



January 21, 2026

Project No. 31406779.2620

Mr. Joseph E. Kutch

Manager, Environmental Compliance
Northern Indiana Public Service Company LLC
2755 Raystone Drive
Valparaiso, IN 46383

**RE: NIPSCO – DEAN H. MITCHELL GENERATING STATION, GARY, LAKE COUNTY,
INDIANA – ASH POND 4 – HISTORY OF CONSTRUCTION**

Dear Mr. Kutch,

The United States Environmental Protection Agency (EPA) promulgated the Resource Conservation and Recovery Act (RCRA) Legacy Coal Combustion Residuals (CCR) Final Rule (Legacy CCR Rule) on May 8, 2024. The Legacy CCR Rule requires that owners or operators of legacy CCR surface impoundments with a height of five feet or more and a storage volume of 20 acre-feet or more compile a history of construction, which shall contain, to the extent feasible, the information specified in 40 CFR 257.73 (c)(1)(i) through (xii).

WSP USA Inc. (WSP) was retained by Northern Indiana Public Service Company LLC (NIPSCO) to assist in the compilation of the necessary documentation associated with the construction of Ash Pond 4 located at the Dean H. Mitchell Generating Station (DHMGS). This letter report details the available information, figures, and previous reports associated with Ash Pond 4 pursuant to 40 CFR 257.73 (c)(1)(i) through (xii).

Existing documents reviewed in preparation of this Ash Pond 4 report are listed below.

Table 1: Construction Background Documentation

Document	Date	Author
Quaternary Geologic Map of Indiana	1990	United States Geological Survey
Source Material Volume Assessment, Former Ash Ponds	December 13, 2013	Golder Associates, Inc.
Report on Subsurface Investigation and Laboratory Testing	June 12, 2017a, revised 19 February 2019	Haley & Aldrich, Inc.
Draft Former Ash Pond 4 Stability and Settlement Evaluation	December 22, 2017b	Haley & Aldrich, Inc.
Supplemental Assessment Report, Inactive Ash Pond 4	March 2019	Golder Associates, Inc.
Ash Pond 4 Conceptual Drafts for IDEM Review	April 21, 2020	Haley & Aldrich, Inc.

Document	Date	Author
Inactive Ash Pond 4 Geotechnical Closure Design	March 22, 2022	Haley & Aldrich, Inc.
Closure Construction Completion Report, Inactive Ash Pond #4	November 2024	Haley & Aldrich, Inc.

1.0 40 CFR 257.73 (C)(1)(I) – CCR UNIT NAME AND ADDRESS OF OWNER

Owner and Address:

Northern Indiana Public Service Company LLC (NIPSCO)
Dean H. Mitchell Generating Station
1 North Clark Road
Gary, Lake County, Indiana

CCR Unit: Ash Pond 4

Indiana Department of Water State Inventory Identification Number: NA

CCR Unit Contact: Joseph E. Kutch, Manager – Environmental Compliance, Phone: 1-800-464-7726.

2.0 40 CFR 257.73 (C)(1)(II) – CCR UNIT LOCATION

The Ash Pond 4 CCR Unit is located in Gary, Lake County, Indiana, as shown on Figure 1 – Site Location Map, attached. An aerial view of Ash Pond 4 is shown on Figure 2, attached.

3.0 40 CFR 257.73 (C)(1)(III) – CCR UNIT PURPOSE

The closed ash ponds at DHMGS were designed by Sargent and Lundy Engineers (S&L) of Chicago, Illinois and constructed overtime, beginning as early as 1956. The original S&L drawings do not show Ash Pond 4, and no original drawings were available that showed its design, but Ash Pond 4 is assumed to be designed by S&L as well. NIPSCO has stated that the pond was constructed circa late 1970s. A 1982 Air Maps Inc. drawing revised in 1995 notes Ash Pond 4 as “abandoned,” indicating Ash Pond 4 ceased receipt of CCR prior to 1995. NIPSCO has maintained ownership of the DHMGS parcel since at least 1956 and permanently shut down generation activities in 2001.

