



Location Restrictions Certification Report

NIPSCO Michigan City Generating Station Boiler Slag Pond

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

Michigan City Generating Station

Michigan City, Indiana

Submitted by:

Golder Associates Inc.

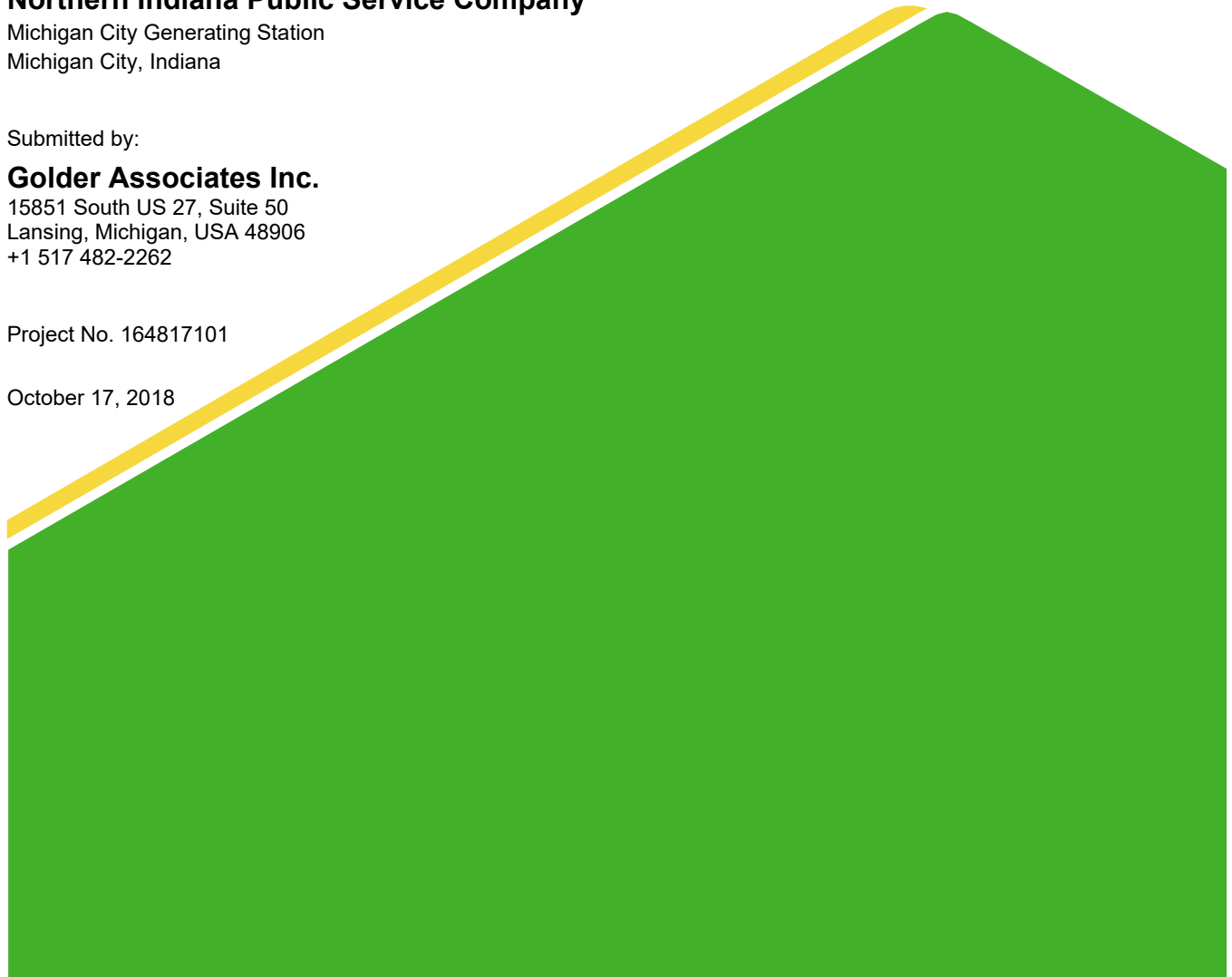
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Project No. 164817101

