MWG
Midwest Generation, LLC

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, Illinois 60436

January 28, 2022

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 – Joliet 29 Generating Station
Account No. W1970450047
CCR Surface Impoundment Annual Consolidated Report

Dear Sir or Madam:

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 Joliet 29 Generating Station:

Pond ID	CCR Surface Impoundment Description
W1970450047-02	Pond 2

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.

Sincerely,

William Naglosky

William Naglosky
Plant Manager, Joliet Generating Station

Attachment

MWG
Midwest Generation, LLC

Midwest Generation, LLC
Joliet #29 Generating Station
1800 Channahon Road
Joliet, Illinois 60436

January 25, 2022

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 – Joliet #29 Generating Station
Account No. W1970450047
CCR Surface Impoundment Annual Consolidated Report

Dear Sir or Madam:

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 impoundment at Joliet #29 Generating Station:

Pond ID	CCR Surface Impoundment Description
W1970450047-02	Pond 2

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. A full copy 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.

Sincerely,

William Naglosky
Plant Manager, Joliet #29 Generating Station

Attachment

2021 ANNUAL CONSOLIDATED REPORT
JOLIET 29 GENERATING STATION

POND 2 – W1970450047-02

ATTACHMENT A
2021 ANNUAL CCR FUGITIVE DUST CONTROL REPORT

Annual CCR Fugitive Dust Control Report
Joliet #29 Generating Station
1800 Channahon Road, Joliet, 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 Joliet #29 Generating Station, operated by Midwest Generation, LLC (MWG), is located at 1800 Channahon Road, Joliet, Will County, Illinois. The facility is a natural gas-fired electric power generating station (formerly coal-fired) situated on approximately 297 acres located on the north side of the Des Plaines River. There are currently two operating electric generating units, identified as Units 7 and 8, on the property. The Rule applies to this facility due to the management of CCR that is generated from the combustion of coal. The CCR unit associated with the station is Ash Pond 2.

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 Joliet 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 2021 Annual Report for Joliet 29 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).

2.0 Actions Taken to Control CCR Fugitive Dust

As detailed in the 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, including those specific to the reporting period (October through December 2021) relevant to this Annual Report. The Joliet station converted the generating boilers to fire natural gas as a fuel source and ceased coal fuel use at the facility on March 20, 2016. As such, no generation of CCR materials occurred during the reporting period. As described below, there is no CCR remaining at Joliet 29 Station above de minimis quantities.

2.1 Pond 2

Removal of ash from Pond 2 was completed on November 22, 2019 so that Pond 2 only contains a de minimis quantity of ash, ash remaining in the interstitial spaces in the pond warning layer. The warning layer is comprised of sand and limestone. Upon completion of removal of ash from Pond 2, the geomembrane liner was inspected. Because of Illinois Public Act 101-171, signed into law on July 30, 2019, closure activities cannot be completed until a permit is obtained from the Illinois Environmental Protection Agency.

2.2 Transport Roadways

During removal of the CCR, truck drivers were instructed on the proper procedure for cleaning trucks and a vehicle speed limit is enforced at the facility. Ash material that may not have been adequately removed from the trucks has the potential to become airborne and ultimately be deposited on haul roads. To minimize CCR fugitive dust emissions, the roads were assessed during the cleaning activities of Pond 2, and any observed accumulated ash material was promptly cleaned up and collected for off-site removal to either Lincoln Stone Quarry or another off-site licensed disposal facility.

3.0 Fugitive CCR Dust Assessments

Pursuant to §845.500(b)(3), assessments of the potential fugitive dust emission sources identified in the Joliet facility's CCR Fugitive Dust Control Plan (Plan) are conducted to assess the effectiveness of the Plan, if warranted. The assessment includes observation of vehicular traffic at the facility to confirm the adequacy of the control measures. If assessments are warranted, they are conducted during excessive dry weather conditions by an individual designated by the contact identified below. Observations made during each assessment are to be recorded on a

form similar to the one included in Appendix B of the Joliet facility's CCR Fugitive Dust Control Plan. No assessments were warranted during this period.

No issues were identified during this Annual Report's period of record covering October through December 2021.

Owner Representative/Responsible Person Contact Information:

Mr. William Naglosky
Station 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 Joliet 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 then automatically forwards notice of the complaint to the station manager, MWG's regional environmental manager, and corporate environmental department. Following initial evaluation of the complaint, MWG then conducts a thorough investigation to confirm the reported incident/conditions and implement corrective actions as may be warranted.

No complaints were registered during this Annual Report's period of record covering October through December 2021.

5.0 Summary of Corrective Actions Taken

For the 2021 reporting year 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 undertaken during the past year, either as a result of internally identified deficiencies or from resolution of citizen complaints.

QUARTERLY FUGITIVE DUST COMPLAINT REPORTS

MWG
Midwest Generation, LLC

Midwest Generation, LLC
Joliet Generating Station
1800 Channahon Road
Joliet, Illinois 60436

January 14, 2022

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 – Joliet 29 Generating Station
Account No. W1970450047
Pond ID: W1970450047-02
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 2021 at Joliet 29 Generating Station. There were no complaints received from members of the public during the period October 1, 2021 through December 31, 2021.

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

Sincerely,

William Naglosky

William Naglosky
Plant Manager, Joliet Generating Station

ATTACHMENT B
2021 ANNUAL INSPECTION REPORT

ANNUAL INSPECTION REPORT
ASH POND 2
JOLIET STATION
OCTOBER 2021

This annual inspection report has been prepared pursuant to both Title 35 IAC Part 845 Section 845.540(b) and Title 40 of the Code of Federal Regulations Part 257.83(b) for Ash Pond 2 (Pond 2) at Joliet Station in Joliet, Illinois (Station). The purpose of this project is to perform an annual inspection of Pond 2 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 qualified station personnel and the previous annual inspection report.

- CEC performed the annual inspection in accordance with the requirements of Part 845.540 and 40 CFR 257.83(b) including observations pertaining to the following:

    - Changes in Geometry: Observations of changes in the geometry of Ash Pond 2 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: Inspection for actual or potential structural weakness of the CCR surface impoundment, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR surface impoundment and appurtenant structures.

- Other Changes: Inspection including change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

Pond 2 is an inactive CCR surface impoundment. CEC inspected Pond 2 on October 6, 2021, and at the time of our inspection, Pond 2 contained no CCRs. CEC inspected the pond and found no signs of distress that would suggest the stability or operation of the impounding structure is compromised.

1.0 CHANGES IN GEOMETRY

The Pond 2geometry was observed to be unchanged since the October 2020 inspection.

2.0 INSTRUMENTATION

No 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

The capacity and impounded volume of the Pond 2 and estimated depth of impounded water and CCR are represented in Table 1, attached. Volumes and depths were determined by reviewing inspection reports, construction drawings, and from discussions with Station personnel.

4.0 STRUCTURAL/OPERATIONAL OBSERVATIONS

Pond 2 was inspected for signs of distress that would have the potential to disrupt operation and safety of the pond. None were observed. Prior to the inspection, CEC reviewed the previous annual inspection report. This report did not identify conditions that indicate an actual or potential structural weakness. Weekly and monthly inspection reports were also reviewed and did not indicate an actual or potential structural weakness.

5.0 OTHER CHANGES

Pond 2 was inspected for signs of other changes or distresses that would have the potential to disrupt operation and safety of the basins. Our inspection showed no distresses that would affect the operation and/or stability of Pond 2.

6.0 LIMITATIONS AND CERTIFICATION

This annual inspection report was prepared to meet the requirements of Section 845.540(b) and 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: _____

Name: M. Dean Jones, P.E.

