GOLDER
MEMBER OF WSP

REPORT

INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN per CCR Rule 257.82

NIPSCO, R.M. Schahfer Generating Station, MSRB, MCWB, and DA, Wheatfield, Indiana

Submitted to:

Northern Indiana Public Service Company

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Submitted by:

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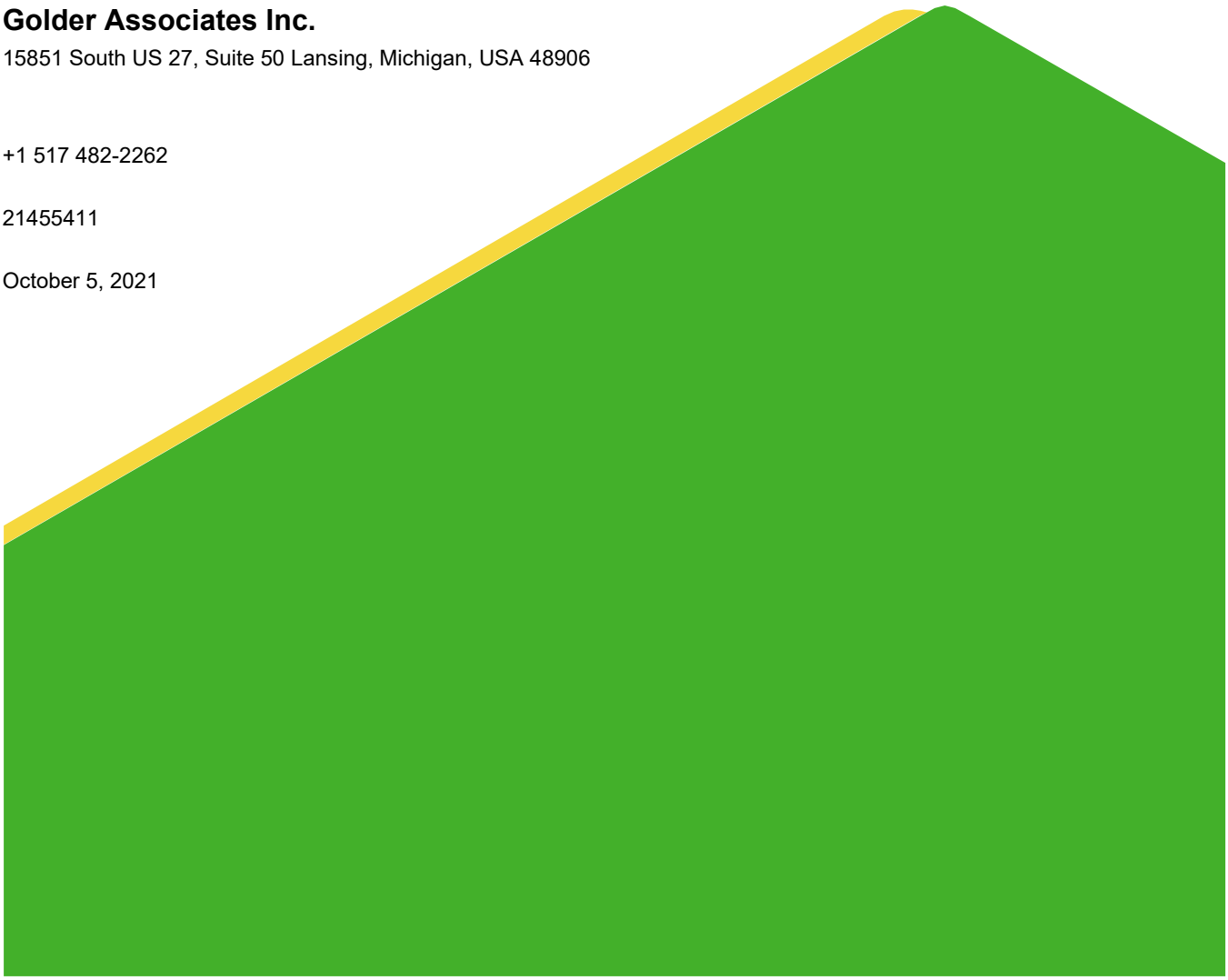
October 5, 2021

