Location Restrictions Certification Report

NIPSCO R. M. Schahfer 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
R. M. Schahfer Generating Station
Wheatfield, Indiana

Submitted by:

Golder Associates Inc.
15851 South US 27, Suite 50
Lansing, Michigan, USA 48906
+1 517 482-2262

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 R. M. Schahfer Generating Station Impoundments 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 R. M. Schahfer (RMSGS) Waste Disposal Area (WDA), Material Storage Runoff Basin (MSRB), Metal Cleaning Waste Basin (MCWB), and the Drying Area (together, the CCR Units). RMSGS occupies an area of approximately four-square miles located at 2723 E 1500 N Road, Wheatfield, Jasper County, Indiana (Latitude 41° 12' 36" and Longitude 87° 01' 48", see Figure 1). WDA is an approximately 80-acre impoundment that is surrounded by a slurry wall and located in the southwest region of RMSGS. The Drying Area is an approximately 5.5-acre impoundment that is surrounded by a slurry wall and located north-northeast of the WDA. The Drying Area has been completely filled with CCR. The MSRB and MCWB consist of two rectangular, approximately 15-acre impoundments located adjacent to one another. The ponds are separated by a narrow berm. While there is a perimeter slurry wall around the basins, there is no slurry wall within the narrow berm between the basins. These ponds are located north of the Drying Area. The location of all of the CCR Units is shown on 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 has collected groundwater elevation data from monitoring wells surrounding the CCR Units. The data collected indicate the maximum upper limit of the upper most aquifer was approximately 660 feet mean sea level (ft msl). Golder reviewed construction drawings, advanced 10 soil borings within the CCR Units, and completed 28 geophysical lines to better understand the presence and thickness of CCR and thus, the bottom elevation (base) of the CCR Units. Results of these activities indicate the elevation of the bottom of CCR (and, thus, the base) of the WDA to be between 635 ft msl and 665 ft msl, the MSRB and Drying Area to be between 657 ft msl and 660 ft msl, and the MCWB to be between 661 ft msl and 664 ft 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 RMSGS 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). Visual observation during the Site visit indicated that there were no wetlands within the footprint of the WDA, MSRB, MCWB and the Drying Area. Based on Site reconnaissance and information compiled by Golder, the RMSGS 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 35 miles southeast of the RMSGS. Therefore, the CCR units at the Site are not located within 200 feet of the outermost damage zone of a Holocene fault.

2.4 Seismic Impact Zones [40 CFR §257.63]

The United Stated Geological Survey (USGS) reports peak horizontal ground acceleration (PGA) at RMSGS to be approximately 0.06 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 RMSGS site, the following unstable areas information was identified.

2.5.1 Petroleum Fields/Wells

There is a 400 feet deep petroleum well identified 0.5 miles north and west of the Site.

2.5.2 Sand and Gravel Pit

The closest identified pit is located approximately two miles east of the Site.

2.5.3 Active Mineral

There are no active industrial minerals 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, 2016), the embankments and foundation soils for the RMSGS CCR Units 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 embankments with notable steep slopes for the CCR Units. Golder performed a slope stability analysis and the results of the slope stability analysis indicate that the CCR Unit slopes have an acceptable factor of safety (Golder, 2011, 2016).

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 CCR Units at RMSGS (Golder, 2011).

Based on Golder's evaluation of the data resources available, the CCR Units at the RMSGS 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 WDA, Drying Area, MSRB, and the MCWB 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.

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., "2011 Geotechnical Investigation and Embankment Stability Analyses", October 2011.

Golder Associates Inc., “NIPSCO R.M. Schahfer Generating Facility Waste Disposal Area (WDA) Structural Stability and Safety Factor Assessment, Wheatfield, Indiana, Pursuant to 40 CFR 257.73(d) & 257.73(e)”, October 2016.