Date of Certification: October 13, 2021

Illinois Professional Engineer No.: 062-051317

Expiration Date: November 30, 2021

Table 1: Inspection Summary - Pond 2

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)	0 to 4 feet	None
CCR Depth	§845.450(b)(2)(C) §257.83(b)(2)(iii)	0 feet	None
Estimated Storage Capacity	§845.450(b)(2)(D) §257.83(b)(2)(iv)	38.4 Acre Feet	None
Impounded Water Volume	§845.450(b)(2)(E) §257.83(b)(2)(v)	6.8 Acre Feet	None
Impounded CCR Volume	§845.450(b)(2)(E) §257.83(b)(2)(v)	0 Acre Feet	None
Structural/Operational Observations	§845.450(b)(2)(F) §257.83(b)(2)(vi)	None	None
Other Changes	§845.450(b)(2)(G) §257.83(b)(2)(vii)	None	None

ATTACHMENT B.1
2021 ANNUAL HAZARD POTENTIAL CLASSIFICATION CERTIFICATION

to the Illinois CCR Rule based on the similarities between the Federal and Illinois CCR Rules' hazard potential classifications for CCR surface impoundments.

Table 6-1 presents the 2021 hazard potential classifications assigned to Ash Pond 2 at Joliet 29 in accordance with 35 Ill. Adm. Code 845.440(a)(1) and 40 CFR 257.73(a)(2).

Table 6-1 – 2021 Illinois & Federal Hazard Potential Classifications for Ash Pond 2 at the Joliet 29 Generating Station

CCR Surface Impoundment	Illinois Hazard Potential Classification	Federal Hazard Potential Classification
Ash Pond 2	Class 2	Significant

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 and with the requirements of 40 CFR 257.73(a)(2).
- I am a registered professional engineer under the laws of the State of Illinois.

Certified By: Thomas J. Dehlin Date: October 14, 2021

Seal:

Th. Dehlin
10/14/2021
Exp. 11/30/2021

ATTACHMENT B.2
2021 ANNUAL STRUCTURAL STABILITY ASSESSMENT CERTIFICATION

3.0 RECOMMENDED CORRECTIVE MEASURES

(35 Ill. Adm. Code 845.450(b)(1); 40 CFR 257.73(d)(1)(2))

Based on the findings documented in this 2021 structural stability assessment, the following corrective measures are recommended:

- Mow vegetation that is greater than 12-inches tall along Ash Pond 2's downstream slopes and dike crests,
- Remove woody vegetation in accordance with 35 Ill. Adm. Code 845.430(b)(4), and
- Conduct a visual surveillance program to verify that the discharge pipes for Pond 1 and Ash Pond 2 are in good, working condition and are free of significant material defects that could compromise the pipes' integrities prior to repurposing Ash Pond 2 as a new service water basin.

4.0 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 and with the requirements of 40 CFR 257.73(d).
- I am a registered professional engineer under the laws of the State of Illinois.

Certified By: Thomas J. Dehlin Date: October 14, 2021

Seal:

Th. Dehlin
10/14/2021
Exp. 11/30/2021

ATTACHMENT B.3
2021 ANNUAL SAFETY FACTOR ASSESSMENT CERTIFICATION

Table 6-1 – 2021 Illinois & Federal CCR Rule Factors of Safety for Ash Pond 2 at the Joliet 29 Station

Loading Condition	Ash Pond 2	Min. Allowable Factor of Safety
Long-Term, Maximum Storage Pool	≥ 1.50	**1.50**
Maximum Surcharge Pool	≥ 1.40	**1.40**
Seismic	≥ 1.00	**1.00**
Liquefaction	Note 1	**1.20**

Notes: 1) The embankment soils for Ash Pond 2 are not considered susceptible to liquefaction because saturation of the embankment soils is unlikely based on the installed geomembrane liner system and depth to groundwater. 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 and with the requirements of 40 CFR 257.73(e).
- I am a registered professional engineer under the laws of the State of Illinois.

Certified By: Thomas J. Dehlin Date: October 15, 2021

Seal:

Th. Dehlin
10/15/2021
Exp. 11/30/2021

ATTACHMENT B.4
2021 ANNUAL INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN CERTIFICATION

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 and with the requirements of 40 CFR 257.82.
- I am a registered professional engineer under the laws of the State of Illinois.

Certified By: Thomas J. Dehlin Date: October 15, 2021

Seal:

Th. Dehlin
10/15/2021
Exp. 11/30/2021

ATTACHMENT C
2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

K P R G

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

ILLINOIS CCR COMPLIANCE
ANNUAL GROUNDWATER MONITORING and CORRECTIVE ACTION REPORT - 2021

Midwest Generation, LLC
Joliet #29 Generating Station
1800 Channahon Rd.
Joliet, Illinois

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

January 27, 2022

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FIGURES

ATTACHMENTS

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) Joliet #29 Generating Station. The wells sampled were selected to meet the monitoring requirements of the State CCR Rule for Pond 2. The CCR monitoring well network around this pond consists of four monitoring wells (MW-03, MW-04, MW-05, and MW-10). Well MW-10 is an upgradient well as shown on Figure 1. 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 – Joliet #29 Generating Station submitted on October 31, 2021 (Application), *proposed* statistical background concentration calculations along with *proposed* site-specific Groundwater Protection Standards (GWPSs) were submitted 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, are not 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 2021 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 Permit. This Application is currently still under Agency review. However, assuming that the Agency accepts the proposed background calculations, the groundwater monitoring since the enactment of the State CCR Rule in April 2021 has identified the following constituents with potential statistically significant increases (SSIs) above the *proposed* background concentrations:

    - Calcium: MW-10 (2nd quarter)
    - Chloride: MW-10 (2nd quarter), MW-05 (2nd quarter)
    - Total dissolved solids (TDS): MW-10, MW-03, MW-04 and MW-05 (2nd quarter)
    - Arsenic: MW-04 (4th quarter)
    - Barium: MW-03, MW-04 and MW-05 (2nd through 4th quarters)
    - Cobalt: MW-03 and MW-04 (2nd through 4th quarters)
    - Lithium: MW-05 (2nd quarter)
    - Radium: MW-10 and MW-05 (4th quarter), MW-03 (2nd through 4th quarters), MW-04 (3rd and 4th quarters)

  Well MW-10 is the upgradient monitoring point.

- 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 since the enactment of the State CCR Rule in April 2021 has identified the following constituents above the proposed GWPSs:

    - Calcium: MW-10 (2nd quarter)
    - TDS: MW-10, MW-03 and MW-05 (2nd quarter)
    - Chloride: MW-10 and MW-05 (2nd quarter)

    Well MW-10 is the upgradient monitoring point.

- Section 845.610(e)(4)(E though H) – Pond 2 is currently not in corrective action.

2.0 ANNUAL STATUS SUMMARY

As discussed in Section 1.0 the CCR monitoring well network around Pond 2 consists of four monitoring wells (MW-03, MW-04, MW-05, and MW-10). Well MW-10 is an upgradient well as shown on Figure 1. 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 are included as part of the Initial Operating Permit Application referenced above, are currently still under review by the Agency and, therefore, are not 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))

2021 is the initial year of State CCR Rule implementation starting with the second quarter within which the Rule became effective. The following key actions have been completed:

- Quarterly sampling of all parameters specified in Section 845.600(a) plus calcium and turbidity was completed and the associated 60-day data summary submittals were placed in the facilities operating record in accordance with Section 845.610(b)(3)(D). It is noted that during this time, eight rounds of turbidity measurements were collected for the purposes of statistical background development in accordance with Section 845.650(b)(A).

- Water level gauges were installed within the regulated units. Water levels were recorded monthly for the specified CCR monitoring wells and pond water levels were concurrently recorded as pond gauges were established.

- An Application for Initial Operating Permit – Joliet #29 Generating Station was submitted on October 31, 2021 to the Agency for review in accordance with Section 845.230. As part of that permit application, proposed GWPSs were provided for review/approval. The application is currently under review by the Agency.

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.

- 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. For the most recent round of groundwater monitoring (4^{th} quarter 2021) there were no constituent detections above the proposed GWPSs at any of the well locations and, therefore, an aerial distribution map is not included.

There were no monitoring wells installed or decommissioned during this reporting period.

