Northern Indiana Public Service Company, LLC
R.M. Schahfer Generating Station

Fifth Annual RCRA CCR Unit Inspection Report
Waste Disposal Area – Surface Impoundment

Submitted to:

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Submitted by:

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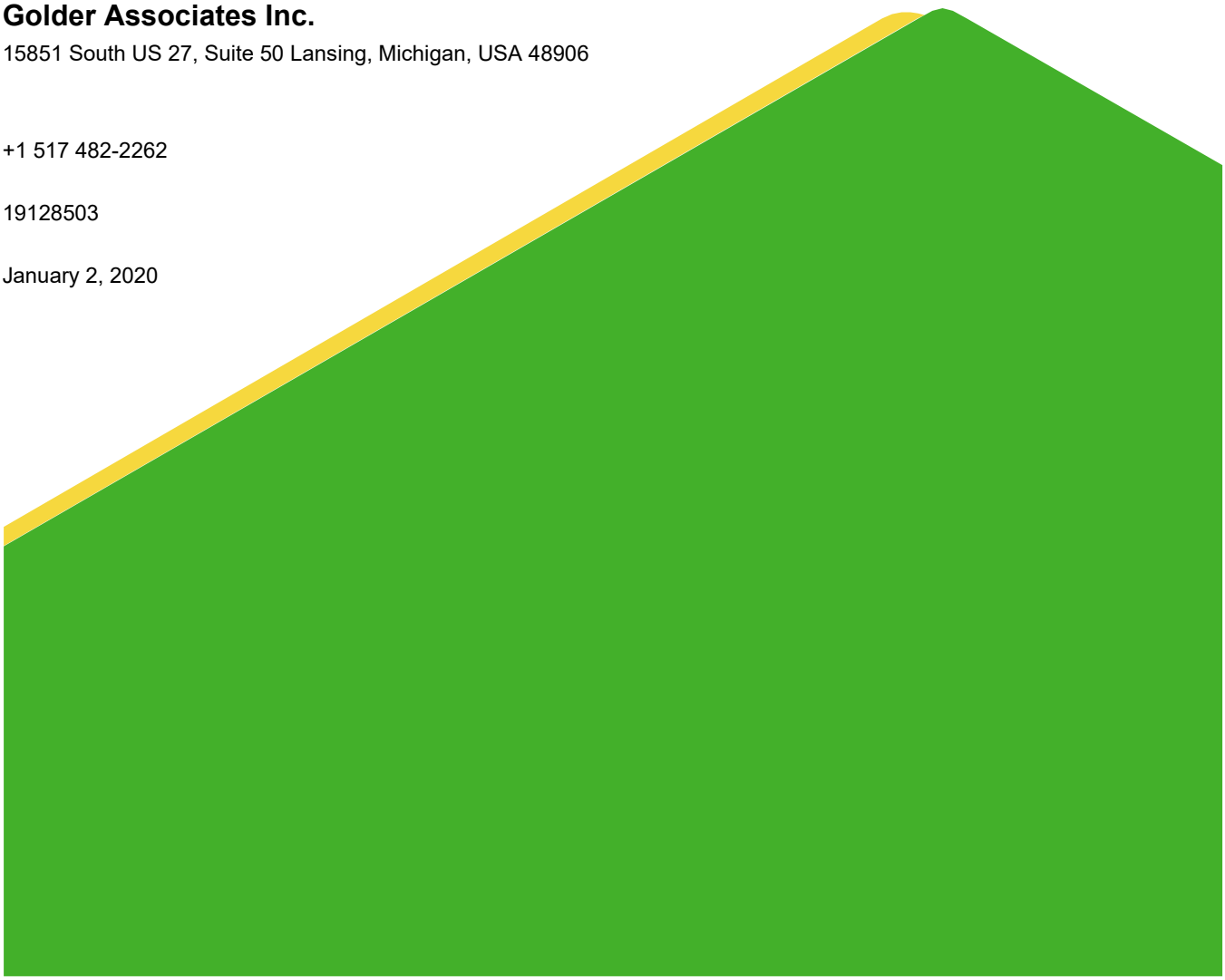

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1.0 INTRODUCTION

The United States Environmental Protection Agency (EPA) promulgated the Resource Conservation and Recovery Act (RCRA) Coal Combustion Residuals (CCR) Rule (Rule) on April 17, 2015, with an effective date of October 19, 2015. The Rule requires owners or operators of existing CCR surface impoundments to have those units inspected on an annual basis by a qualified professional engineer in accordance with 40 CFR 257.83(b)(1). The annual qualified professional engineer inspections are required to be completed and the results documented in inspection reports (per 40 CFR 257.83(b)(2)) for CCR surface impoundments. Golder Associates Inc. (Golder) was retained by Northern Indiana Public Service Company, LLC (NIPSCO) to perform the fifth annual inspection of the Waste Disposal Area (WDA), a CCR surface impoundment located at the R.M. Schahfer Generating Station (RMSGS, Site).