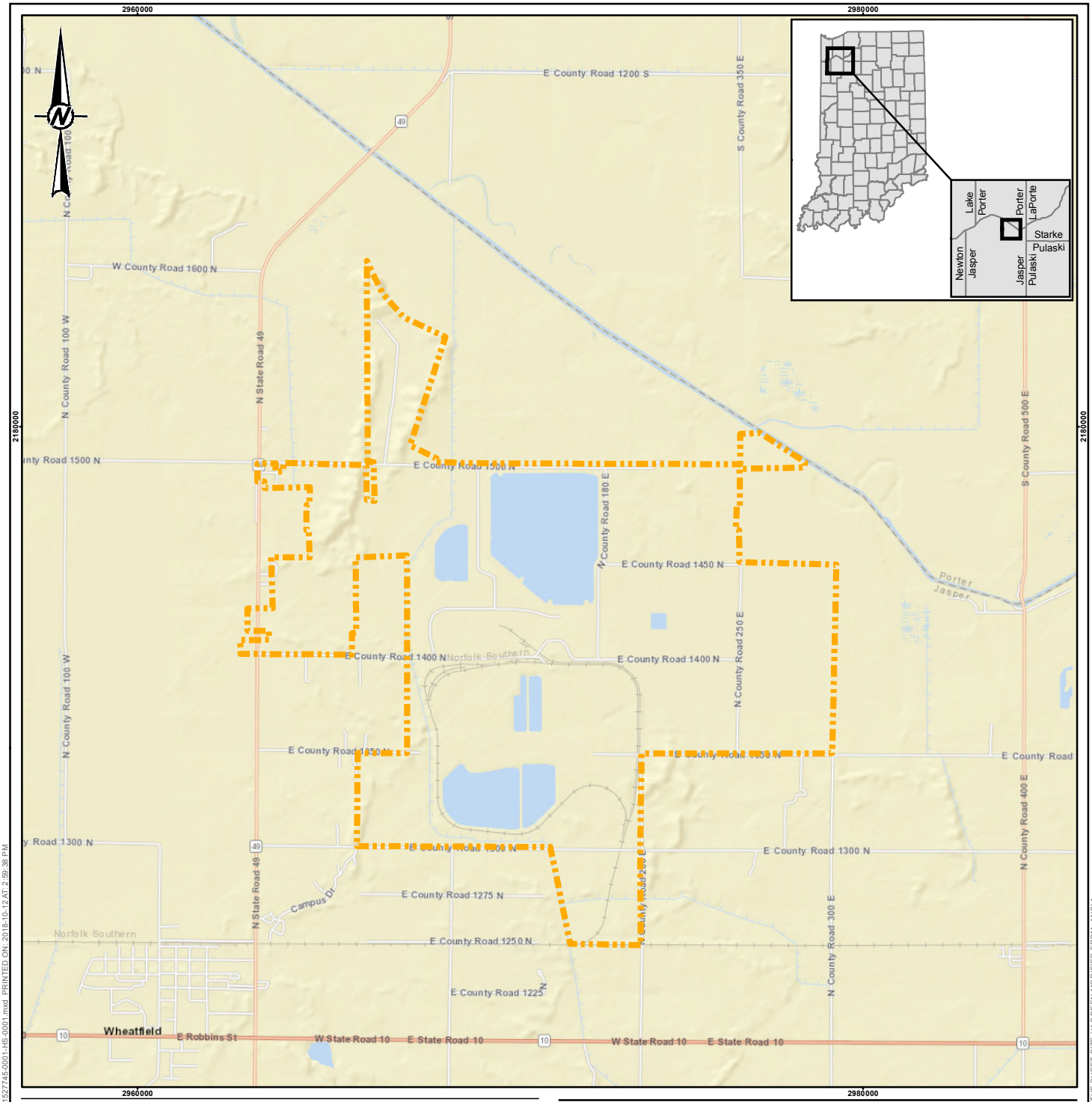
Indiana Geological website, http://maps.indiana.edu/LayerGallery.html, September 2018.

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 Stated Geological Survey website, http://earthquake.usgs.gov, September 2018.

