



Illinois Environmental Protection Agency
CCR Residual Surface Impoundment Permit Application
CCR Form 1 – General Provisions

Bureau of Water ID Number:

For IEPA Use Only

CCR Permit Number:

Facility Name:

SECTION 1: FACILITY, OPERATOR, AND OWNER INFORMATION (35 IAC 845.210(b))

Facility, Operator, and Owner Information	1.1	Facility Name		
		Joliet #9 Generating Station		
	1.2	Illinois EPA CCR Permit Number (if applicable)		
		Revised Permit		
	1.3	Facility Contact Information		
		Name (first and last) James Thorne	Title Environmental Specialist	Phone Number 815-671-3397
		Email address james.thorne@NRG.com		
	1.4	Facility Mailing Address		
		Street or P.O. box 1800 Channahon Road		
		City or town Joliet	State Illinois	Zip Code 60436
	1.5	Facility Location		
		Street, route number, or other specific identifier 1601 Patterson Road		
		County name Will	County code (if known)	
		City or town Joliet	State Illinois	Zip Code 60436
	1.6	Name of Owner/Operator		
	Midwest Generation, LLC			

Facility, Operator, and Owner Info	1.7	Owner/Operator Contact Information		
		Name (first and last) Phil Raush	Title Plant Manager	Phone Number 815-715-8532
		Email address phillip.raush@nrg.com		
	1.8	Owner/Operator Mailing Address		
Street or P.O. box 804 Carnegie Center				
City or town Princeton		State New Jersey	Zip Code 08540	
SECTION 2: LEGAL DESCRIPTION (35 IAC 845.210(c))				
Legal Description	2.1	Legal Description of the facility boundary		
		That part of the Southeast Quarter of Section 20, and the Northeast Quarter of Section 29, Lying south of Patterson Road, West of Brandon Road, and lying north of the north line of the South 233' of the North half of the Northeast quarter of Section 29, all in Township 35 North, Range 10 East of the third Principal meridian, in Will County, IL		
SECTION 3: PUBLICLY ACCESSIBLE INTERNET SITE REQUIREMENTS (35 IAC 845.810)				
Internet Site	3.1	Web Address(es) to publicly accessible internet site(s) (CCR website)		
		https://midwestgenerationllc.com/illinois-ccr-rule-compliance-data-and-information/		
	3.2	Is/are the website(s) titled "Illinois CCR Rule Compliance Data and Information"		
☒ Yes ☐ No				
SECTION 4: IMPOUNDMENT IDENTIFICATION				
Impoundment Identification	4.1	List all the Impoundment Identification numbers for your facility and check the corresponding box to indicate that you have attached a written description for each impoundment.		
		W1970450046-01	☒	Attached written description
			☐	Attached written description
			☐	Attached written description
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		☐	Attached written description

SECTION 5: CHECKLIST AND CERTIFICATION STATEMENT

Checklist and Certification Statement	5.1	In Column 1 below, mark the sections of Form 1 that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing.			
		Column 1		Column 2	
		Section 1: Facility, Operator, and Owner Information	☒	w/attachments	☒
		Section 2: Legal Description	☒	w/attachments	☐
		Section 3: Publicly Accessible Internet Site Requirement	☒	w/attachments	☐
		Section 4: Impoundment Identification	☒	w/attachments	☒
	5.2	Certification Statement			
		I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.			
		Name (print or type first and last name) of Owner/Operator		Official Title	
		Phillip Raush		Plant Manager	
	Signature 		Date Signed 6/25/26		



Illinois Environmental Protection Agency

CCR Surface Impoundment Permit Application

Form CCR 2E – Initial Operating Permit for Existing or Inactive CCR Surface Impoundments That Have Not Completed an Agency-approved Closure Before July 30, 2021

Bureau of Water ID Number:

For IEPA Use Only

CCR Permit Number:

Facility Name:

SECTION 1: CONSTRUCTION HISTORY (35 Ill. Adm. Code 845.220 AND 35 Ill. Adm. Code 845.230)

Construction History	1.1	CCR surface impoundment name.
		Lincoln Stone Quarry
	1.2	Identification number of the CCR surface impoundment (if one has been assigned by the Agency).
		W1970450046-01
	1.3	Description of the boundaries of the CCR surface impoundment (35 Ill. Adm. Code 845.210(c)).
		That part of the Southeast Quarter of Section 20, and the Northeast Quarter of Section 29, Lying south of Patterson Road, West of Brandon Road, and lying north of the north line of the South 233' of the North half of the Northeast quarter of Section 29, all in Township 35 North, Range 10 East of the third Principal meridian, in Will County, IL
	1.4	State the purpose for which the CCR surface impoundment is being used.
		Used as a disposal facility for bottom ash/boiler slag from Joliet #9 and Joliet #29 generating stations.
	1.5	How long has the CCR surface impoundment been in operation?
		Exact construction date is unknown. The Lincoln Stone Quarry has been operating as a surface impoundment since 1962
1.6	List the types of CCR that have been placed in the CCR surface impoundment.	
	Bottom ash and boiler slag	

Construction History (Continued)	1.7	List name of the watershed within which the CCR surface impoundment is located.	
		Des Plaines watershed	
	1.8	Size in acres of the watershed within which the CCR surface impoundment is located.	
		28,808 acres	
	1.9	Check the corresponding box to indicate that you have attached the following:	
		☒	Description of the physical and engineering properties of the foundation and abutment materials on which the CCR surface impoundment is constructed.
		☒	Description of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR surface impoundment.
		☒	Describe the method of site preparation and construction of each zone of the CCR surface impoundment.
		☒	A listing of the approximate dates of construction of each successive stage of construction of the CCR surface impoundment.
		☒	Drawing satisfying the requirements of 35 Ill. Adm. Code 845.220(a)(1)(F).
		☒	Description of the type, purpose, and location of existing instrumentation.
		☒	Area capacity curves for the CCR Impoundment.
		☒	Description of each spillway and diversion design features and capacities and provide the calculations used in their determination.
		☒	Construction specifications and provisions for surveillance, maintenance, and repair of the CCR surface impoundment.
	1.10.1	Is there any record or knowledge of structural instability of the CCR surface impoundment?	
		☐ Yes	☒ No
	1.10.2	If you answered yes to Item 1.10.1, provide detailed explanation of the structural instability.	
SECTION 2: ANALYSIS OF CHEMICAL CONSTITUENTS (35 Ill. Adm. Code 845.230(d)(2)(B))			
Constituents	2.1	Check the corresponding boxes to indicate you have attached the following:	
		☒	An analysis of the chemical constituents found within the CCR to be placed in the CCR surface impoundment.
		☒	An analysis of the chemical constituents of all waste streams, chemical additives and sorbent materials entering or contained in the CCR surface impoundment.

SECTION 3: DEMONSTRATIONS AND CERTIFICATIONS (35 Ill. Adm. Code 845.230(d)(2)(D))

Demonstrations	3.1	Indicate whether you have attached a demonstration that the CCR surface impoundment, as built, meets, or an explanation of how the CCR surface impoundments fails to meet, the location standards in the following sections:			
	35 Ill. Adm. Code 845.300 (Placement Above the Uppermost Aquifer)	☐	Demonstration	☒	Explanation
	35 Ill. Adm. Code 845.310 (Wetlands)	☒	Demonstration	☐	Explanation
	35 Ill. Adm. Code 845.320 (Fault Areas)	☒	Demonstration	☐	Explanation
	35 Ill. Adm. Code 845.330 (Seismic Impact Zones)	☒	Demonstration	☐	Explanation
	35 Ill. Adm. Code 845.340 (Unstable Areas and Floodplains)	☒	Demonstration	☐	Explanation

SECTION 4: ATTACHMENTS

Attachments	4.1	Check the corresponding boxes to indicate that you have attached the following:	
	☒	Evidence that the permanent markers required by 35 Ill. Adm. Code 845.130 have been installed.	
	☒	Documentation that the CCR surface impoundment, if not incised, will be operated and maintained with one of the forms of slope protection specified in 35 Ill. Adm. Code 845.430.	
	☒	Initial Emergency Action Plan and accompanying certification required by 35 Ill. Adm. Code 845.520(e).	
	☒	Fugitive dust control plan and accompanying certification required by 35 Ill. Adm. Code 845.500(b)(7).	
	☒	Preliminary written closure plan as specified in 35 Ill. Adm. Code 845.720(a).	
	☒	Initial written post-closure care plan as specified in 35 Ill. Adm. Code 845.780(d), if applicable.	
	☒	A certification as specified in 35 Ill. Adm. Code 845.400(h), or a statement that the CCR surface impoundment does not have a liner than meets the requirements of 35 Ill. Adm. Code 845.400(b) or (c).	
	☒	History of known exceedances of the groundwater protection standards in 35 Ill. Adm. Code 845.600, and any corrective action taken to remediate the groundwater.	
	☒	Safety and health plan, as required by 35 Ill. Adm. Code 845.530.	
☒	For CCR surface impoundments required to close under 35 Ill. Adm. Code 845.700, the proposed closure priority categorization required by 35 Ill. Adm. Code 845.700(g).		

SECTION 5: GROUNDWATER MONITORING

Groundwater	5.1	Check the corresponding boxes to indicate you have attached the following groundwater monitoring information:	
	☒	A hydrogeologic site characterization meeting the requirements of 35 Ill. Adm. Code 845.620.	
	☒	Design and construction plans of a groundwater monitoring system meeting the requirements of 35 Ill. Adm. Code 845.630.	

		☒	A groundwater sampling and analysis program that includes section of the statistical procedures to be used for evaluating groundwater monitoring data, required by 35 Ill. Adm. Code 845.640.
		☒	Proposed groundwater monitoring program that includes a minimum of eight independent samples for each background and downgradient well, required by 35 Ill. Adm. Code 845.650(b).
SECTION 6: CERTIFICATIONS			
Certifications	6.1	Check the corresponding boxes to indicate you have attached the following certifications:	
		☒	A certification that the owner or operator meets the financial assurance requirements of Subpart I, as required by 35 Ill. Adm. Code 845.230(d)(2)(N).
		☒	Hazard potential classification assessment and accompanying certifications required by 35 Ill. Adm. Code 845.440(a)(2).
		☒	Structural stability assessment and accompanying certification, required by 35 Ill. Adm. Code 845.450(c).
		☒	Safety factor assessment and accompanying certification, as required by 35 Ill. Adm. Code 845.460(b).
		☒	Inflow design flood control system plan and accompanying certification, as required by 35 Ill. Adm. Code 845.510(c)(3).



Revised Application for Initial Operating Permit

Joliet #9 Generating Station
Illinois EPA Site No. 1970450046 #
Midwest Generation, LLC
Joliet, Illinois

July 2, 2026

Submitted to:

Illinois Environmental Protection Agency
2520 W. Iles Avenue
Springfield, Illinois 62794

Prepared for:

Midwest Generation, LLC
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Table of Contents

Introduction.....	1
1.0 History of Construction , 845.230(d)(2)(A)	2
1.1 CCR Surface Impoundment Identifying Information.....	2
1.2 Purpose of CCR Surface Impoundment.....	2
1.3 CCR Surface Impoundment Length of Operation	3
1.4 Type of CCR in Surface Impoundment	3
1.5 Name and Size of the Watershed	3
1.6 Description of CCR Surface Impoundment Foundation	3
1.6.1 Physical Properties of Foundation Materials	3
1.6.2 Engineering Properties of Foundation Materials.....	4
1.7 Description of the Construction Materials, Methods, and Dates	4
1.7.1 Physical and Engineering Properties of Construction Materials.....	4
1.7.2 Construction Methods.....	4
1.7.3 Construction Dates.....	5
1.8 Detailed Dimensional Drawings.....	5
1.9 Instrumentation	5
1.10 Area-Capacity Curve	6
1.11 Spillway and Diversion Capacities and Calculations.....	6
1.12 Surveillance, Maintenance, and Repair Construction Specifications.....	6
1.13 Record of Structural Instability.....	6
2.0 CCR Chemical Constituents Analysis, 845.230(d)(2)(B)	6
3.0 Chemical Constituents Analysis of Other Waste Streams, 845.230(d)(2)(C).....	7
4. Location Standards Demonstration, 845.230(d)(2)(D).....	7
4.1 Placement Above the Uppermost Aquifer	7
4.2 Wetlands.....	7
4.3 Fault Areas	8
4.4 Seismic Impact Zones	8
4.5 Unstable Areas	8
4.6 Floodplains	8
5.0 Permanent Markers, 845.230(d)(2)(E).....	8
6.0 Incised/Slope Protection Documentation, 845.230(d)(2)(E)	8
7.0 Emergency Action Plan, 845.230(d)(2)(G).....	8
8.0 Fugitive Dust Control Plan, 845.230(d)(2)(H)	8
9.0 Groundwater Monitoring Information, 845.230(d)(2)(H)	9
9.1 Hydrogeologic Site Characterization (845.230(d)(2)(I)(i)	9
9.1.1 Geology.....	9
9.1.2 Hydrogeology	10
9.2 Groundwater Monitoring System Design and Construction Plan (845.230(d)(2)(H)(ii).....	15

Table of Contents (Continued)