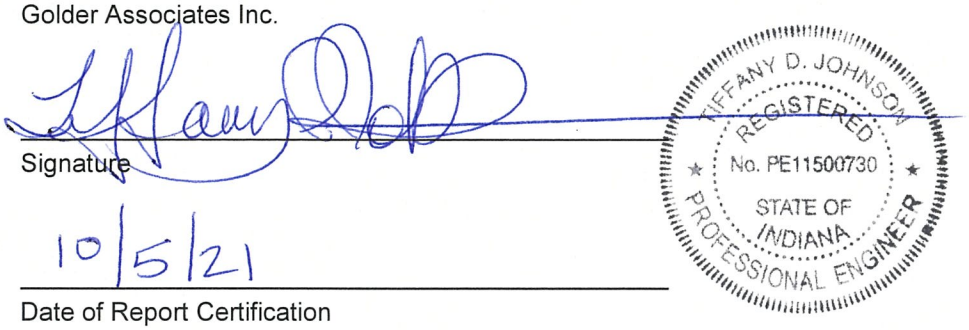


Certification

Professional Engineer Certification Statement [40 CFR 257.82(c)(5)]

I hereby certify that, having reviewed the attached documentation and being familiar with the provisions of Title 40 of the Code of Federal Regulations Section 257.82 (40 CFR Part 257.82), I attest that this Inflow Design Flood Control System Plan 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 Part 257.82.

Golder Associates Inc.



Signature

10/5/21

Date of Report Certification

Tiffany D. Johnson, P.E.

Name

PE 11500730

Professional Engineer License Number

Table of Contents

TABLES

FIGURES

1.0 INTRODUCTION

1.1 Background

Rollin M. Schahfer Generating Station (RMSGS) is a 1,943-megawatt (MW) capacity coal-fired, steam turbine electric generating plant in Wheatfield, Jasper County, Indiana (Figure 1). RMSGS began operations in 1976 and occupies an area of approximately four-square miles centrally located at 2723 E 1500 N Road in Wheatfield, Jasper County, Indiana. The station includes an electric substation, coal storage and handling operations, bottom ash/boiler slag and fly ash ponds, a landfill, cooling towers, cooling water intake and discharge structures, infrastructure and roadways, train tracks, and other support facilities.

1.2 CCR Surface Impoundments

Northern Indiana Public Service Company (NIPSCO) has determined that RMSGS has three coal combustion residual (CCR) surface impoundments that are subject to the requirements of the CCR Final Rule including:

- Material Storage Runoff Basin (MSRB) – approximate 13.4-acre rectangular unlined impoundment located adjacent to and west of the Metal Cleaning Waste basin (MCWB)
- Metal Cleaning Waste Basin – approximate 13.4-acre rectangular unlined impoundment located adjacent to and east of the MSRB
- Waste Runoff Area or “Drying Area” (DA) – approximate 5.9-acre unlined impoundment located south of the MSRB and MCWB

The CCR unit locations identified above are shown in Figure 2.

1.2.1 Material Storage Runoff Basin and Metal Cleaning Waste Basin

The MSRB and MCWB were designed by S&L of Chicago, Illinois in 1982 and consist of two rectangular, approximate 13.4-acre unlined ponds located adjacent to one another, as shown in Figure 2. Both basins are formed by a four-foot-high embankment and are approximately seven feet deep (bottom elevation 660 feet msl, crest elevation 667 feet msl). Each basin was able to hold up to 77,400 cubic yards (cy) of CCR material during normal operations. The ponds are separated by a narrow berm with an open channel through the southern end that creates a hydraulic connection between the two impoundments above approximate water surface elevation 665 feet msl. While there is a slurry wall around the basins, there is no slurry wall within the narrow berm between the basins.

The MSRB and MCWB are currently undergoing closure, but formerly received water from the yard runoff pond, coal pile storage runoff, and scrubber process sumps. Water was discharged to the Final Settling Basin (located north of the station) through the pump house located at the north end of the shared berm and to the MCWB through an open channel located on the southern end of the divider berm. In addition to receiving overflow water from the MSRB, the MCWB received plant demineralizer waste, air heater washwater, and stormwater runoff. Water was pumped from this basin to the Final Settling Basin to the northeast. Daily operations at RMSGS maintained a minimum of two feet of freeboard in these impoundments. In addition, as CCR material accumulated in the MSRB and the MCWB, it was periodically removed as part of RMSGS operations.