Water levels were recorded from the specified CCR monitoring wells as part of each sampling event. Water levels were not recorded for September, October and December due to a miscommunication with plant personnel relative to the new State CCR Rule requirements for monthly water level measurements. It is noted however, that groundwater flow conditions in the vicinity of Ash Pond 2 have been being monitored on a regular basis since 2011 and flow conditions have been found to be consistent with flow direction to the south. The available water levels are summarized in Table 4. Potentiometric surface maps for each round of available water levels are provided in Attachment 1. As noted above, groundwater flow beneath Pond 2 is consistently in a southerly direction. 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 Permit. This Application is currently still under Agency review. However, assuming that the Agency accepts the proposed background calculations, the groundwater monitoring since the enactment of the State CCR Rule in April 2021 has identified the following constituents with potential statistically significant increases (SSIs) above the proposed background concentrations:

- Calcium: MW-10 (2nd quarter)
- Chloride: MW-10 (2nd quarter), MW-05 (2nd quarter)
- Total dissolved solids (TDS): MW-10, MW-03, MW-04 and MW-05 (2nd quarter)
- Arsenic: MW-04 (4th quarter)
- Barium: MW-03, MW-04 and MW-05 (2nd through 4th quarters)
- Cobalt: MW-03 and MW-04 (2nd through 4th quarters)
- Lithium: MW-05 (2nd quarter)
- Radium: MW-10 and MW-05 (4th quarter), MW-03 (2nd through 4th quarters), MW-04 (3rd and 4th quarters)

Well MW-10 is the upgradient monitoring point.

