

# MWVG

Midwest Generation, LLC

**Will County Generating Station**

## 2022 Inflow Design Flood Control System Plan for Pond 1N & Pond 1S

**Revision 0**

**March 25, 2022**

**Issue Purpose: Use**

**Project No.: 12661-124**

55 East Monroe Street  
Chicago, IL 60603-5780 USA  
312-269-2000  
[www.sargentlundy.com](http://www.sargentlundy.com)



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## 1.0 PURPOSE

Pond 1N and Pond 1S at Midwest Generation, LLC’s (MWG) Will County Generating Station (“Will County” or the “Station”) are former ash ponds that are regulated as inactive coal combustion residual (CCR) surface impoundments under the Illinois Pollution Control Board’s “Standards for the Disposal of Coal Combustion Residuals in CCR Surface Impoundments.” These regulations are codified in Part 845 to Title 35 of the Illinois Administrative Code (35 Ill. Adm. Code 845, Ref. 1) and are also referred to herein as the “Illinois CCR Rule.” Pursuant to 35 Ill. Adm. Code 845.510(c)(1), MWG must prepare an inflow design flood control system plan that documents how the inflow design flood control systems for Ponds 1N and 1S have been designed and constructed to meet the hydrologic and hydraulic capacity requirements for CCR surface impoundments promulgated by 35 Ill. Adm. Code 845.510.

This report documents the 2022 inflow design flood control system plan prepared in accordance with the Illinois CCR Rule by Sargent & Lundy (S&L) on behalf of MWG for Ponds 1N and 1S at Will County. This report:

- Lists the inputs and assumptions used to determine whether Ponds 1N and 1S can manage the inflow design flood,
- Discusses the methodology used to determine whether Ponds 1N and 1S can manage the inflow design flood, and
- Summarizes the results of the hydrologic and hydraulic calculations performed to support the conclusion of whether Ponds 1N and 1S meet the hydrologic and hydraulic requirements for CCR surface impoundments promulgated by the Illinois CCR Rule.

## 2.0 INPUTS

### **Inflow Design Flood Control System**

The inflow design flood control systems for Ponds 1N and 1S are documented in the initial inflow design flood control system plan for South Ash Ponds 2 and 3, which was prepared by Geosyntec Consultants in October 2016 (Ref. 3). The 2016 plan analyzed all inputs into Will County’s bottom ash sluice water treatment system, which includes stormwater runoff from Ponds 1N and 1S. The 2016 plan is provided in its entirety in Appendix A.

### **Inflow Design Flood Event**

Per the former ash ponds’ 2021 hazard potential classification assessment (Ref. 4), Ponds 1N and 1S are classified as Class 2 CCR surface impoundments pursuant to 35 Ill. Adm. Code 845.440(a)(1). Therefore, the inflow design flood event used in this hydrologic and hydraulic assessment of both former ash ponds is based on the 1,000-year storm (Ref. 1, § 845.510(a)(3)). Per the National Oceanic and Atmospheric

Administration's Atlas 14 (Ref. 5), the precipitation depth for the 1,000-year, 24-hour storm event at the Will County site is 13.3 inches.

### **Site Topography**

Topographic data for Ponds 1N and 1S and the surrounding areas was obtained from the U.S. Department of Agriculture's (USDA) Geospatial Data Gateway (Ref. 6). This topography reflects publicly available elevation data collected in 2021.

### **Former Ash Pond Conditions**

The physical conditions for Ponds 1N and 1S were based on discussions with MWG personnel and as-built construction plans.

## **3.0 ASSUMPTIONS**

There are no assumptions in this document that require verification.

## **4.0 HYDROLOGIC & HYDRAULIC ASSESSMENT**

### **4.1 METHODOLOGY**

PondPack (Ref. 8) was used to analyze the abilities of Ponds 1N and 1S to manage direct precipitation and stormwater runoff from the 1000-year, 24-hour storm event. The analysis conservatively assumed that the hydraulic structures downstream of the ponds were full at the time of the storm event and, therefore, the former ash ponds would need to contain the inflow design flood without water overtopping their dikes (EL. 590.00 feet). It is important to note that Ponds 1N and 1S are former ash ponds and, therefore, do not impound water. Finally, the time of concentration for this hydrologic and hydraulic assessment was assumed to be 5 minutes in accordance with the minimum time of concentration recommended in the U.S. Department of Agriculture's Technical Release No. 55, *Urban Hydrology for Small Watersheds* (Ref. 9).

### **4.2 RESULTS**

Table 4-1 summarizes the results from the hydrologic and hydraulic calculations performed for Ponds 1N and 1S (Ref. 10). Based on these results, water entering Ponds 1N and 1S during the inflow design flood event will not overtop either former ash pond. The water level in Ponds 1N and 1S during the design event were estimated to be 0.49 foot and 1.45 feet below the pond dikes, respectively.

**Table 4-1 – Summary of Hydrologic & Hydraulic Assessment Results for Ponds 1N & 1S**

Inactive CCR Surface Impoundment	Illinois Hazard Potential Classification	Inflow Design Flood	Maximum Surface Water Elevation	Former Pond Crest Elevation
Pond 1N	Class 2	1,000 Year	589.51 feet	590.00 feet
Pond 1S	Class 2	1,000 Year	588.55 feet	590.00 feet

## 5.0 CONCLUSIONS

Based on the hydrologic and hydraulic calculations performed for Ponds 1N and 1S (Ref. 10), the former ash ponds have adequate hydraulic capacities to retain the 1000-year flood event without water overtopping the former ash ponds. Therefore, Ponds 1N and 1S are able to collect and control the inflow design flood event specified in 35 Ill. Adm. Code 845.510(a)(3).

## 6.0 CERTIFICATION

I certify that:

- This inflow design flood control system plan was prepared by me or under my direct supervision.
- The work was conducted in accordance with the requirements of 35 Ill. Adm. Code 845.510.
- I am a registered professional engineer under the laws of the State of Illinois.

Certified By: Thomas J. Dehlin

Date: March 25, 2022

Seal:



## 7.0 REFERENCES

1. Illinois Pollution Control Board. "Standards for Disposal of Coal Combustion Residuals in CCR Surface Impoundments." 35 Ill. Adm. Code 845. Accessed March 25, 2022.
2. Geosyntec Consultants. "Inflow Design Flood Control System Plan, South Ash Pond 2S and South Ash Pond 3S, Will County Station." October 2016.
3. Civil & Environmental Consultants, Inc. "Hazard Potential Classification Assessment Report, Ash Ponds 1N and 1S, Will County Station." CEC Project No. 312-192.0220. September 2021.
4. National Oceanic and Atmospheric Administration. "Point Precipitation Frequency Estimates." NOAA Atlas 14, Volume 11, Version 3.
5. U.S. Department of Agriculture, Natural Resources Conservation Service, Geospatial Data Gateway (2021 Survey).
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7. Bentley PondPack V8i Version 10.02.00.01.
8. U.S. Department of Agriculture. *Urban Hydrology for Small Watersheds*. Technical Release No. 55. 1986.
9. Sargent & Lundy. "Pond 1N & Pond 1S Hydraulic Capacity Calculation." S&L Calc. No. MG-WC-C002, Rev. 0. S&L Project No. 12661-124. March 2022.

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**APPENDIX A: 2016 SOUTH ASH POND 2 & SOUTH ASH  
POND 3 INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN**

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