9.3 Groundwater Sampling and Analysis Program (845.230)(d)(2)(I)(iii).....	16
9.3.1 Sample Frequency	16
9.3.2 Sampling Preparation and Calibrations	16
9.3.3 Groundwater Sample Collection	17
9.3.4 Equipment Decontamination.....	18
9.3.5 Sample Preservation, Chain-of-Custody and Shipment	18
9.3.6 Analytical Methods	19
9.3.7 Quality Assurance and Quality Control.....	19
9.3.8 Statistical Methods	20
9.4 Groundwater Monitoring Program Section (845.230)(d)(2)(I)(iv)	20
10.0 Written Closure Plan, 845.230(d)(2)(J)	21
11.0 Post-Closure Care Plan, 845.230(d)(2)(K).....	22
12.0 Liner Certification, 845.230(d)(2)(L).....	22
13.0 History of Known Exceedances, 845.230(d)(2)(M).....	22
14.0 Financial Assurance, 845.230(d)(2)(N).....	23
15.0 Hazard Potential Classification Assessment, 845.230(d)(2)(O) & 845.440	23
16.0 Structural Stability Assessment, 845.230(d)(2)(P) & 845.450	24
17.0 Safety Factor Assessment, 845.230(d)(2)(Q) & 845.460(b)	24
18.0 Inflow Design Flood Control System Plan, 845.230(d)(2)(R) & 845.510(c)(3)	24
19.0 Safety and Health Plan, 845.230(d)(2)(S) & 845.530	24
20.0 Closure Priority Categorization, 845.230(d)(2)(T) & 845.700(g).....	24

Table of Contents (Continued)

Tables

Table 2 LSQ CCR Chemical Constituents Analytical Results

Table 9-1 Summary of Local Precipitation Data

Table 9-2 Groundwater Elevations

Table 9-3 Hydraulic Gradient, Direction and Seepage Velocity

Table 9-4 CCR Groundwater Data

Table 9-5 Summary of Sample Bottles, Preservation Holding Time, and Analytical Methods

Table 9-6 Proposed S-zone Groundwater Protection Standards

Figures

Figure 1 Area-Capacity Curve

Figure 9-1 Site Map

Figure 9-2 Cross-Section A-A'

Figure 9-3 Cross-Section B-B'

Figure 9-4 Cross-Section C-C'

Figure 9-5 Water Table Groundwater Flow Map 1Q2025

Figure 9-6 Water Table Groundwater Flow Map 2Q2025

Figure 9-7 Water Table Groundwater Flow Map 3Q2025

Figure 9-8 Water Table Groundwater Flow Map 4Q2025

Figure 9-9 Shallow Zone Groundwater Flow Map 1Q2025

Figure 9-10 Shallow Zone Groundwater Flow Map 2Q2025

Figure 9-11 Shallow Zone Groundwater Flow Map 3Q2025

Figure 9-12 Shallow Zone Groundwater Flow Map 4Q2025

Figure 9-13 Deep Zone Groundwater Flow Map 1Q2025

Figure 9-14 Deep Zone Groundwater Flow Map 2Q2025

Figure 9-15 Deep Zone Groundwater Flow Map 3Q2025

Figure 9-16 Deep Zone Groundwater Flow Map 4Q2025

Figure 9-17 Groundwater Management Zone

Figure 9-18 Potable Well Map

Table of Contents (Continued)

Attachments

Attachment 1 – History of Construction

Attachment 2-1 – CCR Laboratory Data Package

Attachment 2-2 – LSQ/WFA P105 Piezometer Leachate Chemistry Data

Attachment 3-1 – 2015 Flow Diagram

Attachment 3-2 – Joliet #29 Flow Diagram

Attachment 3-3 – 2019 Flow Diagram

Attachment 4 – Locations Determinations

Attachment 5 – Signage Documentation

Attachment 6 – No Attachment

Attachment 7 – Emergency Action Plan

Attachment 8 – Fugitive Dust Control Plan

Attachment 9-1 – Boring Logs

Attachment 9-2 – Time vs Concentration Curves

Attachment 9-3 - IL PE Stamp

Attachment 9-4 – Revised CCR Compliance Statistical Approach

Attachment 9-5 - Statistical Evaluation Summary

Attachment 10 – No Attachment

Attachment 11 – No Attachment

Attachment 12 – Liner Certification Calculations

Attachment 13 – No Attachment

Attachment 14 – Financial Assurance Certification

Attachment 15 – No Attachment

Attachment 16 – No Attachment

Attachment 17 – No Attachment

Attachment 18 – Inflow Design Report

Attachment 19 – Safety and Health Plan

Attachment 20 – No Attachment

Introduction

Midwest Generation, LLC (Midwest Generation) currently owns the former natural gas-fired generating station, referred to as Joliet #9 Station, located in Joliet, Illinois (“Site” or “generating station”). Midwest Generation converted the generating station from coal to natural gas in 2016. As part of the previous coal-fired operations, the station operated Lincoln Stone Quarry (LSQ) to manage/store the coal combustion residuals (CCR) created at the generating station as part of the electricity generating process. LSQ consists of an inactive West Filled Area (WFA), the formerly active Main Quarry, and the North Quarry. The WFA and Main Quarry are presently owned by Midwest Generation Holdings III, LLC¹ and the North Quarry is owned by the Brandon Road CCDD, LLC.

Historically, decant water from the Main Quarry has gravity drained to the North Quarry. The North Quarry was not used to manage/store CCR but rather as a settling pond that is used to treat the water discharged from the Main Quarry. Following the sale of the North Quarry in 2025, Midwest Generation is in the process of planning to create a sump area within LSQ whereby decant water will be pumped to the existing Switchyard (formerly Coal Pile) Runoff Basin and discharged via the NPDES permitting program.

The CCR from the generating station was sluiced into LSQ, where it was temporarily contained, the CCR settled from the sluice water, and the sluice water was ultimately discharged via the North Quarry settling pond to the Des Plaines River through an existing NPDES permit. After the sluice water and wastewater was discharged, the CCR remained within LSQ. LSQ was also used to manage low volume wastewater from the generating station at the same time it was used to manage CCR. LSQ stopped receiving CCR and low volume wastewater in 2019 and neither CCR or low volume wastewater is currently being sent to LSQ.

The LSQ is operated and permitted as a landfill regulated by Illinois Environmental Protection Agency (EPA) Bureau of Land under 35 Ill. Adm. Code, Subtitle G, Part 811. It has been permitted as a landfill since approximately 1976. The operations are still subject to the conditions and requirements of its landfill Operating Permit No. 1994-241-LFM Modification No. 24. In 2015, the LSQ was also determined to be regulated under the newly passed Federal Register, Environmental Protection Agency, 40 CFR Parts 257.94 and 257.95 Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule dated April 17, 2015 (Federal CCR Rule) and subsequent amendments. The LSQ operations also fall under Ill. Adm. Code Title 35, Part 845: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments (State CCR Rule), which became effective April 2021.

An Application for Initial Operating Permit – Joliet #9 Generating Station (Application) was submitted to EPA on October 29, 2021 and groundwater monitoring has been routinely completed since that time in accordance with the program outlined in that Application. On April 3, 2026, Midwest Generation received from Illinois EPA a Permit Denial letter outlining three items on which that denial was based. Midwest Generation has proactively engaged Illinois EPA in discussions to address the three noted items with conference calls on April 15 and 21, 2026 as well as in varying telephone and e-mail communications.

As part of the above noted discussions, Illinois EPA requested that the full Application be resubmitted as opposed to an addendum or modification to the initial submittal. Therefore, the objective of this submittal is

¹ On December 29, 2025, Midwest Generation Holdings III, LLC purchased the WFA and Main Quarry property, and Midwest Generation notified Illinois EPA of the change in ownership on January 6, 2026.

to provide a Revised Application for Initial Operating Permit (Permit) for Lincoln Stone Quarry at the Joliet #9 Generating Station to continue operating LSQ in compliance with Ill. Adm. Code Title 35, Part 845: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments. The information required for an initial operating permit application for existing surface impoundments as specified under 35 Ill. Adm. Code 845.230(d) of the State CCR Rule is provided in the following sections.

The Revised Permit Application is organized with supporting Tables and Figures that are referenced in the discussions being provided at the end of the full Permit text with the table numbers and figures tied to the Section number within which they are referenced with sequential numbering (e.g., Tables referenced in Section 9 are numbered 9-1, 9-2, etc. Figures referenced in Section 9 are numbered Figure 9-1, 9-2, etc.). Specific Attachments referenced within each Section are provided in a similar fashion (e.g., Attachment 1 information is tied to Section 1 of the Permit text, Attachment 2 information is tied to Section 2 of the Permit text, etc.). It should be noted that if a Section does not reference an Attachment then that Attachment number is not included as part of the permit application. For example, Section 13 does not reference an Attachment; therefore, there is no Attachment 13 support documentation in this permit application.

1.0 History of Construction , 845.230(d)(2)(A)

The history of construction of the CCR surface impoundment as specified in Section 845.220(a)(1) is presented below.

1.1 CCR Surface Impoundment Identifying Information

The identifying information associated with the CCR surface impoundments at the generating station are listed in the table below.

Name	Owner/Operator	Impoundment ID Number
Lincoln Stone Quarry	Midwest Generation 804 Carnegie Center Princeton, NJ 08540	W1970450046-01

1.2 Purpose of CCR Surface Impoundment

The Lincoln Stone Quarry has been used as a disposal facility for bottom ash/boiler slag from Joliet #9 and Joliet #29 Generating Stations. The disposal facility consists of a long-term inactive portion, the West Filled Area (WFA), and the more recently inactive CCR disposal area referred to as the Main Quarry. The North Quarry contains a settling pond that has long used to treat the water discharged from the Main Quarry. Following the sale of the North Quarry in 2025 to Brandon Road CCDD, LLC, Midwest Generation has been in the process of planning to create a sump area within LSQ whereby decant water will be pumped to the existing Switchyard (formerly Coal Pile) Runoff Basin and discharged via the NPDES permitting program. LSQ is no longer in service with the last ash being placed in 2019 and will not be used in the future for CCR disposal.

1.3 CCR Surface Impoundment Length of Operation

The exact date of construction for the LSQ is unknown. The LSQ has been operating as a surface impoundment since 1962 when the WFA was being used for ash placement. As of 1975, the WFA had been closed and the Main Quarry was used for the disposal of CCR until 2019. The CCR sluicing system was decommissioned in 2016. Based on an operations start date of 1962, the overall quarry operated for CCR disposal for approximately 57 years. The North Quarry was never used to manage or store CCR. A Notice of Intent to Initiate Closure of the LSQ was submitted on March 24, 2021 by Midwest Generation under its landfill permit.

1.4 Type of CCR in Surface Impoundment

The types of CCR present in the LSQ are bottom ash and boiler slag. Some fly ash may also have been placed into the WFA during early operations. The chemical constituents that make up the CCR is explained in further detail in Section 2.0.

1.5 Name and Size of the Watershed

LSQ is present within a portion of the larger Des Plaines River watershed, with the pertinent portion associated with the LSQ being approximately 28,808 acres in size.

1.6 Description of CCR Surface Impoundment Foundation

This section focuses on the WFA and the Main Quarry because they were used to manage and store CCR. LSQ is a former dolomite quarry and site observations and topographic documents show LSQ is incised on all sides. The surrounding ground elevation of the WFA and the Main Quarry is at approximately 590-600 ft above mean sea level (ft amsl) with the base of the Main Quarry ranging from 510 ft amsl to a low point of 477 ft amsl, and the base of the WFA at approximately 480 ft amsl. The surrounding walls of LSQ are Silurian Dolomite bedrock, which is topped with overburden soil. The overburden ranges from approximately 5 feet in thickness to 20 feet in thickness as the ground elevations increase to the south, west, and east. The overburden to the north, remains at a relatively constant elevation because Patterson Road is constructed adjacent to LSQ. The Silurian Dolomite extends from below the overburden soil to the base of the LSQ and at least 50 feet below the base of LSQ.

1.6.1 Physical Properties of Foundation Materials

The physical properties of the foundation materials in which LSQ exists is Silurian Dolomite, which is underlain by the Maquoketa group bedrock. The Silurian dolomite is divided into four units; a weathered bedrock rind, Joliet Formation dolomite, Kankakee Formation dolomite and the Elwood/Wilhelmi dolomite. Beneath the Silurian dolomite is the Ordovician age Maquoketa Group consisting of the Brainard Shale, Fort Atkinson dolomite and the Scales Shale. The Scales Shale is a well-documented regional aquitard, which separates shallow groundwater within the Silurian Dolomite from the deeper aquifers.

The dolomite beneath the facility is divided into a “shallow” Silurian zone and a “deep” Ordovician zone. A “lower permeability” zone identified, as the Brainard Shale (approximately 10-feet thick) separates these two more permeable zones. The lower permeability zone is mappable across the site and has been used by the Illinois State Geological Survey (ISGS) as a tracer bed.

The shallow zone dolomite is about 140 to 150 feet thick. This places the bottom of the shallow zone and top of the lower permeability zone (Brainard Shale) at an elevation of approximately 430 to 440 feet msl. The

thickness between the top and the bottom of the Brainard Shale is approximately 10 feet, with its base at an elevation between about 420 to 430 feet msl. The deep zone is 30 to 40 feet thick, so the boundary between the deep zone and the underlying Scales Shale member of the Maquoketa group is at an elevation of approximately 380 to 400 feet msl. As previously noted, the deepest portions of the bottom of LSQ lie at an elevation of approximately 477 feet msl, which is within the shallow Silurian dolomite zone and above the Brainard Shale low permeability zone.

1.6.2 Engineering Properties of Foundation Materials

The engineering properties for the foundation materials were obtained from regional and site-specific data (Harza Engineering (1976), MACTEC (2004)) that document fractures in the Silurian dolomite. Site-specific and regional data are consistent in describing a primary joint set that is vertical and oriented about N52°E and N40°W. The N40°W joints are described as “more distinct”. Natural spacing between the joint sets ranges from 3 to more than 10 feet, and joint apertures are described as less than 1/16th -inch. Bedding plane fractures are also described. Descriptions from the quarry walls and from cores obtained during drilling show significant clay infilling of the vertical joints and bedding plane fractures.

