

TRANSMITTAL

To: Illinois Environmental Protection Agency
DWPC – Permits Section (MC 15)
Attn: Part 845 Coal Combustion Residual Rule Submittal
1021 North Grand Avenue East
Springfield, IL 62702

From: Midwest Generation, LLC Waukegan Station

Date: January 30, 2024

**Re: Midwest Generation, LLC – Waukegan Generating Station
Account No. W0971900021
CCR Surface Impoundment Annual Consolidated Report**

In accordance with the requirements of Title 35 of the Illinois Administrative Code (“35 IAC”) Section 845.550, the Annual Consolidated Report is attached for the following CCR surface impoundments at Waukegan Generating Station:

Pond ID	CCR Surface Impoundment Description
W0971900021-01	East Ash Pond
W0971900021-02	West Ash Pond

The certification pages from the Hazard Potential Classification Assessment, Structural Stability Assessment, Safety Factor Assessment, and Inflow Design Flood Control System Plan have been provided in Attachment B. Full copies of these assessments can be found on our public website at www.midwestgenerationllc.com. If you have any questions or require additional information regarding this submittal, please contact Jill Buckley at Jill.Buckley@nrg.com.

2023 ANNUAL CONSOLIDATED REPORT WAUKEGAN GENERATING STATION

EAST ASH POND – W0971900021-01
WEST ASH POND – W0971900021-02

ATTACHMENT A – ANNUAL CCR FUGITIVE DUST CONTROL REPORT

ATTACHMENT B – ANNUAL INSPECTION REPORT

ATTACHMENT B.1 – HAZARD POTENTIAL CLASSIFICATION ASSESSMENT
CERTIFICATION

ATTACHMENT B.2 – STRUCTURAL STABILITY ASSESSMENT CERTIFICATION

ATTACHMENT B.3 – SAFETY FACTOR ASSESSMENT CERTIFICATION

ATTACHMENT B.4 – INFLOW DESIGN FLOOD CONTROL PLAN

ATTACHMENT C – ANNUAL GROUNDWATER MONITORING AND CORRECTIVE
ACTION REPORT

ATTACHMENT D – MONTHLY SURFACE IMPOUNDMENT WATER ELEVATIONS

ATTACHMENT A
2023 ANNUAL CCR FUGITIVE DUST
CONTROL REPORT

Annual CCR Fugitive Dust Control Report
Waukegan Generating Station
401 East Greenwood Avenue, Waukegan, Illinois

1.0 Introduction

On April 15, 2021, the Illinois Pollution Control Board adopted a new part of its waste disposal regulations creating state-wide standards for the disposal of coal combustion residuals (CCR) in surface impoundments, created by the generation of electricity by coal-fired power plants (the IL CCR Rule). These requirements include air criteria specified in Title 35 of the Illinois Administrative Code, §845.500, to address the potential pollution caused by windblown dust from CCR units.

The Waukegan Generating Station, operated by Midwest Generation, LLC (MWG), is located at 401 East Greenwood Avenue, Waukegan, Lake County, Illinois. The facility retired its coal-fired electric power generating units in 2022 and currently operates oil-fired electric power generating units. The station occupies approximately 200 acres. There are currently two coal-fired units, Units 7 and 8, that ceased coal-burning operations in May 2022. There are four peaker units at the site, fired primarily by fuel oil. Electrical power is transmitted from the site to the area grid through overhead transmission power lines. The Rule applies to this facility due to the disposal management of CCR that is generated from the combustion of coal. CCR units associated with the station include the East Ash Pond and West Ash Pond.

According to the IL CCR Rule, owners or operators of CCR units must adopt measures that will effectively minimize CCR from becoming airborne at the facility by developing and operating in accordance with a Fugitive Dust Control Plan (Plan) with adequate dust control measures. In this regard, a Plan was prepared that complies with the requirements as specified in §845.500(b)(1-7) of the IL CCR Rule and placed in the Waukegan facility's operating record on October 31, 2021 per §845.800(d)(7). As required, the Plan was also posted to the publicly accessible internet site per §845.810(e).

In addition to the above and per §845.500(c), an Annual Fugitive Dust Control Report (Annual Report) must be completed that includes the following:

- Description of actions taken to control CCR fugitive dust and
- The four quarterly fugitive dust complaint reports submitted under subsection (b)(2)(B)

The Annual Report must be submitted as part of the annual consolidated report required by §845.550. This document represents the 2023 Annual Report for Waukegan and will also be appropriately placed in the facility's operating record per §845.800(d)(7) and posted to the publicly accessible internet site per §845.810(e).

Annual CCR Fugitive Dust Control Report
Waukegan Generating Station
401 East Greenwood Avenue, Waukegan, Illinois

2.0 Actions Taken to Control CCR Fugitive Dust

As detailed in the facility's CCR Fugitive Dust Control Plan and reiterated below, the station has established procedures and inspection requirements which are implemented to minimize/eliminate airborne emissions from the potential fugitive dust sources. The results from inspections conducted and associated observations made during CCR handling activities are documented on logs maintained in the station's Environmental Department.

2.1 West Ash Pond and East Ash Pond

The East Ash Pond is filled with water, thereby suppressing any potential fugitive dust emissions. The West Ash Pond had been dewatered and dredged, with de minimis amounts of CCR and subsequent stormwater accumulation remaining. When the ponds need to be dewatered and the sediment removed off site to a licensed landfill, there is the potential for this material to become airborne especially during excessively dry and windy conditions. Loading of this material under these conditions also has the potential for generating fugitive dust. Dewatered ponds are assessed on a quarterly basis or more frequently during excessively dry and windy conditions. To minimize fugitive dust emissions from exposed dry bottom ash and slag, the height of the staged material is minimized and the material piles are either sprayed with water or covered. Loading activities also are limited during such occasions. Haul trucks are covered with tarps once they have been loaded.

No CCR was removed from the ash ponds during the reporting period.

2.2 Maintenance Storage Area

The roll-off boxes in the Maintenance Storage Area only periodically contain bottom ash and slag, fly ash and other ash-related materials generated from decommissioning activities. Typically, the bottom ash and slag was in a wet state when placed into the containers but fly ash was in a dry state. When the roll-off boxes were filled, the material was promptly removed to an off-site licensed facility. The Maintenance Storage Area was assessed on a quarterly basis or more frequently during excessively dry and windy conditions. If ash material was observed outside a roll-off box, it was collected and placed into the container. All roll-off boxes were covered while staged in the Maintenance Storage Area and during removal off site. With the retirement of Units 7 and 8, the Maintenance Storage Area was used infrequently during decommissioning activities.

2.3 Ash Transport Roadways

During CCR hauling activities, truck drivers are instructed on the proper procedure for cleaning trucks and roll-off boxes before removal and a vehicle speed limit is enforced at the facility. Ash material that may not have been adequately removed from the trucks or roll-off boxes has the

Annual CCR Fugitive Dust Control Report
Waukegan Generating Station
401 East Greenwood Avenue, Waukegan, Illinois

potential to become airborne and ultimately be deposited on haul roads. To minimize fugitive dust emissions, these roads are assessed on a quarterly basis and any observed accumulated ash material is promptly cleaned up and collected for off-site removal to a licensed landfill.

3.0 Fugitive CCR Dust Assessments

Pursuant to §845.500(b)(3), assessments of the potential fugitive dust emission sources identified in the Waukegan facility's CCR Fugitive Dust Control Plan (Plan) are conducted to assess the effectiveness of the Plan. The assessment includes observation of ash removal from ponds, temporary storage and transport activities at the facility to confirm the adequacy of the control measures. The assessments are conducted on a quarterly basis by an individual designated by the contact identified below. Observations made during each assessment will be recorded on a form similar to the one included in Appendix B of the Waukegan facility's CCR Fugitive Dust Control Plan.

If the results of the assessment determine that ash-related equipment has malfunctioned or the integrity of the equipment has been compromised, the necessary repairs or replacement will be performed as soon as feasible. If the assessment finds that the Plan does not effectively minimize the CCR from becoming airborne, the Plan will be amended to include additional control measures. No issues were identified during this Annual Report's period of record covering January through December 2023.

Owner Representative/Responsible Person Contact Information:

Mr. Phillip Raush
Plant Manager
815-207-5412

4.0 Record of Citizen Complaints

Per the Rule, the Annual Report must include copies of the four quarterly fugitive dust complaint reports submitted under §845.500(b)(2)(B). The quarterly fugitive dust complaint reports contain a record of all citizen complaints that were received by the Waukegan station with regard to fugitive dust emission incidents. In line with established protocols and within 24 hours of receipt, the station's environmental coordinator enters the citizen complaint into MWG's Environmental Management Information System (EMIS) database. The EMIS database would then automatically forwards notice of the complaint to the station manager and MWG's corporate environmental department. Following initial evaluation of the complaint, MWG would then conduct a thorough investigation to confirm the reported incident/conditions and implement corrective actions as may be warranted.

Annual CCR Fugitive Dust Control Report
Waukegan Generating Station
401 East Greenwood Avenue, Waukegan, Illinois

No complaints were registered during this Annual Report's period of record covering January through December 2023.

5.0 Summary of Corrective Actions Taken

For the January through December 2023 period of record and based on continued monitoring and inspections as outlined in Section 2.0 and 3.0 and as required under the CCR rules, the established control measures remain effective in minimizing potential fugitive dust emissions. Moreover, this assertion is further validated by the lack of citizen complaints logged over this same period. Accordingly, no corrective actions were required during the past year.

QUARTERLY FUGITIVE DUST
COMPLAINT REPORTS



Midwest Generation, LLC
Waukegan Generating Station
401 E. Greenwood Ave.
Waukegan, Illinois 60087

April 6, 2023

Illinois Environmental Protection Agency
DWPC – Permits Section (MC 15)
Attn: Part 845 Coal Combustion Residual Rule Submittal
1021 North Grand Avenue East
Springfield, IL 62702

**Re: Midwest Generation, LLC – Waukegan Generating Station
Account No. W0971900021
Pond IDs: W0971900021-01, W0971900021-02
CCR Surface Impoundment Quarterly Fugitive Dust Complaint Report**

Dear Sir or Madam:

In accordance with the requirements of Title 35 of the Illinois Administrative Code (“35 IAC”) Section 845.500(b)(2)(B), this letter serves as the fugitive dust complaint report for First Quarter 2023 at Waukegan Generating Station. There were no complaints received from members of the public during the period January 1, 2023 through March 31, 2023.

If you have any questions or require additional information regarding this submittal, please contact Jill Buckley at Jill.Buckley@nrg.com.

Sincerely,

A handwritten signature in black ink that reads "P. Raush". The signature is written in a cursive, slightly slanted style.

Phillip Raush
Plant Manager
Waukegan Generating Station

MWVG

Midwest Generation, LLC

Midwest Generation, LLC
Waukegan Generating Station
401 E. Greenwood Ave.
Waukegan, Illinois 60087

July 7, 2023

Illinois Environmental Protection Agency
DWPC – Permits Section (MC 15)
Attn: Part 845 Coal Combustion Residual Rule Submittal
1021 North Grand Avenue East
Springfield, IL 62702

Re: Midwest Generation, LLC – Waukegan Generating Station
Account No. W0971900021
Pond IDs: W0971900021-01, W0971900021-02
CCR Surface Impoundment Quarterly Fugitive Dust Complaint Report

Dear Sir or Madam:

In accordance with the requirements of Title 35 of the Illinois Administrative Code (“35 IAC”) Section 845.500(b)(2)(B), this letter serves as the fugitive dust complaint report for Second Quarter 2023 at Waukegan Generating Station. There were no complaints received from members of the public during the period April 1, 2023 through June 30, 2023.

If you have any questions or require additional information regarding this submittal, please contact Jill Buckley at Jill.Buckley@nrg.com.

Sincerely,



Phillip Raush
Plant Manager, Waukegan Generating Station



Midwest Generation, LLC
Waukegan Generating Station
401 E. Greenwood Ave.
Waukegan, Illinois 60087

October 3, 2023

Illinois Environmental Protection Agency
DWPC – Permits Section (MC 15)
Attn: Part 845 Coal Combustion Residual Rule Submittal
1021 North Grand Avenue East
Springfield, IL 62702

**Re: Midwest Generation, LLC – Waukegan Generating Station
Account No. W0971900021
Pond IDs: W0971900021-01, W0971900021-02
CCR Surface Impoundment Quarterly Fugitive Dust Complaint Report**

Dear Sir or Madam:

In accordance with the requirements of Title 35 of the Illinois Administrative Code (“35 IAC”) Section 845.500(b)(2)(B), this letter serves as the fugitive dust complaint report for Third Quarter 2023 at Waukegan Generating Station. There were no complaints received from members of the public during the period July 1, 2023 through September 30, 2023.

If you have any questions or require additional information regarding this submittal, please contact Jill Buckley at Jill.Buckley@nrg.com.

Sincerely,

A handwritten signature in black ink that reads "P. Raush". The signature is written in a cursive style with a large initial "P" and a long, sweeping underline.

Phillip Raush
Plant Manager, Waukegan Generating Station



Midwest Generation, LLC
Waukegan Generating Station
401 E. Greenwood Ave.
Waukegan, Illinois 60087

January 8, 2024

Illinois Environmental Protection Agency
DWPC – Permits Section (MC 15)
Attn: Part 845 Coal Combustion Residual Rule Submittal
1021 North Grand Avenue East
Springfield, IL 62702

**Re: Midwest Generation, LLC – Waukegan Generating Station
Account No. W0971900021
Pond IDs: W0971900021-01, W0971900021-02
CCR Surface Impoundment Quarterly Fugitive Dust Complaint Report**

Dear Sir or Madam:

In accordance with the requirements of Title 35 of the Illinois Administrative Code ("35 IAC") Section 845.500(b)(2)(B), this letter serves as the fugitive dust complaint report for Fourth Quarter 2023 at Waukegan Generating Station. There were no complaints received from members of the public during the period October 1, 2023 through December 31, 2023.

If you have any questions or require additional information regarding this submittal, please contact Jill Buckley at Jill.Buckley@nrg.com.

Sincerely,

A handwritten signature in black ink, appearing to read "P. Raush". The signature is written in a cursive, flowing style.

Phillip Raush
Plant Manager, Waukegan Generating Station

ATTACHMENT B
2023 ANNUAL INSPECTION REPORT

**ANNUAL INSPECTION REPORT
EAST ASH POND AND WEST ASH POND
WAUKEGAN STATION
OCTOBER 2023**

This annual inspection report has been prepared pursuant to both Title 35 of the Illinois Administrative Code (35 IAC) Part 845, Subpart E, Section 845.540(b) and Title 40 Code of Federal Regulation (40 CFR) Part 257.83(b) for the East Ash Pond and West Ash Pond at Waukegan Station (Station) in Waukegan, Illinois. The purpose of this project is to perform the annual inspection of the East and West Ash Ponds by a licensed professional engineer to ensure that the design, construction, operation, and maintenance of the coal combustion residuals (CCR) unit is consistent with recognized and generally accepted good engineering standards. Civil & Environmental Consultants, Inc. (CEC) completed the following scope of services in preparing this annual inspection report:

- CEC reviewed the weekly and monthly inspection reports completed by a qualified person employed by Midwest Generation, LLC, and the previous annual inspection report.
- CEC performed the annual inspection in accordance with the requirements of 35 IAC Part 845.540 and 40 CFR Part 257.83(b) including observations pertaining to the following:
 - Changes in Geometry: Observations of changes in the geometry of the East and West Ash Ponds since the previous annual inspection.
 - Instrumentation: Inspection of the location and type of existing instrumentation and documentation of the maximum recorded readings of each instrument since the previous annual inspection from records provided by the Station.
 - Capacity and Impounded Volume: Inspection observations for the approximate minimum, maximum, and present depth and elevation of the impounded water and CCR; storage capacity of the impounding structure at the time of the inspection; and the approximate volume of the impounded water and CCR at the time of the inspection.
 - Structural/Operational Observations: Estimation of the approximate volume of the impounded water and CCR at the time of the inspection.
 - Other Changes: Inspection including change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

The East Ash Pond and West Ash Pond are both CCR surface impoundments with each pond approximately 10 acres in size. On October 18, 2023, CEC inspected both the East Ash Pond and West Ash Pond and our observations showed no signs of distress that would suggest the stability or operation of the impounding structure is compromised. At the time of the inspection, the Waukegan Station coal-fired generating units were inactive and in the process of being decommissioned. Both the East and West Ash Pond no longer accept CCRs.

1.0 CHANGES IN GEOMETRY

Both the East Ash Pond and West Ash Pond geometry was observed to be unchanged since the October 2022 inspection.