1.2.2 Drying Area

The DA was also designed by S&L of Chicago, Illinois in 1982. The DA is bordered by the Inactive Retired Waste Disposal Basin (IRWDB) to the south and west and by the MSRB and the MCWB to the north. The DA, MSRB,

and MCWB comprise a single larger impounding structure. This larger structure consists of an area with a slurry trench ring wall. The bottom of the DA is at approximate elevation 667.0 feet msl, and the top of the DA is at approximate elevation 671.5 feet msl. The total enclosed area of the DA, which has been completely filled with CCR, is approximately 5.9 acres. Previously, fly ash from the IRWDB flowed through the DA and then discharged to the MSRB or MCWB. Outflow from the DA to the MSRB and MCWB is via two corrugated metal pipe (CMP) that extend through the north embankment of the DA. Currently, the DA is undergoing closure but previously accepted various CCR material that was moved to the area with heavy equipment. The CCR material was left to dry for a period of time before being removed by heavy equipment to the dry ash landfill located east of the station.

1.3 Purpose

The purpose of this Flood Control System Plan (Plan) is to provide a basis for the certification required by 40 CFR 257.82 Hydrologic and Hydraulic Capacity Requirements for CCR Surface Impoundments. 40 CFR 257.82(a) requires the owner or operator of a CCR surface impoundment to design, construct, operate, and maintain an inflow flood control system as follows:

- Adequately manage the flow into the CCR unit during and following the peak discharge of the inflow design flood as required by the CCR unit hazard potential determined under 40 CFR 257(a)(2)
- Adequately manage the flow from the CCR unit to collect and control the peak discharge resulting from the inflow design flood as required by the CCR unit hazard potential determined under 40 CFR 257(a)(2)
- Handle discharge from the CCR unit in accordance with the surface water requirements under 40 CFR 257.3-3

1.3.1 Hazard Classification

Golder Associates Inc. (Golder) prepared a Hazard Potential Classification Assessment and Visual Inspection Report for the RMSGS CCR Surface Impoundments pursuant to 40 CFR 257.73 in June of 2021. The assessments performed under 40 CFR 257.73 determined that the MSRB, MCWB, and DA classified as low hazard potential.

Under 40 CFR 257.82, the MSRB, MCWB, and DA classify as Low Hazard Potential and must be evaluated for a 100-year flood. This Plan details the H&H analysis of the MSRB, MCWB, and DA.

2.0 FLOOD CONTROL SYSTEM

To satisfy the requirements of 40 CFR 257.82(a), the flood control system must provide flood protection to the CCR unit during the inflow design flood for two cases: 1) floodwater from outside the unit, and 2) controlling internal water levels within the unit. The sections below describe the run-on control systems in place at each CCR, describe the analysis performed to evaluate the adequacy of the existing structure, and list any operational limitations required to maintain adequate flood control measures as required by 40 CFR 257.82(a).

2.1 MSRB, MCWB, and DA Analysis

As discussed above, the MSRB, MCWB, and DA were classified as low hazard potential; and therefore, must adequately manage flow into the CCR unit and flow from the CCR unit during and following the peak discharge from a 100-year flood under 40 CFR 257.82(a). To evaluate the ability of the DA, MSRB, and MCWB to adequately manage the flow during and following the peak discharge of the design storm event; a H&H analysis

was performed. As discussed above, the DA discharges to the MSRB/MCWB, which are hydraulically connected and have no outlet with the exception of a pump house that pumps liquid to the FSB. Therefore, this analysis assumed that the pump house facility was non-functional (i.e., no outlet) during the storm event and evaluated the ability of the storm event to be managed within the impoundments. Due to the hydraulic integration between the DA, MSRB, and MCWB described above; a single HydroCAD version 9.00 model was created to evaluate the performance of all three structures during the 100-year storm event. The HydroCAD model incorporated the following:

- A SCS Type II 100-year, 24-hour storm event of 6.86 inches.
- A hydrological model to simulate the collection of surface water and conveyance to the impoundments. The following assumptions were included in the model:
  - DA is an unlined surface impoundment with no upland area to contribute runoff, and it does not receive water from RMSGS operations. As such, the inflow into the unit is from direct precipitation only. There are two CMP culverts through the north embankment of the DA which report to the MSRB and the MCWB.
  - MSRB/MCWB are unlined surface impoundments with no upland area to contribute runoff. Surface water runoff from the DA is directed to the MSRB/MCWB via CMP culverts. These impoundments have standing water at all times and were conservatively modeled as an impervious area to reflect the negligible amount of infiltration that will occur. In addition, runoff from certain operational areas is directed to the MSRB/MCWB via stormwater ditches and culverts.