Borings completed in 2005/2006 by KPRG and Associates, Inc. (KPRG) for monitoring wells G46S/D, G47S/D and G48S/D were cored using HQ-series core barrels. Estimates of the Rock Quality Designation (RQD) were made for the dolomite based on visual inspection and measurements of the cores. The RQD is a measure that determines the quality of rock and is used as part of the early site evaluation process when determining locations for engineered structures such as power facilities, underground tunnels, and dams. During the early site evaluation process, the RQD is used to determine any potential problems of bearing capacity, settlement, or sliding. The higher the RQD percentage, the more competent the rock and its ability to support structures, resist settlement and prevent sliding. The upper approximate 10 to 15 feet of Silurian dolomite was weathered and highly fractured with RQDs ranging from 16.5% to 34%. Once competent bedrock was reached, the RQDs within the Silurian dolomite ranged from a low of 15.4 % in an isolated, highly fractured zone to 100% with an overall average of 76.6% and median of 84.8%. An RQD greater than 75% is considered good and an RQD greater than 90% is considered excellent.

1.7 Description of the Construction Materials, Methods, and Dates

The descriptions of the construction materials, methods, and dates are based on site investigations, available site drawings, and site observations.

1.7.1 Physical and Engineering Properties of Construction Materials

LSQ is an incised surface impoundment with Silurian dolomite bedrock walls, so the physical and engineering properties of the construction materials for this section are the same as the physical and engineering properties of the foundation materials. As described in Section 1.6.1, the physical properties for the foundation materials were described as Silurian dolomite underlain by the Maquoketa group formation. The engineering properties are the same as those listed in Section 1.6.2. As discussed in Section 1.6.2, the RQD for the Silurian dolomite is identified as good with an overall average of 76.6% and a median of 84.8%.

1.7.2 Construction Methods

LSQ was created by the quarrying and removal of the dolomite from the area used regionally for construction purposes, with the resulting void now filled with CCR. The disposal boundary of the CCR is created by the vertical dolomite walls and the quarry floor that remained after the quarrying operations were completed. A wall of bedrock exists between the North Quarry and the Main Quarry on which Patterson Road is built.

Approximately 115 feet of the bedrock wall between the Main Quarry and the North Quarry contains a dike constructed of compacted soil. The overall length of the bedrock wall between the North Quarry and the Main Quarry is approximately 1,800 feet long. This dike contains the discharge pipes that allows water to gravity drain from the Main Quarry into the North Quarry settling pond. The Main Quarry discharge pipes are flow controlled using manually activated valves to either increase or decrease the water level in the Main Quarry as needed. The discharged water enters the North Quarry settling pond from where it is pumped to the Des Plaines River through a NPDES regulated discharge. Following the sale of the North Quarry in 2025 to Brandon Road CCDD, LLC, Midwest Generation is in the process of planning to create a sump area within LSQ whereby decant water will be pumped to the existing Switchyard (formerly Coal Pile) Runoff Basin. From there waters can be discharged into the Des Plaines River through the Joliet #9 Station NPDES permit, which will be modified accordingly.

The CCR was sluiced into the WFA and the Main Quarry through steel pipes that run along the surface. The sluiced CCR was initially sent to the WFA and then into the Main Quarry once the WFA was filled and covered with a clayey soil layer. Three CCR sluice pipes entered the LSQ property at the northwest corner where they separated and the CCR sluice pipe from the Joliet #9 generating station ran east along the ground to the northwest corner of the Main Quarry. The remaining two pipes from the Joliet #29 generating station ran south through the WFA and then turned east towards the southwest corner of the Main Quarry where they most recently discharged.

1.7.3 Construction Dates

The actual dates of the quarrying operation are unknown, but LSQ has been used as a surface impoundment for ash from 1962 until 2019. Therefore, the creation of the LSQ surface impoundment through mining is some time prior to 1962.

1.8 Detailed Dimensional Drawings

Detailed dimensional drawings are not available for LSQ. The drawing in Attachment 1 is an aerial survey of LSQ in 1975 that shows the closed WFA, the active sluicing area of the Main Quarry (south portion of Main Quarry), an east-west trending clay berm separating the north and south halves of the Main Quarry to facilitate ongoing mining operations on the north side from the sluicing operations on the south side, and the access through to the North Quarry.

1.9 Instrumentation

Water level monitoring instrumentation was installed in the northeast corner of the Main Quarry to monitor the water level within the Main Quarry. Included in the instrumentation is a pressure transducer, data logger, and Wi-Fi connection for data upload to a website accessible by Midwest Generation and KPRG. This same style of water level monitoring instrumentation was installed in Boyd's Quarry to monitor the water level differential between the two quarries. Boyd's Quarry is located immediately east of LSQ.

A groundwater extraction system was installed beginning in 2010 with the construction of four (4) extraction wells and expanded in 2012 with the construction of eight (8) additional extraction wells. The system was constructed along the southern perimeter of LSQ to address an observed reversal in groundwater flow to the southeast instead of towards the north, which is its natural flow direction and that required to be maintained by the landfill operating permit (i.e., inward gradient). As discussed in Section 9 below, the noted change in groundwater flow direction within the dolomite was the result of ongoing, unrelated quarrying operations at the Vulcan Laraway Quarry located approximately 1,000 feet to the southeast of the LSQ. The system was

constructed in accordance with IEPA approved Permit Modification No. 12 (dated December 1, 2009), No. 16 (dated August 8, 2011), and No. 17 (dated July 2, 2012).

The objective of the groundwater extraction system is to establish a hydraulic trough between the Main Quarry/WFA and the south property boundary to sufficiently capture water moving from the facility to the south and to re-establish an inward hydraulic gradient from the south property boundary to the north. The groundwater extraction system discharges the groundwater into the Main Quarry where it is discharged through the NPDES regulated outfall.

1.10 Area-Capacity Curve

An area-capacity curve for LSQ is included as Figure 1.

1.11 Spillway and Diversion Capacities and Calculations

CCR is no longer sluiced into the Main Quarry at LSQ. Therefore, the discharge pipes from the Main Quarry to the North Quarry settling pond only manages the discharge from stormwater runoff that enters the Main Quarry. Currently, stormwater runoff from the Main Quarry discharges through two (2) 20-inch diameter steel pipes into the North Quarry settling pond. From the settling pond, the water is discharged to the Des Plaines River using up to three discharge pumps capable of pumping at about 4,200 gallons per minute (gpm) each for a total pump rate of 12,600 gpm. The stormwater runoff volume from the 1,000-year, 24-hour flood is approximately 69.1 acre-feet (3,009,800 cubic feet) and a flow rate of about 15,600 gpm over 24 hours. The Main Quarry has a capacity of up to 1,400 acre-feet, indicating the Main Quarry has the capacity to contain the 1,000-year, 24-hour flood without exceeding the capacity of the settling pond and the settling pond pumps. Following the sale of the North Quarry in 2025 to Brandon Road CCDD, LLC, Midwest Generation has been in the process of planning to create a sump area within LSQ whereby decant water will be pumped to the existing Switchyard (formerly Coal Pile) Runoff Basin. From there waters can be discharged into the Des Plaines River through the Joliet #9 Station NPDES permit, which will be modified accordingly.

1.12 Surveillance, Maintenance, and Repair Construction Specifications

Specifications for the surveillance, maintenance, and repair associated with LSQ were not available for this application. Repairs did occur as needed on the sluice pipes, but this consisted of removing the unsatisfactory section of pipe and replacing with the same size pipe. Specifications for this work were not available. The WFA soil cover is routinely inspected for any potential erosion and repairs are completed as necessary. The vegetation on the soil cover is also inspected to remove any deep-rooted growth and mowed as necessary.

1.13 Record of Structural Instability

There is no record or knowledge of structural instability associated with LSQ.

2.0 CCR Chemical Constituents Analysis, 845.230(d)(2)(B)

The bottom ash CCR that was sluiced to the Main Quarry was sampled and analyzed for the parameters listed in Section 845.600(a) except for total dissolved solids. One representative composite sample was collected from ash sluiced from the Joliet #9 generating station and one from the ash sluiced from the Joliet #29 generating station. The results of those analyses are presented in Table 2. The laboratory data package is included in Attachment 2-1.

A piezometer located within the WFA (P105) was sampled quarterly in 2012 for chemical analysis of landfill permit parameters. This data was used to provide leachate chemistry data for subsequent numerical groundwater modeling in support of the Groundwater Impact Assessment (GIA) and landfill operating permit renewal. The summary table of that quarterly sampling data is included in Attachment 2-2.

3.0 Chemical Constituents Analysis of Other Waste Streams, 845.230(d)(2)(C)

The other waste streams that entered LSQ when it was in service were discharges from the Joliet #29 sand filter backwash, the Joliet #29 west area basin, the Joliet #29 former coal pile runoff, Joliet #9 sand filter backwash, Joliet #9 coal pile and switch yard runoff, and the discharge from the LSQ groundwater extraction system (see Section 1.9). The Joliet #9 Flow Diagram from 2015 is included in Attachment 3-1 to show the discharges to LSQ prior to the Joliet #9 generating station's conversion to natural gas. The Joliet #29 Flow Diagram is included in Attachment 3-2. All of the water flow processes and stormwater flow contain total suspended solids (TSS) which can include sand sized and smaller sized particles. Once the Joliet #29 and Joliet #9 generating stations were converted to natural gas, the active placement of non-CCR waste streams into LSQ ceased, except for the discharge from the groundwater extraction system. The groundwater extraction system will continue to operate in accordance with an Interim Corrective Action approved as part of LSQ's landfill operating permit 1994-241-LFM. Attachment 3-3 contains the Joliet #9 Flow Diagram from 2019 when it was revised after the Joliet #9 generating station's conversion to natural gas.

4. Location Standards Demonstration, 845.230(d)(2)(D)

4.1 Placement Above the Uppermost Aquifer

According to the Location Restrictions Compliance Demonstration performed by KPRG and Associates, Inc (KPRG) in October of 2018, "the base of the Quarry is elevation 501 ft amsl and the upper limit groundwater elevation is 555.35 ft amsl. The Quarry is not separated from the upper limit of the uppermost aquifer by a minimum of five (5) feet". Therefore, the location of the Lincoln Stone Quarry does not comply with Section 845.300. This determination is still valid and is included in Attachment 4.

4.2 Wetlands

According to the Location Restrictions Compliance Demonstration performed by KPRG in October of 2018, site visits to the Quarry did not identify any wetlands around the perimeter of the Quarry that would indicate if wetlands were present prior to the mining of the Quarry. The national wetlands inventory (NWI) and the Will County Geographical Information System (GIS) Data Viewer were viewed to identify the presence of wetlands around the Quarry. Neither the NWI nor the Will County GIS Data Viewer identified wetlands around the Quarry, but the NWI did identify wetlands located inside the Quarry. The noted NWI observation of a wetland within the quarry was based on aerial photograph interpretations of standing, ponded water within the quarry. Since the presence of that water is an operational issue, the potential identification of a wetland within the quarry is not valid. Based on this evaluation, the Quarry is not located in a wetland and the demonstration included in Attachment 4 is valid.

4.3 Fault Areas

According to the Location Restrictions Compliance Demonstration performed by KPRG in October of 2018, “the Quarry is not located within 200 feet (60 meters) of a mapped Holocene-aged fault, as mapped by the United States Geological Survey (USGS) Quaternary Fault Database [USGS, 2018]”. Therefore, the location of the Lincoln Stone Quarry complies with Section 845.320. This determination is still valid and is included in Attachment 4.

4.4 Seismic Impact Zones

According to the Location Restrictions Compliance Demonstration performed by KPRG in October of 2018, “the Quarry complies with the location requirement” of Section 845.330 “and is not located in a seismic impact zone”. This determination is still valid and is included in Attachment 4.

4.5 Unstable Areas

According to the Location Restrictions Compliance Demonstration performed by KPRG in October of 2018, “the Quarry is not located in unstable areas”. Therefore, the location of the Lincoln Stone Quarry complies with Section 845.340. This determination is still valid and is included in Attachment 4.

4.6 Floodplains

LSQ is not located in a floodplain according to the FIRM Flood Insurance Rate Map, Will County, Illinois and Incorporated Areas Panel 280 of 585, Map No. 1719C0280 E, effective date September 6, 1995 as mapped by the Federal Emergency Management Agency. Therefore, the location of LSQ complies with Section 845.340. The relevant FIRM is located in Attachment 4.

5.0 Permanent Markers, 845.230(d)(2)(E)

The permanent marker in accordance with 35 Ill. Adm Code 845.130 has been installed. Photographic documentation of this requirement is included in Attachment 5.

6.0 Incised/Slope Protection Documentation, 845.230(d)(2)(E)

LSQ is an incised surface impoundment, thus this requirement is not applicable. The surrounding elevation is at a greater elevation, approximately 600 ft above mean sea level (ft amsl), compared to the bottom of LSQ, elevation approximately 477-510 ft amsl.

7.0 Emergency Action Plan, 845.230(d)(2)(G)

The Emergency Action Plan is included in Attachment 7. The plan was developed in June 2015 by KPRG and was reviewed and updated for compliance with Section 845.520. In accordance with 845.520(e), a certification of compliance is included in Attachment 7.

8.0 Fugitive Dust Control Plan, 845.230(d)(2)(H)

The most recent Fugitive Dust Control Plan dated August 18, 2023 along with the 2025 Fugitive Dust Control Report are included in Attachment 8.

9.0 Groundwater Monitoring Information, 845.230(d)(2)(H)

9.1 Hydrogeologic Site Characterization (845.230(d)(2)(I)(i))

The following subsections provide information on the geology and hydrogeology of the site as required under Section 845.620(b). Site geology and hydrogeology are discussed separately below. Referenced Tables and Figures are provided at the end of this report. Other supporting documentation is provided with the referenced Attachment.