2.0 INSTRUMENTATION

Instrumentation associated with the Ponds included a water level monitoring device in the outlet structure for each pond. Our interview of station personnel and review of weekly inspection reports concluded that the water level monitors are operating properly. No other instrumentation was reported or observed that would be associated with the hydraulic structures, impoundment embankments, and/or slope performance.

3.0 CAPACITY AND IMPOUNDED VOLUME

Capacity and impounded volumes for the East Ash Pond and West Ash Pond and estimated depth of impounded water and CCR are represented in Table 1 and 2, attached. Volumes and depths were determined by reviewing inspection reports, construction drawings, and from modeling using existing topographic data.

4.0 STRUCTURAL/OPERATIONAL OBSERVATIONS

Both the East Ash Pond and West Ash Pond were inspected for signs of distress that would have the potential to disrupt operation and safety of the ponds. None were observed. Prior to inspection, CEC reviewed the previous annual inspection reports, which did not identify conditions that indicate an actual or potential structural weakness. Weekly inspection reports were also reviewed and did not indicate an actual or potential structural weakness.

5.0 OTHER CHANGES

The East Ash Pond and West Ash Pond were inspected for other signs of other changes or distress that would have the potential to disrupt operation and safety of the ponds. Our inspection showed no distresses that would affect the operation and/or stability of either the East Ash Pond or West Ash Pond.

6.0 LIMITATIONS AND CERTIFICATION

This annual inspection report was prepared to meet the requirements of 35 IAC Section 845.540(b) and 40 CFR Part 257.83(b) and was prepared under the direction of Mr. M. Dean Jones, P.E.

By affixing my seal to this, I do hereby certify to the best of my knowledge, information, and belief that the information contained in this report is true and correct. I further certify I am licensed to practice in the State of Illinois and that it is within my professional expertise to verify the correctness of the information. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Seal:



Signature: Dean Jones

Name: M. Dean Jones, P.E.

Date of Certification: October 24, 2023

Illinois Professional Engineer No.: 062-051317

Expiration Date: November 30, 2023

Table 1: Inspection Summary - East Ash Pond

Category	Regulation Reference	Evaluation	Recommended Action
Change in Geometry	§845.450(b)(2)(A) §257.83(b)(2)(i)	None	None
Instrumentation	§845.450(b)(2)(B) §257.83(b)(2)(ii)	None	None
Water Depth	§845.450(b)(2)(C) §257.83(b)(2)(iii)	5.03 feet, minimum 5.64 feet, at inspection 9.94 feet, maximum	None
CCR Depth	§845.450(b)(2)(C) §257.83(b)(2)(iii)	2 to 14 Feet	None
Estimated Storage Capacity	§845.450(b)(2)(D) §257.83(b)(2)(iv)	143.8 Acre Feet	None
Impounded Water Volume	§845.450(b)(2)(E) §257.83(b)(2)(v)	10 Acre Feet	None
Impounded CCR Volume	§845.450(b)(2)(E) §257.83(b)(2)(v)	26 Acre Feet	None
Structural/Operational Observations	§845.450(b)(2)(F) §257.83(b)(2)(vi)	No longer accepting CCR	None
Other Changes	§845.450(b)(2)(G) §257.83(b)(2)(vii)	None	None

Table 2: Inspection Summary - West Ash Pond

Category	Regulation Reference	Evaluation	Recommended Action
Change in Geometry	§845.450(b)(2)(A) §257.83(b)(2)(i)	None	None
Instrumentation	§845.450(b)(2)(B) §257.83(b)(2)(ii)	Water level at outlet structure	None
Water Depth	§845.450(b)(2)(C) §257.83(b)(2)(iii)	< 1 foot, minimum < 1 foot, at inspection 8.8 feet, maximum	None
CCR Depth	§845.450(b)(2)(C) §257.83(b)(2)(iii)	Less than 1 Foot	None
Estimated Storage Capacity	§845.450(b)(2)(D) §257.83(b)(2)(iv)	138.5 Acre Feet	None
Impounded Water Volume	§845.450(b)(2)(E) §257.83(b)(2)(v)	Less Than 6 Acre Feet	None
Impounded CCR Volume¹	§845.450(b)(2)(E) §257.83(b)(2)(v)	Less Than 6 Acre Feet	None
Structural/Operational Observations	§845.450(b)(2)(F) §257.83(b)(2)(vi)	No longer accepting CCR	None
Other Changes	§845.450(b)(2)(G) §257.83(b)(2)(vii)	None	None

ATTACHMENT B.1
2023 ANNUAL HAZARD POTENTIAL
CLASSIFICATION CERTIFICATION

7.0 CERTIFICATION

I certify that:

- This hazard potential classification assessment was prepared by me or under my direct supervision.
- The work was conducted in accordance with the requirements of 35 Ill. Adm. Code 845.440.
- I am a registered professional engineer under the laws of the State of Illinois.

Certified By: Thomas J. Dehlin

Date: October 13, 2023

Seal:



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Thomas Dehlin
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ATTACHMENT B.2
2023 ANNUAL STRUCTURAL STABILITY
ASSESSMENT CERTIFICATION

4.0 RECOMMENDED CORRECTIVE MEASURES

(35 Ill. Adm. Code 845.450(b)(1))

Table 4-1 lists the corrective measures recommended for the East and West Ash Ponds in accordance with the findings documented in this 2023 structural stability assessment.

Table 4-1 – Recommended Corrective Measures for East & West Ash Ponds

Recommended Corrective Measure	Timeframe
Continue mowing vegetation taller than 12 inches and removing woody vegetation. Woody vegetation shall be removed in a manner that does not risk destabilizing the subject CCR surface impoundment or otherwise adversely affect the stability and safety of the CCR surface impoundment or personnel removing the woody vegetation.	Now, and As Required to Maintain Vegetative Cover Under 12 Inches
Conduct a visual surveillance program to verify that the hydraulic structures passing through the West Ash Pond's northern dike are in good, working condition and are free of significant material defects that could compromise the structures' integrities.	During Closure Construction
Remove the hydraulic structures passing through the East Ash Pond's northern dike.	During Closure Construction

5.0 CERTIFICATION

I certify that:

- This structural stability assessment was prepared by me or under my direct supervision.
- The work was conducted in accordance with the requirements of 35 Ill. Adm. Code 845.450.
- I am a registered professional engineer under the laws of the State of Illinois.

Certified By: Thomas J. Dehlin

Date: October 13, 2023

Seal:



th. Dehlin
Thomas Dehlin
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ATTACHMENT B.3
2023 ANNUAL SAFETY FACTOR
ASSESSMENT CERTIFICATION

Table 6-1 – 2023 Illinois CCR Rule Factors of Safety for the East and West Ash Ponds at the Waukegan Generating Station

Loading Condition	East Ash Pond	West Ash Pond	Min. Allowable Factor of Safety
Long-Term, Maximum Storage Pool	≥ 1.50	≥ 1.50	1.50
Maximum Surcharge Pool	≥ 1.40	≥ 1.40	1.40
Seismic	≥ 1.00	≥ 1.00	1.00
Liquefaction	Note 1	Note 1	1.20

Notes: 1) The embankment soils for the Ponds are not considered susceptible to liquefaction because saturation of the embankment soils is unlikely based on the installed geomembrane liner system. A limited portion of the bottom of the embankments may become saturated with groundwater based on the design phreatic surface. Liquefaction triggering analyses of these saturated soils show that liquefaction and associated post-liquefaction shear strength loss is unlikely for the design seismic event (Ref. 3). Thus, liquefaction safety factors are not reported.

7.0 CERTIFICATION

I certify that:

- This safety factor assessment was prepared by me or under my direct supervision.
- The work was conducted in accordance with the requirements of 35 Ill. Adm. Code 845.460.
- I am a registered professional engineer under the laws of the State of Illinois.

Certified By: Thomas J. Dehlin

Date: October 13, 2023

Seal:



th. Dehlin
Thomas Dehlin
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**ATTACHMENT B.4
2023 ANNUAL INFLOW DESIGN FLOOD
CONTROL SYSTEM PLAN
CERTIFICATION**

7.0 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: October 13, 2023

Seal:



th. Dehlin Thomas Dehlin
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**ATTACHMENT C
2023 ANNUAL GROUNDWATER
MONITORING AND CORRECTIVE ACTION
REPORT**



ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

**ILLINOIS CCR COMPLIANCE
ANNUAL GROUNDWATER MONITORING and
CORRECTIVE ACTION REPORT - 2023**

**Midwest Generation, LLC
Waukegan Station
401 E. Greenwood Avenue
Waukegan, Illinois**

Prepared By: **KPRG and Associates, Inc.
14665 West Lisbon Road, Suite 1A
Brookfield, WI 53005**

January 31, 2024

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1.0 INTRODUCTION and OVERVIEW

Groundwater monitoring requirements in accordance with the Ill. Adm. Code Title 35, Part 845: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments dated April 15, 2021 (State CCR Rule) have been completed for the ash pond monitoring wells located at the Midwest Generation, LLC (Midwest Generation) Waukegan Generating Station. The wells sampled were selected to meet the monitoring requirements of the State CCR Rule for the West and East Ash Ponds. The CCR monitoring well network around these ponds consists of eight monitoring wells (MW-01 through MW-04, MW-09, MW-11, MW-14 and MW-16) as shown on Figure 1. Wells MW-09, MW-11 and MW-14 are upgradient wells. All CCR groundwater monitoring data available to date, which includes data from previous groundwater monitoring under the Federal CCR Rule, are provided in Tables 1 and 2. As part of the Application for Initial Operating Permit – Waukegan Generating Station submitted on October 31, 2021 (Application), *proposed* statistical background concentration calculations along with *proposed* site-specific Groundwater Protection Standards (GWPSs) for Illinois Environmental Protection Agency (Agency) review/approval. Table 3 summarizes the *proposed* background statistical concentrations for each parameter along with the site-specific *proposed* GWPSs in accordance with Section 845.600(a)(2). These are currently still under review by the Agency and, therefore, have not been finalized. However, for the purposes of evaluations required for the annual report, data comparisons will be presented relative to the “*proposed*” values for statistical background concentrations and site-specific GWPSs.

This overview of the 2023 groundwater monitoring period is provided in accordance with Section 845.610(e)(4). Each required item is discussed separately below.

- Section 845.610(e)(4)(A and B) – *Proposed* statistical background concentration calculations (see Table 3) were submitted to the Agency as part of the Application for Initial Operating. This Application is currently still under Agency review. However, assuming that the Agency accepts the proposed background calculations, the groundwater monitoring for the 2023 reporting period has identified the following constituents with potential statistically significant increases (SSIs) above the *proposed* background concentrations. It is noted that other than those constituents identified in the next bullet, none of these potential SSI concentrations are above *proposed* site-specific GWPSs. The constituents and associated wells are:
 - Barium: MW-09 (1st and 3rd quarters), MW-11 (4th quarter)
 - Boron: MW-09 (3rd quarter)
 - Calcium: MW-09 (1st and 3rd quarters)
 - Combined Radium: MW-11 (3rd and 4th quarters)
 - Fluoride: MW-01 (2nd and 3rd quarters), MW-03 (3rd and 4th quarters), MW-02, MW-04 and MW-16 (1st through 4th quarters)
 - Lithium: MW-09 (1st through 4th quarters)

- Molybdenum: MW-01, MW-02, MW-03, MW-04, MW-09 and MW-16 (1st through 4th quarters)
- pH: MW-01 (1st through 4th quarters), MW-02 (2nd and 3rd quarters), MW-03 (1st and 4th quarters), MW-04 (3rd quarter)
- Selenium: MW-09 (1st and 3rd quarters)
- Sulfate: MW-09 (1st and 3rd quarters), MW-16 (1st through 4th quarters)
- Total Dissolved Solids: MW-09 (3rd quarter)

Wells MW-09, MW-11 and MW-14 are upgradient monitoring wells.

- Section 845.610(e)(4)(C and D) – *Proposed* GWPSs in accordance with Section 845.600(a)(2) (see Table 3) were submitted to the Agency as part of the Application for Initial Operating Permit. This Application is currently still under review by the Agency. However, assuming that the Agency accepts the *proposed* GWPSs, the groundwater monitoring for the 2023 reporting period has identified the following constituents above the *proposed* GWPSs:
 - Boron: MW-09 (3rd quarter)
 - Calcium: MW-09 (1st and 3rd quarters)
 - pH: MW-01 (3rd quarter)
 - Lithium: MW-09 (1st through 4th quarters).
 - Molybdenum: MW-09 (1st through 3rd quarters)
 - Sulfate: MW-09 (1st and 3rd quarters)

Well MW-09 is an upgradient monitoring point.

- Section 845.610(e)(4)(E through H) – The East and West Ash Ponds are currently not in corrective action.

2.0 ANNUAL STATUS SUMMARY

As discussed in Section 1.0, the CCR monitoring well network around the East and West Ash Ponds consists of eight monitoring wells (MW-01 through MW-04, MW-09, MW-11, MW-14 and MW-16) as shown on Figure 1. Wells MW-09, MW-11 and MW-14 are upgradient wells. All CCR groundwater monitoring data available to date, which includes data from previous groundwater monitoring under the Federal CCR Rule, are provided in Tables 1 and 2. The backup analytical packages have been previously provided as part of the 60-day submittal requirements. Table 3 summarizes the proposed background statistical concentrations for each parameter along with the site-specific *Proposed* GWPSs in accordance with Section 845.600(a)(2). These were included as part of the Initial Operating Permit Application referenced above. They are currently still under review by the Agency and, therefore, have not been finalized. However, for the purposes of evaluations required for this annual report, data comparisons will be presented relative to the “*proposed*” values for statistical background concentrations and site specific GWPSs.

This section provides the information specified under Section 845.610(e) (2-3).

2.1 Summary of Actions and Submittals (Section 845.610(e)(2))

For the 2023 reporting period, the following key actions have been completed:

- Quarterly sampling of all parameters specified in Section 845.600(a) plus calcium and turbidity were completed and the associated 60-day data summary submittals were placed in the facility's operating record in accordance with Section 845.610(b)(3)(D).
- Water levels were recorded monthly for the specified CCR monitoring wells and pond water levels were concurrently recorded.

Key activities for the upcoming year include:

- Receipt of an approved Application for Initial Operating Permit which will facilitate finalization of the proposed statistical background concentrations and the proposed site specific GWPSs. Once these are accepted/finalized by the Agency, formal groundwater data comparisons and evaluations can be made based on quarterly monitoring results relative to these comparison criteria.
- Submit an amended Application for Initial Construction Permit with closure in-place for both ponds. The submittal is anticipated during the 1st quarter 2024.
- Receipt of an approved amended Application for Initial Construction Permit which will facilitate proceeding to formal closure of the regulated Units.
- Continued quarterly groundwater monitoring/reporting.

2.2 Groundwater Data Summary (Section 845.610(e)(3)(A-F))

Identification of monitoring wells and associated constituent concentrations above the proposed site specific GWPSs was included in Section 1.0 above. A map showing these wells and constituent concentrations above the proposed GWPSs for the most recent sampling (4th quarter 2023) is provided on Figure 2.

There were no monitoring wells installed or decommissioned during this reporting period. Monthly water levels were recorded from the specified CCR monitoring wells. The water levels are summarized in Table 4. Potentiometric surface maps for each round of water levels are provided in Attachment 1. Groundwater flow beneath the East and West Ash Ponds is consistently in an easterly direction. When monthly water levels are taken concurrently with a quarterly groundwater sampling event, groundwater elevations from non-CCR wells are also used in developing the groundwater flow maps. In accordance with

Section 845.640(c)(2), groundwater flow direction and seepage velocity estimates for each round of water levels are provided in Table 5.

A summary of the number of groundwater samples collected for analysis for each CCR monitoring well along with sample dates is provided in Table 6.

Proposed statistical background concentration calculations (see Table 3) were submitted to the Agency as part of the Application for Initial Operating. This Application is currently still under Agency review. However, assuming that the Agency accepts the *proposed* background calculations, the groundwater monitoring for the 2023 reporting has identified the following constituents with potential statistically significant increases (SSIs) above the *proposed* background concentrations:

- Barium: MW-09 (1st and 3rd quarters), MW-11 (4th quarter)
- Boron: MW-09 (3rd quarter)
- Calcium: MW-09 (1st and 3rd quarters)
- Combined Radium: MW-11 (3rd and 4th quarters)
- Fluoride: MW-01 (2nd and 3rd quarters), MW-03 (3rd and 4th quarters), MW-02, MW-04 and MW-16 (1st through 4th quarters)
- Lithium: MW-09 (1st through 4th quarters)
- Molybdenum: MW-01, MW-02, MW-03, MW-04, MW-09 and MW-16 (1st through 4th quarters)
- pH: MW-01 (1st through 4th quarters), MW-02 (2nd and 3rd quarters), MW-03 (1st and 4th quarters), MW-04 (3rd quarter)
- Selenium: MW-09 (1st and 3rd quarters)
- Sulfate: MW-09 (1st and 3rd quarters), MW-16 (1st through 4th quarters)
- Total Dissolved Solids: MW-09 (3rd quarter)

Wells MW-09, MW-11 and MW-14 are upgradient monitoring wells. As previously stated, other than those constituents identified in the second bullet in Section 1.0, none of these potential SSI concentrations are above *proposed* site-specific GWPSs.