TABLES

Table 1. Groundwater Analytical Results - Midwest Generation, LLC, Joliet Station #29, Joliet, 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	Selenium	Thallium
MW-10 up-gradient	10/28/2015	0.47	100	200	0.41	7.04	84	790	< 0.003	< 0.001	0.041	^ < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.013	< 0.0002	0.0060	0.2981	< 0.0025	< 0.002
	2/10/2016	0.41	100	210	0.44	7.17	120	820	< 0.003	0.001	0.043	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.011	< 0.0002	0.0067	< 0.438	< 0.0025	< 0.002
	5/12/2016	0.29	100	300	0.42	7.02	110	920	< 0.003	< 0.001	0.046	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.012	< 0.0002	0.0051	< 0.414	< 0.0025	< 0.002
	8/31/2016	0.36	89	170	0.46	6.95	100	760	< 0.003	< 0.001	0.039	^ < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.010	< 0.0002	0.0077	< 0.394	< 0.0025	< 0.002
	11/2/2016	0.48	100	130	0.45	6.99	95	720	< 0.003	0.0018	0.035	< 0.001	< 0.0005	< 0.005	< 0.001	0.0014	0.011	< 0.0002	0.0061	0.626	< 0.0025	< 0.002
	2/6/2017	0.44	120	190	0.36	6.99	88	820	< 0.003	0.0011	0.048	< 0.001	< 0.0005	< 0.005	< 0.001	0.00086	0.014	< 0.0002	0.0056	< 0.389	< 0.0025	< 0.002
	4/26/2017	0.35	120	200	0.35	7.27	87	760	< 0.003	0.0015	0.046	< 0.001	< 0.0005	< 0.005	< 0.001	0.0012	< 0.01	< 0.0002	0.006	< 0.34	< 0.0025	< 0.002
	6/14/2017	0.29	91	160	0.43	7.48	75	690	< 0.003	< 0.001	0.034	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.012	< 0.0002	0.0072	< 0.356	< 0.0025	< 0.002
	8/2/2017	0.45	97	170	0.38	7.23	110	750	< 0.003	0.0011	0.036	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.011	< 0.0002	0.0079	0.429	< 0.0025	< 0.002
	10/18/2017	0.61	120	140	0.41	7.11	130	820	< 0.003	0.0012	0.04	^ < 0.001	< 0.0005	< 0.005	< 0.001	0.00059	0.013	< 0.0002	0.0066	< 0.422	< 0.0025	^ < 0.002
	4/24/2018	0.4	110	260	0.39	7.28	120	910	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/17/2018	0.63	120	180	0.42	7.30	110	810	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/24/2018 R	0.44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/7/2019	0.56	130	410	0.39	7.17	95	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/3/2019 R	NA	NA	230	NA	NA	NA	830	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/7/2019	0.35	90	130	0.36	7.40	59	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/20/2020	0.85	120	250	0.41	6.90	100	960	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/11/2020 R	0.26	NA	NA	NA	NA	NA	770	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/22/2020	0.34	110	230	0.41	7.11	93	850	< 0.003	0.001	0.043	< ^ 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.011	< 0.0002	0.0057	NA	< 0.0025	< 0.002
	5/18/2021	0.33	140	350	0.39	7.16	210	1,200	< 0.003	0.0014	0.06	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.015	< 0.0002	0.0055	< 0.4800	< 0.0025	< 0.002
	6/29/2021 R	NA	160	420	NA	7.32	190	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/30/2021	0.28	120	330	0.37	7.56	170	990	< ^+ 0.003	0.0012	0.051	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.012	< 0.0002	0.0065	0.51	< 0.0025	< 0.002
	11/16/2021	0.39	120	260	0.38	7.01	150	1,000	< 0.0030	0.0012	0.049	< ^1+ 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.011	< 0.0002	0.0066	0.692	< 0.0025	< 0.002
MW-03 down-gradient	10/28/2015	0.34	110	230	0.41	7.11	110	960	< 0.003	0.0015	0.100	^ < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.013	< 0.0002	< 0.0050	0.41	< 0.0025	< 0.002
	2/10/2016	0.49	100	220	0.44	7.31	130	790	< 0.003	0.0017	0.100	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.011	< 0.0002	0.0060	< 1.68	0.0045	< 0.002
	5/10/2016	0.48	95	240	0.44	7.07	130	800	< 0.003	0.0011	0.095	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.012	< 0.0002	0.0062	< 0.326	0.0030	< 0.002
	8/31/2016	0.49	100	250	0.45	7.18	120	920	< 0.003	0.0013	0.095	^ < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.012	< 0.0002	0.0086	< 0.373	0.0051	< 0.002
	11/2/2016	0.34	87	190	0.44	7.45	94	780	< 0.003	0.0019	0.082	< 0.001	< 0.0005	0.0051	< 0.001	< 0.0005	< 0.010	< 0.0002	0.0059	0.965	0.0032	< 0.002
	2/6/2017	0.40	97	140	0.39	7.35	77	720	< 0.003	0.0019	0.093	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.012	< 0.0002	0.0066	< 0.356	0.0028	< 0.002
	4/26/2017	0.54	100	210	0.36	7.03	120	820	< 0.003	0.0017	0.11	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.010	< 0.0002	0.0088	< 0.411	0.0052	< 0.002
	6/14/2017	0.45	88	190	0.44	7.43	75	760	< 0.003	0.0014	0.09	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.012	< 0.0002	0.0072	< 0.358	0.0037	< 0.002
	8/2/2017	0.41	99	200	0.40	7.34	110	850	< 0.003	0.0022	0.10	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.011	< 0.0002	0.0065	0.414	0.005	< 0.002
	10/18/2017	0.35	93	160	0.42	7.11	100	850	< 0.003	0.0015	0.088	< ^ 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.012	< 0.0002	0.0055	< 0.417	0.0026	^ < 0.002
	4/24/2018	0.52	100	220	0.42	7.2	150	930	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/31/2018 R	NA	NA	NA	NA	NA	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/17/2018	0.25	100	250	0.4	7.04	110	870	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/7/2019	0.43	120	280	0.4	7.27	140	880	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/3/2019 R	NA	NA	NA	NA	NA	65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/7/2019	0.34	100	150	0.4	7.32	65	660	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/20/2020	0.38	100	230	0.42	7.56	78	960	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/11/2020 R	NA	NA	NA	NA	NA	NA	930	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/22/2020	0.32	110	180	0.43	7.23	90	770	< 0.003	0.0014	0.1	<^ 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.01	< 0.0002	< 0.005	NA	< 0.0025	< 0.002
	5/18/2021	0.28	130	290	0.4	7.13	190	1,200	< 0.003	0.0016	0.14	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.014	< 0.0002	< 0.0050	1.1000	< 0.0025	< 0.002
	6/29/2021 R	NA	NA	NA	NA	7.34	210	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/30/2021	0.23	120	290	0.36	7.33	140	800	< ^+ 0.003	0.0018	0.12	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.012	< 0.0002	< 0.005	0.641	< 0.0025	< 0.002
	11/16/2021	0.3	130	280	0.37	7.11	150	1,000	< 0.0030	0.0018	0.14	< ^1+ 0.0010	< 0.00050	< 0.0050	0.0018	< 0.00050	0.011	< 0.00020	< 0.0050	1.15	< 0.0025	< 0.0020
MW-04 down-gradient	10/28/2015	0.34	94	F1 200	0.45	7.07	83	740	< 0.003	0.0013	0.082	^ < 0.001	< 0.0005	< 0.005	0.0063	< 0.0005	0.013	< 0.0002	0.0065	0.741	< 0.0025	< 0.002
	2/10/2016	0.32	97	210	0.47	7.22	140	810	< 0.003	0.0018	0.088	< 0.001	< 0.0005	< 0.005	0.0074	0.00062	0.011	< 0.0002	0.0063	< 1.52	< 0.0025	< 0.002
	5/10/2016	0.47	100	260	0.46	6.71	150	900	< 0.003	0.0014	0.088	< 0.001	< 0.0005	< 0.005	0.0086	< 0.0005	0.012	< 0.0002	0.0088	< 0.365	< 0.0025	< 0.002
	8/31/2016	0.42	100	210	0.45	7.07	120	890	< 0.003	0.0014	0.086	^ < 0.001	< 0.0005	< 0.005	0.0035	< 0.0005	0.011	< 0.0002	0.0083	0.432	< 0.0025	< 0.002
	11/2/2016	0.32	98	160	0.43	7.25	83	750	< 0.003	0.0025	0.079	< 0.001	< 0.0005	< 0.005	0.0100	0.0012	0.012	< 0.0002	0.007	< 0.463	< 0.0025	< 0.002
	2/6/2017	0.40	110	200	0.37	7.19	98	790	< 0.003	0.0015	0.100	< 0.001	< 0.0005	< 0.005	0.0160	< 0.0005	0.013	< 0.0002	0.0071	< 0.356	< 0.0025	< 0.002
	4/26/2017	0.33	100	220	0.37	7.46	89	770	< 0.003	0.0021	0.095	< 0.001	< 0.0005	< 0.005	0.0078	0.00055	0.012	< 0.0002	0.0069	< 0.35	< 0.0025	< 0.002
	6/14/2017	0.37	92	190	0.47	7.45	80	770	< 0.003	0.0013	0.078	< 0.001	< 0.0005	< 0.005	0.0120	< 0.0005	0.013	< 0.0002	0.0085	< 0.309	< 0.0025	< 0.002
	8/2/2017	0.35	93	180	0.43	7.41	100	770	< 0.003	0.0013	0.077	< 0.001	< 0.0005	0.04	0.0031	< 0.0005	0.012	< 0.0002	0.0091	< 0.282	0.0029	< 0.002
	10/18/2017	0.54	97	140	0.45	7.2	120	790	< 0.003	0.0019	0.082	^ < 0.001	< 0.0005	< 0.005	0.0046	0.00077	0.015	< 0.0002	0.0071	0.423	0.003	^ < 0.002
	4/24/2018	0.4	110	240	0.43	7.21	160	940	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/31/2018 R	NA	NA	NA	NA	NA	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/17/2018	0.29	100	230	0.45	7.2	130	840	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/7/2019	0.76	120	340	0.42	7.27	120	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/3/2019 R	0.23	NA	250	NA	NA	NA	870	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/6/2019	0.3	77	140	0.41	7.33	53	670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/20/2020	0.79	110	250	0.45	7.3	110	1,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/11/2020 R	0.28	NA	NA	NA	NA	NA	850	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/22/2020	0.33	100	190	0.48	7.15	83	770	< 0.003	0.0015	0.089	< ^ 0.001	< 0.0005	< 0.005	0.0082	< 0.0005	0.013	< 0.0002	0.0061	NA	< 0.0025	< 0.002
	5/18/2021	0.22	120	280	0.42	7.3	190	1,100	< 0.003	0.0019	0.12	< 0.001	< 0.0005	< 0.005	0.0037	< 0.0005	0.014	< 0.0002	< 0.005	< 0.4450	< 0.0025	< 0.002
	6/29/2021 R	NA	NA	NA	NA	7.36	190	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/30/2021	0.33	120	330	0.4	7.46	170	1,000	<^+ 0.003	0.0016	0.12	< 0.001	< 0.0005	< 0.005	0.0034	< 0.0005	0.013	< 0.0002	0.0057	0.877	0.003	< 0.002
	11/16/2021	0.3	130	290	0.42	7.11	140	1,000	< 0.003	0.0021	0.12	< ^1+ 0.001	< 0.0005	< 0.005	0.004	< 0.0005	0.011	< 0.0002	0.0059	0.892	< 0.0025	< 0.002
MW-05 down-gradient	10/28/2015	0.64	100	160	0.39	7.12	120	790	< 0.003	0.0011	0.057	^ < 0.001	< 0.0005	< 0.005	0.0013	< 0.0005	0.018	< 0.0002	0.0088	0.6231	0.0031	< 0.002
	2/10/2016	0.46	110	220	0.39	7.25	120	790	< 0.003	0.0028	0.071	< 0.001	< 0.0005	0.0062	0.0013	0.0022	< 0.02	< 0.0002	F1 0.0053	1.09	< 0.0025	< 0.002
	5/10/2016	0.8	150	220	0.46	6.88	290	950	< 0.003	0.0023	0.075	< 0.001	< 0.0005	< 0.005	< 0.001	0.0022	0.014	< 0.0002	0.008	< 0.40	0.019	< 0.002
	8/31/2016	1.0	140	99	0.56	6.81	260	820	< 0.003	< 0.001	0.07	^ < 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	< 0.01	< 0.0002	0.012	< 0.42	0.02	< 0.002
	11/2/2016	0.41	98	130	0.37	7.26	100	700	< 0.003	0.0022	0.056	< 0.001	< 0.0005	0.0051	< 0.001	0.0017	0.015	< 0.0002	0.0061	0.438	< 0.0025	< 0.002
	2/6/2017	0.48	150	180	0.30	7.22	120	790	< 0.003	0.0016	0.082	< 0.001	< 0.0005	< 0.005	< 0.001	0.0016	0.021	< 0.0002	< 0.005	0.564	0.0029	< 0.002
	4/26/2017	0.67	110	F1 190	0.37	7.28	170	770	< 0.003	0.0014	0.063	< 0.001	< 0.0005	< 0.005	< 0.001	0.0008	< 0.01	< 0.0002	0.0066	< 0.411	0.013	< 0.002
	6/14/2017	0.44	75	150	0.46	7.47	110	670	< 0.003	0.0012	0.044	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.013	< 0.0002	0.0076	< 0.316	0.0029	< 0.002
	8/2/2017	0.28	83	170	0.35	7.30	99	770	< 0.003	< 0.001	0.054	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.014	< 0.0002	0.0053	0.659	< 0.0025	< 0.002
	10/18/2017	0.42	110	110	0.38	7.16	95	720	< 0.003	0.002	0.067	< ^ 0.001	< 0.0005	< 0.005	< 0.001	0.0023	0.018	< 0.0002	< 0.005	< 0.371	0.0029	^ < 0.002
	4/24/2018	0.31	110	300	0.34	7.33	130	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/31/2018 R	NA	NA	NA	NA	NA	NA	940	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/17/2018	0.31	110	210	0.36	7.29	93	810	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/6/2019	0.38	130	500	0.31	7.11	84	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/3/2019 R	NA	NA	150	NA	NA	NA	890	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/7/2019	0.31	180	130	0.3	7.44	64	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/4/2019 R	NA	89	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/20/2020	0.32	100	270	0.37	7.03	67	890	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/22/2020	0.52	92	180	0.38	7.16	85	720	< 0.003	0.0012	0.069	<^ 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.013	< 0.0002	0.0054	NA	0.003	< 0.002
	5/18/2021	0.37	130	410	0.3	7.00	160	1,300	< 0.003	0.0015	0.1	< 0.001	< 0.0005	< 0.0050	< 0.0010	< 0.0005	0.023	< 0.0002	< 0.005	< 0.5970	< 0.0025	< 0.002
	6/29/2021 R	NA	NA	430	NA	7.33	150	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/27/2021	0.36	100	300	0.3	6.94	140	960	< ^+ 0.003	0.0014	0.069	< 0.001	< 0.0005	< 0.005	< 0.001	< 0.0005	0.015	< 0.0002	< 0.005	0.528	0.0027	< 0.002
	11/16/2021	0.44	120	260	0.30	7.08	140	970	< 0.0030	0.0016	0.079	< ^1+ 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.014	< 0.00020	0.0069	0.738	< 0.0025	< 0.0020

Notes: All units are in mg/l except pH is in standard units and radium is in pCi/L

DNYA - Data not yet available.