9.1.1 Geology

The physiography of Will County is made up of ground moraines, end moraines, outwash plains, stream terraces, flood plains and bogs. It is in the Till Plains and Great Lakes Sections of the Central Lowland Province. Near surface soils in the vicinity of the subject impoundment include a variety of silt and silty clay loams. These soils are well to poorly drained. Organic content ranges from 0.02 to 7 percent (generally decreasing with depth) and have a negligible to slightly accelerated erosion rate, a generally moderate to high corrosivity rate and a pH range from slightly acidic to slightly basic (4.5 to 8.4). Surface runoff class is low to medium (Soil Survey of Will County Illinois). Based on the Surficial Geology Map of the Chicago Region (ISGS Circular No. 460, 1971) the surficial deposits in the vicinity of the subject surface impoundment are identified as part of the Henry Formation which is generally described as sand and gravel with local beds of silt and/or exposed Silurian dolomite bedrock.

The general stratigraphy in the area consists of unconsolidated glacial deposits, which overlay Silurian dolomite. The Silurian dolomite is underlain by the Maquoketa Group, which includes the Scales Shale, which is considered a regional aquitard separating the overlying Silurian dolomite from the deeper Cambro-Ordovician sandstone and limestone aquifers. Substantial hydrogeologic characterization was completed as part of groundwater quality assessment and landfill operating permit renewal submittals (the LSQ is currently operating as an Illinois EPA licensed landfill Permit No. 1994-241-LFM, Modification No. 24). Boring logs from monitoring wells around the Lincoln Stone Quarry are provided in Attachment 9-1 and a site map showing the locations is provided on Figure 9-1. Based on an evaluation of this data, the following general site-specific stratigraphy is defined and geologic cross-sections are provided as Figures 9-2 through 9-4.

Surface sediments in the area around the LSQ facility are comprised of approximately 20 to 30 feet of unconsolidated glacial overburden (this thickness may vary substantially across the site) that is underlain by Silurian-aged dolomite. The Silurian dolomite is divided into four units; a weathered bedrock rind, Joliet Formation dolomite, Kankakee Formation dolomite and the Elwood/Wilhelmi dolomite. Beneath the Silurian dolomite is the Ordovician age Maquoketa Group consisting of the Brainard Shale, Fort Atkinson dolomite and the Scales Shale. The Scales Shale is a recognized regional aquitard that hydraulically isolates the deeper bedrock aquifers from the shallower units.

Regional and site-specific data (Harza Engineering (1976), MACTEC (2004)) document fractures in the Silurian dolomite. Site-specific and regional data are consistent in describing a primary joint set that is vertical and oriented about N52°E and N40°W. The N40°W joints are described as “more distinct”. Natural spacing between the joint sets ranges from 3 to more than 10 feet, and joint apertures are described as less than 1/16th-inch. Bedding plane fractures are also described. Descriptions from the quarry walls and from cores obtained during drilling show significant clay infilling of the vertical joints and bedding plane fractures. Evidence of water movement through fractures is interpreted from iron staining and mineralization (primarily calcite, with some pyrite and marcasite).

There is additional fracturing at the quarry wall and the fractures/joints tend to be more open at the wall. This is interpreted to be a localized phenomenon that is the result of the blasting and unloading from quarry operations. This effect does not appear to extend greater than about 10 or 15 feet away from the quarry wall.

The dolomite beneath the facility is divided into a “shallow” Silurian dolomite zone and a “deep” Ordovician dolomite zone. A “lower permeability” zone identified, as the Brainard Shale (approximately 10-feet thick) separates these two more permeable zones. The lower permeability zone is mappable across the site and has been used by the Illinois State Geological Survey (ISGS) as a tracer bed.

The shallow zone dolomite is about 140 to 150 feet thick. This places the bottom of the shallow zone and top of the lower permeability zone (Brainard Shale) at an elevation of approximately 430 to 440 feet msl. The thickness between the top and the bottom of the Brainard Shale is approximately 10 feet, with its base at an elevation between about 420 to 430 feet msl. The deep zone is 30 to 40 feet thick, so the boundary between the deep zone and the underlying Scales Shale member of the Maquoketa group is at an elevation of approximately 380 to 400 feet msl. The deepest portions of bottom of the Main Quarry lie at an elevation of approximately 477 feet msl, which is within the shallow Silurian dolomite zone and above the Brainard Shale low permeability zone.

Hydrogeologic evaluations have interpreted a horizon of higher permeability within the shallow Silurian dolomite. The higher permeability zone extends from approximately 500 feet msl down to approximately 430 feet msl, and is partially penetrated by LSQ. This interpretation is based on evidence of increased vuggy horizons logged from core samples, down-hole geophysical data obtained from boreholes on both the north and south sides of LSQ and an integration of all aquifer testing data from various studies which include packer tests and single well slug tests. This increased permeability feature assists in the understanding and interpretation of existing groundwater flow conditions beneath the site.

Silurian dolomite is a calcium-magnesium carbonate rock that includes horizons of cherty (silica) nodules and is documented both regionally and locally to include mineralization along fractures and within vugs. The mineralization includes, but is not limited to calcite (calcium carbonate) and various sulfide minerals such as pyrite, marcasite, etc. As such, the presence of these minerals and associated weathering products can also be expected within the overlying unconsolidated materials.

There are no underground mines beneath the subject CCR surface impoundment.

9.1.2 Hydrogeology

Based on information from the Soil Survey of Will County, the average annual regional precipitation is approximately 37 inches with about 63% of that total falling between April and October of any given year. The average seasonal snowfall is approximately just over 10 inches. More local precipitation data is provided in Table 9-1.

Outside of remnant quarry ponds in the vicinity (e.g., Boyd’s Quarry), the nearest natural surface water body is the Des Plaines River located to the north of the subject CCR unit (see Figure 9-1). This reach of river is further identified as the Lower Des Plaines River which starts upstream of the site at the confluence of the river with the Chicago Ship and Sanitary Canal (CSSC) at the E.J. & E railroad bridge (river mile 290.1). The CSSC is the main tributary to this segment of river contributing approximately 80% of the flow to the river. The segment of river adjacent to the subject site is part of the Dresden Island Pool which starts at the Brandon Road Lock and Dam (river mile 286) which is immediately upstream of the subject CCR surface

impoundment. The Dresden Island Pool is 14 miles in length, approximately 800 feet wide with depth varying between 2 to 15 feet (Lower Des Plaines River Use Attainability Analysis Final Report, IEPA, December 2003). There are no drinking water intakes within the Dresden Island Pool and for that matter on any portion of the Des Plaines River downstream of the site (Meet Your Water – An Introduction to Understanding Drinking Water in Northeastern Illinois, Metropolitan Planning Council, 2017).

The water table beneath the site is encountered within the unconsolidated overburden and/or the upper portion of the shallow dolomite. There is sufficient potentiometric and chemical data from clustered piezometers around LSQ to indicate that the “shallow” dolomite zone and “deep” dolomite zone can be viewed as separate water bearing units. The intervening Brainard Shale is of sufficiently lower permeability that it impedes downward migration and mixing of the groundwater. The different groundwater flow patterns within the shallow and deep zones are discussed further below. The Scales Shale member of the Maquoketa Group, which defines the base of the deep zone of Ordovician dolomite, is widely accepted as a regional aquitard that hydraulically separates the groundwater of the overlying dolomite from deeper groundwater in the older Cambro-Ordovician sandstone and carbonate units beneath it.

Monitoring wells surrounding the LSQ include “WT-series” wells (water table), “S-series” wells (shallow dolomite) and “D-series” wells (deep dolomite). Natural groundwater flow in the area is from the south and east to the north and west. This flow pattern largely parallels surface drainage from topographically high areas to the Des Plaines River and likely represents a topographically driven groundwater flow system. However, ongoing dewatering activities at the Laraway Quarry located approximately 1,000 feet to the southeast of the LSQ have resulted in a component of groundwater flow to the southeast within the “shallow” dolomite. Groundwater flow within each zone is discussed below. Water level measurements from monitoring wells which the subsequent flow map discussions are based are provided in Table 9-2.

Water Table (WT-Series Wells)

Water table (WT-zone) maps for the 1st through 4th quarters 2025 are provided on Figures 9-5 through 9-8. These are based on water levels obtained from groundwater assessment monitoring wells installed as part of landfill permit studies which include screens that straddle the phreatic surface. The maps indicate that groundwater flow within the upper portion of the saturated zone is generally in a northerly and westerly direction. The near surface groundwater from the south and east of the site flows through the Main Quarry and WFA. This is consistent with the natural groundwater flow patterns defined as part of the initial landfill permit application. All four quarters show consistent patterns, which are also consistent with historical water table data.

Shallow Zone (S-Series Wells)

The potentiometric surface maps of the shallow zone (S-zone) dolomite for the 1st through 4th quarters 2025 are provided on Figures 9-9 through 9-12. The maps show generally lower heads than were mapped in 1993 when elevation data were first collected in support of landfill permit development. This is in part the natural result of wet conditions that existed during 1993 baseline data collection and in part the result of dewatering associated with the operations of Laraway Quarry, beginning circa 1997. In spite of the general decline in heads, the groundwater flow patterns north and west of the facility remain consistent with the 1993 flow patterns.

The south-southeasterly component of groundwater flow was defined along the south perimeter of the Joliet/Lincoln Stone Quarry facility that was not evident in 1993 data. This component of flow has been determined to be the result of unrelated, off-site dewatering activities associated with surface mining

operations at Laraway Quarry, approximately 1,000 feet to the southeast of the Joliet/Lincoln Stone Quarry facility that began circa 1997. This change of natural flow conditions along the south side of the Joliet/Lincoln Stone Quarry facility was not observed in the water table conditions which were described above (i.e., groundwater flow at the water table elevations continued to flow from south to north, into the quarry). The noted change of natural flow within the shallow dolomite unit has been determined by hydrogeologic investigation work to be the result of a higher permeability horizon that exists at, and just beneath, the base of Joliet/Lincoln Stone Quarry (approximate lowest quarry base elevation of 477 feet msl) within the shallow dolomite. This zone is undergoing additional depressurization as a result of dewatering operations at Laraway Quarry located approximately 1,000 feet southeast of the site. This depressurization is allowing for a component of groundwater flow to move from Joliet/Lincoln Stone Quarry to the south-southeast.

To address the south-southeasterly groundwater flow component within the shallow zone, a total of twelve extraction wells (X101 through X112) were installed. The first four extraction wells (X101 through X104) were installed during the February to April 2010 timeframe and this portion of the system was put into full operation on April 30, 2010. The remaining eight extraction wells (X105 through X112) were installed during the October 2011 through January 2012 timeframe and this portion of the system was put into full operation on February 16, 2012.

The hydraulic effects of the pumping system are clearly seen on the shallow zone potentiometric surface maps. A cone of depression has been established between south perimeter wells G48S, G47S, G46S, G38S and G39S and the Main Quarry/WFA. Groundwater from the south perimeter of the site is generally being drawn back to the north to the extraction well system. Water from the Main Quarry/WFA is also being intercepted by the extraction system. The extracted water is being discharged back into the Main Quarry.

In addition, Midwest Generation voluntarily implemented a program to replace any potable water wells to the southeast between the LSQ and Laraway Quarry which were screened within the Silurian dolomite with deeper water wells screened within the Cambro-Ordovician aquifers beneath the Scales Shale. The shallow dolomite wells were subsequently abandoned. This effectively removed any potential groundwater use receptors to the southeast that may have been affected by this artificially modified flow pattern.

Deep Zone (D-Series Wells)

The potentiometric surface maps for the deep zone (D-zone) dolomite for the 1st through 4th quarters 2025 are provided on Figures 9-13 through 9-16.

Groundwater flow within this zone is in a westerly direction. The overall flow patterns are generally consistent with historic conditions within the deep zone. Variations from earlier annual submittals during initial landfill permit development appear to be interpretive artifacts that are the result of variations in the number and distribution of control points for the maps, rather than changes in flow direction in the deep zone. For example, in 1993, there were only four monitoring points controlling the interpretation of the deep zone. There are now 13 wells within this zone providing a more detailed assessment.

Based on the above discussed geology/hydrogeology and as discussed further below, the groundwater monitoring network for the purposes of CCR unit monitoring is necessarily focused on the shallow dolomite zone (S-zone wells). Table 9-3 provides a summary of the flow direction, gradient and an estimated rate of groundwater flow for each quarterly sampling event from the 1st through 4th quarter 2025. The flow rate was calculated using the following equation:

$$V_s = \frac{Kdh}{n_e dl}, \text{ where}$$

$$n_e dl$$

V_s is seepage velocity (distance/time)

K is hydraulic conductivity (distance/time)

dh/dl is hydraulic gradient (unitless)

n_e is effective porosity (unitless)

The average hydraulic conductivity of 1.38×10^{-5} ft/sec used in Table 9-3 was obtained from the Revised Groundwater Impact Assessment Lincoln Stone Quarry Landfill – Addendum to IEPA Application Logs 2004-052 and 2009-213 dated March 13, 2013. The estimated effective porosity of the aquifer materials (0.05) was also obtained from the above noted document.

At this time, based on the geology discussion in Section 9.1.1 and the site-specific hydrogeology discussions above, the groundwater beneath the CCR surface impoundment is considered as Class I Potable Resource Groundwater in accordance with Section 620.210. It is noted, however, that a Zone of Attenuation (ZOA) was established to the north of the LSQ as part of the initial landfill operating permit and a Groundwater Management Zone (GMZ) has been established to the south-southeast of the LSQ as part of the landfill permit renewal process and associated with the corrective action implemented in response to the component of groundwater flow moving to the southeast due to Laraway Quarry dewatering activities. The extent of the established ZOA and approved GMZ is provided on Figure 9-17.