TABLES

Table 1. Groundwater Analytical Results - Midwest Generation, LLC, Waukegan Station, Waukegan, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Radium 226 + 228 Combined	Selenium	Thallium	
MW-09 up-gradient	11/4/2015	13	210	450	0.14	6.60	370	1700	< 0.003	< 0.001	0.015	^< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.081	< 0.0002	0.260	0.1818	< 0.0025	< 0.002	
	3/2/2016	35	280	720	0.11	7.02	970	2800	< 0.003	0.006	0.005	< 0.001	< 0.0005	0.043	< 0.001	< 0.00061	0.094	< 0.0002	0.51	< 0.36	0.025	< 0.002	
	5/3/2016	16	310	620	0.12	7.02	740	2500	< 0.003	0.0014	0.025	< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.083	< 0.0002	0.63	< 0.512	0.024	< 0.002	
	8/25/2016	4.5	130	270	0.21	7.13	190	1100	0.0041	0.0024	0.024	< 0.001	0.0011	0.056	0.0027	0.049	< 0.0002	0.063	0.0012	0.482	0.039	< 0.002	
	12/8/2016	15	200	330	0.18	7.01	270	1300	< 0.003	0.004	0.016	< 0.001	0.00052	< 0.0005	< 0.001	< 0.0005	0.077	< 0.0002	0.24	< 0.72	0.038	< 0.002	
	2/23/2017	14	190	290	0.12	7.68	320	1300	< 0.003	0.0027	0.014	< 0.001	< 0.0005	0.059	0.0018	< 0.0005	0.068	< 0.0002	0.26	< 0.461	0.016	< 0.002	
	5/16/2017	27	160	67	0.29	8.15	420	970	< 0.003	< 0.001	0.0094	^< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.045	< 0.0002	0.51	< 0.342	0.0085	< 0.002	
	7/6/2017	21	220	430	0.13	7.18	610	1800	< 0.003	0.002	0.018	< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.089	< 0.0002	0.31	< 0.316	0.021	< 0.002	
	9/13/2017	21	250	420	0.14	7.17	520	1800	< 0.003	0.0067	0.019	< 0.001	< 0.0005	0.0052	0.0017	< 0.0005	0.069	< 0.0002	0.33	0.944	0.0041	< 0.002	
	11/29/2017	26	200	390	0.13	7.05	390	1600	< 0.003	0.0017	0.015	^< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.086	< 0.0002	0.47	0.625	0.042	< 0.002	
	5/31/2018	32	200	29	0.1	6.85	490	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/6/2018	30	170	23	0.11	7.33	290	930	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/15/2019	26	120	260	0.13	7.53	1000	< 0.003	< 0.001	0.0073	< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	< 0.0005	0.035	< 0.0002	0.54	< 0.433	< 0.0025	< 0.002	
	11/19/2019	22	160	17	0.16	8.04	300	750	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/22/2020	22	140	9.2	0.18	7.81	360	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/18/2020	28	250	290	0.18	7.43	420	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/6/2021	31	170	35	0.12	7.51	420	910	< 0.003	< 0.001	0.0075	< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.04	< 0.0002	0.47	< 0.614	0.023	< 0.002	
	8/19/2021	7.2	150	170	0.13	7.01	210	350	< 0.003	0.0019	0.015	< 0.001	< 0.0005	< 0.0005	^< 0.001	0.015	0.066	< 0.0002	0.12	< 0.457	0.071	^< 0.002	
	11/4/2021	10	150	160	0.24	7.07	180	980	< 0.003	0.0026	0.074	^1+ < 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.06	< 0.0002	0.12	< 0.775	0.097	< 0.002	
	2/10/2022	9.5	190	220	0.17	7.11	270	1300	< 0.003	0.015	0.033	< 0.001	0.00076	< 0.0005	0.0038	< 0.0005	0.065	< 0.0002	0.21	< 0.523	0.036	< 0.002	
	5/24/2022	5.3	150	180	0.23	7.15	200	940	< 0.003	0.0019	0.02	^< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.054	< 0.0002	0.18	< 0.444	< 0.0025	< 0.002	
	8/23/2022	12	170	170	0.22	7.04	290	1100	< 0.003	0.0046	0.011	^< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.048	< 0.0002	0.21	0.487	0.034	< 0.002	
	11/7/2022	6.4	160	200	0.51	6.98	220	1100	< 0.003	0.0083	0.14	^1+ < 0.001	< 0.0005	< 0.0005	0.0013	0.034	0.057	< 0.0002	0.088	2.58	< 0.0025	< 0.002	
	12/21/2022 (R)	NS	NS	NS	0.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/13/2023	B 28	280	220	0.12	6.97	490	1500	< 0.0030	0.0011	0.074	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	0.062	< 0.0020	0.46	1.01	0.029	< 0.0020	
5/9/2023	4.7	140	220	0.23	7.08	200	890	< 0.0030	0.0011	0.021	^< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	0.045	< 0.0020	0.15	< 0.557	< 0.0025	< 0.0020		
8/8/2023	^< 20	270	380	0.23	6.98	510	1800	< 0.0030	0.0021	0.11	< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	0.062	< 0.0020	0.35	0.754	0.022	< 0.0020		
11/28/2023	2.6	96	170	0.33	7.15	130	750	< 0.0030	0.0071	0.061	^1+ < 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	0.053	< 0.0020	0.49	0.652	< 0.0025	< 0.0020		
MW-11 up-gradient	11/5/2015	5.2	140	240	0.13	6.51	190	1100	< 0.003	0.77	0.039	^< 0.001	< 0.0005	< 0.0005	< 0.001	0.001	0.055	< 0.0002	< 0.0050	0.656	< 0.0025	< 0.002	
	3/2/2016	4.0	170	240	0.1	7.16	210	1200	< 0.003	0.55	0.048	< 0.001	< 0.0005	0.058	< 0.001	0.011	0.049	< 0.0002	< 0.0050	1.09	< 0.0025	< 0.002	
	5/5/2016	5.0	140	280	0.11	7.17	160	1000	< 0.003	0.51	0.038	< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.057	< 0.0002	< 0.005	1.24	< 0.0025	< 0.002	
	8/26/2016	3.5	180	240	0.13	6.97	110	1100	< 0.003	1.1	0.05	< 0.001	< 0.0005	0.0055	< 0.001	0.0005	0.055	< 0.0002	< 0.005	1.04	< 0.0025	< 0.002	
	12/7/2016	3.0	170	270	0.12	7.06	110	1200	< 0.003	0.87	0.049	< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.038	< 0.0002	< 0.005	1.87	< 0.0025	< 0.002	
	2/24/2017	2.4	180	220	4.9	6.61	170	1200	< 0.003	0.58	0.047	< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.039	< 0.0002	< 0.005	0.982	< 0.0025	< 0.002	
	5/18/2017	1.8	160	170	0.12	7.42	120	1000	< 0.003	0.5	0.047	^< 0.001	< 0.0005	0.056	< 0.001	< 0.0005	0.036	< 0.0002	< 0.005	1.31	< 0.0025	< 0.002	
	7/6/2017	2.4	160	190	0.14	7.33	130	1100	< 0.003	0.69	0.056	< 0.001	< 0.0005	0.057	< 0.001	< 0.0005	0.041	< 0.0002	< 0.005	0.889	< 0.0025	< 0.002	
	9/13/2017	1.9	140	150	0.26	7.16	96	870	< 0.003	0.66	0.036	< 0.001	< 0.0005	0.008	< 0.001	0.00071	0.037	< 0.0002	0.054	0.718	< 0.0025	< 0.002	
	11/30/2017	2.2	170	200	0.14	6.99	93	1100	< 0.003	0.59	0.05	^< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.041	< 0.0002	< 0.005	1.21	< 0.0025	< 0.002	
	5/31/2018	1.5	210	160	0.1	6.74	130	1100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/6/2018	2.3	170	150	0.12	7.21	78	990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/15/2019	3.2	120	260	0.13	7.14	31	1000	< 0.003	0.3	0.048	< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.038	< 0.0002	< 0.005	1.5	< 0.0025	< 0.002	
	11/19/2019	4.1	130	200	0.15	7.51	29	860	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/22/2020	3.2	110	150	0.15	7.16	47	740	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/2020	2.3	140	130	0.2	7.00	28	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/6/2021	2.4	130	120	0.15	7.13	45	770	< 0.003	0.44	0.044	< 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.038	< 0.0002	< 0.005	1.7	< 0.0025	< 0.002	
	8/19/2021	1.3	140	88	0.16	6.95	45	730	< 0.003	1.1	0.055	< 0.001	< 0.0005	0.0057	^< 0.001	< 0.0005	0.033	< 0.0002	< 0.005	1.89	< 0.0025	^< 0.002	
	11/4/2021	1.6	130	100	0.16	6.80	45	740	< 0.003	0.59	0.052	^1+ < 0.001	< 0.0005	< 0.0005	< 0.001	< 0.0005	0.037	< 0.0002	< 0.005	1.35	^6.2 < 0.0025	< 0.002	
	2/10/2022	1.2	150	87	0.17	7.12	44	860	< 0.003	0.68	0.051	< 0.001	&										

Table 1. Groundwater Analytical Results - Midwest Generation, LLC, Waukegan Station, Waukegan, IL

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Lithium	Mercury	Molybdenum	Radium 226 + 228 Combined	Selenium	Thallium
MW-02 down- gradient	11/2/2015	3.0	32	47	0.78	8.27	230	460	< 0.003	0.014	0.016	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.0630	< 0.0625	< 0.002	
	3/1/2016	4.1	39	47	1.3	8.57	220	510	< 0.003	0.011	0.02	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.078	0.529	< 0.0025	
	5/4/2016	3.3	34	51	1.5	8.19	180	440	< 0.003	0.0081	0.018	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.069	< 0.425	< 0.0025	
	8/23/2016	3.1	42	59	1.3	7.52	250	500	< 0.003	0.0082	0.016	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.056	< 0.439	< 0.0025	
	12/5/2016	3.1	28	56	1.0	8.62	160	430	< 0.003	0.018	0.015	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.071	0.509	< 0.0025	
	2/21/2017	3.3	31	52	0.76	8.75	190	420	< 0.003	0.028	0.012	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.051	< 0.416	0.0038	
	5/15/2017	3.6	85	48	0.64	8.33	320	640	< 0.003	0.029	0.02	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.047	0.425	0.023	
	7/5/2017	4.2	100	52	0.42	7.92	300	710	< 0.003	0.0094	0.031	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.047	< 0.295	0.017	
	9/14/2017	2.5	87	54	0.44	8.19	340	780	< 0.003	0.012	0.035	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.049	0.769	0.0052	
	11/27/2017	3.4	69	57	0.62	7.34	200	570	< 0.003	0.011	0.022	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.048	< 0.442	< 0.0025	
	5/29/2018	4.5	160	43	0.40	6.85	420	990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/5/2018	3.1	77	59	0.61	8.06	180	610	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/14/2019	2.9	47	49	1.0	8.30	140	430	< 0.003	0.0094	0.013	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.069	0.37	< 0.0025	
	11/19/2019	4.7	140	43	0.7	7.37	270	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/21/2020	3.4	86	48	1.0	8.02	250	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/17/2020	4.0	79	20	0.8	7.67	310	610	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/5/2021	4.6	70	37	0.7	8.39	190	420	< 0.003	0.008	0.03	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.023	0.97	< 0.0025	
	8/18/2021	4.1	84	39	0.5	7.92	190	480	< 0.003	0.0088	0.029	< 0.001	< 0.0005	< 0.005	^A < 0.001	< 0.0005	< 0.01	< 0.0002	0.021	< 0.525	< 0.0025	
	11/3/2021	4.2	59	43	0.6	7.78	170	410	< 0.003	0.009	0.025	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	^A < 0.01	< 0.0002	0.03	0.763	< 0.0025	
	2/8/2022	0.2	71	34	0.5	8.00	200	580	< 0.003	0.021	0.025	< 0.001	< 0.0005	< 0.005	< 0.001	0.00069	0.0055	< 0.0002	0.028	0.64	< 0.0025	
	5/23/2022	3.5	77	30	0.5	8.12	190	510	< 0.003	0.02	0.03	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.024	0.66	0.0035	
	8/22/2022	3.3	84	33	0.3	7.59	220	650	< 0.003	0.011	0.024	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.029	< 0.4	< 0.0025	
	11/7/2022	3.5	120	36	0.3	7.40	270	700	< 0.003	0.013	0.033	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.028	1.47	< 0.0025	
	2/13/2023	3.8	83	45	0.34	7.90	180	560	< 0.0030	0.0086	0.029	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	< 0.010	< 0.00020	0.022	0.64	0.0042	
	5/8/2023	3.1	62	47	0.39	8.00	210	440	< 0.0030	0.0090	0.027	^A < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	< 0.010	< 0.00020	0.030	< 0.659	0.0038	
	8/7/2023	^A 3.1	68	51	0.40	8.17	210	510	< 0.0030	0.0089	0.022	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	< 0.010	< 0.00020	0.032	< 0.588	< 0.0025	
	11/28/2023	2.8	61	67	0.36	7.58	150	480	< 0.0030	0.0082	0.021	^A < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	< 0.010	< 0.00020	0.017	< 0.557	0.0054	
	MW-03 down- gradient	11/2/2015	2.3	72	87	0.51	9.26	270	570	< 0.003	0.0068	0.011	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.0370	0.071	< 0.0025
3/1/2016		2.9	61	70	0.33	7.33	220	530	< 0.003	0.0069	0.015	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.0560	< 0.332	0.0043	
5/4/2016		2.4	42	74	0.56	7.25	170	470	< 0.003	0.007	0.011	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.058	< 0.48	< 0.0025	
8/24/2016		2.0	70	39	0.3	9.13	200	430	< 0.003	0.010	0.0069	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.042	< 0.428	< 0.0025	
12/5/2016		2.4	57	60	0.41	7.62	120	440	< 0.003	0.0065	0.0094	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.044	< 0.526	< 0.0025	
2/21/2017		2.2	56	65	0.33	7.56	180	460	< 0.003	0.011	0.0067	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.043	< 0.437	< 0.0025	
5/16/2017		3.9	110	61	0.27	7.90	320	820	< 0.003	0.0087	0.039	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.041	< 0.461	0.014	
7/5/2017		2.1	60	60	0.28	7.45	200	470	< 0.003	0.007	0.017	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.058	< 0.384	0.0045	
9/14/2017		2.1	86	57	0.26	7.53	240	580	< 0.003	0.005	0.026	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.056	0.462	0.0081	
11/28/2017		2.6	69	63	0.56	6.96	120	500	< 0.003	0.0025	0.016	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.057	1.17	< 0.0025	
5/29/2018		2.4	67	61	0.38	6.84	190	480	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/5/2018		2.4	54	54	0.5	8.99	150	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5/14/2019		4.2	86	17	0.59	7.21	270	660	< 0.003	0.0059	0.022	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.053	0.657	0.0061	
11/19/2019		4.2	130	15	0.25	7.47	300	740	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4/21/2020		3.8	120	23	0.29	6.87	270	660	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/17/2020		3.8	120	53	0.29	7.05	240	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5/5/2021		3.3	110	43	0.23	7.18	210	550	< 0.003	0.0066	0.035	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.016	0.689	0.0065	
8/18/2021		3	150	46	0.17	6.9	250	690	< 0.003	0.0052	0.041	< 0.001	< 0.0005	< 0.005	^A < 0.001	< 0.0005	< 0.010	0.00031	0.045	0.656	< 0.0025	
11/3/2021		3.2	120	40	0.18	7.05	250	600	< 0.003	0.0071	0.036	< 0.001	< 0.0005	< 0.005	^A < 0.001	< 0.0005	^A < 0.010	0.0002	0.025	< 0.438	0.0093	
2/8/2022		2.6	91	31	0.3	7.16	210	580	< 0.003	0.0053	0.028	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.031	0.792	0.0062	
5/23/2022		2.4	79	32	0.23	8.72	170	450	< 0.003	0.016	0.016	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.025	< 0.534	0.0031	
8/22/2022		1.8	80	45	0.2	7.38	180	570	< 0.003	0.0054	0.02	^A < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.010	< 0.0002	0.026	0.809	0.004	
11/7/2022		2.3	82	50	0.																	