This report presents the results of the 2019 annual inspection of the WDA CCR surface impoundment unit at the RMSGS, located in Wheatfield, Jasper County, Indiana. The inspection was conducted to comply with §257.83 of the CCR Rule.

Per 40 CFR 257.83(b)(1), Golder reviewed available information regarding the status and condition of the CCR unit and performed an onsite visual inspection which was conducted on October 7, 2019. The objectives of the inspection included the following:

- Review of Operational Records (as applicable, see Section 3):
  - Design and construction information.
  - Results of previous structural stability assessments.
  - Results of previous annual inspections.
- A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures.
- A visual inspection of hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.

In accordance with §257.83(b)(2), this inspection report has been prepared by a qualified professional engineer documenting the operational records review, visual inspection, and identifying the following since the previous annual inspection:

- Any changes in geometry of the CCR surface impoundment since the previous annual inspection.
- The location and type of existing instrumentation and the maximum recorded readings for each instrument since the previous annual inspection.
- The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection.
- The storage capacity of the impounding structure at the time of inspection.
- The approximate volume of the impounded water and CCR at the time of inspection.
- Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.

- Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

2.0 FACILITY DESCRIPTION

The WDA was designed by Sargent & Lundy Engineers of Chicago, Illinois in 1982. The WDA, located in the southwest region of RMSGS, is unlined and formed by an approximately 17-foot high perimeter earth-fill dike with slurry trench core that encloses an area of approximately 83 acres. The embankment crest has a nominal elevation of 681 feet above mean sea level (amsl), but surveyed crest elevations range from 680.0 to 682.3 feet amsl. The WDA receives primarily bottom ash/boiler slag from the generating station through pipes located at the northern end of the unit. Most of the deposited ash/slag is located in the northern half of the WDA. Due to size of the unit and settling/depositional properties of the materials, very little, if any, ash/slag is present in the southern half of the WDA. The east side of the WDA is common with the west side of the adjacent Recycle Settling Basin (RSB). Water exits the WDA via an overflow weir (standpipe), to the RSB, or through the auxiliary spillway located at the northwest side. The overflow weir is located at the southern end of the east side of the WDA. The WDA and the RSB are hydraulically connected and the water level within these impoundments will seek equilibrium when the water level is above the invert elevation of the standpipe connecting the impoundments. A survey of the WDA was performed by Marbach, Brady and Weaver, Inc. in December 2011 (Marbach, 2011).

The auxiliary spillway was modified in 2017 to allow for an increased invert elevation to account for the maximum flood levels. The modified spillway was operational in 2018. The modifications included removal of the former closed-conduit spillway and construction of a concrete open-channel spillway with a concrete down-chute and riprap armoring at the toe of the embankment. The completed spillway has an invert elevation of 677.5 feet amsl.

The revised analysis performed for the WDA's modified spillway and the actions by NIPSCO to operationally control the water surface elevation, satisfy the requirements of 40 CFR 257.82 (Golder, November 2017).

3.0 BACKGROUND AND DOCUMENT REVIEW SUMMARY

The existing reports reviewed for this assessment are summarized below.

Table 1: Summary of Background Document Review

Document	Date	Author
Various construction drawings	1982	Sargent & Lundy Engineers
Assessment of Dam Safety of Coal Combustion Surface Impoundments, NIPSCO, RM Schahfer Generating Station	July 2010	CDM for the EPA
Report on Inspection of The Waste Disposal Area	January 2011	Golder Associates Inc.
Final Hazard Classification Review Report – NIPSCO Schahfer Generating Station	January 2011	Golder Associates Inc.

Document	Date	Author
Embankment Elevation Survey, Waste Disposal Area and Recycle Pond, NIPSCO Schahfer Generating Station	December 2011	Marbach, Brady and Weaver, Inc.
Schahfer Spillway Hydrologic and Hydraulic Evaluation	December 2011	Golder Associates Inc.
Final Geotechnical Investigation and Embankment Stability Analyses	June 2012	Golder Associates Inc.
Report on Inspection of The Waste Disposal Area	September 2012	Golder Associates Inc.
Construction in a Floodway Permit Application, NIPSCO R.M. Schahfer Generating Station,	November 2012	Golder Associates Inc.
Basin Operation, Maintenance and Inspection Plan, NIPSCO R. M. Schahfer Generating Station,	February 2013	Golder Associates Inc.
Emergency Action Plan, Final Settling Basin (FSB), Intake Settling Basin (ISB), Waste Disposal Area (WDA), Recycle Basin (RB), Northern Indiana Public Service Company (NIPSCO), R.M. Schahfer Generating Station	February 2013	Golder Associates Inc.
State of Indiana Department of Natural Resources (DNR), Certificate of Approval, After-the-Fact, Construction in a Floodway	April 23, 2013	State of Indiana DNR
Report on Inspection of The Waste Disposal Area	April 2014	Golder Associates Inc.
Construction Observation Documentation Report, Surface Water Basin Erosion Repairs, NIPSCO R.M. Schahfer Generating Station	October 2014	Golder Associates Inc.
Northern Indiana Public Service Company R.M. Schahfer Generating Station – First Annual RCRA CCR Unit Inspection Report – January 2016 – Waste Disposal Area – Surface Impoundment	January 2016	Golder Associates Inc.