NIPSCO closed Ash Pond 4 in 2024 as part of remedial activities performed under a RCRA Corrective Action Agreed Order entered into by NIPSCO and the Indiana Department of Environmental Management (IDEM) in 2014. NIPSCO hired Haley & Aldrich, Inc. (Haley & Aldrich) of Bedford, New Hampshire to design and oversee closure construction of Ash Pond 4. Haley & Aldrich, in tandem with WSP (then Golder Associates, Inc [Golder]), NIPSCO’s RCRA consultant, submitted multiple iterations of closure work plans, receiving IDEM approval for closure in 2022. The Ash Pond 4 closure method included in-situ soil stabilization (ISS) and a final cover cap system with a permeability no greater than 1.0E-06 cm/sec and both a vegetative cover consisting of pollinator habitat (southern portion) and an articulated concrete block revetment to protect the cover from Lake Michigan wave action (northern portion).

Ash Pond 4 was approximately 420 feet long and 325 feet wide. Prior to closure, Haley & Aldrich estimated Ash Pond 4 contained approximately 49,700 cubic yards of ash. Ash Pond 4 is located in the northeastern corner of the Site near the U.S. Steel (USS) Gary Works property. Ash Pond 4 is incised (i.e., excavated) into the ground surface with the exception of the northern side of the ash pond, which has a berm comprising steel slag, kiln brick, and other material. This berm separates Ash Pond 4 from the USS Northwest Pond (Figure 2).

4.0 40 CFR 257.73 (C)(1)(IV) – CCR UNIT WATERSHED

According to the USGS National Map Viewer (<https://apps.nationalmap.gov/viewer/>) website, Ash Pond 4 is located within the Southwestern Lake Michigan Basin, more specifically, the Calumet River-Frontal Lake Michigan Watershed. The Sub-watershed (Frontal Lake Michigan) is 57,550,000 square meters (22 square miles).

5.0 40 CFR 257.73 (C)(1)(V) – FOUNDATION DESCRIPTION

Ash Pond 4 is located on the immediate southern shoreline of Lake Michigan. The site surface includes granular industrial fill placed in the early 1900s prior to the development of DHMGS, as well as imported embankment fill associated with pond berm construction. The industrial fill is immediately underlain by Wisconsin to Holocene Age Lacustrine deposits, which are characterized by beach and dune sand and lake silt and clay (USGS 1990).

In 2013, Golder performed an assessment at Ash Pond 4 to characterize ash and berm thicknesses in and surrounding the impoundment. Bottom and fly ash were observed in the upper 8 feet of fill material, and native sand was logged at approximately 18 to 20 feet bgs.

In 2017, Haley & Aldrich performed a subsurface exploration program consisting of seven drilled test borings 24 to 60 feet in depth, to obtain information for engineering analyses and closure design. Haley & Aldrich evaluated subsurface conditions in three general areas in and around Ash Pond 4, including:

- North Perimeter Embankment: Test borings consisted of man-placed embankment fill underlain by native lacustrine deposits.
- Ash Pond 4 Interior: Test borings consisted of impounded bottom ash/slag fill underlain by native lacustrine deposits.
- Ash Pond 4 Exterior: Test boring consisted of man-placed fill underlain by native lacustrine deposits.

In 2018, during a supplemental assessment report for Ash Pond 4 (Golder 2019), WSP observed approximately 23 to 30 feet of steel slag materials (e.g., slag, kiln brick, metal pieces) overlying approximately 14 to 26 feet of native sands. A gray to dark gray fat clay (CH) with trace gravel underlies the native sands and is located approximately 39 to 43 feet below ground surface (bgs) or at an approximate elevation of 539 to 545 feet relative to the North American Vertical Datum of 1988 (NAVD88). WSP did not see indications of fly ash, bottom ash, or boiler slag in the borings installed in the berms, which is consistent with the historical use of steel slag as made-land near Ash Pond 4.