Table 2. Groundwater Turbidity - Midwest Generation, LLC, Waukegan Station, Waukegan, IL.

Well	Date	Turbidity (NTU)
MW-09	3/3/2021	4.70
	3/30/2021	10.15
	5/6/2021	3.44
	5/27/2021	12.41
	6/18/2021	27.7
	7/8/2021	28.77
	8/19/2021	77.36
	9/29/2021	18.41
	11/4/2021	12.66
	2/10/2022	34.39
	5/24/2022	170.87
	8/23/2022	34.9
	11/7/2022	195.02
	2/14/2023	20.46
	5/9/2023	9.34
	8/8/2023	18.85
11/28/2023	27.24	
MW-11	3/2/2021	2.20
	3/30/2021	6.08
	5/6/2021	2.34
	5/27/2021	2.69
	6/18/2021	13.7
	7/8/2021	4.71
	8/19/2021	139.34
	9/29/2021	402.9
	11/4/2021	152.7
	2/10/2022	13.8
	5/24/2022	2.18
	8/23/2022	3.17
	11/8/2022	7771.57*
	2/14/2023	5.12
	5/9/2023	16.30
8/8/2023	11.59	
11/28/2023	7.01	
MW-14	3/2/2021	2035
	3/30/2021	151.5
	5/6/2021	901.4
	5/27/2021	2385.61
	6/18/2021	69.25
	7/8/2021	73.18
	8/19/2021	77.04
	9/29/2021	8.42
	11/4/2021	7.42
	2/10/2022	81.72
	5/24/2022	43.52
	8/23/2022	24.76
	11/8/2022	311.78
	2/14/2023	660.17
	5/9/2023	16.57
8/8/2023	10.85	
11/28/2023	220.56	

Table 2. Groundwater Turbidity - Midwest Generation, LLC, Waukegan Station, Waukegan, IL.

Well	Date	Turbidity (NTU)
MW-01	3/1/2021	0.59
	3/30/2021	5.72
	5/5/2021	1.42
	5/27/2021	2.02
	6/18/2021	2.33
	7/8/2021	3.60
	8/18/2021	2.33
	9/29/2021	3.03
	11/3/2021	3.05
	2/8/2022	4.60
	5/23/2022	2.92
	8/22/2022	1.31
	11/7/2022	41.21
	2/13/2023	2.90
	5/8/2023	3.21
8/7/2023	3.15	
11/27/2023	3.74	
MW-02	3/1/2021	0.69
	3/30/2021	5.66
	5/5/2021	1.65
	5/27/2021	2.95
	6/18/2021	2.71
	7/8/2021	4.20
	8/18/2021	9.03
	9/29/2021	3.42
	11/3/2021	4.05
	2/8/2022	13.4
	5/23/2022	30.54
	8/22/2022	25.43
	11/7/2022	23.82
	2/13/2023	5.25
	5/8/2023	14.43
8/7/2023	2.32	
11/28/2023	4.56	
MW-03	3/1/2021	0.75
	3/30/2021	5.73
	5/5/2021	1.71
	5/27/2021	2.02
	6/18/2021	2.56
	7/8/2021	3.74
	8/18/2021	2.60
	9/29/2021	2.82
	11/3/2021	3.26
	2/8/2022	8.27
	5/23/2022	4.11
	8/22/2022	1.91
	11/7/2022	2.27
	2/13/2023	2.86
	5/8/2023	3.61
8/7/2023	2.68	
11/27/2023	3.57	

Table 2. Groundwater Turbidity - Midwest Generation, LLC, Waukegan Station, Waukegan, IL.

Well	Date	Turbidity (NTU)
MW-04	3/1/2021	1.30
	3/30/2021	6.21
	5/5/2021	1.77
	5/27/2021	2.73
	6/18/2021	3.69
	7/8/2021	5.36
	8/18/2021	40.61
	9/29/2021	3.48
	11/3/2021	4.26
	2/8/2022	13.32
	5/23/2022	28.94
	8/22/2022	2.57
	11/7/2022	41.15
	2/13/2023	3.76
	5/9/2023	15.03
8/8/2023	2.54	
11/27/2023	4.22	
MW-16	3/1/2021	0.77
	3/30/2021	6.07
	5/6/2021	1.63
	5/27/2021	2.00
	6/18/2021	2.59
	7/8/2021	3.58
	8/18/2021	3.22
	9/29/2021	6.05
	11/4/2021	4.00
	2/8/2022	21.6
	5/23/2022	11.75
	8/22/2022	3.54
	11/7/2022	42.55
	2/13/2023	32.31
	5/9/2023	2.95
8/8/2023	2.81	
11/28/2023	45.54	

* - MW-11 November 2022 turbidity is a field recording error.

Table 3. Proposed Site-Specific Groundwater Protection Standards - Waukegan Generating Station

Upgradient Well(s)	Parameter	Section 845.600 Standards	Interwell Background Prediction Limit	Proposed GWPS
MW-14	Antimony	0.006	0.015	0.015
MW-11/MW-14 Pooled	Arsenic	0.01	21	21
MW-11	Barium	2	0.064	2
MW-9/MW-11/MW-14 Pooled	Beryllium	0.004	0.001	0.004
MW-11	Boron	2.0	5.965	5.965
MW-14	Cadmium	0.005	0.002	0.005
MW-11/MW-14 Pooled*	Chloride	200	389	389
MW-14	Chromium	0.1	4.8	4.8
MW-14	Cobalt	0.006	0.007	0.007
MW-14	Combined Radium 226 + 228 (pCi/L)	5.0	1.566	5.0
MW-14	Fluoride	4.0	0.334	4.0
MW-9/MW-11/MW-14 Pooled	Lead	0.0075	0.0011	0.0075
MW-14	Lithium	0.04	0.040	0.040
MW-14	Mercury	0.002	0.0004	0.002
MW-11/MW-14 Pooled	Molybdenum	0.10	0.009	0.100
MW-11/MW-14 Pooled	pH (standard units)	6.5-9.0	6.51-7.74	6.5-9.0
MW-11/MW-14 Pooled	Selenium	0.05	0.014	0.050
MW-11/MW-14 Pooled*	Sulfate	400	259.1	400
MW-9/MW-11/MW-14 Pooled	Thallium	0.002	0.002	0.002
MW-11/MW-14 Pooled*	Total Dissolved Solids	1200	1589	1589
MW-11	Calcium	NE	225.1	225.1
MW-14	Turbidity (NTU)	NE	12,436	12,436

All values are in mg/L (ppm) unless otherwise noted.

* - Limited to original 8 background samples.

NE - Not Established

Bold - Site-specific Groundwater Protection Standard based on Section 845.600(a)(2)

Table 4. Groundwater Elevations - Midwest Generation, LLC, Waukegan Station, Waukegan, IL

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
MW-01	11/2/2015	603.12	20.75	582.37
	2/29/2016	603.12	20.71	582.41
	5/2/2016	603.12	20.89	582.23
	8/23/2016	603.12	22.01	581.11
	12/2/2016	603.62	22.27	581.35
	2/21/2017	603.62	22.42	581.20
	5/15/2017	603.62	20.52	583.10
	7/5/2017	603.62	21.81	581.81
	9/11/2017	603.62	21.47	582.15
	11/27/2017	603.62	21.82	581.80
	5/29/2018	603.62	19.43	584.19
	11/5/2018	603.62	20.45	583.17
	5/14/2019	603.62	19.81	583.81
	11/18/2019	603.62	19.89	583.73
	4/21/2020	603.62	20.81	582.81
	11/17/2020	603.62	21.51	582.11
	3/1/2021	603.62	21.19	582.43
	3/30/2021	603.62	21.34	582.28
	5/5/2021	603.62	21.76	581.86
	5/27/2021	603.62	21.78	581.84
	6/18/2021	603.62	21.90	581.72
	7/8/2021	603.62	21.75	581.87
	8/18/2021	603.62	21.82	581.80
	9/29/2021	603.62	22.22	581.40
	10/12/2021	603.62	21.65	581.97
	11/3/2021	603.62	21.45	582.17
	12/14/2021	603.62	21.52	582.10
	1/12/2022	603.62	21.73	581.89
	2/8/2022	603.62	22.00	581.62
	3/10/2022	603.62	21.67	581.95
	4/14/2022	603.62	22.27	581.35
	5/23/2022	603.62	21.25	582.37
	6/28/2022	603.62	21.80	581.82
	7/18/2022	603.62	22.00	581.62
	8/22/2022	603.62	21.78	581.84
	9/26/2022	603.62	21.75	581.87
	10/3/2022	603.62	21.95	581.67
	11/7/2022	603.62	22.17	581.45
	12/15/2022	603.62	21.90	581.72
	1/17/2023	603.62	21.60	582.02
	2/13/2023	603.62	21.76	581.86
	3/15/2023	603.62	21.40	582.22
	4/26/2023	603.62	21.35	582.27
	5/8/2023	603.62	21.46	582.16
	6/7/2023	603.62	21.90	581.72
	7/3/2023	603.62	21.80	581.82
	8/7/2023	603.62	22.22	581.40
	9/13/2023	603.62	22.45	581.17
	10/23/2023	603.62	22.05	581.57
	11/27/2023	603.62	22.28	581.34
12/26/2023	603.62	22.10	581.52	
MW-02	11/2/2015	603.04	20.71	582.33
	2/29/2016	603.04	20.59	582.45
	5/2/2016	603.04	20.82	582.22
	8/23/2016	603.04	22.04	581.00
	12/2/2016	603.39	22.13	581.26
	2/21/2017	603.39	22.24	581.15
	5/15/2017	603.39	20.25	583.14
	7/5/2017	603.39	21.59	581.80
	9/11/2017	603.39	21.21	582.18
	11/27/2017	603.39	21.63	581.76
	5/29/2018	603.39	19.12	584.27
	11/5/2018	603.39	20.19	583.20
	5/14/2019	603.39	19.55	583.84
	11/18/2019	603.39	19.60	583.79
	4/21/2020	603.39	20.57	582.82
	11/17/2020	603.39	21.32	582.07
	3/1/2021	603.39	21.04	582.35
	3/30/2021	603.39	21.13	582.26
	5/5/2021	603.39	21.56	581.83
	5/27/2021	603.39	21.60	581.79
	6/18/2021	603.39	21.65	581.74
	7/8/2021	603.39	21.48	581.91
	8/18/2021	603.39	21.56	581.83
	9/29/2021	603.39	22.00	581.39
	10/12/2021	603.39	21.50	581.89
	11/3/2021	603.39	21.26	582.13
	12/14/2021	603.39	21.40	581.99
	1/12/2022	603.39	21.65	581.74
	2/8/2022	603.39	21.90	581.49
	3/10/2022	603.39	21.55	581.84
	4/14/2022	603.39	22.10	581.29
	5/23/2022	603.39	21.11	582.28
	6/28/2022	603.39	21.60	581.79
	7/18/2022	603.39	21.80	581.59
	8/22/2022	603.39	21.65	581.74
	9/26/2022	603.39	21.50	581.89
	10/3/2022	603.39	21.75	581.64
	11/7/2022	603.39	22.22	581.17
	12/15/2022	603.39	21.75	581.64
	1/17/2023	603.39	21.75	581.64
	2/13/2023	603.39	21.69	581.70
	3/15/2023	603.39	21.25	582.14
	4/26/2023	603.39	21.15	582.24
	5/8/2023	603.39	21.35	582.04
	6/7/2023	603.39	21.75	581.64
	7/3/2023	603.39	21.60	581.79
	8/7/2023	603.39	22.08	581.31
	9/13/2023	603.39	22.30	581.09
	10/23/2023	603.39	22.00	581.39
	11/27/2023	603.39	22.14	581.25
12/26/2023	603.39	22.05	581.34	

Table 4. Groundwater Elevations - Midwest Generation, LLC, Waukegan Station, Waukegan, IL

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
MW-03	11/2/2015	602.91	20.37	582.54
	2/29/2016	602.91	20.43	582.48
	5/2/2016	602.91	20.66	582.25
	8/23/2016	602.91	22.12	580.79
	12/2/2016	603.70	22.52	581.18
	2/21/2017	603.70	22.64	581.06
	5/15/2017	603.70	20.55	583.15
	7/5/2017	603.70	21.92	581.78
	9/11/2017	603.70	21.55	582.15
	11/28/2017	603.70	21.96	581.74
	5/29/2018	603.70	19.40	584.30
	11/5/2018	603.70	20.48	583.22
	5/14/2019	603.70	19.80	583.90
	11/18/2019	603.70	20.05	583.65
	4/21/2020	603.70	20.82	582.88
	11/17/2020	603.70	21.60	582.10
	3/1/2021	603.70	21.30	582.40
	3/30/2021	603.70	21.40	582.30
	5/5/2021	603.70	21.83	581.87
	5/27/2021	603.70	21.85	581.85
	6/18/2021	603.70	21.91	581.79
	7/8/2021	603.70	21.71	581.99
	8/18/2021	603.70	21.80	581.90
	9/29/2021	603.70	22.30	581.40
	10/12/2021	603.70	21.70	582.00
	11/3/2021	603.70	21.53	582.17
	12/14/2021	603.70	21.60	582.10
	1/12/2022	603.70	21.97	581.73
	2/8/2022	603.70	22.29	581.41
	3/10/2022	603.70	21.50	582.20
	4/14/2022	603.70	22.30	581.40
	5/23/2022	603.70	21.18	582.52
	6/28/2022	603.70	21.85	581.85
	7/18/2022	603.70	22.10	581.60
	8/22/2022	603.70	21.76	581.94
	9/26/2022	603.70	21.70	582.00
	10/3/2022	603.70	22.00	581.70
	11/7/2022	603.70	22.22	581.48
	12/15/2022	603.70	22.20	581.50
	1/17/2023	603.70	22.10	581.60
	2/13/2023	603.70	22.00	581.70
	3/15/2023	603.70	21.50	582.20
	4/26/2023	603.70	21.40	582.30
	5/8/2023	603.70	25.12	578.58
	6/7/2023	603.70	22.00	581.70
	7/3/2023	603.70	21.87	581.83
	8/7/2023	603.70	22.43	581.27
	9/13/2023	603.70	22.75	580.95
	10/23/2023	603.70	22.30	581.40
	11/27/2023	603.70	22.60	581.10
12/26/2023	603.70	22.50	581.20	
MW-04	11/2/2015	603.19	20.83	582.36
	2/29/2016	603.19	20.70	582.49
	5/2/2016	603.19	20.94	582.25
	8/23/2016	603.19	22.69	580.50
	12/2/2016	603.17	22.18	580.99
	2/21/2017	603.17	22.36	580.81
	5/15/2017	603.17	20.04	583.13
	7/5/2017	603.17	21.46	581.71
	9/11/2017	603.17	21.05	582.12
	11/28/2017	603.17	21.54	581.63
	5/30/2018	603.17	18.88	584.29
	11/6/2018	603.17	19.96	583.21
	5/14/2019	603.17	19.35	583.82
	11/18/2019	603.17	19.36	583.81
	4/21/2020	603.17	20.40	582.77
	11/18/2020	603.17	21.23	581.94
	3/1/2021	603.17	20.95	582.22
	3/30/2021	603.17	21.02	582.15
	5/5/2021	603.17	21.52	581.65
	5/27/2021	603.17	21.55	581.62
	6/18/2021	603.17	21.62	581.55
	7/8/2021	603.17	21.45	581.72
	8/18/2021	603.17	21.49	581.68
	9/29/2021	603.17	22.08	581.09
	10/12/2021	603.17	21.35	581.82
	11/3/2021	603.17	21.15	582.02
	12/14/2021	603.17	21.40	581.77
	1/12/2022	603.17	21.72	581.45
	2/8/2022	603.17	22.17	581.00
	3/10/2022	603.17	21.73	581.44
	4/14/2022	603.17	22.08	581.09
	5/23/2022	603.17	20.92	582.25
	6/28/2022	603.17	21.55	581.62
	7/18/2022	603.17	21.80	581.37
	8/22/2022	603.17	21.55	581.62
	9/26/2022	603.17	21.40	581.77
	10/3/2022	603.17	21.70	581.47
	11/7/2022	603.17	22.13	581.04
	12/15/2022	603.17	22.05	581.12
	1/17/2023	603.17	21.90	581.27
	2/13/2023	603.17	21.76	581.41
	3/15/2023	603.17	21.50	581.67
	4/26/2023	603.17	21.00	582.17
	5/8/2023	603.17	21.11	582.06
	6/7/2023	603.17	21.65	581.52
	7/3/2023	603.17	21.55	581.62
	8/7/2023	603.17	22.20	580.97
	9/13/2023	603.17	22.75	580.42
	10/23/2023	603.17	22.10	581.07
	11/27/2023	603.17	22.49	580.68
12/26/2023	603.17	22.40	580.77	