F1 - MS and/or MSD Recovery outside of limits.

NA - Not analyzed. No confirmation resample required.

^+ - Continuing calibration verification is outside acceptance limits, high biased.

Table 2.Turbidity Measurement Data, Midwest Generation, LLC, Joliet #29 Generating Station

Well ID	Date	Turbidity (NTU)
MW-03	3/2/2021	0.45
	4/10/2021	22.9
	4/25/2021	2.40
	5/18/2021	2.53
	6/11/2021	2.34
	6/29/2021	2.86
	7/19/2021	37.40
	8/9/2021	2.71
	8/30/2021	5.70
	9/27/2021	10.27
	11/16/2021	0.80
MW-04	3/2/2021	81.89
	4/10/2021	5.96
	4/25/2021	3.02
	5/18/2021	2.52
	6/11/2021	2.8
	6/29/201	3.34
	7/19/2021	47.4
	8/9/2021	4.13
	8/30/2021	18.3
	9/27/2021	1.76
	11/16/2021	4.2
MW-05	2/25/2021	1.57
	4/10/2021	8.36
	4/25/2021	2.42
	5/17/2021	5.2
	6/11/2021	14.22
	6/29/2021	5.33
	7/19/2021	26.9
	8/9/2021	3.69
	8/27/2021	8.7
	9/27/2021	14.92
	11/16/2021	8.84
MW-10	3/2/2021	26.07
	4/10/2021	7.31
	4/25/2021	5.21
	5/18/2021	3.73
	6/11/2021	6.65
	6/29/2021	9.49
	7/19/2021	14.5
	8/9/2021	10.08
	8/30/2021	9.3
	9/27/2021	16.3
	11/16/2021	5.59

Table 3. Proposed Site-Specific Groundwater Protection Standards - Joliet #29

Upgradient Well(s)	Parameter	Section 845.600 Standards	Interwell Background Prediction Limit	**Proposed GWPS**
MW-10	Antimony	0.006	0.003	**0.006**
MW-10	Arsenic	0.01	0.002	**0.01**
MW-10	Barium	2.0	0.063	**2.0**
MW-10	Beryllium	0.004	0.001	**0.004**
MW-10	Boron	2.0	0.831	**2.0**
MW-10	Cadmium	0.005	0.005	**0.005**
MW-10*	Chloride*	200	368	**368**
MW-10	Chromium	0.1	0.005	**0.1**
MW-10	Cobalt	0.006	0.001	**0.006**
MW-10	Combined Radium 226 + 228 (pCi/L)	5.0	0.626	**5.0**
MW-10	Fluoride	4.0	0.486	**4.0**
MW-10	Lead	0.0075	0.0014	**0.0075**
MW-10	Lithium	0.04	0.019	**0.040**
MW-10	Mercury	0.002	0.0002	**0.002**
MW-10	Molybdenum	0.10	0.009	**0.10**
MW-10	pH (standard units)	6.5-9.0	6.733-7.569	**6.5-9.0**
MW-10	Selenium	0.05	0.003	**0.050**
MW-10	Sulfate	400	214.7	**400**
MW-10	Thallium	0.002	0.002	**0.002**
MW-10*	Total Dissolved Solids*	1200	1031	**1200**
MW-10*	Calcium*	NE	143.0	**143.0**
MW-10	Turbidity	NE	31.22	**31.22**

All values are in mg/L (ppm) unless otherwise noted.
* - Limited to original 8 background samples.
NE - Not Established
Bold - Proposed Site-specific Groundwater Protection Standard based on Section 845.600(a)(2)

Table 4. Groundwater Elevations - Midwest Generation, LLC, Joliet Station #29, Joliet, IL

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
MW-03	10/27/15	538.78	33.87	504.91
	02/09/16	538.79	33.17	505.62
	05/10/16	538.79	32.82	505.97
	08/30/16	538.79	31.88	506.91
	11/01/16	538.79	32.88	505.91
	02/06/17	538.79	33.25	505.54
	04/25/17	538.79	33.06	505.73
	06/14/17	538.79	33.74	505.05
	08/01/17	538.79	32.36	506.43
	10/18/17	538.79	30.03	508.76
	04/24/18	538.79	32.83	505.96
	10/16/18	538.79	32.58	506.21
	05/06/19	538.79	29.59	509.20
	11/06/19	538.79	33.38	505.41
	05/20/20	538.79	27.13	511.66
	10/21/20	538.79	33.52	505.27
	05/17/21	538.79	33.05	505.74
	06/11/21	538.79	33.64	505.15
	07/19/21	538.79	33.28	505.51
	08/09/21	538.79	33.85	504.94
	11/15/21	538.79	33.19	505.60
MW-04	10/27/15	539.03	34.05	504.98
	02/09/16	539.01	33.42	505.59
	05/10/16	539.01	33.07	505.94
	08/30/16	539.01	32.08	506.93
	11/01/16	539.01	33.16	505.85
	02/06/17	539.01	33.51	505.50
	04/25/17	539.01	33.29	505.72
	06/14/17	539.01	33.99	505.02
	08/01/17	539.01	32.09	506.92
	10/18/17	539.01	30.28	508.73
	04/24/18	539.01	33.10	505.91
	10/16/18	539.01	32.85	506.16
	05/06/19	539.01	29.83	509.18
	11/06/19	539.01	31.65	507.36
	05/20/20	539.01	27.40	511.61
	10/21/20	539.01	33.48	505.53
	05/17/21	539.01	33.32	505.69
	06/11/21	539.01	33.91	505.10
	07/19/21	539.01	33.55	505.46
	08/09/21	539.01	34.14	504.87
	11/15/21	539.01	33.44	505.57
MW-05	10/27/15	539.69	34.91	504.78
	02/09/16	539.64	34.18	505.46
	05/10/16	539.64	33.81	505.83
	08/30/16	539.64	32.82	506.82
	11/01/16	539.64	33.90	505.74
	02/06/17	539.64	34.23	505.41
	04/25/17	539.64	34.04	505.60
	06/14/17	539.64	34.74	504.90
	08/01/17	539.64	33.12	506.52
	10/18/17	539.64	31.03	508.61
	04/24/18	539.64	33.79	505.85
	10/16/18	539.64	33.61	506.03
	05/06/19	539.64	30.55	509.09
	11/06/19	539.64	32.40	507.24
	05/20/20	539.64	28.16	511.48
	10/21/20	539.64	34.52	505.12
	05/17/21	539.64	34.05	505.59
	06/11/21	539.64	34.66	504.98
	07/19/21	539.64	34.27	505.37
	08/09/21	539.64	34.78	504.86
	11/15/21	539.64	34.18	505.46
MW-10	10/27/15	540.03	35.10	504.93
	02/09/16	540.02	34.32	505.70
	05/10/16	540.02	34.02	506.00
	08/30/16	540.02	32.97	507.05
	11/01/16	540.02	34.04	505.98
	02/06/17	540.02	34.42	505.60
	04/25/17	540.02	34.22	505.80
	06/14/17	540.02	34.91	505.11
	08/01/17	540.02	33.18	506.84
	10/18/17	540.02	31.13	508.89
	04/24/18	540.02	33.97	506.05
	10/16/18	540.02	33.73	506.29
	05/06/19	540.02	30.58	509.44
	11/06/19	540.02	32.42	507.60
	05/20/20	540.02	28.09	511.93
	10/21/20	540.02	34.72	505.30
	05/17/21	540.02	34.23	505.79
	06/11/21	540.02	34.81	505.21
	07/19/21	540.02	34.45	505.57
	08/09/21	540.02	35.05	504.97
	11/15/21	540.02	34.38	505.64

MSL - Mean Sea Level
TOC - Top of Casing

Table 5. Groundwater Flow Direction and Estimated Seepage Velocity/Flow Rate - Joliet #29 Generation Station.