5.1 Physical and Engineering Properties of Abutments and Foundation Materials

The *Inactive Ash Pond 4 Geotechnical Closure Design*, prepared by Haley and Aldrich, was referenced during the file review for Ash Pond 4. Geotechnical investigations (Haley and Aldrich 2017a, rev 2019; 2017b; 2022; and Golder 2013 and 2019) and the closure report (Haley & Aldrich 2024) suggest that Ash Pond 4 was constructed

with reasonable and sound construction practices. However, a complete set of construction documents and as-built surveys were not available for review.

Ash Pond 4 is approximately 420 feet long and 325 feet wide and is located in the northeastern corner of the Site near the U.S. Steel Gary Works property. Ash Pond 4 is incised (i.e., excavated) into the ground surface except for the northern side of the ash pond, which has a berm comprised of steel slag, kiln brick and other material. This berm separates Ash Pond 4 from the Northwest Pond. Linde Gas & Equipment, Inc (formerly Praxair) uses the Northwest Pond to discharge non-contact cooling water, air compressor condensate, sand filter backwash, coal filter backwash, steam boiler blowdown, Plant 11 compressor condensate, Plant 11 rain water scupper, and uncontaminated storm water under NPDES Permit # IN0000035.

NIPSCO constructed Ash Pond 4 circa the late 1970s. Based upon a review of historical aerial photography of the area provided by NIPSCO, it appears the size and shape of the original Northwest Pond has changed significantly over the past 50 years. It also appears the northern boundary of Ash Pond 4 was defined by the limits of the Northwest Pond at the time of its construction. The one exception to this boundary was an excavated channel that conveyed water from the main pond area to the pump house south of the shoreline.

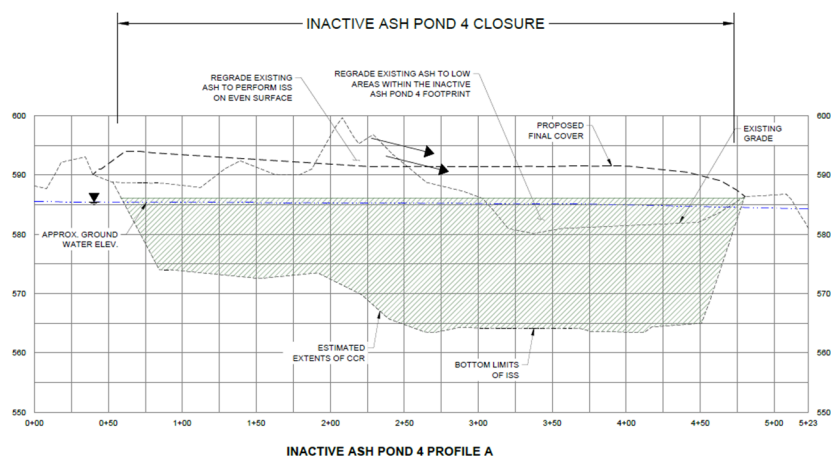


Figure 3: Typical Section for Ash Pond 4 Prior to Closure from Haley & Aldrich (2020)

Geotechnical investigations through the embankments indicate the subsurface material consists of medium dense to very dense silty sand with gravel (SM) to gravel with sand and silt (GP) from top of embankment to approximately 16 ft bgs. Immediately below this upper layer there is an approximate 8-foot thick layer of fill consisting of sand (SP), silty sand with gravel (SM), and lean clay (CL) ranging from dense to very dense. A bottom ash/slag fill layer was also encountered at similar depths and was generally very loose. Below the fill and bottom ash/slag fill layer were lacustrine deposits, a stratum of natural soils associated with beach and dune sand, as well as lake clay deposits. The soils were described as loose to dense poorly-graded sand (SP), and soft to stiff lean clay (CL), and fat clay (CH).

Haley & Aldrich modeled material properties derived from historical subsurface explorations and laboratory testing to evaluate slope stability of Ash Pond 4. Material properties of each of the modeled layers are included in Table 2 below. These properties are based on the geotechnical investigation and associated laboratory testing that was performed by Haley & Aldrich (Haley & Aldrich 2017a, rev. 2019; 2017b; and 2022).