Table 4. Groundwater Elevations - Midwest Generation, LLC, Waukegan Station, Waukegan, IL

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
MW-09	11/2/2015	594.00	9.78	584.22
	2/29/2016	594.00	9.89	584.11
	5/2/2016	594.00	9.59	584.41
	8/23/2016	594.00	10.58	583.42
	12/2/2016	594.00	10.27	583.73
	2/21/2017	594.00	10.21	583.79
	5/15/2017	594.00	9.57	584.43
	7/6/2017	594.00	9.81	584.19
	9/11/2017	594.00	10.25	583.75
	11/29/2017	594.00	9.98	584.02
	5/31/2018	594.00	9.38	584.62
	11/6/2018	594.00	9.52	584.48
	5/14/2019	594.00	9.50	584.50
	11/18/2019	594.00	9.62	584.38
	4/21/2020	594.00	9.84	584.16
	11/18/2020	594.00	10.83	583.17
	3/1/2021	594.00	9.90	584.10
	3/30/2021	594.00	10.46	583.54
	5/5/2021	594.00	10.80	583.20
	5/27/2021	594.00	10.92	583.08
	6/18/2021	594.00	11.25	582.75
	7/8/2021	594.00	10.82	583.18
	8/18/2021	594.00	10.99	583.01
	9/29/2021	594.00	11.82	582.18
	10/12/2021	594.00	10.94	583.06
	11/3/2021	594.00	10.53	583.47
	12/14/2021	594.00	10.60	583.40
	1/12/2022	594.00	10.70	583.30
	2/8/2022	594.00	10.95	583.05
	3/10/2022	594.00	10.62	583.38
	4/14/2022	594.00	11.82	582.18
	5/23/2022	594.00	10.41	583.59
	6/28/2022	594.00	10.80	583.20
	7/18/2022	594.00	10.80	583.20
	8/22/2022	594.00	10.76	583.24
	9/26/2022	594.00	10.60	583.40
	10/3/2022	594.00	9.70	584.30
	11/7/2022	594.00	10.71	583.29
	12/15/2022	594.00	10.30	583.70
	1/17/2023	594.00	10.35	583.65
	2/13/2023	594.00	10.06	583.94
	3/15/2023	594.00	9.70	584.30
	4/26/2023	594.00	10.40	583.60
	5/8/2023	594.00	10.55	583.45
	6/7/2023	594.00	10.90	583.10
	7/3/2023	594.00	10.70	583.30
	8/7/2023	594.00	10.91	583.09
	9/13/2023	594.00	11.00	583.00
	10/23/2023	594.00	10.65	583.35
	11/27/2023	594.00	11.02	582.98
12/26/2023	594.00	10.80	583.20	
MW-11	11/2/2015	590.35	5.27	585.08
	2/29/2016	590.35	5.54	584.81
	5/2/2016	590.35	5.17	585.18
	8/23/2016	590.35	6.04	584.31
	12/2/2016	590.35	5.86	584.49
	2/21/2017	590.35	5.87	584.48
	5/15/2017	590.35	5.33	585.02
	7/6/2017	590.35	5.62	584.73
	9/11/2017	590.35	5.61	584.74
	11/30/2017	590.35	5.68	584.67
	5/31/2018	590.35	5.41	584.94
	11/6/2018	590.35	5.29	585.06
	5/14/2019	590.35	5.55	584.80
	11/18/2019	590.35	5.80	584.55
	4/21/2020	590.35	5.85	584.50
	11/19/2020	590.35	6.66	583.69
	3/1/2021	590.35	5.46	584.89
	3/30/2021	590.35	6.54	583.81
	5/5/2021	590.35	6.81	583.54
	5/27/2021	590.35	6.76	583.59
	6/18/2021	590.35	6.75	583.60
	7/8/2021	590.35	6.72	583.63
	8/18/2021	590.35	6.90	583.45
	9/29/2021	590.35	7.40	582.95
	10/12/2021	590.35	6.77	583.58
	11/3/2021	590.35	6.61	583.74
	12/14/2021	590.35	6.61	583.74
	1/12/2022	590.35	6.68	583.67
	2/8/2022	590.35	6.85	583.50
	3/10/2022	590.35	6.30	584.05
	4/14/2022	590.35	7.40	582.95
	5/23/2022	590.35	6.40	583.95
	6/28/2022	590.35	6.65	583.70
	7/18/2022	590.35	6.60	583.75
	8/22/2022	590.35	6.35	584.00
	9/26/2022	590.35	5.50	584.85
	10/3/2022	590.35	6.40	583.95
	11/7/2022	590.35	6.36	583.99
	12/15/2022	590.35	5.90	584.45
	1/17/2023	590.35	6.40	583.95
	2/13/2023	590.35	6.16	584.19
	3/15/2023	590.35	5.60	584.75
	4/26/2023	590.35	6.30	584.05
	5/8/2023	590.35	6.34	584.01
	6/7/2023	590.35	6.55	583.80
	7/3/2023	590.35	6.30	584.05
	8/7/2023	590.35	6.60	583.75
	9/13/2023	590.35	6.60	583.75
	10/23/2023	590.35	6.25	584.10
	11/27/2023	590.35	6.33	584.02
12/26/2023	590.35	6.25	584.10	

Table 4. Groundwater Elevations - Midwest Generation, LLC, Waukegan Station, Waukegan, IL

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
MW-14	11/2/2015	590.24	5.17	585.07
	2/29/2016	590.24	5.01	585.23
	5/2/2016	590.24	4.49	585.75
	8/23/2016	590.24	6.07	584.17
	12/2/2016	590.24	5.49	584.75
	2/21/2017	590.24	5.33	584.91
	5/15/2017	590.24	4.67	585.57
	7/6/2017	590.24	5.27	584.97
	9/11/2017	590.24	5.78	584.46
	11/30/2017	590.24	5.19	585.05
	6/1/2018	590.24	4.45	585.79
	11/6/2018	590.24	4.32	585.92
	5/14/2019	590.24	4.20	586.04
	11/18/2019	590.24	4.75	585.49
	4/21/2020	590.24	5.00	585.24
	11/19/2020	590.24	5.98	584.26
	3/1/2021	590.24	4.35	585.89
	3/30/2021	590.24	5.60	584.64
	5/5/2021	590.24	6.20	584.04
	5/27/2021	590.24	6.32	583.92
	6/18/2021	590.24	6.60	583.64
	7/8/2021	590.24	6.15	584.09
	8/18/2021	590.24	6.45	583.79
	9/29/2021	590.24	7.14	583.10
	10/12/2021	590.24	6.72	583.52
	11/3/2021	590.24	5.66	584.58
	12/14/2021	590.24	5.74	584.50
	1/12/2022	590.24	5.80	584.44
	2/8/2022	590.24	6.40	583.84
	3/10/2022	590.24	7.00	583.24
	4/14/2022	590.24	7.14	583.10
	5/23/2022	590.24	5.21	585.03
	6/28/2022	590.24	5.60	584.64
	7/18/2022	590.24	6.20	584.04
	8/22/2022	590.24	5.73	584.51
	9/26/2022	590.24	5.70	584.54
	10/3/2022	590.24	5.75	584.49
	11/7/2022	590.24	5.82	584.42
	12/15/2022	590.24	5.10	585.14
	1/17/2023	590.24	5.30	584.94
	2/13/2023	590.24	5.16	585.08
	3/15/2023	590.24	4.70	585.54
	4/26/2023	590.24	5.30	584.94
	5/8/2023	590.24	5.45	584.79
	6/7/2023	590.24	27.00	563.24
	7/3/2023	590.24	5.80	584.44
	8/7/2023	590.24	6.13	584.11
	9/13/2023	590.24	6.20	584.04
	10/23/2023	590.24	5.60	584.64
	11/27/2023	590.24	5.78	584.46
12/26/2023	590.24	5.50	584.74	
MW-16	11/2/2015	607.41	25.13	582.28
	2/29/2016	607.41	24.91	582.50
	5/2/2016	607.41	25.23	582.18
	8/23/2016	607.41	28.33	579.08
	12/2/2016	607.41	28.22	579.19
	2/21/2017	607.41	27.71	579.70
	5/15/2017	607.41	23.99	583.42
	7/6/2017	607.41	27.03	580.38
	9/11/2017	607.41	26.74	580.67
	11/27/2017	607.41	27.49	579.92
	6/1/2018	607.41	23.22	584.19
	11/6/2018	607.41	23.65	583.76
	5/14/2019	607.41	23.40	584.01
	11/18/2019	607.41	23.60	583.81
	4/21/2020	607.41	25.26	582.15
	11/17/2020	607.41	27.50	579.91
	3/1/2021	607.41	27.25	580.16
	3/30/2021	607.41	26.96	580.45
	5/5/2021	607.41	27.50	579.91
	5/27/2021	607.41	27.35	580.06
	6/18/2021	607.41	27.12	580.29
	7/8/2021	607.41	26.41	581.00
	8/18/2021	607.41	26.92	580.49
	9/29/2021	607.41	27.45	579.96
	10/12/2021	607.41	26.99	580.42
	11/3/2021	607.41	27.04	580.37
	12/14/2021	607.41	27.60	579.81
	1/12/2022	607.41	22.80	584.61
	2/8/2022	607.41	28.22	579.19
	3/10/2022	607.41	27.85	579.56
	4/14/2022	607.41	27.40	580.01
	5/23/2022	607.41	25.85	581.56
	6/28/2022	607.41	27.20	580.21
	7/18/2022	607.41	27.30	580.11
	8/22/2022	607.41	27.28	580.13
	9/26/2022	607.41	21.40	580.13
	10/3/2022	607.41	27.40	580.01
	11/7/2022	607.41	28.09	579.32
	12/15/2022	607.41	28.00	579.41
	1/17/2023	607.41	27.80	579.61
	2/13/2023	607.41	27.67	579.74
	3/15/2023	607.41	25.20	582.21
	4/26/2023	607.41	25.40	582.01
	5/8/2023	607.41	25.64	581.77
	6/7/2023	607.41	27.00	580.41
	7/3/2023	607.41	26.65	580.76
	8/7/2023	607.41	27.88	579.53
	9/13/2023	607.41	28.40	579.01
	10/23/2023	607.41	28.00	579.41
	11/27/2023	607.41	28.40	579.01
12/26/2023	607.41	28.25	579.16	

MSL - Mean Sea Level
TOC - Top of Casing

Table 5. Groundwater Flow Direction and Estimated Seepage Velocity/Flow Rate - Waukegan Generation Station.

DATE	Groundwater Flow Direction	Kavg (ft/sec)*	Average Hydraulic Gradient (ft/ft)	Porosity (unitless)**	Estimated Seepage Velocity (ft/day)
1/17/2023	East-Southeast	1.790E-03	0.0025	0.35	1.10
2/13/2023	East-Southeast	1.790E-03	0.0020	0.35	0.87
3/15/2023	East-Southeast	1.790E-03	0.0017	0.35	0.73
4/26/2023	East-Southeast	1.790E-03	0.0016	0.35	0.70
5/8/2023	East-Southeast	1.790E-03	0.0019	0.35	0.85
6/7/2023	East-Southeast	1.790E-03	0.0016	0.35	0.69
7/3/2023	East-Southeast	1.790E-03	0.0017	0.35	0.74
8/7/2023	East-Southeast	1.790E-03	0.0016	0.35	0.69
9/13/2023	East-Southeast	1.790E-03	0.0020	0.35	0.88
10/23/2023	East-Southeast	1.790E-03	0.0023	0.35	1.03
11/27/2023	East-Southeast	1.790E-03	0.0023	0.35	1.03
12/26/2023	East-Southeast	1.790E-03	0.0020	0.35	0.87

* Kavg - K values from re-evaluation of slug test data as part of groundwater modeling in support of Application for Construction Permit per Illinois State CCR Rule.

** - Porosity estimate from Applied Hydrogeology, Fetter, 1980.

Table 6. CCR Groundwater Sample Collection Summary for 2023 - Waukegan Generating Station

Well ID	Number of Groundwater Sampling Events	Dates of Groundwater Sampling Events
MW-09 (Background)	4	2/13/2023
		5/9/2023
		8/8/2023
		11/28/2023
MW-11 (Background)	4	2/14/2023
		5/9/2023
		8/8/2023
		11/28/2023
MW-14 (Background)	4	2/14/2023
		5/9/2023
		8/8/2023
		11/28/2023
MW-01 (Downgradient)	4	2/13/2023
		5/8/2023
		8/7/2023
		11/27/2023
MW-02 (Downgradient)	4	2/13/2023
		5/8/2023
		8/7/2023
		11/28/2023
MW-03 (Downgradient)	4	2/13/2023
		5/8/2023
		8/7/2023
		11/27/2023
MW-04 (Downgradient)	4	2/13/2023
		5/9/2023
		8/7/2023
		11/27/2023
MW-16 (Downgradient)	4	2/14/2023
		5/9/2023
		8/8/2023
		11/28/2023

FIGURES



T:\projects\midwest_generation\attorney-client_privilege\gw_evaluations\waukegan_map.dwg

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CCR MONITORING WELL SITE MAP

**WAUKEGAN STATION
WAUKEGAN, ILLINOIS**

Scale: 1" = 550' Date: January 2, 2018

KPRG Project No. 12313.2

FIGURE 1



T:\Projects\Midwest\Generation\12313_Ash_Pond_Groundwater\Figures\Waukegan_CCR\2023\state_ccr_maps\waukegan_ccr_law_potential_maps_2022.dwg

MW-09	
PARAMETER	RESULT
LITHIUM	0.053

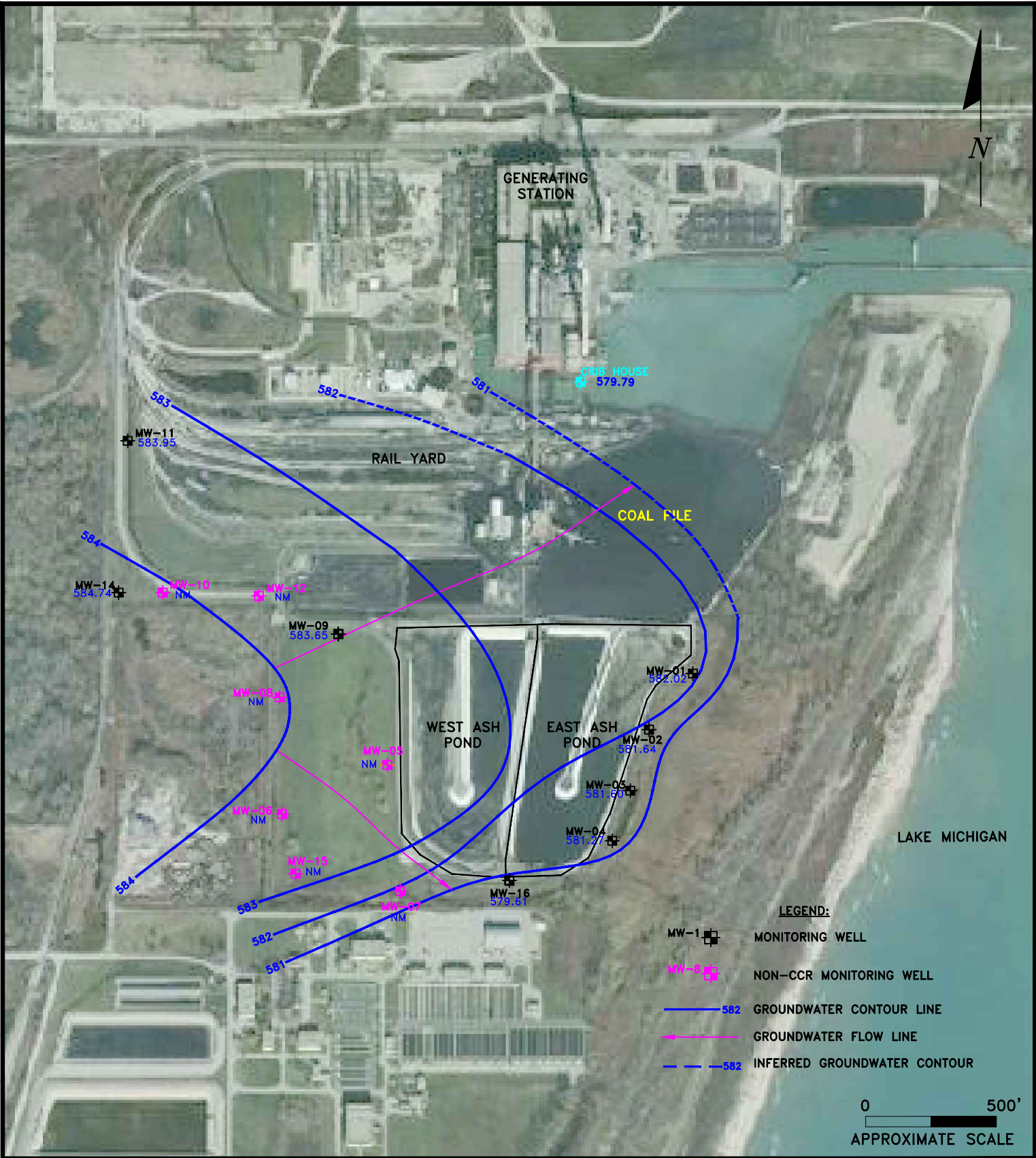
NOTE: ALL RESULTS ARE IN MILLIGRAMS PER LITER (mg/L)