A survey of all potable water sources within a 2,500 feet radius of the LSQ was completed. The following databases and sources of information were utilized in order to determine community water source and water well locations and construction in the vicinity of the ash pond wastewater treatment systems:

- Illinois State Geological Survey (ISGS) -Water Well Database Query;
- Illinois State Water Survey (ISWS) Private Well Database and water well construction report request; and
- Illinois Division of Public Water Supply web-based Geographic System (GIS) files;
- ILWATER

The survey results are provided on Figure 9-18. There are no wells within the impacted aquifer downgradient of the LSQ. There are two water wells to the west of LSQ on Joliet #9 Generation Station property (owned by Midwest Generation) both of which are screened within the deeper aquifers beneath the Scales Shale and have had a successful compliance record during sampling in accordance with the drinking water regulations. There are 19 water wells located to the east of LSQ and/or Boyd's Quarry. All of these wells are side-gradient of the LSQ and are screened within the Silurian Dolomite. There are eight existing water wells to the south of LSQ and/or Boyd's Quarry. All of these wells were voluntarily replaced by Midwest Generation circa 2006 into the deeper Cambro-Ordovician aquifers beneath the Scales Shale due to the noted migration of groundwater to the southeast of LSQ associated with the dewatering activities at the Vulcan Quarry located to the southeast. There were an additional six wells located in that direction which are no longer present due

to the expansion of Vulcan Quarry mining (circled in dashed red line). Also circled with a red dashed line and identified as well locations A through F on Figure 9-18 are six wells that are incorrectly located within the ILWATER database or no they longer exist. Field inspections of these locations indicate no water wells present in those areas. Review of available well log information for wells A, B and C indicate actual well addresses outside of the noted search radius (i.e., well A is located at 513 Woodruf Rd. which is approximately 3,900 feet to the east of mapped location; well B is located at 2317 W. Jefferson Street in Joliet which is over 1 mile to the north-northwest; and well C which has an address of 100 Peru Street in Troy Grove, Illinois which is in the LaSalle-Ottawa, Illinois vicinity). Well D is a 1943 vintage well log with LSQ ownership but this well is no longer present. Wells E and F have an owner name but no address and there are no wells present in those areas.

A search of the Illinois Department of Natural Resources dedicated nature preserve database (<https://www2.illinois.gov/dnr/INPC/Pages/NaturePreserveDirectory.aspx>) was performed to determine whether there may be a nearby dedicated nature preserve. No dedicated nature preserves were identified in the vicinity of the subject CCR surface impoundment.

Based on the geology of the site presented in Section 9.1.1 and the above hydrogeology discussions, the primary contaminant migration pathway for a potential release from the subject CCR surface impoundment would be through the lower portion of the Silurian dolomite (shallow (S) zone) with movement towards the extraction well line along the southern periphery of the site and to the north towards the Des Plaines River. The S-zone was the focus of the detection monitoring network/program established under the initial Application submittal. There are no potable water wells downgradient of the subject CCR surface impoundment screened within the aquifer of concern. There are two deep water wells as noted above associated with former operations at the Joliet #9 power plant. Also, as previously discussed, there are no potable surface water intakes on the Des Plaines River either along or downstream of the subject site.

There is extensive quarterly groundwater quality data dating back to 1993 associated with the ongoing groundwater monitoring performed under the existing landfill operating permit for the LSQ. This data through the 4th quarter 2025 is provided in Attachment 9-2 in the form of time versus concentration curves. The LSQ, however, was also identified as being subject to the new federal requirements under Federal Register, Environmental Protection Agency, 40 CFR Parts 257.94, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule dated April 17, 2015 (Federal CCR Rule). To meet the Federal CCR Rule requirements, a detection monitoring network focused on the “shallow zone” dolomite, which was determined to be the primary zone of impacts and the upper-most aquifer, was developed based on the hydrogeology discussion in Section 9.1.2, and consists of wells R08S, G20S, G30S, R32S, G44S, G45S, G46S, G47S, G48S and T03S). It is noted that well T03S is no longer being considered for background statistical evaluation based on comment discussions with the Agency and is no longer part of the initial detection monitoring program as noted in Section 9.2 It will be part of an expanded nature and extent of impacts evaluation program also discussed in Section 9.2.

As required under the Federal CCR Rule, eight rounds of background sampling were completed for the monitoring wells within the monitoring network for the subject CCR surface impoundment. This included the full list of Appendix III (detection monitoring) and IV (assessment monitoring) parameters. All currently available CCR groundwater monitoring data available through 4th quarter 2025 is provided in Table 9-4.

9.2 Groundwater Monitoring System Design and Construction Plan (845.230(d)(2)(H)(ii))

A comprehensive monitoring well network has been established as part of ongoing landfill permit requirements and work completed in support of that landfill operating permit. The well depths were determined based on depth to groundwater and the base elevation of the LSQ being monitored. The well locations and depths were agreed upon by Illinois EPA Bureau of Land (BOL) as part of landfill operating permit review/approval. Based on review of the Federal and State CCR Rule, LSQ is also being regulated as an existing, incised CCR surface impoundment. Based on Illinois EPA discussions noted in the Introductory section above, the three noted zones (WT-, S- and D-zones) will have separate detection monitoring systems consisting of the following monitoring wells:

- WT-zone – Wells G45WT (background), G46WT, G47WT, G48WT, R16WT, R08WT, G30WT and G44WT. It is noted that water table wells G30WT and G44WT will be new monitoring wells and are in the process of being scheduled for installation.
- S-zone – Wells G45S (background), G46S, G47S, G48S, G44S, G20S, G30S, R32S and R08S.
- D-zone – Wells G45D (background), G46D, G47D, G48D, G44D, R16D, G30D and R08D.

The locations of these wells are shown on Figure 9-1. As discussed in Section 9.4 below, each zone will have separate Groundwater Protection Standards (GWPSs) calculated based on the above identified background well location sampling. This proposed monitoring well network will be utilized for determining whether potential leakage from the regulated unit may be causing or contributing to groundwater impacts in the vicinity of the units.

It is noted that, once this Operating Permit is formally approved by the Agency, the permit monitoring network may need to be expanded for the S-zone monitoring wells to define the nature and extent of any potential impacts identified, in accordance with Section 845.650(d)(1). If needed, additional monitoring wells for this purpose are already available based on work that was completed under the landfill permit as well as ongoing work for compliance under the Federal CCR Rule. The expanded nature and extent of impacts monitoring wells that may be sampled for this purpose are G31S, G33S, T01S, T02S, T03S, T04S, T05S, T06S, T08S, T09S, T12S, T13S, T14S, T15S (installation still being scheduled) and T16S. These well locations are also included on Figure 9-1.

As discussed in Section 9.4 below, the background sampling for the WT-zone and D-zone wells has not yet been completed as this added set of monitoring wells is in response to discussions with Illinois EPA detailed in the Introduction section above. Once the background sampling is completed for those zones, the data will be statistically evaluated and zone-specific GWPSs will be established. Additional nature and extent monitoring wells may need to be installed to define identified impacts above GWPSs within those zones, if any.

The various existing monitoring wells identified above have been installed by either Harza Engineering, Andrews Engineering or KPRG and Associates, Inc. (KPRG) at varying times. The wells were drilled using air drilling (rotary or hammer), water-wash rotary or sonic drilling techniques. Some of the well borings were cored using either “NX” or “HQ” series core barrels. The wells were completed with standard 2-inch inner-diameter, schedule 40 or 80 PVC casing, depending on well depth, with 10-feet of 0.010 slot PVC screen. Filter sand pack around each screen was extended to approximately 2-feet above the top of the well screen. The remainder of the annulus was backfilled with bentonite grout. Surface completions include stick-up (above grade two to three feet) locking protector casings set in concrete aprons. The wells may be further

protected by traffic bollards, as necessary. Boring logs and/or well construction summaries for these wells are provided in Attachment 9-1. Top-of-casing elevations were surveyed by an Illinois licensed surveyor and are included in the previously referenced Table 9-2.

Each of the identified monitoring wells within the sampling network is outfitted with a dedicated sampling system. Specifically, each well has a QED Environmental Systems (QED) Well Wizard Model P1101M dedicated sampling pump, or equivalent, with intake screens (0.010-inch slot). The screens are set within approximately one-foot of the base of the monitoring well.

In accordance with requirements under Section 845.630(g), Attachment 9-3 includes an Illinois licensed Professional Engineer certification of the above defined monitoring system.

9.3 Groundwater Sampling and Analysis Program (845.230)(d)(2)(I)(iii)

9.3.1 Sample Frequency

The LSQ is also regulated under the Federal CCR Rule. As such, all of the above defined CCR S-zone detection monitoring wells (upgradient and downgradient) have been being sampled on a quarterly basis starting the 4th quarter of 2015 for more than eight consecutive quarters for both Appendix III and Appendix IV parameters specified in the Federal CCR Rule. This is the same parameter listing as provided under the State CCR Rule Section 845.600(a) plus calcium. Illinois EPA also added turbidity field measurements as part of the State CCR Rule. Additional sampling has also been completed as part of assessment monitoring requirements under the Federal CCR Rule.

Currently, all S-zone wells within this CCR detection monitoring network are being sampled on a quarterly basis for all parameters specified in Section 845.600(a) plus calcium and turbidity. Between quarterly monitoring events, groundwater level measurements from all designated CCR monitoring wells (which will now include WT-zone and D-zone monitoring wells) will be also obtained and recorded. Water levels are also obtained concurrently from the Main Quarry and Boyd's Quarry through electronic pressure transducers used to monitor ongoing water levels within those units.

Quarterly groundwater monitoring will continue during the active life of the impoundment and the post-closure care period or, if closure is by removal, then in accordance with monitoring frequency requirements under Section 845.740(b). It is noted that if after 5 years of quarterly monitoring it can be demonstrated that the facility meets the requirements specified in Section 845.650(b)(4), the owner can petition the Illinois EPA to shift the monitoring frequency to semi-annual.

9.3.2 Sampling Preparation and Calibrations

Prior to any sampling event, the Station's designated Environmental Specialist shall be notified in advance of sampling crew arrival so that any arrangements can be made, including security clearance and training.

Prior to sampling activities, and at intervals recommended by the manufacturer, all non-dedicated equipment shall be cleaned and calibrated. Specifically, the field parameter water quality meter to be used for pH, specific conductance, turbidity and temperature will be calibrated using standard reference solutions. In addition, an operational check of the electronic water level probe will also be performed by placing the probe into a bucket of water and ensuring that the audio signal is triggered when the sensor meets the water interface. The associated tape measure of the probe will also be checked for wear.

The monitoring network consists of all dedicated sampling equipment (QED Well Wizard P1101M, or equivalent). The controller used to operate individual bladder pumps will be checked and maintained prior to arrival at the site based on manufacturer specifications.

All lab sampling containers will be obtained directly from an Illinois certified laboratory. Upon arrival to the site, the monitoring wells will be assessed for structural integrity. Each well cover (either stick-up or flush mount) will be inspected for proper labels, locks, any damage and be cleared of any flora or fauna that may be on the well or in the vicinity that would affect the sample or the sampling operation. In addition to any other notable observations, all of the above shall be entered on the field sampling logs. Once the well is uncovered and unlocked, and the well casing inspected, the well head shall be inspected for damage and cleanliness. At that point, the well will be considered ready for sampling per procedures described below.

9.3.3 Groundwater Sample Collection

Prior to initiating sampling, a round of groundwater levels will be collected from each monitoring well using an electronic water level probe. The timeframe over which these water levels are collected should be minimized and should not exceed 8 hours. The depth to water will be measured to the nearest one-hundredth of a foot from the top of casing using an electronic water level meter. The water level probe should be properly decontaminated between each reading using procedures specified in Section 9.3.4.

All of the monitoring wells at this Station are equipped with dedicated, down-hole, bladder pumps. At the top of casing for each well is a manifold with air and water quick connects and a port for a water level meter probe to fit so that an undisturbed water level can be obtained. Immediately prior to sampling, the depth to water will be measured again to the nearest one-hundredth of a foot from the top of casing using an electronic water level indicator and recorded onto the field sampling logs. Once recorded, an air compressor and flow controller will be attached to the air side quick connect and disposable tubing attached to the discharge connection. The discharge tubing will be run to a flow-through cell of the water quality meter. A discharge line from the flow-through cell will be placed into a vessel to allow for the measurement of the volume of groundwater removed. The water quality meter will be attached within the flow-through cell that allows for real time readings of pH, specific conductivity and temperature. It is noted that a calibration check of the water quality meter should be performed at the start and end of each day of sampling and recorded in the field notes. If the meter calibration-check shows drift outside of manufacturer specifications, the meter should be recalibrated in the field using standard solutions per manufacturer requirements.

The air controller will be set to the necessary pressure and to the slowest pumping interval, approximately 50 second refill and 10 second pump (flow rates at this setting tend to be less than 100 milliliters/minute), and the compressor will be started. The intent of the low flow pumping will be to minimize drawdown in the well with an ideal goal of keeping the drawdown to 0.30 feet or less. Once the water has filled the flow-through cell, a reading of the parameters will be recorded. Readings will continue to be recorded until such time as all parameters are deemed stable for three consecutive measurements at which point a sample will be collected from the tubing prior to the flow-through cell. An unfiltered groundwater sample shall be collected directly from the water tubing after it is disconnected from the flow-through cell. The laboratory-provided bottles shall be properly filled. Once the sample is collected, the bottles shall be properly labeled and placed on ice as necessary.

If the well would pump dry prior to stabilized field parameter readings, the well will be allowed to recover for up to 24-hours at which point water sample collection will be initiated.