Table 2: Material Properties used in Geotechnical Analyses, from Haley & Aldrich 2022 *Inactive Ash Pond 4 Geotechnical Closure Design*

Material	Material Strength	Unit Weight (pcf)	Cohesion ² (psf)	Friction Angle (degrees)
Articulated Concrete Block	Drained	150	--	--
	Undrained			
Vegetative Soil Cover	Drained	115	50	28
	Undrained		800	--
Granular Subgrade Contour Fill	Drained	110	0	28
	Undrained			
Drainage Rock	Drained	130	0	35
	Undrained			
Vegetative Soil/Geocomposite Interface	Drained	115	0	23
	Undrained			
Geocomposite/Geomembrane Interface	Drained	115	0	23
	Undrained			
Geomembrane/Granular Subgrade Contour Fill Interface	Drained	115	0	23
	Undrained			
Articulated Concrete Block/Geotextile/Drainage Rock Interface	Drained	115	0	23
	Undrained			
Drainage Rock/Geotextile/Geomembrane Interface	Drained	115	0	23
	Undrained			
Geotextile/Geomembrane/Granular Subgrade Contour Fill Interface	Drained	115	0	23
	Undrained			
In-situ Solidification/Stabilization (ISS)	Drained	130	3600	0
	Undrained		3600	--
Embankment Fill	Drained	130	0	46
	Undrained ¹		$50 + 0.80 \times \sigma_v'$	--
Lacustrine Deposits (Granular)	Drained	120	0	36
	Undrained			
Lacustrine Deposits (Cohesive)	Drained	120	0	28
	Undrained		1000	0
Late Wisconsin	Drained	120	0	32
	Undrained			

Notes:

1. A shear normal function was developed based on results of laboratory direct shear testing, where σ_v' denotes the effective vertical stress.
2. The strength of saturated cohesive soil has been reduced by 20 percent for seismic analyses to account for the approximate threshold between large and small strains induced by cyclic loading.
3. psf = pounds per square foot, pcf = pounds per cubic foot

6.0 40 CFR 257.73 (C)(1)(VI) – CONSTRUCTION INFORMATION

Original construction drawings for Ash Pond 4 were not available for review.

NIPSCO has stated that the pond was constructed circa the late 1970s. The constructor of Ash Pond 4 is not known. NIPSCO has continuously owned the DHMGS parcel since as early as 1956 and permanently shut down generation activities in 2001. Various geotechnical investigations have been performed by Golder/WSP and Haley & Aldrich since 2013.

Ash Pond 4 was closed in place in 2023 and 2024 using ISS and capping with a final cover system with a permeability no greater than $1.0E-06$ cm/sec and a vegetative cover consisting of pollinator habitat (southern portion) and articulated concrete block revetment (northern portion) to protect from Lake Michigan wave action.

7.0 40 CFR 257.73 (C)(1)(VII) – CONSTRUCTION DRAWINGS

Original construction drawings for Ash Pond 4 were not available for review.

8.0 40 CFR 257.73 (C)(1)(VIII) – EXISTING INSTRUMENTATION

No existing geotechnical monitoring equipment is present at the time of this letter report.

9.0 40 CFR 257.73 (C)(1)(IX) – AREA CAPACITY CURVES

Area capacity curves were not calculated given Ash Pond 4 is closed and does not store water.

10.0 40 CFR 257.73 (C)(1)(X) – SPILLWAY AND DIVERSION DESCRIPTIONS

Spillway and diversion descriptions are not provided given that Ash Pond 4 is closed and does not store water.