LEGEND:
 MONITORING WELL

0 500'

 APPROXIMATE SCALE

ATTACHMENT 1
Monthly Potentiometric Maps



LEGEND:

- MW-1 MONITORING WELL
- MW-3 NON-CCR MONITORING WELL
- 582 GROUNDWATER CONTOUR LINE
- GROUNDWATER FLOW LINE
- 582 INFERRED GROUNDWATER CONTOUR

0 500'
 APPROXIMATE SCALE

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POTENTIOMETRIC MAP 01/2023

**WAUKEGAN STATION
 WAUKEGAN, ILLINOIS**

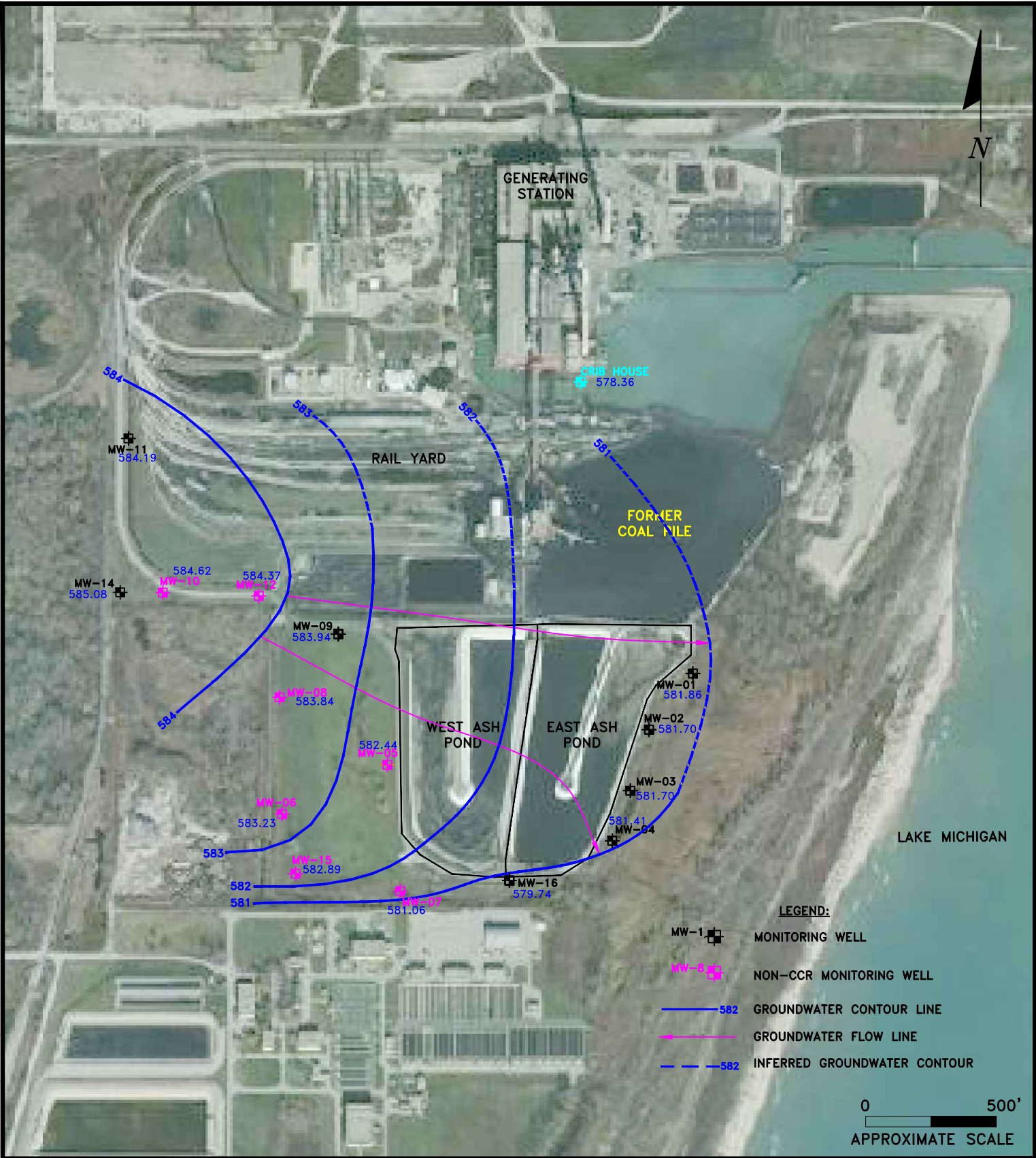
Scale: 1" = 500'

Date: June 17, 2023

KPRG Project No. 12313.2

ATTACHMENT 1

Comment: Projects Midwest Generation 12313.2 Ash Pond Groundwater Figures Waukegan CCR 2020



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POTENTIOMETRIC MAP 02/2023

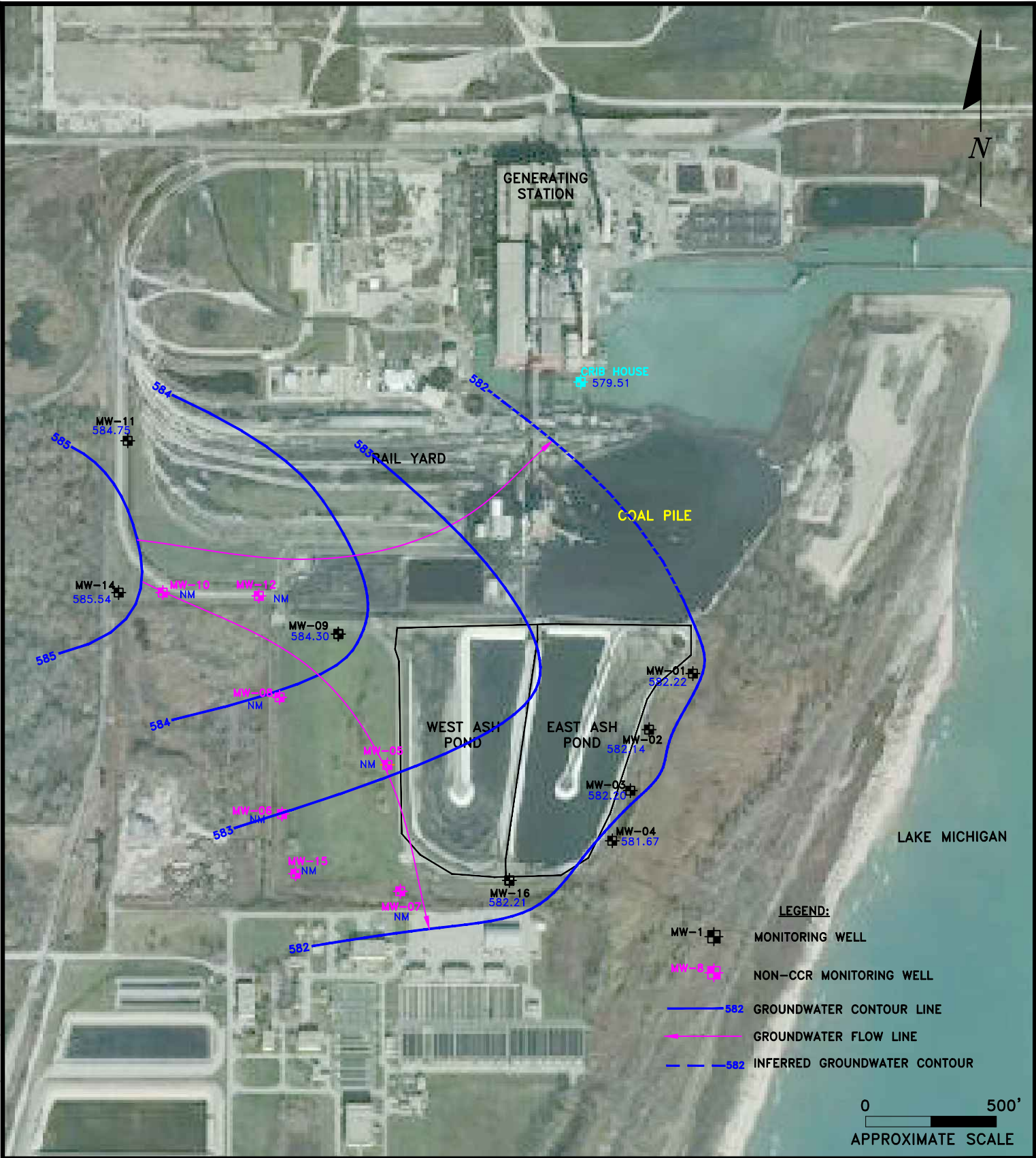
WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 500'

Date: June 22, 2023

KPRG Project No. 12313.2

ATTACHMENT 1



LEGEND:

- MW-1 MONITORING WELL
- MW-3 NON-CCR MONITORING WELL
- 582— GROUNDWATER CONTOUR LINE
- GROUNDWATER FLOW LINE
- - -582- - - INFERRED GROUNDWATER CONTOUR

0 500'
 APPROXIMATE SCALE

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POTENTIOMETRIC MAP 03/2023

**WAUKEGAN STATION
 WAUKEGAN, ILLINOIS**

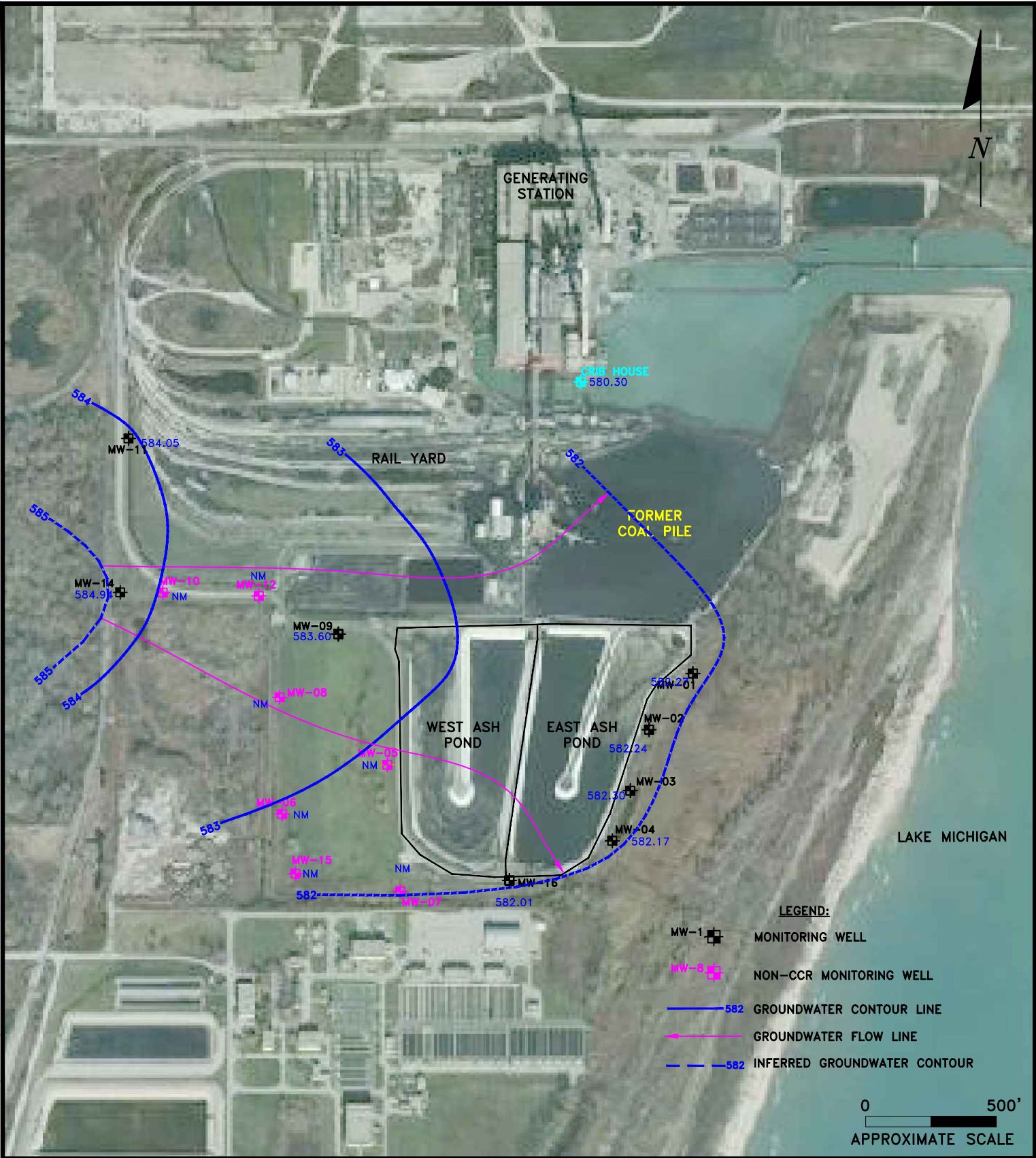
Scale: 1" = 500'

Date: June 22, 2023

KPRG Project No. 12313.2

ATTACHMENT 1

C:\Common\Projects\Midwest Generation\12313.Ash Pond Groundwater\Figures\Waukegan\CCR\2020



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414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

POTENTIOMETRIC MAP 04/2023

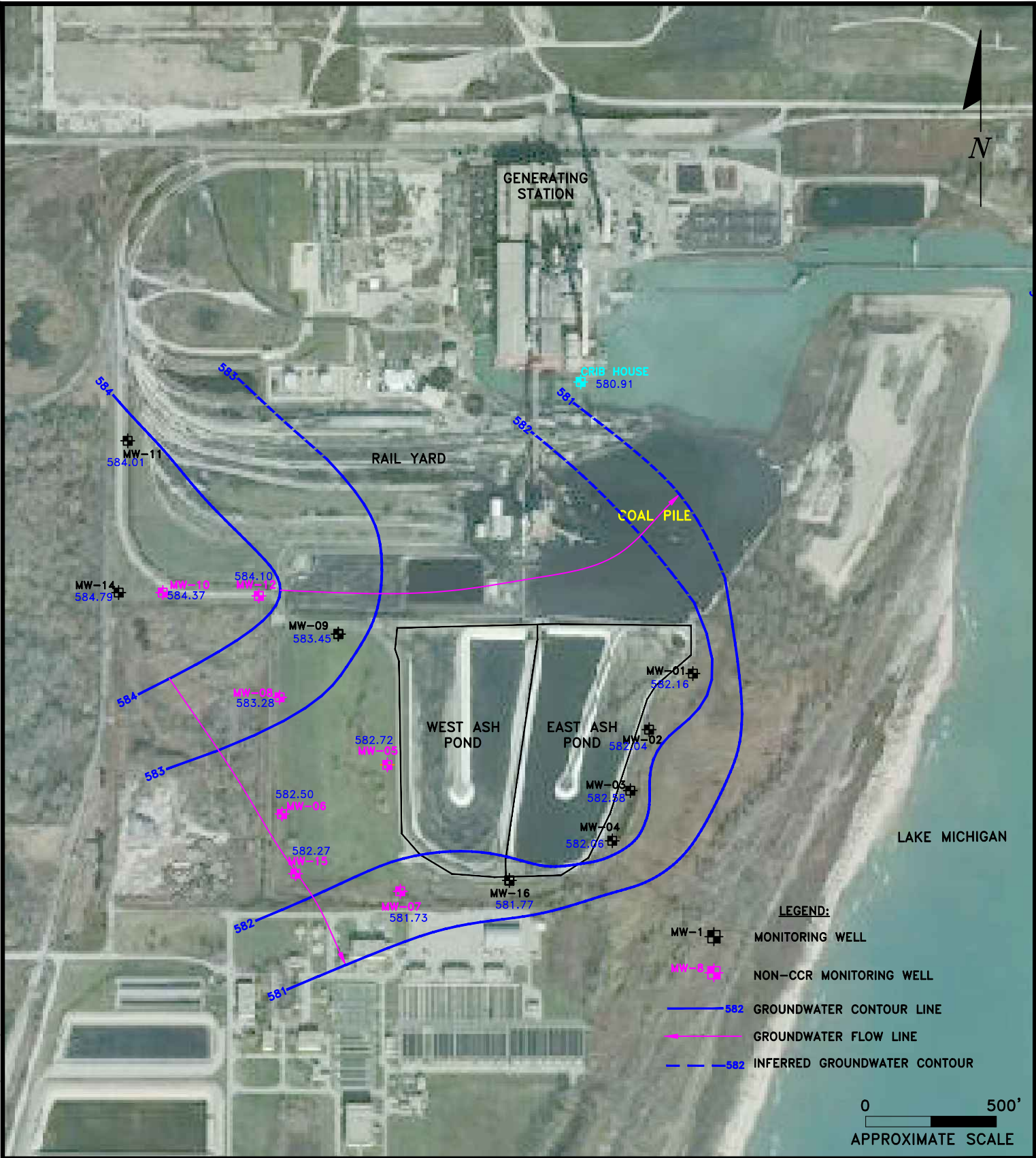
WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 500'

Date: June 22, 2023

KPRG Project No. 12313.2

ATTACHMENT 1



ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, inc.