DATE	Groundwater Flow Direction	K_{avg} (ft/sec)*	Average Hydraulic Gradient (ft/ft)	Porosity (unitless)**	Estimated Seepage Velocity (ft/day)
5/17/2021	Southerly (SSW-SSE)	1.968E-03	0.00076	0.35	0.37
6/11/2021	Southerly (SSW-SSE)	1.968E-03	0.00093	0.35	0.45
7/19/2021	Southerly (SSW-SSE)	1.968E-03	0.00088	0.35	0.43
8/9/2021	Southerly (SSW-SSE)	1.968E-03	0.00045	0.35	0.22
11/15/2021	Southerly (SSW-SSE)	1.968E-03	0.00118	0.35	0.57

* K_{avg} - 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.

SSW - South-southwest

SSE - South-southeast

Table 6. CCR Groundwater Sample Collection Summary for 2021 - Joliet #29 Generating Station

Well ID	Number of Groundwater Sampling Events	Dates Groundwater Sampling Events
MW-10 (Upgradient)	3	5/17/2021
		8/30/2021
		11/16/2021
MW-3 (Downgradient)	3	5/17/2021
		8/30/2021
		11/16/2021
MW-4 (Downgradient)	3	5/17/2021
		8/30/2021
		11/16/2021
MW-5 (Downgradient)	3	5/17/2021
		8/27/2021
		11/16/2021

FIGURES

W:\projects\midwest generation\12313 ash pond groundwater\figures\joliet #29\ccr\state ccr maps\joliet #29 potentiometric map 11-2021.dwg

0 100'
APPROXIMATE SCALE

N

ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, inc.