In the event that a dedicated bladder pump fails to work, the following procedures should be implemented:

- Pull the dedicated tubing and pump from the well and ensure that the tubing does not come in contact with the ground.
- Visually inspect the intake of the pump for clogging from sedimentation. If clogging is noted, clean the intake with distilled water. If there is no clogging, dismantle the pump casing and inspect the bladder for any holes, cracks or tears.
- If the bladder is determined to be compromised (i.e., wear has resulted in cracking or tearing), remove the bladder and replace it with a new bladder. Properly clean all parts of the pump using procedures described in Section 9.3.4, reassemble the pump and slowly lower it back down hole. Continue sampling as described above.
- If the entire pump is determined to have failed, a new pump will need to be ordered for replacement and a modified sampling procedure will be implemented as described below.

In the case of bladder pump failure, at a specific well during a sampling event, the alternate sampling method will be the use of a portable peristaltic pump (the pump itself does not go down-hole) assuming depth to water is less than 23 feet bgs. Clean disposable polyethylene tubing will be attached to the pump and the tubing will be slowly lowered down hole along with the water level probe. The pump will be operated at the lowest rate possible to achieve the same goals as for sampling described above (generally below 300 milliliters/minute, which is within the range of standard low flow protocols). Water will be collected in a clean glass jar for field parameter readings. Once stable field parameters are recorded, the sample will be collected directly onto laboratory prepared containers for analysis. Upon completion of sample collection, the water level meter and tubing should be removed from the well. The polyethylene tubing should be disconnected from the pump and discarded. The water level meter should be properly decontaminated as specified in Section 9.3.4.

If depth to water is such that a peristaltic pump cannot be used, a submersible pump will need to be used. The submersible pump must be properly cleaned as specified in Section 9.3.4 prior to placement down the well. All subsequent procedures will be the same as above. The alternate sampling pump use will be recorded on the field data log for that well and noted in any subsequent reporting summary.

9.3.4 Equipment Decontamination

Any equipment that is used down-hole at more than one sampling location must be thoroughly decontaminated between uses. Based on procedures described above, only the water level meter is anticipated to be in this category; however, if a submersible pump needs to be used during a particular sampling event due to dedicated pump failure (see Section 9.3.3), these procedures will also apply. The water level meter probe and any measuring tape, or any other non-dedicated equipment that may need to be placed down the well extending below the water surface, will need to be cleaned with an Alconox solution, or equivalent, wash followed by a double rinse with distilled water. Any pump tubing that is not dedicated should be discarded and only clean tubing should be used down-hole.

9.3.5 Sample Preservation, Chain-of-Custody and Shipment

Since measurement of total recoverable metals is required by the State CCR Rule, the samples will not be filtered prior to collection. This will facilitate the analysis to capture both the particulate fraction and dissolved fraction of metals in natural groundwater. Groundwater samples will be collected directly into Illinois certified laboratory provided containers. Those containers will be prepared by the laboratory to contain any necessary

chemical preservation. The samples shall be stored at temperatures required by the lab following sample collection. Table 9-5 includes a summary of sample bottle requirements, preservatives and holding times

All groundwater samples collected shall be transferred to the laboratory under proper COC procedures. The laboratory provided COC, completed with all pertinent information, shall be maintained from sample collection through receipt by the laboratory. The information shall include, but is not limited to, the following:

Project name and number, state samples collected in, sample name and type, time and date collected, analysis requested, and printed name and signatures of person(s) sampling.

The COC shall be completed and properly relinquished by the field sampler(s) with all samples clearly printed or typed.

All samples will be either delivered directly to the laboratory or be shipped using Federal Express or a similar overnight service. It should be noted that Total Dissolved Solids (TDS) analysis has a 7-day holding time. TDS samples should be shipped to the laboratory within 72 hours after collection. All other holding times for the specified parameters are long enough to facilitate one shipment after the full round of sampling is complete.

9.3.6 Analytical Methods

A list of the analytical methods to be used by the laboratory for each specified parameter is included in the above referenced Table 9-5. Individual detection limits for the parameters may change slightly from sample to sample depending on potential matrix interferences with a sample (e.g., amount of suspended solids/sediment) and/or the concentration of the constituent in the sample. However, the base detection limits will be set at or below the applicable Illinois Class I Drinking Water Standards as defined in Section 845.600(a)(1) for that compound which are also provided in Table 9-5.

9.3.7 Quality Assurance and Quality Control

Laboratory

Only an Illinois certified analytical laboratory will be used for sample analysis. The laboratory will be conducting their work under their specific approved Quality Assurance and Quality Control (QA/QC) program. A copy of their program can be available upon request. A standard Level II data documentation package will be included in all subsequent reporting; however, the lab will be requested to also provide a Level IV data documentation package (i.e., U.S. EPA Contract Laboratory Protocol equivalent) in the event more detailed data validation/evaluation is deemed necessary.

Field

The QA/QC program for field work will include the collection of duplicates. The duplicate will be collected from a random well during every sampling event in which more than three (3) samples are collected.

Upon receipt of the analytical data, a determination will be made if the duplicate is consistent with the sample collected from the well/point. A generally acceptable range for groundwater samples is +/- 30 percent. If outside the acceptable range, a resample may be determined to be necessary and reanalyzed. If there are any questions regarding the duplicate or other reported analytical QA/QC runs, the laboratory will be contacted to determine the effect on data quality, if any, and usability. If necessary, a specific well may need to be re-sampled.

9.3.8 Statistical Methods

A proposed statistical evaluation plan meeting the requirements specified in Section 845.640(f) is provided in Attachment 9-4 along with a certification of the plan by an Illinois licensed Professional Engineer. It is noted that this plan has been updated to reflect the changes below in the groundwater monitoring network.

9.4 Groundwater Monitoring Program Section (845.230)(d)(2)(I)(iv)

The groundwater sample and water level collection frequency is discussed in Section 9.3.1 above. As previously noted, the LSQ unit will include the following initial detection monitoring system:

- WT-zone – Wells G45WT (background), G46WT, G47WT, G48WT, R16WT, R08WT, G30WT and G44WT. It is noted that water table wells G30WT and G44WT will be new monitoring wells and are in the process of being scheduled for installation.
- S-zone – Wells G45S (background), G46S, G47S, G48S, G44S, G20S, G30S, R32S and R08S.
- D-zone – Wells G45D (background), G46D, G47D, G48D, G44D, R16D, G30D and R08D.

Quarterly sampling of the S-zone monitoring wells has been routinely completed since the passing of the Federal Rule in 2015 and the State CCR Rule in April 2021. All available CCR monitoring data through the end of the fourth quarter 2025 is summarized in Table 9-4.

As requested by Illinois EPA for this Application revision, the 12 most recent rounds of groundwater sampling for the S-zone wells were used from background monitoring well G45S to recalculate the S-zone specific GWPSs in accordance with Section 845.600(a)(2). The proposed S-zone GWPSs are summarized in Table 9-6. The background concentrations noted in Table 9-6 were calculated using the statistical evaluation approach noted in Section 9.3.8 and provided in Attachment 9-4. A presentation of the statistical evaluations which resulted in the background concentration calculations is provided in Attachment 9-5.

It is noted that the WT-zone and D-zone monitoring wells are being added to the initial monitoring program based on discussion with Illinois EPA (see Introduction section above). Monitoring wells G45WT and G45D will be the background wells, respectively, for these two zones. The zone-specific background data set will be established after the initial eight rounds of sampling have been completed from those wells. The data will be evaluated using the statistical evaluation approach noted in Section 9.3.8 and provided in Attachment 9-4. Consistent with an approved Application for Initial Operating Permit for another Station which required development of a new background dataset and calculation of new GWPSs, the WT-zone and D-zone specific GWPSs will be calculated and submitted to EPA within 640 days of the effective date of the approved Operating Permit.

Once the proposed GWPSs presented in this permit application are approved by Illinois EPA, these values will be used for all subsequent groundwater monitoring data comparisons. Monitoring will continue on a quarterly basis for all constituents specified in Section 845.600(a)(1) plus calcium and turbidity. In accordance with Section 845.610(b)(3)(D), a data summary report will be submitted to Illinois EPA within 60-days of receipt of all analytical data which will include a groundwater flow map for the quarterly sampling event, summary of water level elevations collected during the reporting period (monthly measurements), and a data summary including summary data tables with a comparison against the established/approved GWPSs. This report will also be placed in the facility's operating record.

If during a monitoring event, a constituent(s) is/are detected above an established/approved GWPS, that well will be resampled. If the resample data confirms that the constituent(s) concentration(s) is/are above the GWPS then the following will occur:

- Notify the Agency which constituent exceeded the groundwater protection standard and place the notification in the facility's operating record.
- Characterize the nature and extent of the potential release and any relevant site conditions that may affect the remedy evaluation/selection. This characterization must meet the requirements set forth under Section 845.650(d)(1).
- If groundwater impacts extend off-site, provide off-site landowner/resident notifications as specified under Section 845.650(d)(2) and place the notifications into the facility's operating record. This must occur within no more than 30-days of determination that a GWPS has been exceeded.
- An Alternate Source Demonstration (ASD) may be initiated and completed for submittal to Illinois EPA review/approval as allowed under Section 845.650(e). Place the ASD into the facility's operating record.
- Within 90-days of determining that a constituent(s) was detected above an established/approved GWPS at a downgradient waste boundary monitoring point, initiate an assessment of corrective measures meeting the requirements specified under Section 845.660 unless an ASD is submitted in accordance with Section 845.650(d)(2) and subsequently approved by the Illinois EPA.

As noted in Section 9.2, once this Revised Application for Operating Permit is approved by the Agency, the permit monitoring network may need to be expanded for the S-zone to define the nature and extent of any potential impacts within that zone, as required under Section 845.650(d)(1), relative to the approved S-zone GWPSs. If needed, the expanded monitoring well system that may be considered for this purpose is already in place and is identified in Section 9.2. Based on the results of any expanded sampling, either the full extent of the S-zone impacts will be sufficiently defined, or additional wells may be needed to complete the definition of impacts.

Once WT-zone and D-zone specific GWPSs are established as discussed above, and depending on the analytical results from downgradient monitoring wells within those zones, additional nature and extent of impacts definition may also be required for those zones.

By no later January 31st of each year, an Annual Groundwater Monitoring and Corrective Action Report will be prepared for inclusion as part of an Annual Consolidated Report for the facility. The Annual Groundwater Monitoring and Corrective Action Report will meet the requirements set forth under Section 845.610(e)(1 through 4). The Annual Consolidated Report will be placed into the facility's operating record.

10.0 Written Closure Plan, 845.230(d)(2)(J)

Pursuant to Section 845.720(a)(1), because the LSQ is required to close under Section 845.700, no written preliminary closure plan is required. 35 Ill. Adm. Code 845.720(a)(1). Further, Midwest Generation timely submitted a Final Application for Initial Construction Permit for the Joliet #9 Generating Station on January 28, 2022 for closure of the LSQ unit, rendering any preliminary plan moot. See *Roanoke River Basin Ass'n v. Duke Energy Progress, LLC*, 2018 U.S. Dist. LEXIS 52991, *18-19 (M.D.N.C. 2018) (Court dismissed complaint regarding CCR unit in part because claim regarding initial closure plan was not final).

11.0 Post-Closure Care Plan, 845.230(d)(2)(K)

Pursuant to Section 845.720(a), because the LSQ is required to close under Section 845.700, no written preliminary post-closure care plan is required. Midwest Generation included the post-closure care plan in its Application for Initial Construction Permit – Joliet #9 Generating Station, timely submitted on January 28, 2022. See Section 10.0.

12.0 Liner Certification, 845.230(d)(2)(L)

LSQ does not comply with the liner requirements of Section 845.400. The base of LSQ consists of Silurian Dolomite and does not have a distinct upper liner component or lower liner component. The Silurian Dolomite present in the base of LSQ was evaluated against the liner design criteria using the process outlined in Section 845.400(c) to determine if LSQ is considered lined or unlined. The calculations showing the flow rate calculations and comparison are provided in Attachment 12. The calculations indicate that the base of LSQ does not comply with the requirements of Section 845.400 and the surface impoundment is considered unlined.

13.0 History of Known Exceedances, 845.230(d)(2)(M)

As previously noted in the introduction, there is no Attachment with supporting documentation for this Section since the referenced data is provided in Attachment 9 documentation. The Lincoln Stone Quarry has been, and still currently is operating as a landfill since 1993 under the oversight of the Illinois EPA Bureau of Land (Landfill Permit No. 1994-241-LFM). The facility is currently operating under Modification No. 24 of that permit. Under that permit, Applicable Groundwater Quality Standards (AGQs) were developed based on statistical evaluations, performed as part of the permit application by the operator of the facility at that time, of existing groundwater quality at that time. The groundwater monitoring parameters specified in the landfill operating permit include primarily dissolved constituents as opposed to total analyses as required under the Federal and State CCR Rules, and that list of parameters is slightly different than the list required under the State CCR Rule. However, there are three parameters within the landfill permit, which are collected and analyzed as “total” constituents that also are part of the Section 845.600 list of constituents. These are barium, lead, and mercury. A review of the landfill operating permit data for these three parameters indicates no confirmed detections above the Section 845.600 standards for barium or mercury and four confirmed detections of lead; one at well G31S in the second quarter of 2002; two at well G33S in the second quarter 2012 and the other in the second quarter 2013; and one at well G39S in the second quarter 2018. It is noted that these were only one-time confirmed detections above the noted standards with all prior and subsequent sampling data being below the standards.