2.1.1 MSRB, MCWB, and DA Conclusions and Operational Restrictions

The results of the H&H analysis of the MSRB, MCWB, and DA are summarized below.

Table 1: MSRB, MCWB, and DA Hydrology and Hydraulics Analysis Results

CCR Surface Impoundment	MSRB/MCWB	DA
Depth of Precipitation (in)	6.86	6.86
Maximum Rate of Inflow (cfs)	395.19	198.8
Total Inflow (acre-feet)	28.1	10.0
Maximum Volume of Water Storage (acre-feet)	64.3	3.0
Maximum Water Surface Elevation (ft msl)	667.0	671
Design Water Surface Elevation (ft msl)	666.3	670.3
Net Freeboard during Design Storm Event (ft)	0.7	0.7

The current configuration of the DA, MSRB, and MCWB is compliant with 40 CFR 257.82(a). This includes the contribution of the DA watershed and flow to the MSRB and MCWB. This conclusion is based on the assumptions and operational conditions presented herein. Specifically, it is critical that the combined MSRB/MCWB impoundment be monitored and operated such that the water surface level does not exceed 665.0 feet msl and that the amount of CCR currently stored in the impoundment prior to completed closure does not exceed 77,400 cy and it is not stored above elevation 665.0 feet msl.

3.0 PLAN REVISION AND RECORDKEEPING

Per 40 CFR 257.82(c)(2): “The owner or operator of the CCR unit may amend the inflow design flood control system plan at any time provided the revised plan is placed in the facility's operating record as required by Section 257.105(g)(3). The owner or operator must amend the written inflow design flood control system plan whenever there is a change in conditions that would substantially affect the written plan in effect.”

Per 40 CFR 257.81(c)(4): “The owner or operator must prepare periodic inflow design flood control system plans required by paragraph (c)(1) of this section every five years. The date of completing the initial plan is the basis for establishing the deadline to complete the first subsequent plan. The owner or operator may complete any required plan prior to the required deadline provided the owner or operator places the completed plan into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing a subsequent plan is based on the date of completing the previous plan. For purposes of this paragraph (c)(4), the owner or operator has completed a periodic inflow design flood control system plan when the plan has been placed in the facility's operating record as required by Section 257.105(g)(3).”