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POTENTIOMETRIC MAP 05/2023

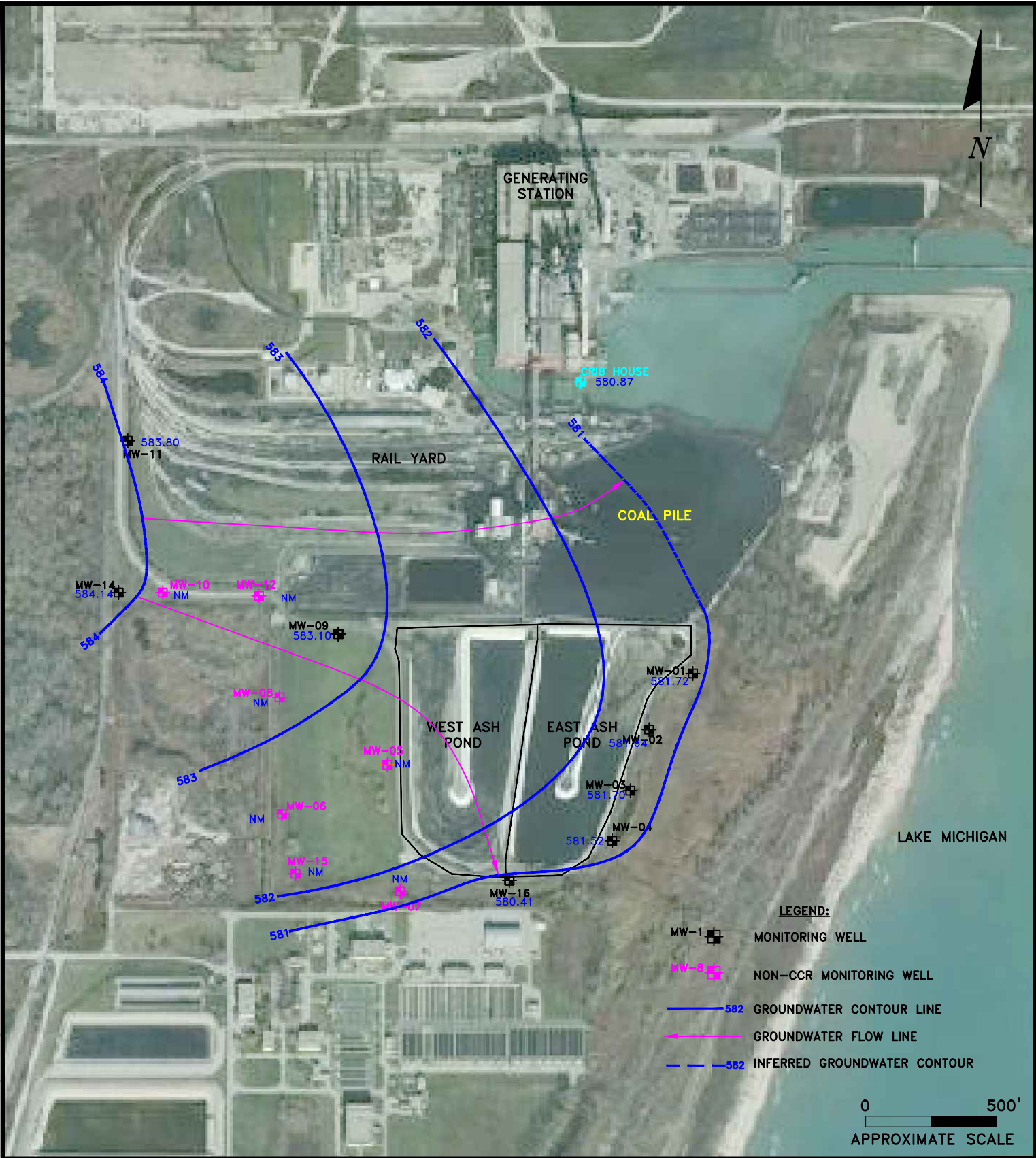
WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 500'

Date: June 22, 2023

KPRG Project No. 12313.2

ATTACHMENT 1



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POTENTIOMETRIC MAP 06/2023

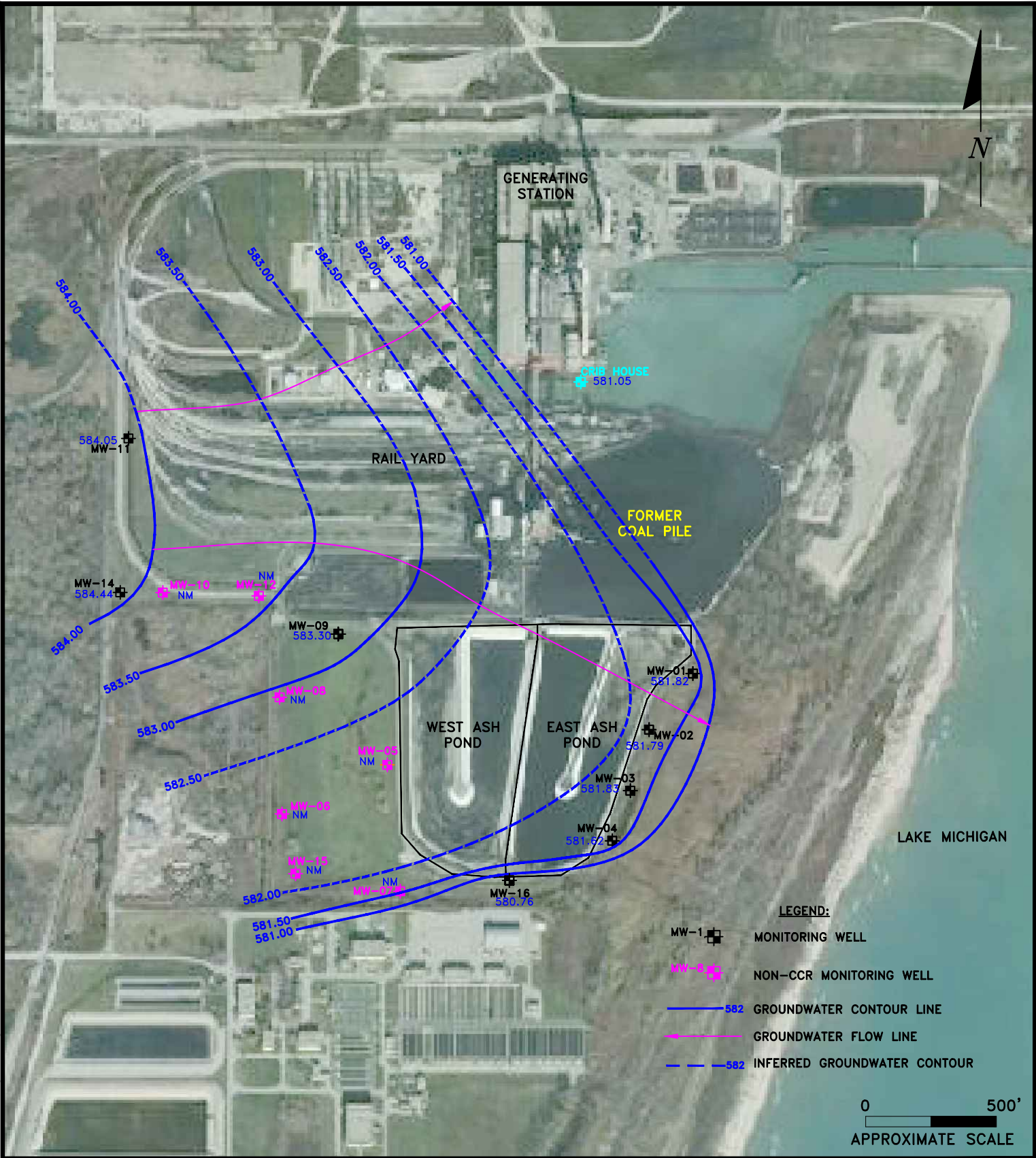
WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 500'

Date: June 22, 2023

KPRG Project No. 12313.2

ATTACHMENT 1



- LEGEND:**
- MW-1 MONITORING WELL
 - MW-9 NON-CCR MONITORING WELL
 - 582— GROUNDWATER CONTOUR LINE
 - 582— GROUNDWATER FLOW LINE
 - - -582- - - INFERRED GROUNDWATER CONTOUR

0 500'
 APPROXIMATE SCALE

ENVIRONMENTAL CONSULTATION & REMEDIATION

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POTENTIOMETRIC MAP 07/2023

WAUKEGAN STATION
 WAUKEGAN, ILLINOIS

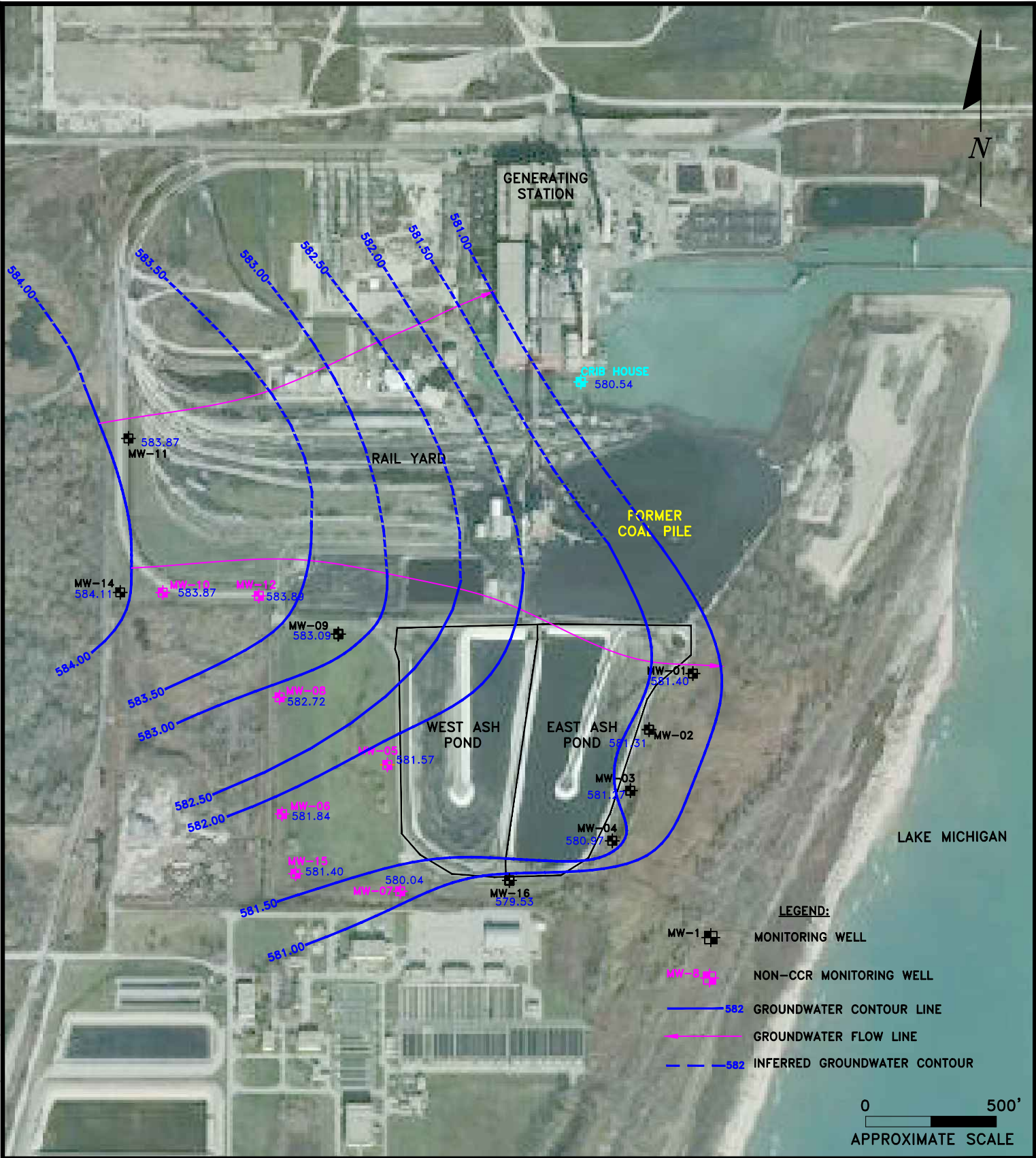
Scale: 1" = 500'

Date: October 2, 2023

KPRG Project No. 12313.2

ATTACHMENT 1

C:\Common\Projects\Midwest Generation\12313.Ash Pond Groundwater\Figures\Waukegan\CCR\2020



ENVIRONMENTAL CONSULTATION & REMEDIATION

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POTENTIOMETRIC MAP 08/2023

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

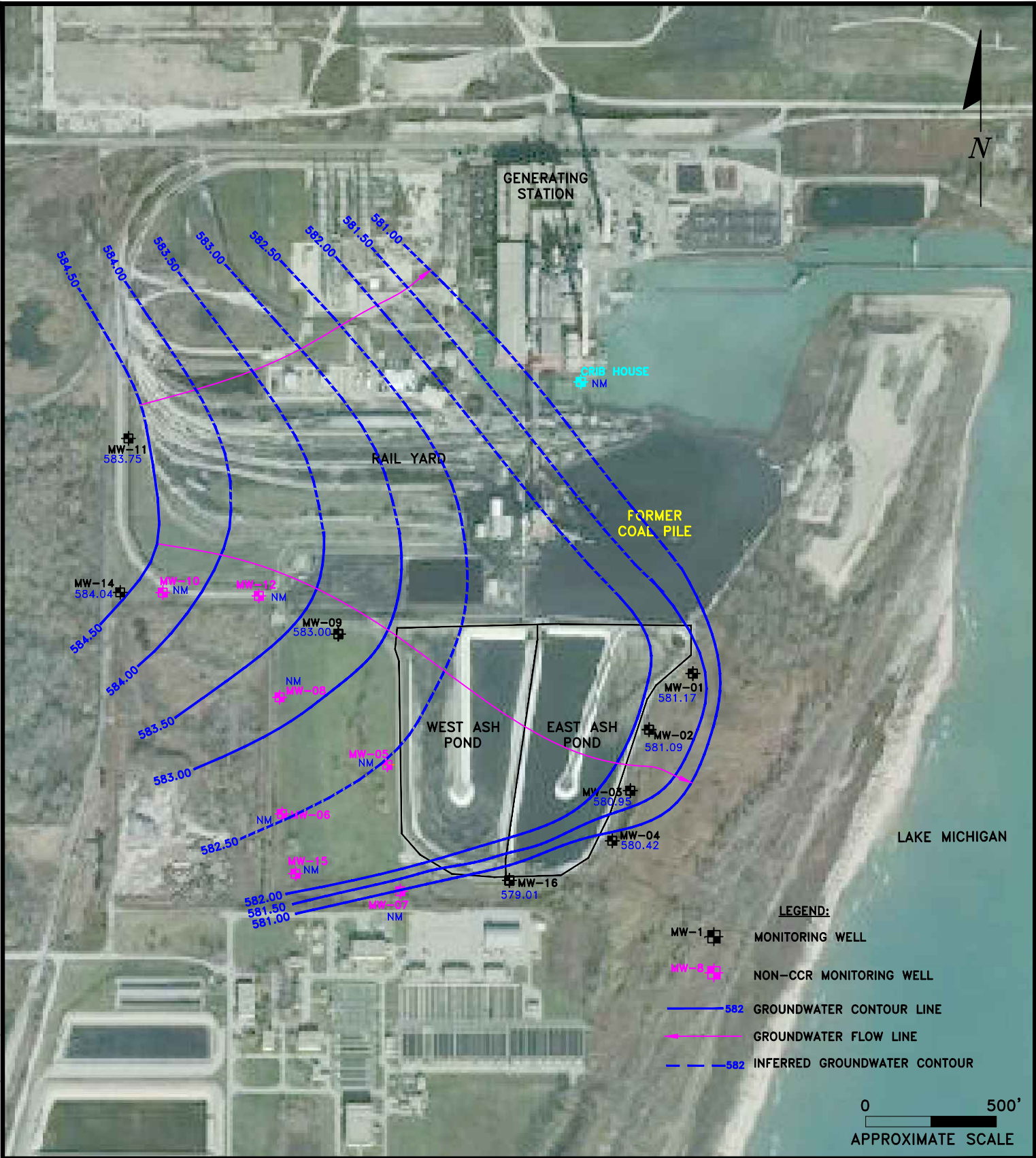
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Date: October 2, 2023