October 17, 2018

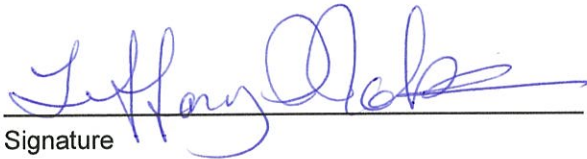


CERTIFICATION

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 Michigan City 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 Michigan City Generating Station (MCGS - Site) Boiler Slag Pond (BSP, the CCR Unit) located in Michigan City, Indiana. MCGS is located at 101 Wabash Street, in Michigan City, LaPorte County, Indiana (Latitude 41° 43’ 15” N and Longitude 86° 54’ 30” W, see Figure 1). The Site, located in a mixed industrial, commercial, and residential area, is bounded to the east by Trail Creek, to the north by Lake Michigan, to the south by Chicago South Shore & South Bend Railroad (CSS) tracks and further south by West Michigan Street/Indiana Route 12 and commercial/residential properties, and to the west/southwest by the Indiana Dunes National Lake Shore (IDNL). The BSP is an approximately 2.5-acre surface impoundment (Figure 2).

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 BSP. The data indicate the maximum upper limit of the uppermost aquifer was approximately 588 feet mean sea level (msl). Golder advanced a soil boring within the BSP and completed three geophysical lines to assess the presence and thickness of CCR and thus, the bottom elevation (base) of the BSP. Results of these activities indicate the bottom elevation of the BSP (and, thus, the base) is between 585 feet msl and 589 feet msl. 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 BSP 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 BSP (NWI Map). The BSP is 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 BSP. Based on Site reconnaissance and information compiled by Golder, the BSP is not located within wetlands and meets the requirements of 40 CFR §257.61.

2.3 Fault Areas [40 CFR §257.62]

Based on Gray and Steinmetz (2012), the closest fault that has displaced during Holocene time is the 'Royal Center Fault' which is located approximately 60 miles south of the MCGS. Therefore, the BSP is 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 MCGS 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 BSP is 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 MCGS site, the following unstable areas information was identified.

2.5.1 Petroleum Fields/Wells

There is an 860 feet deep dry petroleum well identified approximately 0.35 miles west of the Site.

2.5.2 Sand and Gravel Pit

There is an abandoned sand/gravel pit identified approximately 0.35 mile west of the Site.

2.5.3 Active Mineral

There are no active industrial mineral sites identified within three miles of the Site.

2.5.4 Karst

There are no karst terrain locations mapped near the Site.

2.5.5 Liquefaction Potential

Based on the historical information prepared for the site (Golder, 2018), the BSP embankments and foundation soils are not susceptible to seismically induced liquefaction.

2.5.6 Surface Mine

There are no surface coal 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

There are notable steep slopes, north of the BSP, sloping down to Lake Michigan. Golder performed a slope stability analysis. Results of the slope stability analysis indicate that the BSP slopes have an acceptable factor of safety (Golder, 2012, 2018).

2.5.9 Abandoned Quarries

There are no abandoned quarries identified near the Site.

2.5.10 Differential Settlement

Differential settlement is not expected in the foundation soils for the BSP (Golder, 2012).

Based on Golder's evaluation of the data resources available, the BSP meets 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 BSP does 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.

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.

Golder Associates Inc., "2012 Geotechnical Investigation and Embankment Stability Analyses, NIPSCO Michigan City Generating Station", August 2012.

Golder Associates Inc., "NIPSCO Michigan City Generating Station Primary Settling Pond No. 2 (Primary 2) Structural Stability and Safety Factor Assessment, Michigan City Indiana, Pursuant to 40 CFR 257.73(d) & 257.73(e)", March 2018.

Indiana Geological website, <http://maps.indiana.edu/LayerGallery.html>, September 2018.