14665 West Lisbon Road, Suite 1A Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

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

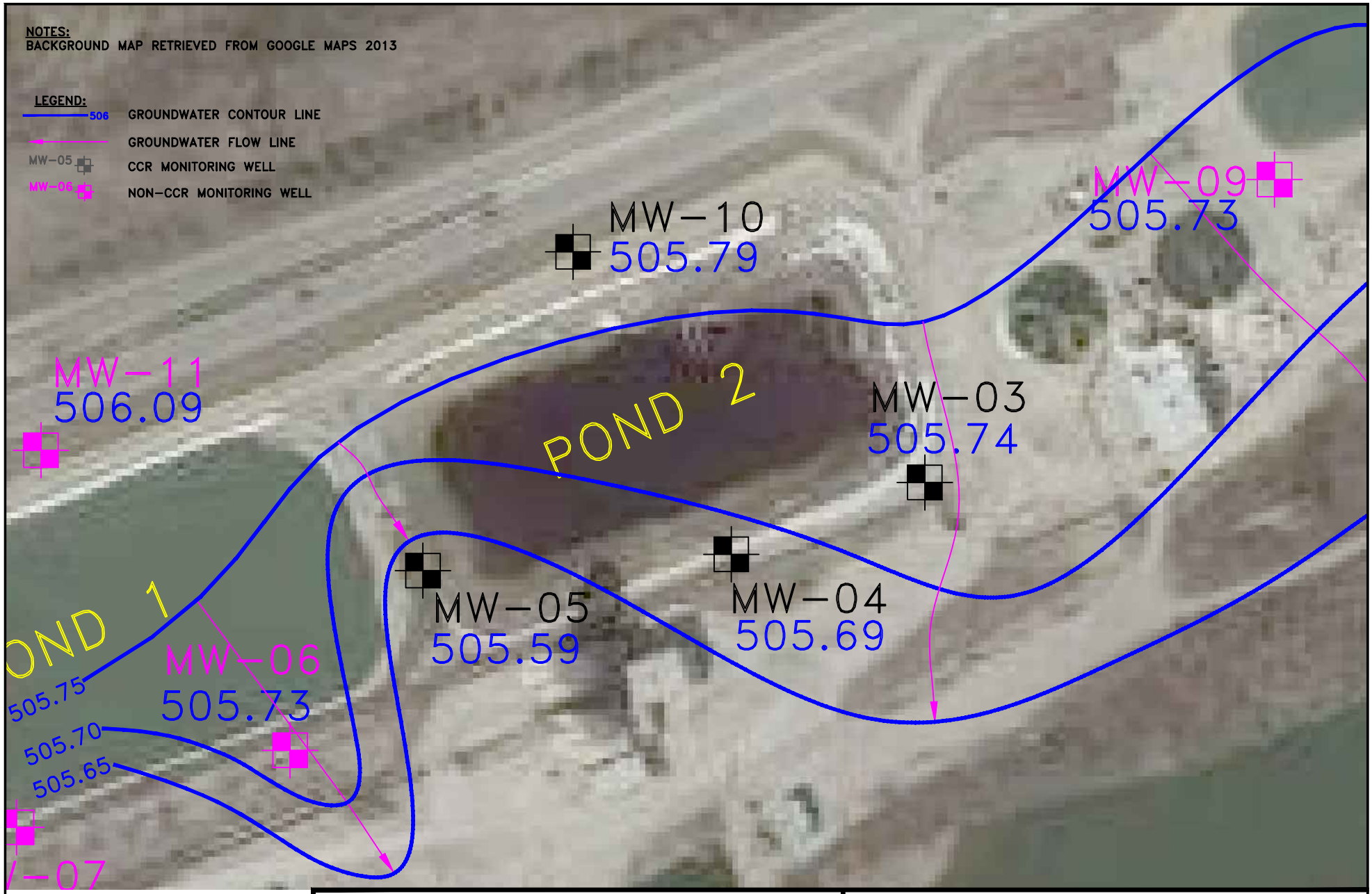
CCR MONITORING WELLS SITE MAP

JOLIET #29 GENERATING STATION
JOLIET, ILLINOIS

Scale: 1" = 100' | Date: January 27, 2022

KPRG Project No. 12313.0 | FIGURE 1

ATTACHMENT 1
Monthly Potentiometric Maps



0 128'
APPROXIMATE SCALE

N

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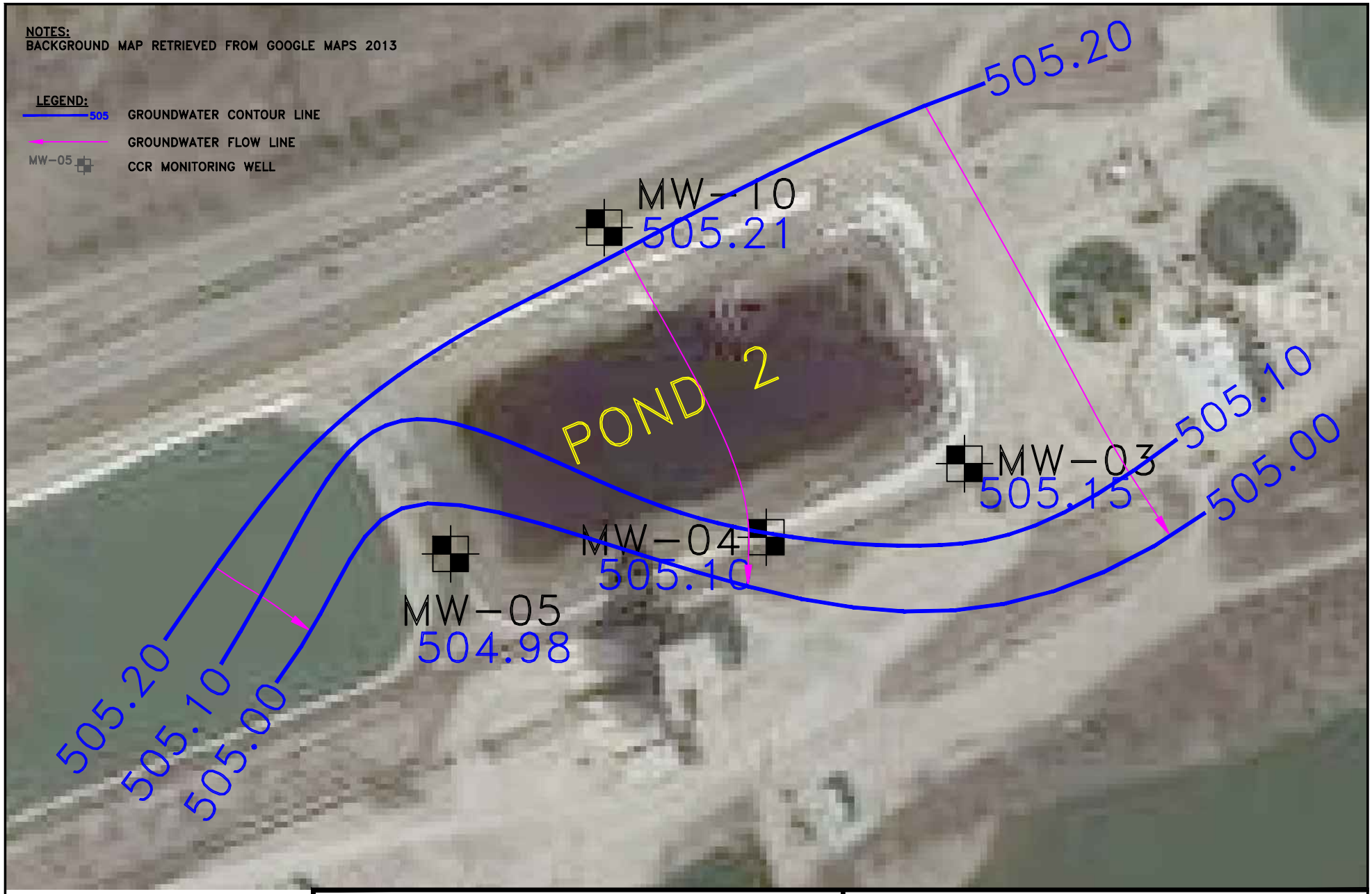
POTENTIOMETRIC MAP 05/2021

JOLIET #29 GENERATING STATION
JOLIET, ILLINOIS

Scale: 1" = 128' | Date: January 17, 2022

KPRG Project No. 12313.0 | ATTACHMENT 1



0 125'
APPROXIMATE SCALE

N

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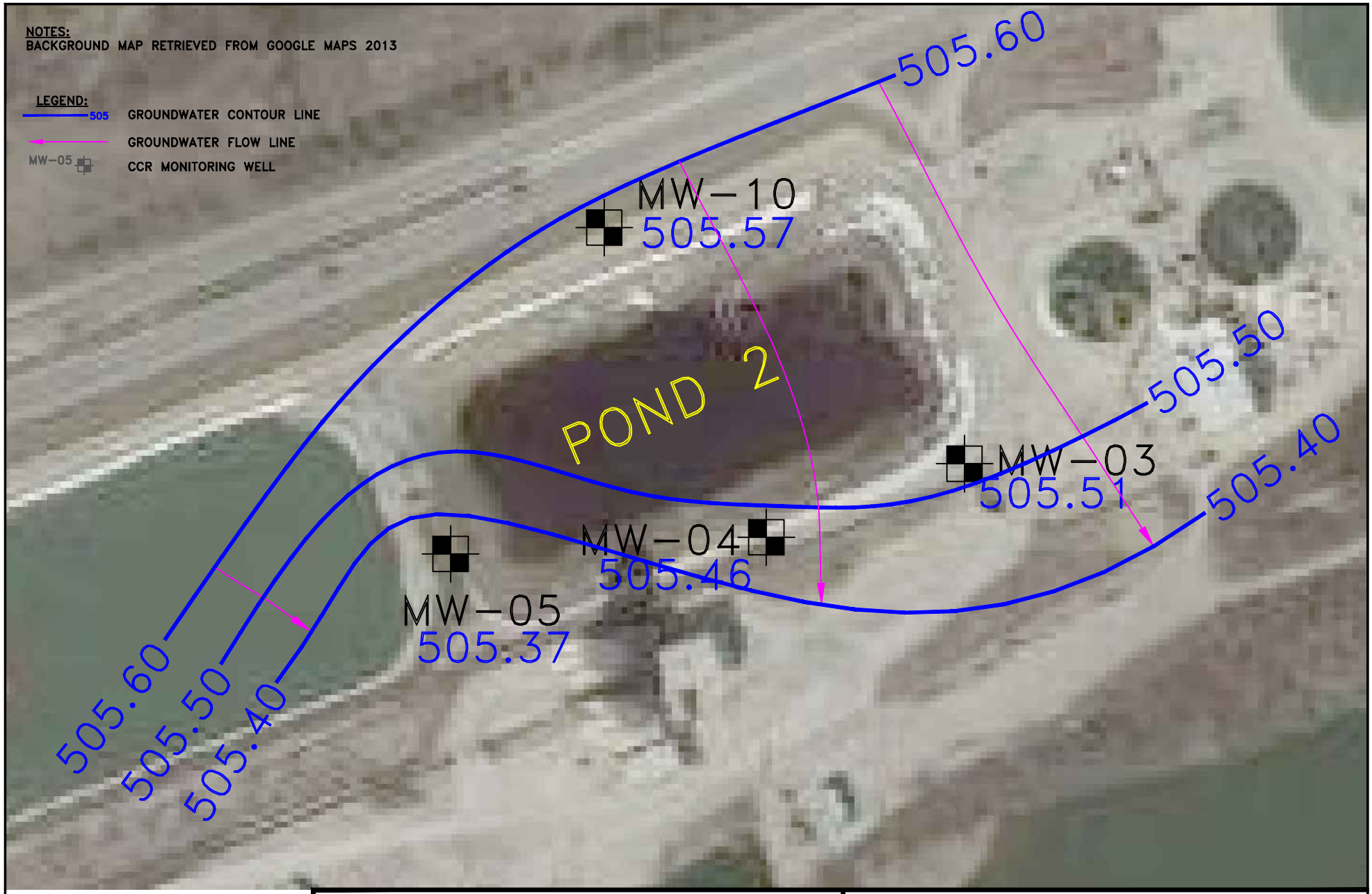
POTENTIOMETRIC MAP 06/2021