11.0 40 CFR 257.73 (C)(1)(XI) – SURVEILLANCE, MAINTENANCE, AND REPAIR INFORMATION

Haley & Aldrich personnel perform semi-annual inspections of Ash Pond 4 on behalf of NIPSCO and summarize the results in an annual report. Semi-annual inspections include a visual inspection of the impoundment and surrounding area to assess any changes in appearance or identify any signs of distress. Specifically, the inspection includes: geocomposite and drainage components, areas of exposed geomembrane, soil cover, restored vegetation and pollinator habitat, articulate concrete blocks, erosion and sediment control, and Ash Pond 4 security and protection. Haley & Aldrich will prepare the first annual report by the end of 2025. The annual report will include a review of design and construction information, a review of previous structural stability assessments, a review of previous annual inspections, a visual inspection of the unit to identify signs of distress or malfunction, and a visual inspection of hydraulic structures for structural integrity and continued safe and reliable operation.

12.0 40 CFR 257.73 (C)(1)(XII) – STRUCTURAL INSTABILITY KNOWLEDGE

A geotechnical model of the embankment and embankment foundation was developed based on the conditions inferred from the previous geotechnical investigations. As part of the *Inactive Ash Pond 4 Geotechnical Closure Design* (Haley & Aldrich 2022), slope stability analyses were performed using Rocscience 'Slide v6.029' software. The analyses were performed in general accordance with Indiana Department of Natural Resources, Division of Water guidelines and the CCR RCRA Rule Section 257.73(e)(1). The analyses results indicate acceptable factors

of safety for all cases considered when evaluated with respect to US Army Corps of Engineers criteria for the conditions analyzed. The results of this analysis are presented in the aforementioned report prepared by Haley & Aldrich and summarized below in Table 3.

Table 3: Slope Stability Analysis Results Summary

Profile	Condition	Soil Strength	Minimum Required Safety Factor	Calculated Safety Factor
A	Long-term (Static)	Drained	1.5	2.58
	Short-term (Static)	Undrained	1.5	3.72
	Pseudo-static (Seismic)	Undrained	1.0	1.79
D	Long-term (Static)	Drained	1.5	1.53
	Short-term (Static)	Undrained	1.5	2.36
	Pseudo-static (Seismic)	Undrained	1.0	1.71
E	Long-term (Static)	Drained	1.5	1.53
	Short-term (Static)	Undrained	1.5	1.73
	Pseudo-static (Seismic)	Undrained	1.0	1.52

Notes:

1. A shear normal function was developed based on results of laboratory direct shear testing, where $\sigma v'$ denotes the effective vertical stress.
2. The strength of saturated cohesive soil has been reduced by 20 percent for seismic analyses to account for the approximate threshold between large and small strains induced by cyclic loading.
3. psf = pounds per square foot, pcf = pounds per cubic foot

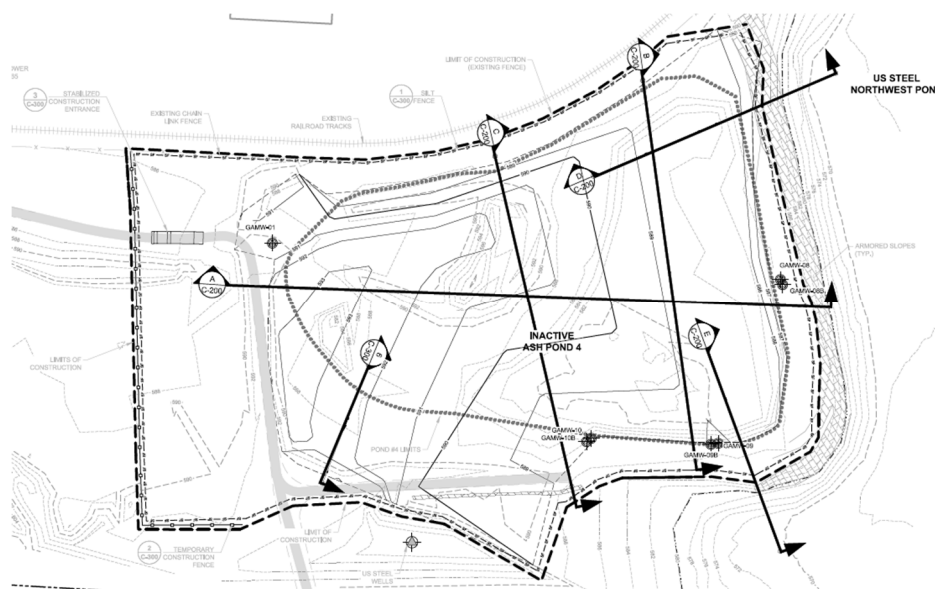


Figure 4: Ash Pond Stability Analysis Profiles (Haley & Aldrich 2022)