KPRG Project No. 12313.2

ATTACHMENT 1

Comment: Projects Midwest Generation 12313 Ash Pond Groundwater Figures Waukegan CCR 2020



ENVIRONMENTAL CONSULTATION & REMEDIATION

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POTENTIOMETRIC MAP 09/2023

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

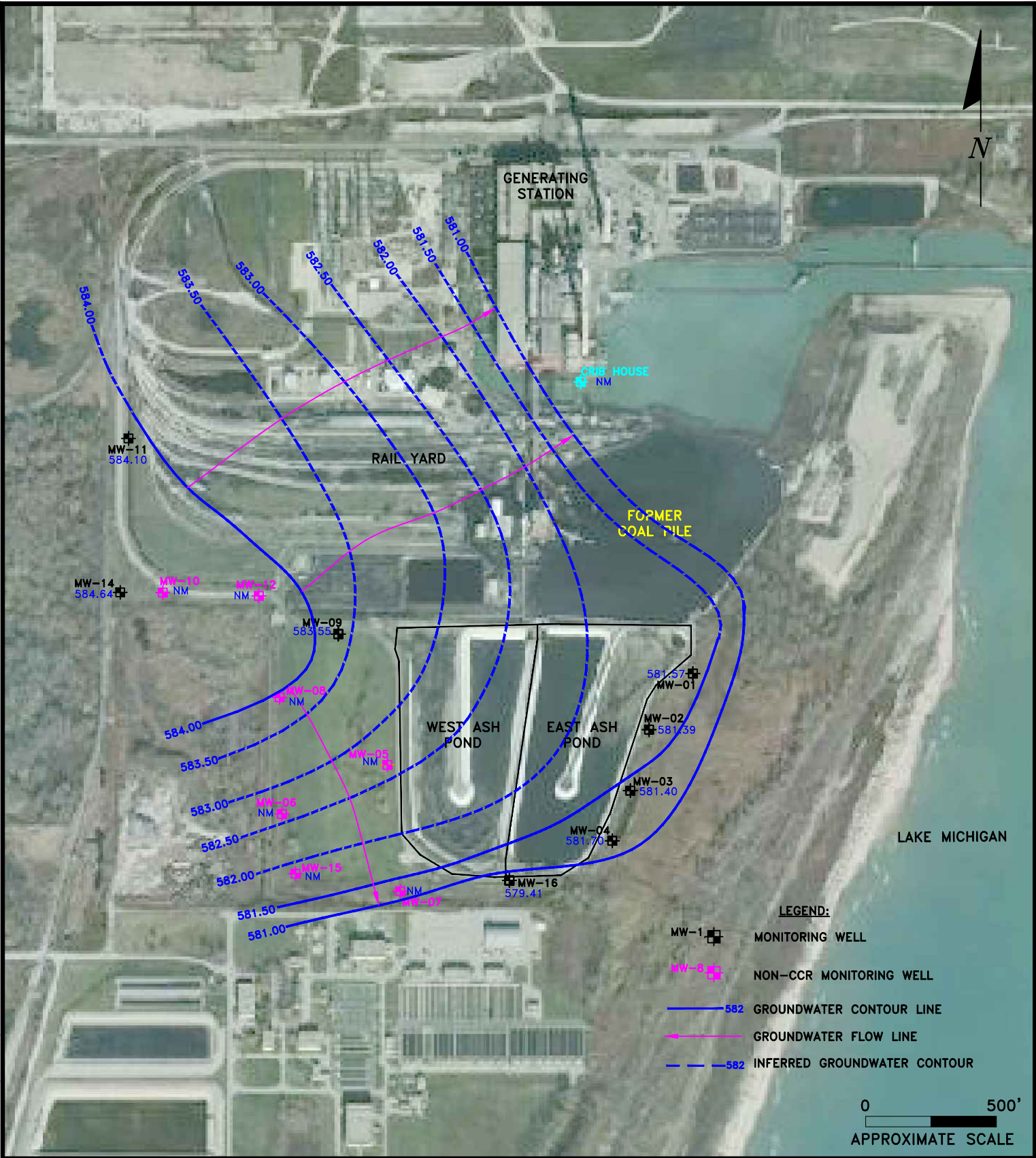
Scale: 1" = 500'

Date: December 29, 2023

KPRG Project No. 12313.2

ATTACHMENT 1

Comment: Projects\Midwest Generation\12313.Ash Pond Groundwater\Figures\Waukegan CCR 2020



ENVIRONMENTAL CONSULTATION & REMEDIATION

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POTENTIOMETRIC MAP 10/2023

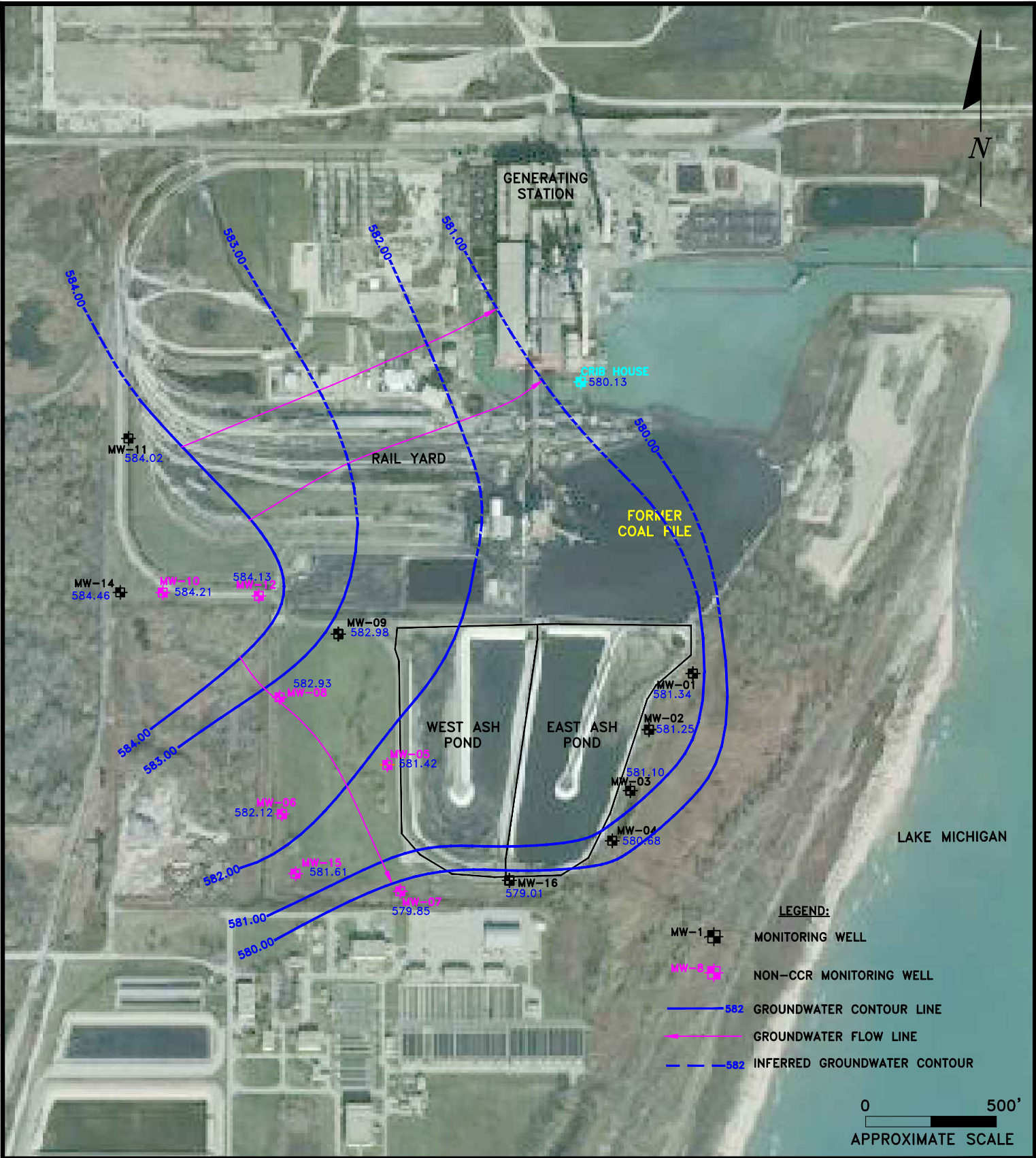
WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 500'

Date: December 29, 2023

KPRG Project No. 12313.2

ATTACHMENT 1



ENVIRONMENTAL CONSULTATION & REMEDIATION

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POTENTIOMETRIC MAP 11/2023

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

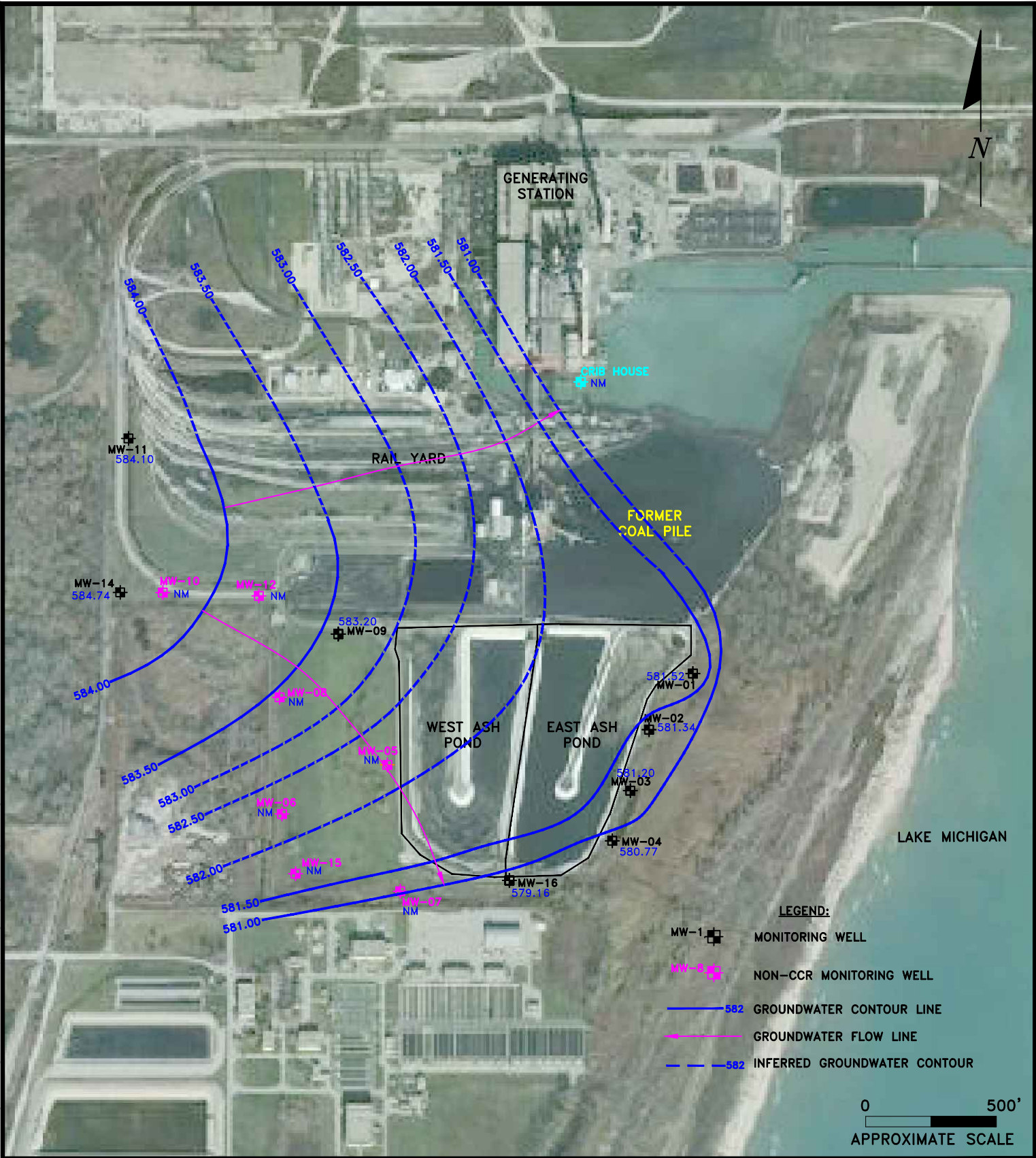
Scale: 1" = 500'

Date: January 3, 2024

KPRG Project No. 12313.2

ATTACHMENT 1

Comment: Projects\Midwest Generation\12313_Ash_Pond_Groundwater\Figures\Waukegan_CCR_2020



ENVIRONMENTAL CONSULTATION & REMEDIATION

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POTENTIOMETRIC MAP 12/2023

WAUKEGAN STATION
WAUKEGAN, ILLINOIS

Scale: 1" = 500'

Date: January 3, 2024

KPRG Project No. 12313.2

ATTACHMENT 1

T:\Projects\Midwest Generation\12313 Ash Pond Groundwater\Figures\Waukegan_CCR\2023\state_ccr_maps\waukegan_ccr_potentiometric_maps_2022.dwg

ATTACHMENT D
MONTHLY SURFACE IMPOUNDMENT
WATER ELEVATIONS

Monthly Surface Impoundment Water Elevations
 Midwest Generation, LLC, Waukegan Station, Waukegan, IL

Surface Impoundment	Date	Basin Bottom Elevation (ft above MSL)	Depth of Water in Pond (ft)	Water Surface Elevation (ft above MSL)
East Pond	12/14/2021	585.56	8.75	594.31
	1/12/2022	585.56	7.81	593.37
	2/8/2022	585.56	7.82	593.38
	3/10/2022	585.56	8.67	594.23
	4/14/2022	585.56	8.20	593.76
	5/23/2022	585.56	8.39	593.95
	6/28/2022	585.56	7.30	592.86
	7/18/2022	585.56	6.00	591.56
	8/22/2022	585.56	7.70	593.26
	9/26/2022	585.56	8.77	594.33
	10/3/2022	585.56	6.31	591.87
	11/7/2022	585.56	6.67	592.23
	12/15/2022	585.56	6.81	592.37
	1/17/2023	585.56	9.01	594.57
	2/13/2023	585.56	7.25	592.81
	3/15/2023	585.56	9.43	594.99
	4/26/2023	585.56	7.52	593.08
	5/8/2023	585.56	8.29	593.85
	6/7/2023	585.56	5.89	591.45
	7/3/2023	585.56	5.61	591.17
	8/7/2023	585.56	6.21	591.77
9/13/2023	585.56	5.50	591.06	
10/23/2023	585.56	4.11	589.67	
11/27/2023	585.56	15.68	601.24	
12/26/2023	585.56	5.26	590.82	
West Pond	12/14/2021	585.56	1.01	586.57
	1/12/2022	585.56	1.10	586.66
	2/8/2022	585.56	1.10	586.66
	3/10/2022	585.56	1.25	586.81
	4/14/2022	585.56	1.11	586.67
	5/23/2022	585.56	1.16	586.72
	6/28/2022	585.56	1.20	586.76
	7/18/2022	585.56	1.00	586.56
	8/22/2022	585.56	0.80	586.36
	9/26/2022	585.56	1.17	586.73
	10/3/2022	585.56	0.85	586.41
	11/7/2022	585.56	0.53	586.09
	12/15/2022	585.56	0.83	586.39
	1/17/2023	585.56	1.01	586.57
	2/13/2023	585.56	0.97	586.53
	3/15/2023	585.56	0.94	586.50
	4/26/2023	585.56	0.94	586.50
	5/8/2023	585.56	3.34	588.90
	6/7/2023	585.56	0.83	586.39
	7/3/2023	585.56	0.71	586.27
	8/7/2023	585.56	0.77	586.33
9/13/2023	585.56	0.84	586.40	
10/23/2023	585.56	0.00	585.56	
11/27/2023	585.56	6.86	592.42	
12/26/2023	585.56	0.00	585.56	