The existing CCR data for the LSQ groundwater monitoring network was presented and discussed in Section 9 of this revised operating permit application (see Table 9-4). Relative to the most recent round of CCR groundwater monitoring data referenced in that Section (4th quarter 2025), the following downgradient S-zone monitoring wells are noted above the standards provided in Section 845.600(a):

- R08S (downgradient): Boron, sulfate, lithium and molybdenum.
- G30S (downgradient): Boron, sulfate and TDS.
- R32S (downgradient): Boron, lithium and molybdenum.
- G44S (downgradient): Molybdenum.
- G46S (downgradient): Boron sulfate, arsenic, lithium and molybdenum.
- G47S (downgradient): Boron, pH, sulfate, arsenic, lithium and molybdenum.
- G48S (downgradient): Boron, sulfate, arsenic and molybdenum.
- G31S (downgradient assessment): Sulfate, lithium and molybdenum.
- T01S (downgradient assessment): Boron, sulfate, and molybdenum.
- T02S (downgradient assessment): Boron, antimony, arsenic and molybdenum.
- T05S (downgradient assessment): Boron, pH, sulfate, TDS, arsenic and molybdenum.
- T08S (downgradient assessment): Boron, pH, sulfate, arsenic, lithium and molybdenum.
- T09S (downgradient assessment): Boron, lithium and molybdenum.
- T12S (downgradient assessment): Boron, arsenic, lithium and molybdenum.

All of the above wells except G44S, G31S, G33S, T09S and T12S are within the existing GMZ or Zone of Attenuation established as part of the landfill operating permit. Revised proposed GWPSs for the S-zone monitoring wells, which were developed in accordance with Section 845.600(b), are presented in Section 9.4 above. Once Illinois EPA reviews and approves those proposed GWPSs, those values will be used for subsequent groundwater monitoring data comparisons.

Also, as discussed in Section 9.4 above, zone-specific GWPSs will be generated for the WT-zone and D-zone monitoring wells. Once those are established and approved by EPA, those values will be used for subsequent groundwater monitoring data comparisons for those zones.

14.0 Financial Assurance, 845.230(d)(2)(N)

The financial assurance certification is included in Attachment 14. The financial assurance amount is based on the detailed estimated closure costs presented in the Application for Initial Construction Permit – Joliet #9 Generating station dated January 28, 2022 which was increased for inflation to current value as agreed upon as part of discussions with Illinois EPA as noted in the Introduction section above. The cost also includes added post-closure care costs associated with the modified drainage pumping that will be required to bypass the current gravity drainage system which routes water through the settling pond which is on property no longer owned by Midwest Generation.

15.0 Hazard Potential Classification Assessment, 845.230(d)(2)(O) & 845.440

LSQ is an incised surface impoundment; therefore, in accordance with Section 845.440(b), a hazard potential classification assessment is not required. This section does not have an attachment because a hazard

potential classification assessment was not required and, therefore, is not included with this operating permit application.

16.0 Structural Stability Assessment, 845.230(d)(2)(P) & 845.450

LSQ is an incised surface impoundment; therefore, in accordance with Section 845.450(e), a structural stability assessment is not required. This section does not have an attachment because a structural stability assessment was not required and, therefore, is not included with this operating permit application.

17.0 Safety Factor Assessment, 845.230(d)(2)(Q) & 845.460(b)

LSQ is an incised surface impoundment; therefore, in accordance with Section 845.460(e), a safety factor assessment is not required. This section does not have an attachment because a safety factor assessment was not required and, therefore, is not included with this operating permit application.

18.0 Inflow Design Flood Control System Plan, 845.230(d)(2)(R) & 845.510(c)(3)

An Inflow Design Flood Control System Plan was updated by Geosyntec for LSQ in September 2025 in accordance with 845.510 and is included in Attachment 18.

19.0 Safety and Health Plan, 845.230(d)(2)(S) & 845.530

A Safety and Health Plan in accordance with Section 845.530 has been completed and included in Attachment 19.

20.0 Closure Priority Categorization, 845.230(d)(2)(T) & 845.700(g)

In accordance with the requirements of Section 845.700(c), the category designation for LSQ is Category 3. The Category 3 designation for LSQ is based on the following:

- LSQ is an inactive CCR surface impoundment.
- There are no potable water supply wells or setbacks of existing potable water supply wells downgradient of LSQ. As such, Midwest Generation is not aware of any imminent threat to human health or the environment.
- Midwest Generation used the Illinois EPA EJ Start tool found at <https://illinois-epa.maps.arcgis.com/apps/webappviewer/index.html?id=f154845da68a4a3f837cd3b880b0233c> to determine that the Joliet #9 Generating Station (1601 S. Patterson Rd, Joliet 60436) LSQ is within one mile of an area of environmental justice concern.

TABLES

Table 2. Lincoln Stone Quarry/Joliet 9 Generating Station
Lincoln Stone Quarry CCR Chemical Constituents Analytical Results

Parameter Name	Slag Sample 8/31/2021	Bottom Ash Sample 8/31/2021
Antimony	<1.8	<1.8 F1
Arsenic	<0.88	1.5 F1
Barium	4,400	3,000
Beryllium	3.3	1.5 F1
Boron	110	130 F1 V
Cadmium	<0.18	<0.18
Calcium	110,000	100,000
Chloride	<20	<20
Chromium	37	12 F1
Cobalt	20	15
Fluoride	<1.0	<1.0
Lead	0.67	5.6
Lithium	32	20 V
Mercury	<0.015	<0.016
Molybdenum	<0.88	1.1 F1
Selenium	<0.88	<0.89 F1
Sulfate	<2.0	560
Thallium	3.6	2.9
Radium 226	2.41	1.54
Radium 228	1.97	1.63
Radium 226 & 228	4.38	3.17

Notes:

All results are in milligrams per kilogram (mg/kg), except for radium, which is pCi/L

F1 - MS and/or MSD recovery exceeds control limits

V - Serial Dilution exceeds the control limits

Table 9-1. Summary of Local Precipitation Data - Midwest Generation, LLC, Joliet #9 Lincoln Stone Quarry

Joliet #9 Lincoln Stone Quarry	
Month	Average Monthly Precipitation* (inches)
January	1.09
February	1.27
March	2.01
April	3.66
May	3.9
June	4.65
July	4.41
August	4.08
September	3.02
October	3.09
November	2.4
December	1.81

Notes:

* - Historical precipitation data was obtained from the National Oceanic and Atmospheric Administration. Precipitation data was averaged from four stations located within Joliet and Elgin, Illinois. Dates of precipitation data range from 1894-2020.

Table 9-2. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9.

Well ID	Date ¹	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
R08S	Nov-2015	578.65	66.74	511.91
	May-2016	578.65	67.02	511.63
	Jun-2016	578.65	67.50	511.15
	Aug-2016	578.65	67.47	511.18
	Nov-2016	578.65	67.84	510.81
	Feb-2017	578.65	69.28	509.37
	May-2017	578.65	67.56	511.09
	Jul-2017	578.65	67.54	511.11
	Sep-2017	578.65	65.72	512.93
	Nov-2017	578.65	64.83	513.82
	Mar-2018	578.65	65.12	513.53
	May-2018	578.65	65.31	513.34
	Oct-2018	578.62	65.48	513.14
	May-2019	578.62	67.24	511.38
	Nov-2019	578.62	66.78	511.84
	Apr-2020	578.62	65.63	512.99
	Oct-2020	578.62	68.14	510.48
	Apr-2021	578.62	69.20	509.42
	May-2021	578.62	68.06	510.56
	Jun-2021	578.62	68.49	510.13
	Jul-2021	578.62	66.54	512.08
	Aug-2021	578.62	67.38	511.24
	Sep-2022	578.62	67.15	511.47
	Oct-2021	578.62	68.05	510.57
	Nov-2021	578.62	66.18	512.44
	Dec-2021	578.62	69.45	509.17
	Jan-2022	578.62	66.75	511.87
	Feb-2022	578.62	67.19	511.43
	Mar-2022	578.62	66.09	512.53
	Apr-2022	578.62	66.96	511.66
	May-2022	578.62	67.58	511.04
	Jun-2022	578.62	68.20	510.42
	Jul-2022	578.62	66.21	512.41
	Aug-2022	578.62	65.86	512.76
	Sep-2022	578.62	67.21	511.41
	Oct-2022	578.62	65.20	513.42
	Nov-2022	578.62	66.41	512.21
	Dec-2022	578.62	66.33	512.29
	Jan-2023	578.62	66.52	512.10
	Feb-2023	578.62	66.37	512.25
	Mar-2023	578.62	64.31	514.31
	Apr-2023	578.62	69.77	508.85
	May-2023	578.62	70.38	508.24
	Jun-2023	578.62	70.29	508.33
	Jul-2023	578.62	69.93	508.69
	Aug-2023	578.62	71.18	507.44
	Sep-2023	578.62	69.85	508.77
	Oct-2023	578.62	73.29	505.33
	Nov-2023	578.62	73.78	504.84
	Dec-2023	578.62	70.99	507.63
	Jan-2024	578.62	73.32	505.30
	Feb-2024	578.62	72.10	506.52
	Mar-2024	578.62	73.39	505.23
	Apr-2024	578.62	70.14	508.48
	May-2024	578.62	68.11	510.51
	Jun-2024	578.62	70.59	508.03
	Jul-2024	578.62	70.00	508.62
	Aug-2024	578.62	70.21	508.41
	Sep-2024	578.62	73.09	505.53
	Oct-2024	578.64	73.14	505.50
	Nov-2024	578.64	73.49	505.15
	Dec-2024	578.64	73.66	504.98
	Jan-2025	578.64	82.00	496.64
	Feb-2025	578.64	73.70	504.94
	Mar-2025	578.64	74.02	504.62
	Apr-2025	578.64	70.79	507.85
	May-2025	578.64	70.06	508.58
	Jun-2025	578.64	70.29	508.35
	Jul-2025	578.64	70.61	508.03
	Aug-2025	578.64	70.43	508.21
	Sep-2025	578.64	71.23	507.41
	Oct-2025	578.64	71.99	506.65
	Nov-2025	578.64	72.13	506.51
	Dec-2025	578.64	72.10	506.54

MSL - Mean Sea Level

TOC - Top of Casing

¹ - Date of water levels collected at beginning of quarter, actual sample date may vary.

NM - Not Measured

Table 9-2. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9.

Well ID	Date ¹	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
G205	Nov-2015	580.33	55.33	525.00
	May-2016	580.33	51.32	529.01
	Jun-2016	580.33	53.14	527.19
	Aug-2016	580.33	61.32	519.01
	Nov-2016	580.33	54.69	525.64
	Feb-2017	580.33	52.41	527.92
	May-2017	580.33	46.06	534.27
	Jul-2017	580.33	47.85	532.48
	Sep-2017	580.33	49.02	531.31
	Nov-2017	580.33	52.57	527.76
	Mar-2018	580.33	46.65	533.68
	May-2018	580.33	48.83	531.50
	Oct-2018	580.91	49.46	531.45
	May-2019	580.91	39.03	541.88
	Nov-2019	580.91	41.82	539.09
	Apr-2020	580.91	41.69	539.22
	Oct-2020	580.91	46.74	534.17
	Apr-2021	580.91	45.69	535.22
	May-2021	580.91	46.15	534.76
	Jun-2021	580.91	48.50	532.41
	Jul-2021	580.91	56.19	524.72
	Aug-2021	580.91	64.02	516.89
	Sep-2021	580.91	72.75	508.16
	Oct-2021	580.91	78.99	501.92
	Nov-2021	580.91	77.54	503.37
	Dec-2021	580.91	129.36	451.55
	Jan-2022	580.91	72.71	508.20
	Feb-2022	580.91	67.38	513.53
	Mar-2022	580.91	55.70	525.21
	Apr-2022	580.91	60.53	520.38
	May-2022	580.91	67.59	513.32
	Jun-2022	580.91	67.32	513.59
	Jul-2022	580.91	73.05	507.86
	Aug-2022	580.91	71.72	509.19
	Sep-2022	580.91	73.94	506.97
	Oct-2022	580.91	79.84	501.07
	Nov-2022	580.91	82.86	498.05
	Dec-2022	580.91	72.26	508.65
	Jan-2023	580.91	69.70	511.21
	Feb-2023	580.91	66.19	514.72
	Mar-2023	580.91	55.27	525.64
	Apr-2023	580.91	55.07	525.84
	May-2023	580.91	50.69	530.22
	Jun-2023	580.91	53.60	527.31
	Jul-2023	580.91	60.64	520.27
	Aug-2023	580.91	57.12	523.79
	Sep-2023	580.91	58.38	522.53
	Oct-2023	580.91	55.38	525.53
	Nov-2023	580.91	53.54	527.37
	Dec-2023	580.91	54.10	526.81
	Jan-2024	580.91	56.36	524.55
	Feb-2024	580.91	51.01	529.90
	Mar-2024	580.91	61.25	519.66
	Apr-2024	580.91	54.29	526.62
	May-2024	580.91	48.51	532.40
	Jun-2024	580.91	47.98	532.93
	Jul-2024	580.91	53.79	527.12
	Aug-2024	580.91	55.15	525.76
	Sep-2024	580.91	73.09	507.82
	Oct-2024	580.79	57.02	523.77
	Nov-2024	580.79	69.99	510.80
	Dec-2024	580.79	68.05	512.74
	Jan-2025	580.79	67.75	513.04
	Feb-2025	580.79	72.23	508.56
	Mar-2025	580.79	69.12	511.67
	Apr-2025	580.79	76.70	504.09
	May-2025	580.79	78.29	502.50
	Jun-2025	580.79	73.23	507.56
	Jul-2025	580.79	73.88	506.91
	Aug-2025	580.79	72.03	508.76
	Sep-2025	580.79	64.48	516.31
	Oct-2025	580.79	68.34	512.45
	Nov-2025	580.79	67.58	513.21
	Dec-2025	580.79	64.46	516.33

MSL - Mean Sea Level

TOC - Top of Casing

¹ - Date of water levels collected at beginning of quarter, actual sample date may vary.

NM - Not Measured

Table 9-2. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9.