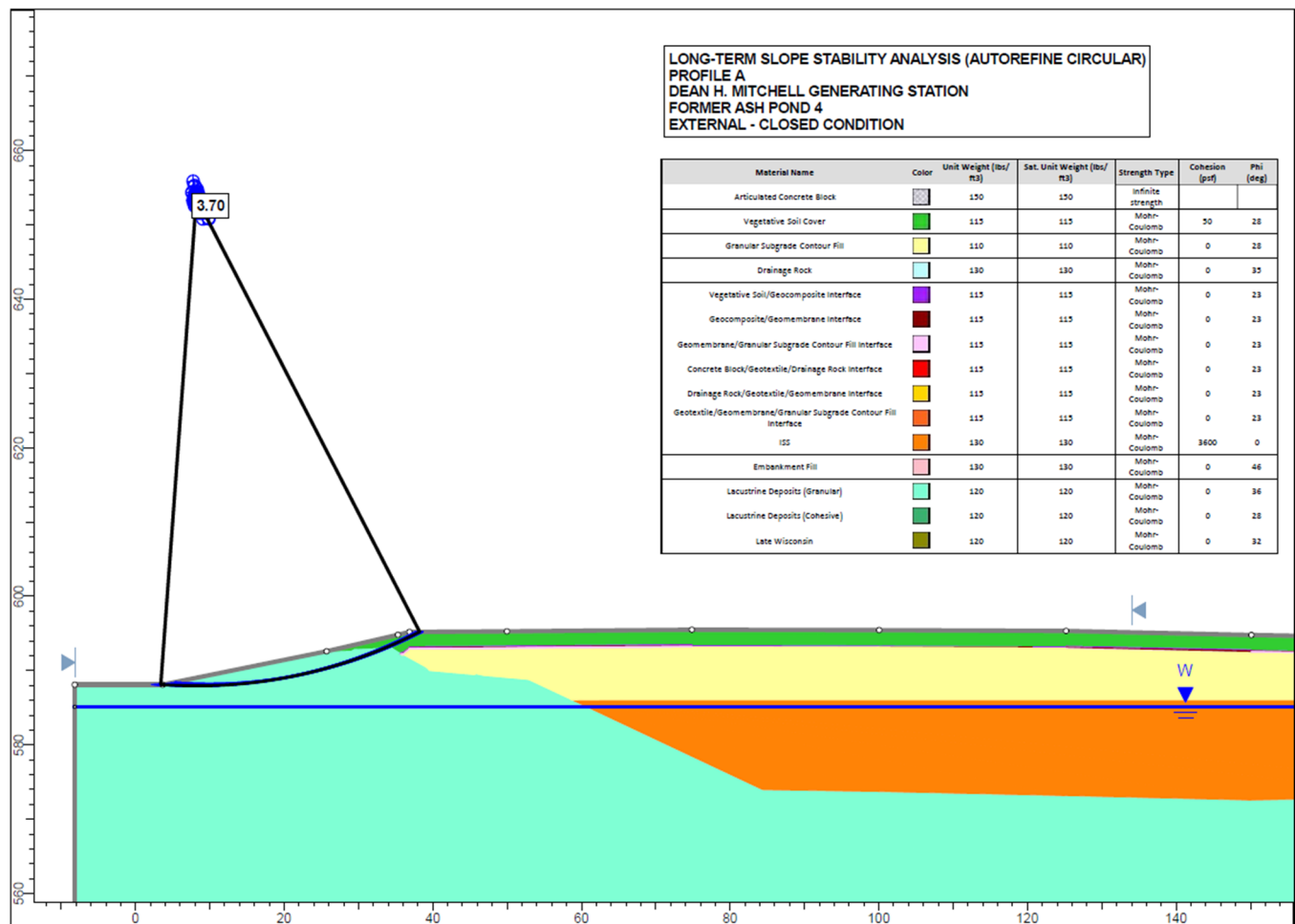


Figure 5: Profile A Long-Term Slope Stability Analysis (Haley & Aldrich 2022)