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

Sheriff, Robert E. (2002). Encyclopedic Dictionary of Applied Geophysics. Tulsa, Oklahoma: Society of Exploration Geophysicists, 2002.

United States Geological Survey website, <http://earthquake.usgs.gov>, September 2018.

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

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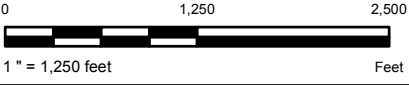
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LEGEND

 Approximate Property Line



NOTE(S)

REFERENCE(S)

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

CLIENT

NORTHERN INDIANA PUBLIC SERVICE COMPANY

PROJECT

NORTHERN INDIANA PUBLIC SERVICE COMPANY
MICHIGAN CITY GENERATING STATION
MICHIGAN CITY, INDIANA

TITLE

SITE LOCATION MAP

CONSULTANT

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



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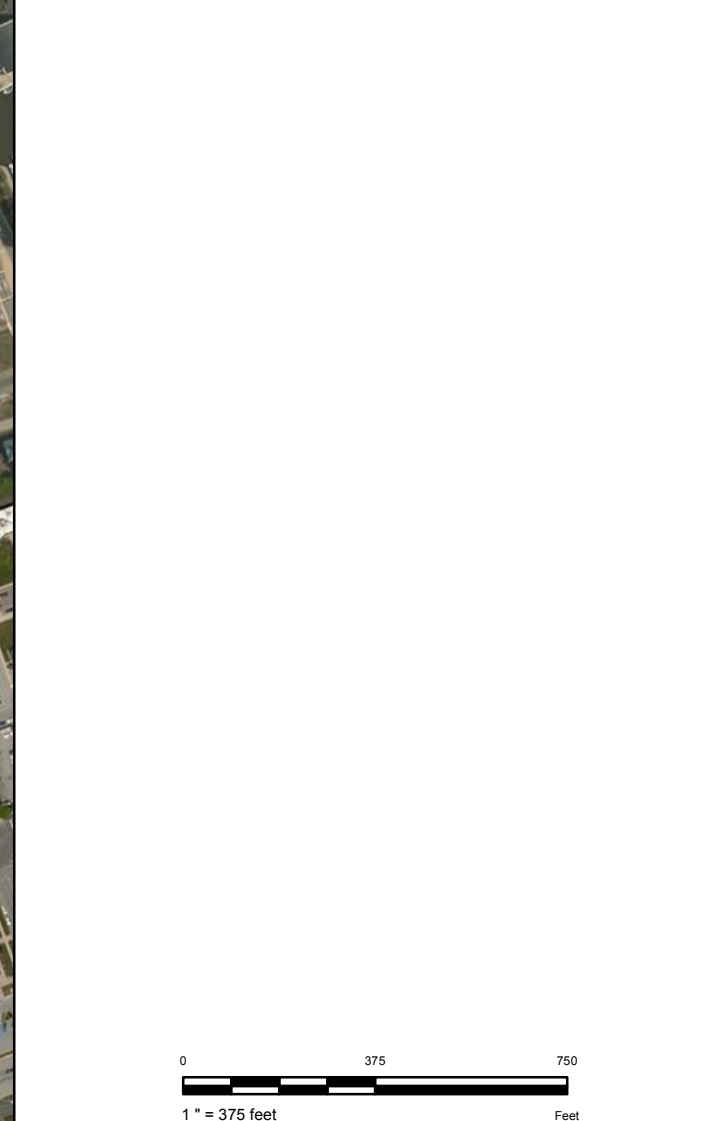
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LEGEND

- CCR Unit
- Existing Sheet Piles
- Approximate Property Line



NOTE(S)

REFERENCE(S)
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CLIENT
 NORTHERN INDIANA PUBLIC SERVICE COMPANY

PROJECT
 NORTHERN INDIANA PUBLIC SERVICE COMPANY
 MICHIGAN CITY GENERATING STATION
 MICHIGAN CITY, INDIANA

TITLE
 CCR UNIT LOCATION MAP

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

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