Document	Date	Author
NIPSCO, R.M. Schahfer Generating Station, Hazard Potential Classification Assessment and Visual Inspection Report – RCRA CCR Units	September 2016	Golder Associates Inc.
NIPSCO – R.M. Schahfer Generating Station, Waste Disposal Area, History of Construction	September 2016	Golder Associates Inc.
Statement of Certification, NIPSCO RMSGS, Liner Design Criteria for Existing CCR Surface Impoundments	September 2016	Golder Associates Inc.
NIPSCO R.M. Schahfer Generating Station, CCR Surface Impoundment Inflow Design Flood Control System Plan	October 2016	Golder Associates Inc.
NIPSCO, R.M. Schahfer Generating Station, Waste Disposal Area, Structural Stability and Safety Factor Assessment	October 2016	Golder Associates Inc.
Waste Disposal Area Spillway Improvement Drawings – Bid Drawings, NIPSCO, RMSGS	August 2017	Golder Associates Inc.
Northern Indiana Public Service Company, R.M. Schahfer Generating Station – Second Annual RCRA CCR Unit Inspection Report – January 2017 – Waste Disposal Area – Surface Impoundment	January 2017	Golder Associates Inc.
Weekly Inspection Reports	2017-2019	NIPSCO
WDA Bathymetric Survey	2017	DLZ
Amendment to the R.M. Schahfer Generating Station Inflow Design Flood Control System Plan – Hydraulic Evaluation of the Waste Disposal Area Auxiliary Spillway	November 2017	Golder Associates Inc.

Document	Date	Author
Northern Indiana Public Service Company, R.M. Schahfer Generating Station – Third Annual RCRA CCR Unit Inspection Report – January 2018 – Waste Disposal Area – Surface Impoundment	January 2018	Golder Associates Inc.
Northern Indiana Public Service Company, R.M. Schahfer Generating Station – Fourth Annual RCRA CCR Unit Inspection Report – January 2019 – Waste Disposal Area – Surface Impoundment	January 2019	Golder Associates Inc.

4.0 2019 VISUAL INSPECTION

The 2019 onsite inspection of the WDA was performed by Ms. Tiffany Johnson, P.E. and Ms. Halle Doering of Golder on October 7, 2019. Ms. Johnson is a Professional Engineer, licensed in the State of Indiana. Golder's inspectors were directed by Mr. Joseph Kutch, Team Leader Environmental Compliance with NIPSCO RMSGS and Mr. Kevin Sokolowski, Environmental Coordinator with NIPSCO RMSGS.

The inspection provides the following information as stipulated in 40 CFR 257.83(b)(2):

- Any changes in geometry of the CCR surface impoundment since the previous annual inspection.
  - The auxiliary spillway construction was completed prior to the 2019 inspection (November 2017), as described in Section 2.0.
- The location and type of existing instrumentation and the maximum recorded readings for each instrument since the previous annual inspection.
  - There is currently no instrumentation in place designed to monitor structural stability of the WDA.
- The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection.
  - Maximum: approximately 677.5 feet above mean sea level (based on invert elevation of the improved spillway (Golder, November 2017)
  - Minimum: approximately 675.8 feet above mean sea level (based on visual observation)
  - Present Depth: approximately 13 feet (based on visual observation at overflow weir staff gauge, approximate elevation of 676.7 ft amsl)
- The storage capacity of the impounding structure at the time of inspection.
  - 1,530 acre-feet (based on review of available information)
- The approximate volume of the impounded water and CCR at the time of inspection.

  - Impounded water = approximately 183,880,000 gallons (from NIPSCO based on 13-feet depth, no significant change from 2018)
  - CCR = approximately 670,000 cubic yards (from NIPSCO)
- Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.
  - None were observed.
- Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.
  - None were observed.

Based on visual observations made on October 7, 2019, the overall condition of the WDA is acceptable. No structural weaknesses or safety issues were observed within the upstream, downstream, crest, or hydraulic structures of the WDA. Based on visual observations made on October 7, 2019, there were no visual conditions identified that would negatively impact the operation of the WDA.

5.0 CLOSING

This report has been prepared in general accordance with normally accepted civil engineering practices to fulfill the Resource Conservation and Recovery Act (RCRA) reporting requirements in accordance with 40 CFR 257.83(b). Based on our review of the information provided by NIPSCO and on Golder's on-site visual inspection, the overall condition of the WDA is acceptable. Golder's assessment is limited to the information provided to us by NIPSCO and to the features that could be inspected visually in a safe manner. Golder cannot attest to the condition of subsurface or submerged structures.

Sincerely,

Golder Associates Inc.

Halle A. Doering
Project Engineer

Tiffany D. Johnson, P.E.
Principal and Indiana P.E. #11500730

January 2, 2020

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