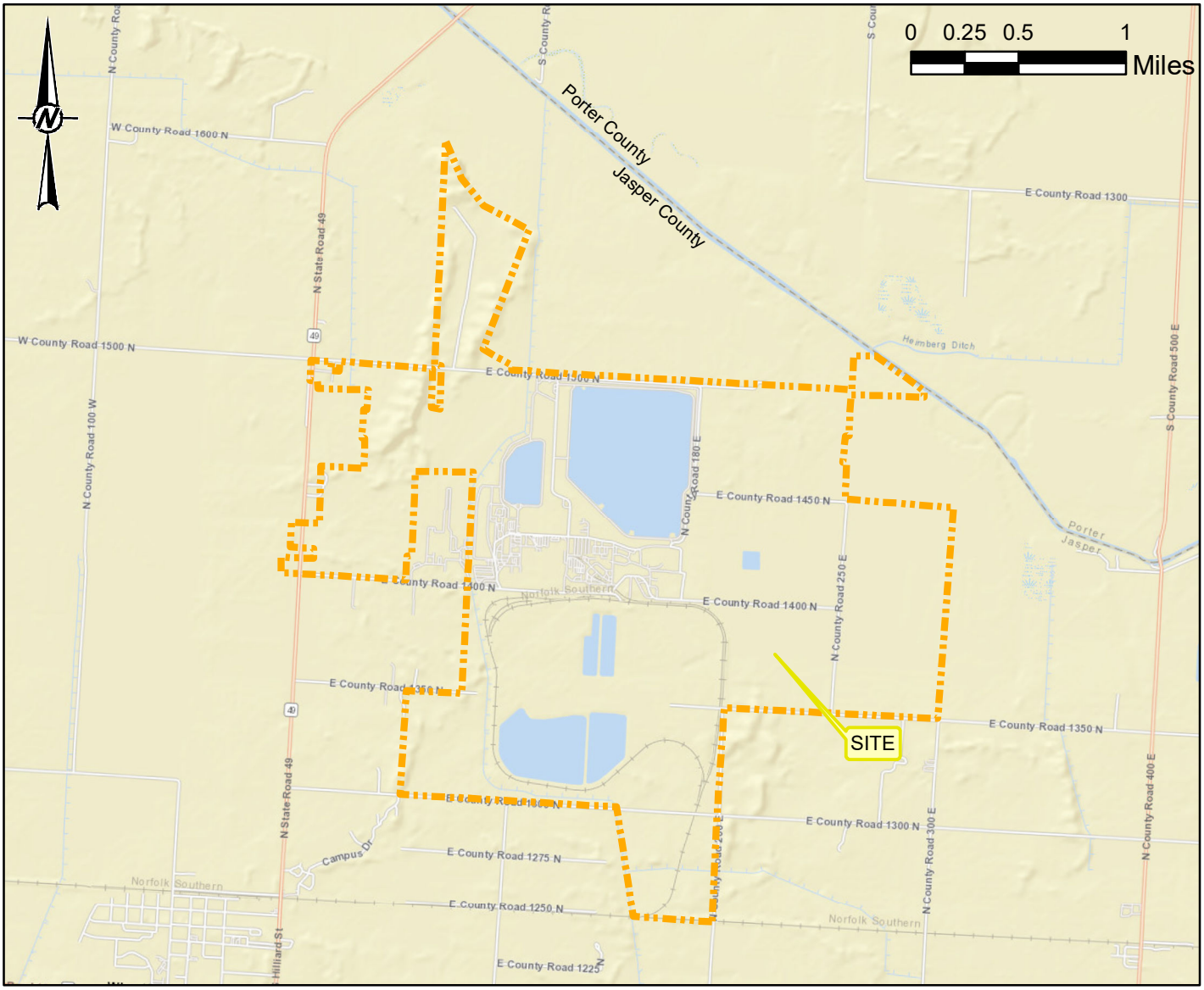
Per 40 CFR 257.82(d): “The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in Section 257.105(g), the notification requirements specified in Section 257.106(g), and the internet requirements specified in Section 257.107(g).”

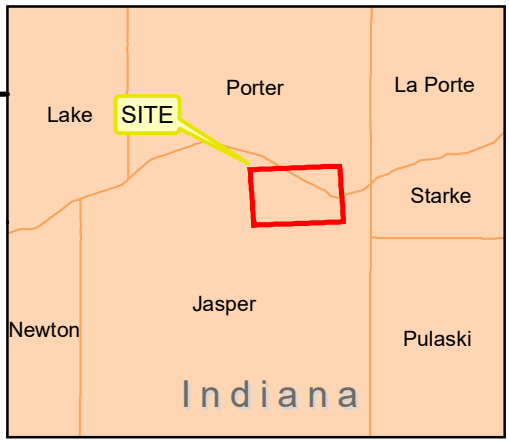
4.0 REFERENCES

Golder Associates, NIPSCO RMSGS Hazard Potential Classification Assessment and Visual Inspection Report RCRA CCR Units, Pursuant to 40 CFR 257.73, Waste Disposal Area, Drying Area, Material Storage Runoff Basin, & Metal Cleaning Waste Basin – Surface Impoundments, September 28, 2016.

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.

Figures





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, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

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YYYY-MM-DD	2021-07-21
DESIGNED	JH
PREPARED	DJC
REVIEWED	TDJ
APPROVED	TDJ

PROJECT
CCR SURFACE IMPOUNDMENT
INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN
R.M. SCHAHFER GENERATING STATION WHEATFIELD, INDIANA