As stated above, Haley & Aldrich will prepare an annual report by the end of 2025 that details the semi-annual inspections, including a review of previous reports and recommendations for the site as well as an onsite visual inspection of the impoundment. Based on recency of the impoundment closure, it is unlikely that significant changes have occurred at Ash Pond 4 since closure.

Sincerely,

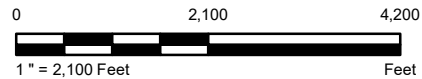
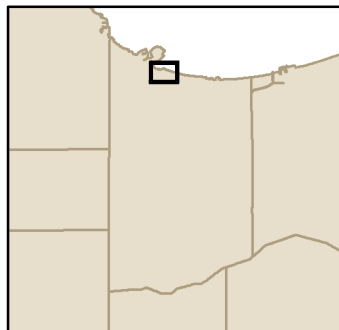
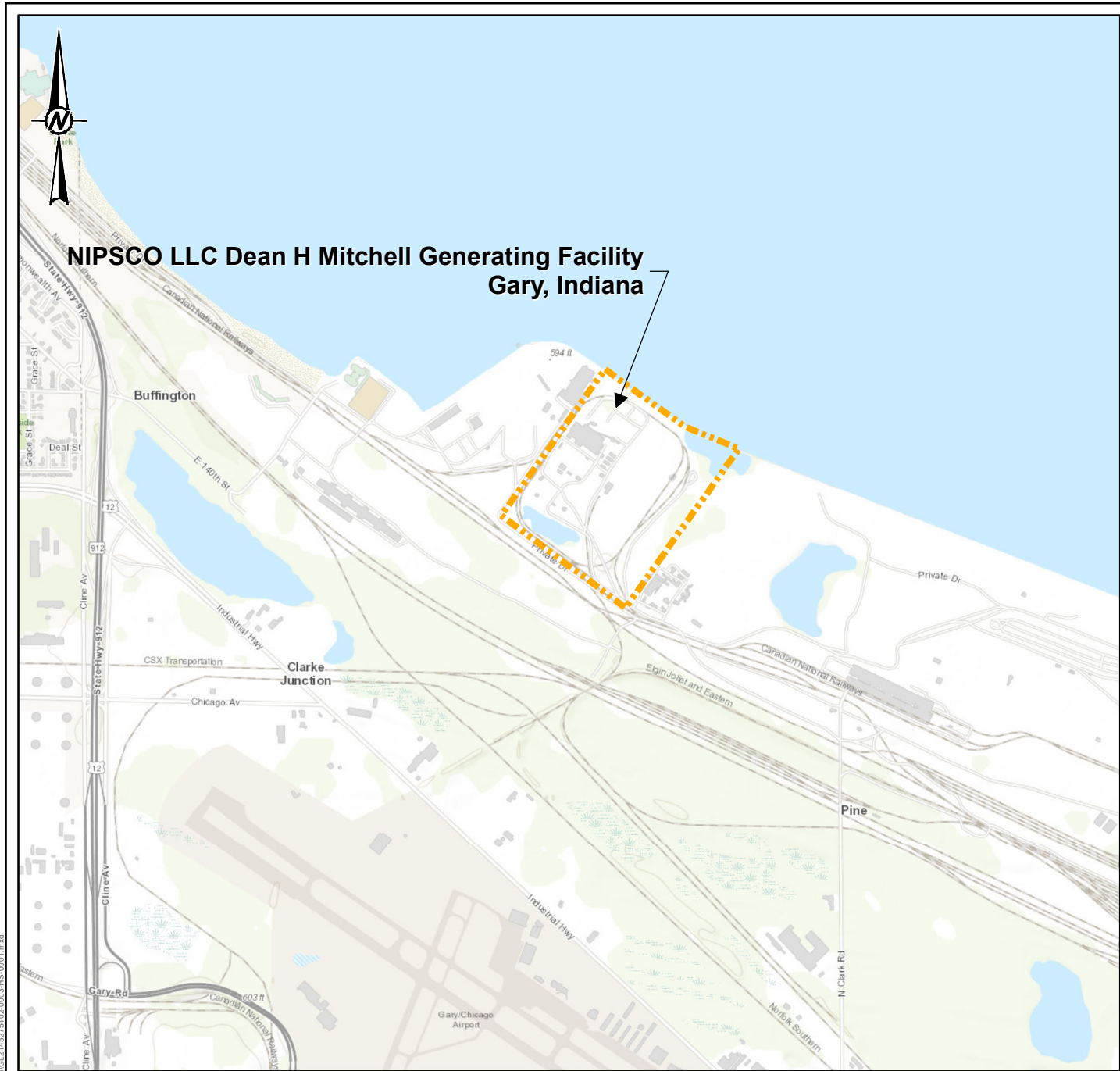
WSP USA Inc.