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



LEGEND

Approximate Property Line

0 0.75 1.5

1 " = 0.75 miles Miles

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
R.M. SCHAHFER GENERATING STATION
WHEATFIELD, INDIANA

TITLE

SITE LOCATION MAP

CONSULTANT

GOLDER

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

PROJECT NO.	CONTROL	REV.	FIGURE
164817101	A	0	1

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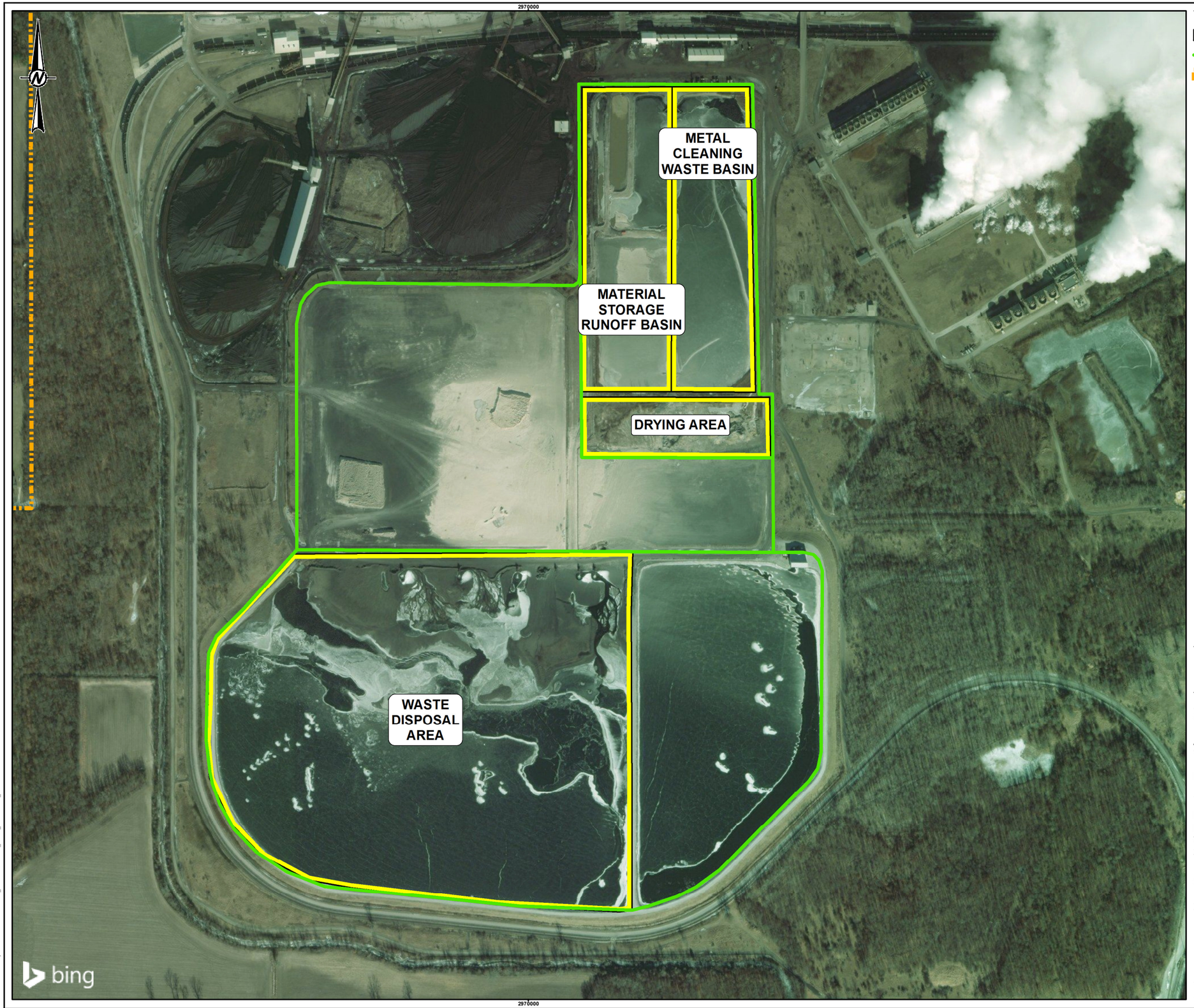

LEGEND

- CCR Units
- Slurry Wall
- Approximate Property Line

0 500 1,000

1 " = 500 feet Feet

NOTE(S)

REFERENCE(S)

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CLIENT

NORTHERN INDIANA PUBLIC SERVICE COMPANY

PROJECT

NORTHERN INDIANA PUBLIC SERVICE COMPANY
R.M. SCHAHFER GENERATING STATION
WHEATFIELD, INDIANA

TITLE

CCR UNIT LOCATION MAP

CONSULTANT

GOLDER

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

PROJECT NO.	CONTROL	REV.	FIGURE
164817101	A	0	2

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