Based on Golder's evaluation of the data resources available, the CCR Units at the BGS meet the stability requirements under 40 CFR §257.64.

## 3.0 CONCLUSION AND SUMMARY

This report has been prepared in general accordance with normally accepted civil engineering practices to fulfill the reporting requirements of 40 CFR §257.60-257.64. Based on the review of the available information provided by NIPSCO, the CCR Units the BSP, Primary 1, Primary 2, and Secondary 1 do not meet the requirements for the minimum separation between the CCR Unit base and the upper limit of the uppermost aquifer and therefore is subject to 40 CFR §257.101(b)(1).

This report will be placed in the facility's operating record in accordance with 40 CFR 257.105(e) and will be made available on the facility's publicly accessible internet site in accordance with 40 CFR 257.107(e).

## 4.0 REFERENCES

Advanced Geosciences, Inc. (2008). Instruction Manual for EarthImager 2D Version 2.3.0 Resistivity and IP Inversion Software.

AMEC Earth & Environmental, "RCRA Current Conditions Report, NIPSCO Bailly Generating Station Chesterton, Indiana, Northern Indiana Public Service Company, Merrillville, Indiana", April 2005.

DAppolonia Consulting Engineers, "Preliminary Review Soil Parameters Used in USGS Report 78-138", 1980.

Gray, W. E., Steinmetz, J. C. 2012, Map showing known faults and historic earthquake epicenters having magnitude 3.0 and larger in Indiana: Indiana Geological Survey Miscellaneous Map 85.

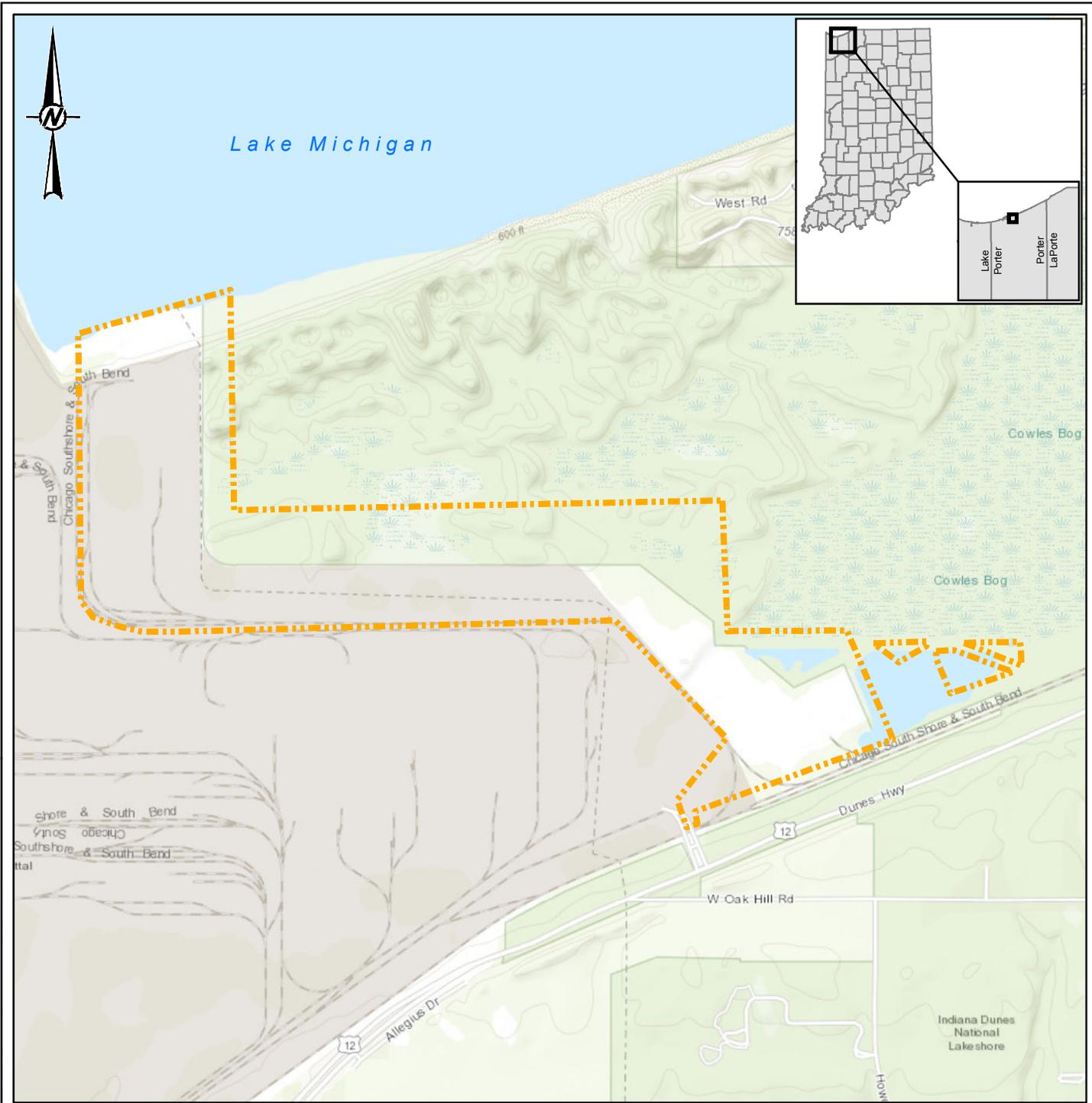
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Rubin, Yoram and S. Hubbard (2006). Hydrogeophysics. Dordrecht, Netherlands: Springer.

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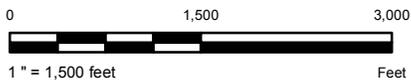
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United States Geological Survey, U.S. Seismic Design Maps. Retrieved September 2018, from <https://earthquake.usgs.gov/designmaps/beta/us/>.



**LEGEND**

 Approximate Property Line



**NOTE(S)**

**REFERENCE(S)**

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP, GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), SWISSTOPO, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

**CLIENT**

NORTHERN INDIANA PUBLIC SERVICE COMPANY

**PROJECT**

NORTHERN INDIANA PUBLIC SERVICE COMPANY  
BAILY GENERATING STATION  
CHESTERTON, INDIANA

**TITLE**

**SITE LOCATION MAP**

**CONSULTANT**



YYYY-MM-DD	10/12/2018
DESIGNED	DFS
PREPARED	SHL
REVIEWED	JSP
APPROVED	MAH

PROJECT NO.  
164817101

CONTROL  
A

REV.  
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FIGURE  
1

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**LEGEND**

- CCR Unit
- Approximate Property Line

0                      500                      1,000  
 1" = 500 feet                      Feet

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**REFERENCE(S)**  
 SERVICE LAYER CREDITS: © 2018 MICROSOFT CORPORATION © 2018 DIGITALGLOBE ©CNES (2018) DISTRIBUTION AIRBUS DS

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CLIENT  
 NORTHERN INDIANA PUBLIC SERVICE COMPANY

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PROJECT  
 NORTHERN INDIANA PUBLIC SERVICE COMPANY  
 BAILLY GENERATING STATION  
 CHESTERTON, INDIANA

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TITLE  
**CCR UNIT LOCATION MAP**

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CONSULTANT	YYYY-MM-DD	10/12/2018
	DESIGNED	JSP
	PREPARED	SHL
	REVIEWED	JSP
	APPROVED	MAH

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PROJECT NO. 164817101	CONTROL A	REV. 0	FIGURE <b>2</b>
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