John Puls, P.E.
Vice President

Attachments: Figure 1 – Site Location Map
Figure 2 – Site Plan – Ash Pond 4

[https://wspnlinenam.sharepoint.com/sites/gld-nipscoocrgwmonitoring/shared documents/dhmg/reports/31406779.262_dhmg history of construction/deliverables/dhmg_pond 4_hoc_final.docx](https://wspnlinenam.sharepoint.com/sites/gld-nipscoocrgwmonitoring/shared%20documents/dhmg/reports/31406779.262_dhmg%20history%20of%20construction/deliverables/dhmg_pond%204_hoc_final.docx)



REFERENCE(S)

1. COORDINATE SYSTEM: NAD 1983 STATEPLANE INDIANA WEST FIPS 1302 FEET
2. IMAGERY 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), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. APPROXIMATE PROPERTY LINES OBTAINED FROM THE LAPORTE COUNTY, IN ASSESSORS OFFICE WEB SITE (WWW.LAPORTECOUNTY.ORG)

CLIENT

NORTHERN INDIANA PUBLIC SERVICE COMPANY LLC

PROJECT

NIPSCO LLC DEAN H. MITCHELL GENERATING STATION
GARY, INDIANA

TITLE

SITE LOCATION MAP

PROJECT NO.	CONTROL	REV.	FIGURE
31406779.2620	-	-	1

LEGEND

Approximate Property Line

CONSULTANT



YYYY-MM-DD 11/13/2023

DESIGNED TDH

PREPARED EMM

REVIEWED DFSC

APPROVED MAH

R:\01\1001\GIS\Projects\NIPSCO\Dean Mitchell\ell09_PRC\01\10\0789_Prc\Closure\01_PRC\00004_sheets\01400789-0004-HS-0001.mxd PRINTED ON: 2025-10-29 AT: 1:41:54 PM



LEGEND

CCR Unit

Approximate Property Line

0300600

1 inch = 300 feet

Feet

FIGURE NARRATIVE

NOTE(S)


REFERENCE(S)
SERVICE LAYER CREDITS: ESRI, USDA FARM SERVICE AGENCY

CLIENT

NORTHERN INDIANA PUBLIC SERVICE COMPANY LLC

PROJECT
DEAN H. MITCHELL GENERATING STATION
GARY, INDIANA

TITLE
SITE PLAN - ASH POND 4



CONSULTANT	YYYY-MM-DD	2025-10-29
	DESIGNED	TDH
	PREPARED	EMM
	REVIEWED	TDH
	APPROVED	JPD

PROJECT NO.

CONTROL

31406779.2620

-

REV.

-

FIGURE

2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B