TITLE
SITE LOCATION MAP

PROJECT No.	CONTROL	Rev.	FIGURE
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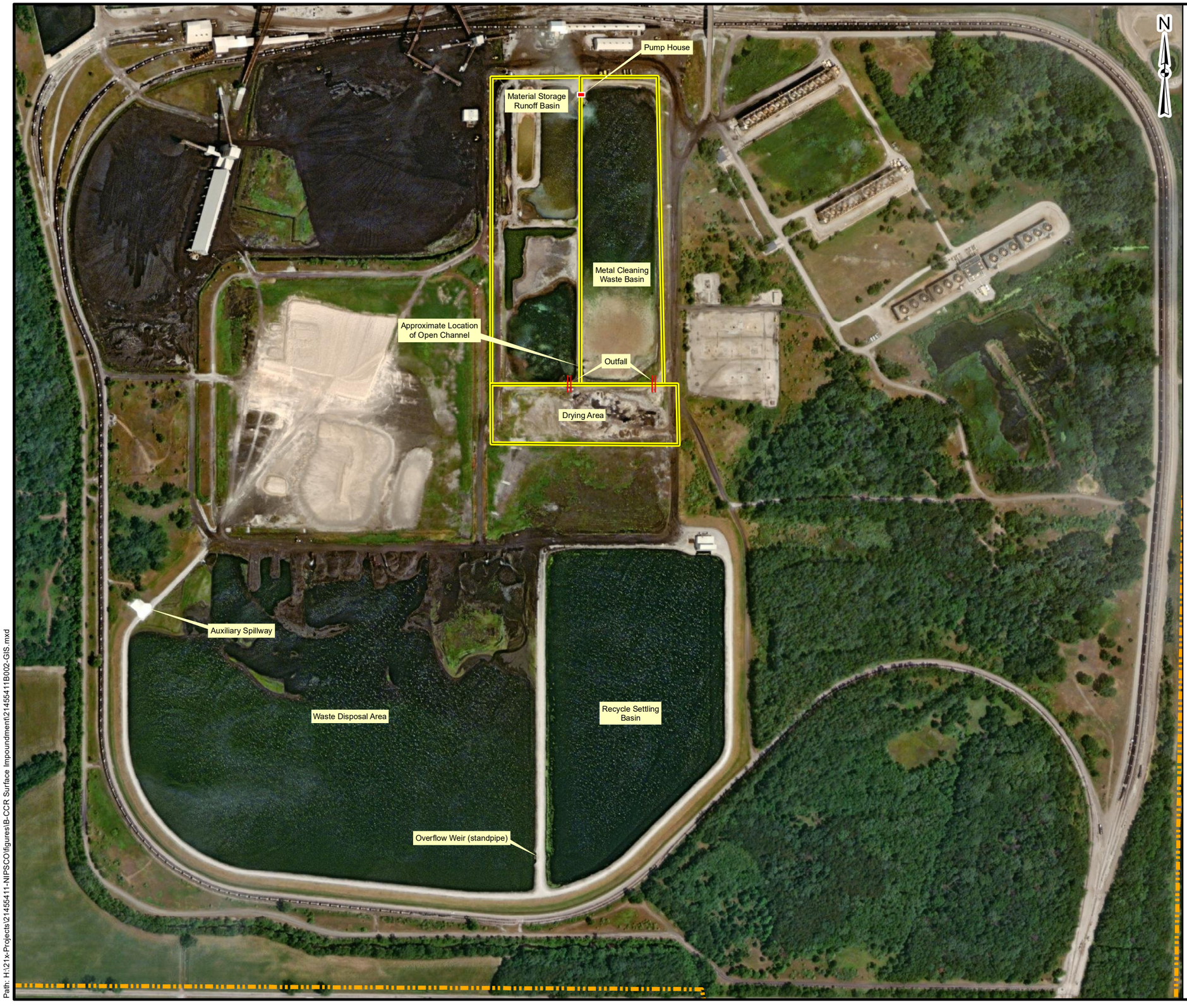

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LEGEND

- Approximate Property Line
- CCR Surface Impoundments

500 250 0 500
Feet

NARRATIVE

This figure shows the approximate boundaries of the WDA CCR unit requiring submission of an inflow design control system plan for compliance with the final rule, 40 CFR, Part 257.82.

REFERENCES

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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PROJECT
CCR SURFACE IMPOUNDMENT
INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN
R.M. SCHAHFER GENERATING STATION, WHEATFIELD, INDIANA

TITLE
EXISTING CONDITIONS

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YYYY-MM-DD	2021-07-21
PREPARED	DJC
DESIGN	JH
REVIEW	TDJ
APPROVED	TDJ

PROJECT No.	CONTROL	Rev.	FIGURE
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