JOLIET #29 GENERATING STATION
JOLIET, ILLINOIS

Scale: 1" = 125' | Date: January 17, 2022

KPRG Project No. 12313.0 | ATTACHMENT 1



0 125'
APPROXIMATE SCALE

N

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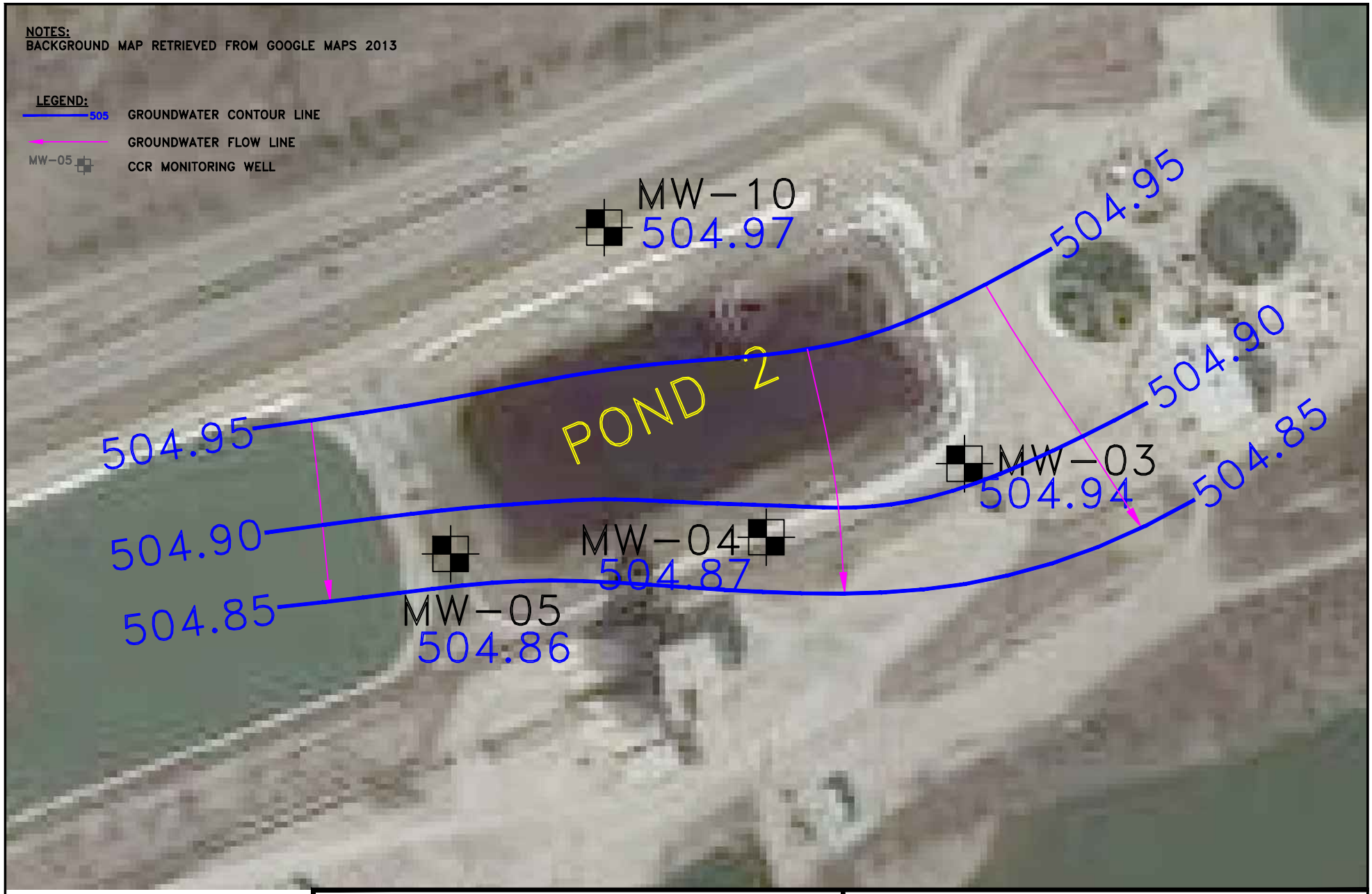
POTENTIOMETRIC MAP 07/2021

JOLIET #29 GENERATING STATION
JOLIET, ILLINOIS

Scale: 1" = 125' | Date: January 17, 2022

KPRG Project No. 12313.0 | ATTACHMENT 1



ENVIRONMENTAL CONSULTATION & REMEDIATION

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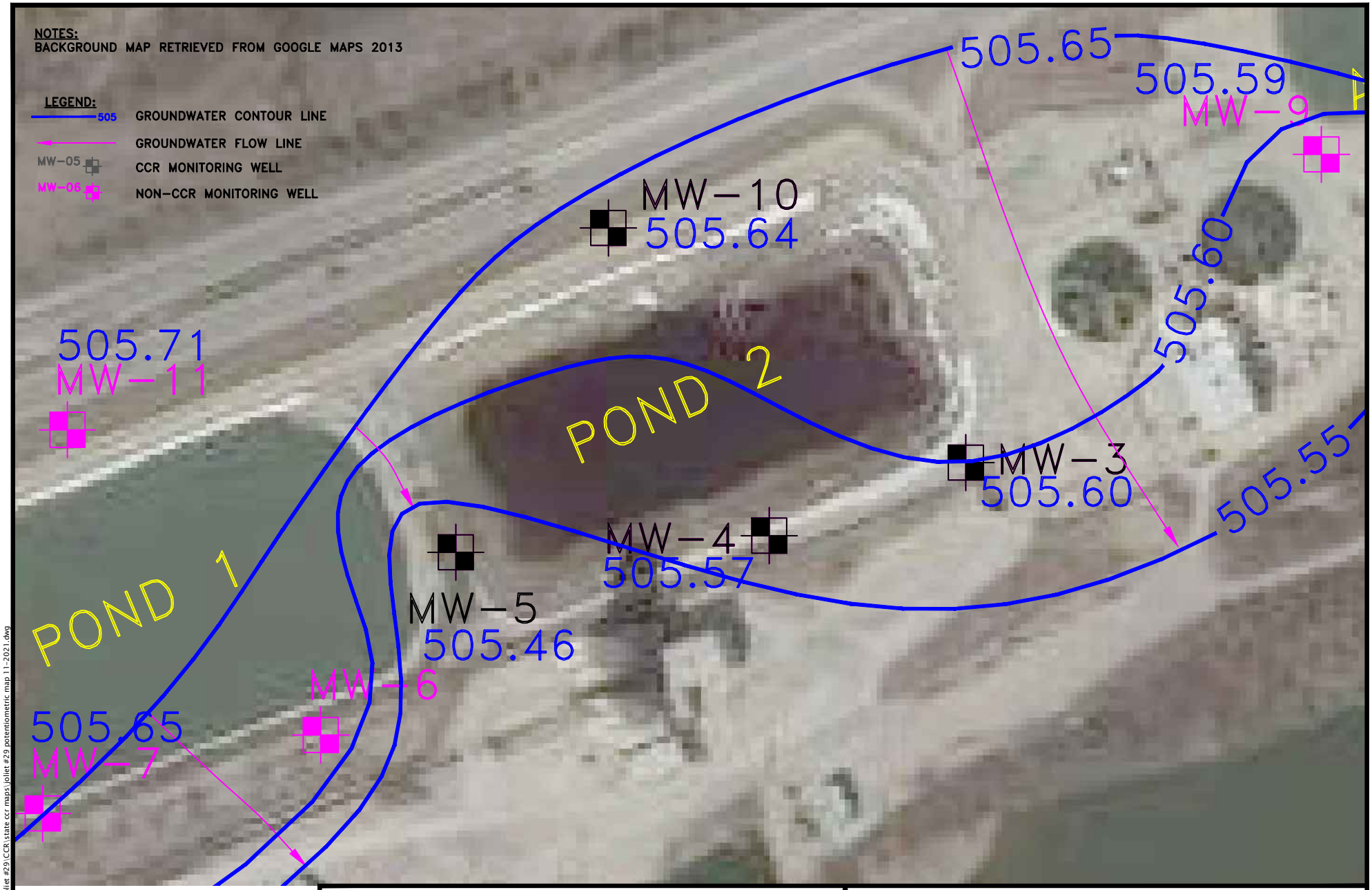
POTENTIOMETRIC MAP 08/2021

JOLIET #29 GENERATING STATION
JOLIET, ILLINOIS

Scale: 1" = 125'	Date: January 17, 2022
KPRG Project No. 12313.0	ATTACHMENT 1



0 125'
APPROXIMATE SCALE

N

ENVIRONMENTAL CONSULTATION & REMEDIATION

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POTENTIOMETRIC MAP 11/2021

JOLIET #29 GENERATING STATION
JOLIET, ILLINOIS

Scale: 1" = 125' | Date: January 27, 2022

KPRG Project No. 12313.0 | ATTACHMENT 1

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