Well ID	Date ¹	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
G30S	Nov-2015	524.40	2.74	521.66
	May-2016	524.40	2.53	521.87
	Jun-2016	524.40	3.54	520.86
	Aug-2016	524.40	2.45	521.95
	Nov-2016	524.40	2.57	521.83
	Feb-2017	524.40	2.13	522.27
	May-2017	524.40	1.69	522.71
	Jul-2017	524.40	1.96	522.44
	Sep-2017	524.40	1.84	522.56
	Nov-2017	524.40	1.48	522.92
	Mar-2018	524.40	1.48	522.92
	May-2018	524.40	1.62	522.78
	Oct-2018	524.70	2.51	522.19
	May-2019	524.70	1.57	523.13
	Nov-2019	524.70	1.53	523.17
	Apr-2020	524.70	1.03	523.67
	Oct-2020	524.70	2.19	522.51
	Apr-2021	524.70	2.55	522.15
	May-2021	524.70	2.37	522.33
	Jun-2021	524.70	2.53	522.17
	Jul-2021	524.70	2.32	522.38
	Aug-2021	524.70	2.45	522.25
	Sep-2021	524.70	2.65	522.05
	Oct-2021	524.70	2.43	522.27
	Nov-2021	524.70	2.20	522.50
	Dec-2021	524.70	2.21	522.49
	Jan-2022	524.70	2.25	522.45
	Feb-2022	524.70	2.01	522.69
	Mar-2022	524.70	2.02	522.68
	Apr-2022	524.70	1.84	522.86
	May-2022	524.70	1.77	522.93
	Jun-2022	524.70	1.82	522.88
	Jul-2022	524.70	1.18	523.52
	Aug-2022	524.70	1.65	523.05
	Sep-2022	524.70	2.59	522.11
	Oct-2022	524.70	2.61	522.09
	Nov-2022	524.70	2.60	522.10
	Dec-2022	524.70	2.48	522.22
	Jan-2023	524.70	2.42	522.28
	Feb-2023	524.70	2.26	522.44
	Mar-2023	524.70	2.31	522.39
	Apr-2023	524.70	2.21	522.49
	May-2023	524.70	2.82	521.88
	Jun-2023	524.70	2.44	522.26
	Jul-2023	524.70	2.29	522.41
	Aug-2023	524.70	2.30	522.40
	Sep-2023	524.70	2.06	522.64
	Oct-2023	524.70	2.10	522.60
	Nov-2023	524.70	2.65	522.05
	Dec-2023	524.70	2.10	522.60
	Jan-2024	524.70	2.10	522.60
	Feb-2024	524.70	1.93	522.77
	Mar-2024	524.70	1.97	522.73
	Apr-2024	524.70	1.47	523.23
	May-2024	524.70	1.69	523.01
	Jun-2024	524.70	1.49	523.21
	Jul-2024	524.70	1.49	523.21
	Aug-2024	524.70	1.45	523.25
	Sep-2024	524.70	1.54	523.16
	Oct-2024	524.78	1.54	523.24
	Nov-2024	524.78	1.79	522.99
	Dec-2024	524.78	1.89	522.89
	Jan-2025	524.78	1.80	522.98
	Feb-2025	524.78	1.79	522.99
	Mar-2025	524.78	1.81	522.97
	Apr-2025	524.78	1.75	523.03
	May-2025	524.78	1.59	523.19
	Jun-2025	524.78	1.76	523.02
	Jul-2025	524.78	1.84	522.94
	Aug-2025	524.78	2.78	522.00
	Sep-2025	524.78	1.74	523.04
	Oct-2025	524.78	2.04	522.74
	Nov-2025	524.78	2.12	522.66
	Dec-2025	524.78	2.03	522.75

MSL - Mean Sea Level

TOC - Top of Casing

¹ - Date of water levels collected at beginning of quarter, actual sample date may vary.

NM - Not Measured

Table 9-2. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9.

Well ID	Date ¹	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
R32S	Nov-2015	536.81	19.99	516.82
	May-2016	536.81	19.72	517.09
	Jun-2016	536.81	20.51	516.30
	Aug-2016	536.81	20.51	516.30
	Nov-2016	536.81	20.24	516.57
	Feb-2017	536.81	21.12	515.69
	May-2017	536.81	19.33	517.48
	Jul-2017	536.81	19.38	517.43
	Sep-2017	536.81	17.91	518.90
	Nov-2017	536.81	16.32	520.49
	Mar-2018	536.81	16.98	519.83
	May-2018	536.81	20.26	516.55
	Oct-2018	536.99	18.32	518.67
	May-2019	536.99	19.28	517.71
	Nov-2019	536.99	19.09	517.90
	Apr-2020	536.99	17.74	519.25
	Oct-2020	536.99	20.76	516.23
	Apr-2021	536.99	22.06	514.93
	May-2021	536.99	21.41	515.58
	Jun-2021	536.99	21.19	515.80
	Jul-2021	536.99	19.69	517.30
	Aug-2021	536.99	NM	NM
	Sep-2021	536.99	21.18	515.81
	Oct-2021	536.99	20.91	516.08
	Nov-2021	536.99	19.17	517.82
	Dec-2021	536.99	21.74	515.25
	Jan-2022	536.99	19.69	517.30
	Feb-2022	536.99	20.06	516.93
	Mar-2022	536.99	19.68	517.31
	Apr-2022	536.99	19.80	517.19
	May-2022	536.99	20.09	516.90
	Jun-2022	536.99	20.49	516.50
	Jul-2022	536.99	18.70	518.29
	Aug-2022	536.99	20.59	516.40
	Sep-2022	536.99	20.17	516.82
	Oct-2022	536.99	18.28	518.71
	Nov-2022	536.99	19.28	517.71
	Dec-2022	536.99	18.35	518.64
	Jan-2023	536.99	19.31	517.68
	Feb-2023	536.99	19.36	517.63
	Mar-2023	536.99	22.18	514.81
	Apr-2023	536.99	21.92	515.07
	May-2023	536.99	22.41	514.58
	Jun-2023	536.99	22.35	514.64
	Jul-2023	536.99	22.15	514.84
	Aug-2023	536.99	22.95	514.04
	Sep-2023	536.99	22.34	514.65
	Oct-2023	536.99	24.92	512.07
	Nov-2023	536.99	25.28	511.71
	Dec-2023	536.99	22.74	514.25
	Jan-2024	536.99	24.81	512.18
	Feb-2024	536.99	24.35	512.64
	Mar-2024	536.99	24.73	512.26
	Apr-2024	536.99	21.93	515.06
	May-2024	536.99	20.11	516.88
	Jun-2024	536.99	22.13	514.86
	Jul-2024	536.99	21.60	515.39
	Aug-2024	536.99	21.74	515.25
	Sep-2024	536.99	24.06	512.93
	Oct-2024	537.04	24.10	512.94
	Nov-2024	537.04	24.83	512.21
	Dec-2024	537.04	24.85	512.19
	Jan-2025	537.04	24.58	512.46
	Feb-2025	537.04	24.90	512.14
	Mar-2025	537.04	25.13	511.91
	Apr-2025	537.04	22.65	514.39
	May-2025	537.04	22.00	515.04
	Jun-2025	537.04	22.24	514.80
	Jul-2025	537.04	22.31	514.73
	Aug-2025	537.04	22.25	514.79
	Sep-2025	537.04	22.91	514.13
	Oct-2025	537.04	23.81	513.23
	Nov-2025	537.04	24.01	513.03
	Dec-2025	537.04	23.98	513.06

MSL - Mean Sea Level

TOC - Top of Casing

¹ - Date of water levels collected at beginning of quarter, actual sample date may vary.

NM - Not Measured

Table 9-2. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9.

Well ID	Date ¹	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
G44S	Nov-2015	586.69	80.54	506.15
	May-2016	586.69	80.42	506.27
	Jun-2016	586.69	80.68	506.01
	Aug-2016	586.69	80.65	506.04
	Nov-2016	586.69	80.69	506.00
	Feb-2017	586.69	84.34	502.35
	May-2017	586.69	82.14	504.55
	Jul-2017	586.69	81.13	505.56
	Sep-2017	586.69	80.15	506.54
	Nov-2017	586.69	77.10	509.59
	Mar-2018	586.69	78.74	507.95
	May-2018	586.69	80.17	506.52
	Oct-2018	586.53	78.21	508.32
	May-2019	586.53	80.05	506.48
	Nov-2019	586.53	79.96	506.57
	Apr-2020	586.53	79.25	507.28
	Oct-2020	586.53	81.51	505.02
	Apr-2021	586.53	82.51	504.02
	May-2021	586.53	80.80	505.73
	Jun-2021	586.53	82.21	504.32
	Jul-2021	586.53	79.66	506.87
	Aug-2021	586.53	80.80	505.73
	Sep-2021	586.53	80.90	505.63
	Oct-2021	586.53	77.51	509.02
	Nov-2021	586.53	66.28	520.25
	Dec-2021	586.53	82.71	503.82
	Jan-2022	586.53	80.30	506.23
	Feb-2022	586.53	81.07	505.46
	Mar-2022	586.53	79.64	506.89
	Apr-2022	586.53	78.65	507.88
	May-2022	586.53	89.85	496.68
	Jun-2022	586.53	80.75	505.78
	Jul-2022	586.53	80.09	506.44
	Aug-2022	586.53	79.01	507.52
	Sep-2022	586.53	80.24	506.29
	Oct-2022	586.53	78.82	507.71
	Nov-2022	586.53	79.79	506.74
	Dec-2022	586.53	80.89	505.64
	Jan-2023	586.53	80.04	506.49
	Feb-2023	586.53	80.59	505.94
	Mar-2023	586.53	78.52	508.01
	Apr-2023	586.53	82.13	504.40
	May-2023	586.53	83.05	503.48
	Jun-2023	586.53	83.12	503.41
	Jul-2023	586.53	32.61	553.92
	Aug-2023	586.53	52.75	533.78
	Sep-2023	586.53	82.75	503.78
	Oct-2023	586.53	85.46	501.07
	Nov-2023	586.53	86.11	500.42
	Dec-2023	586.53	83.45	503.08
	Jan-2024	586.53	85.51	501.02
	Feb-2024	586.53	84.59	501.94
	Mar-2024	586.53	85.57	500.96
	Apr-2024	586.53	81.46	505.07
	May-2024	586.53	79.63	506.90
	Jun-2024	586.53	82.25	504.28
	Jul-2024	586.53	82.04	504.49
	Aug-2024	586.53	82.42	504.11
	Sep-2024	586.53	85.12	501.41
	Oct-2024	586.62	85.51	501.11
	Nov-2024	586.62	85.61	501.01
	Dec-2024	586.62	85.95	500.67
	Jan-2025	586.62	85.61	501.01
	Feb-2025	586.62	86.11	500.51
	Mar-2025	586.62	86.35	500.27
	Apr-2025	586.62	83.26	503.36
	May-2025	586.62	82.41	504.21
	Jun-2025	586.62	82.73	503.89
	Jul-2025	586.62	83.20	503.42
	Aug-2025	586.62	83.03	503.59
	Sep-2025	586.62	83.60	503.02
	Oct-2025	586.62	84.23	502.39
	Nov-2025	586.62	84.51	502.11
	Dec-2025	586.62	84.46	502.16

MSL - Mean Sea Level

TOC - Top of Casing

¹ - Date of water levels collected at beginning of quarter, actual sample date may vary.

NM - Not Measured

Table 9-2. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9.

Well ID	Date ¹	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
G45S	Nov-2015	603.31	68.90	534.41
	May-2016	603.31	67.28	536.03
	Jun-2016	603.31	68.88	534.43
	Aug-2016	603.31	68.39	534.92
	Nov-2016	603.31	66.69	536.62
	Feb-2017	603.31	65.34	537.97
	May-2017	603.31	63.07	540.24
	Jul-2017	603.31	63.44	539.87
	Sep-2017	603.31	63.10	540.21
	Nov-2017	603.31	62.28	541.03
	Mar-2018	603.31	61.82	541.49
	May-2018	603.31	68.50	534.81
	Oct-2018	603.90	66.74	537.16
	May-2019	603.90	62.72	541.18
	Nov-2019	603.90	62.38	541.52
	Apr-2020	603.90	60.10	543.80
	Oct-2020	603.90	65.51	538.39
	Apr-2021	603.90	67.71	536.19
	May-2021	603.90	67.32	536.58
	Jun-2021	603.90	67.41	536.49
	Jul-2021	603.90	66.55	537.35
	Aug-2021	603.90	66.74	537.16
	Sep-2021	603.90	66.87	537.03
	Oct-2021	603.90	66.94	536.96
	Nov-2021	603.90	66.28	537.62
	Dec-2021	603.90	66.15	537.75
	Jan-2022	603.90	66.16	537.74
	Feb-2022	603.90	66.13	537.77
	Mar-2022	603.90	65.50	538.40
	Apr-2022	603.90	64.85	539.05
	May-2022	603.90	64.13	539.77
	Jun-2022	603.90	64.07	539.83
	Jul-2022	603.90	64.36	539.54
	Aug-2022	603.90	53.95	549.95
	Sep-2022	603.90	67.31	536.59
	Oct-2022	603.90	67.47	536.43
	Nov-2022	603.90	67.51	536.39
	Dec-2022	603.90	67.78	536.12
	Jan-2023	603.90	67.34	536.56
	Feb-2023	603.90	67.42	536.48
	Mar-2023	603.90	66.14	537.76
	Apr-2023	603.90	66.11	537.79
	May-2023	603.90	66.12	537.78
	Jun-2023	603.90	66.33	537.57
	Jul-2023	603.90	66.21	537.69
	Aug-2023	603.90	66.20	537.70
	Sep-2023	603.90	65.12	538.78
	Oct-2023	603.90	65.89	538.01
	Nov-2023	603.90	66.51	537.39
	Dec-2023	603.90	66.45	537.45
	Jan-2024	603.90	65.20	538.70
	Feb-2024	603.90	64.97	538.93
	Mar-2024	603.90	64.95	538.95
	Apr-2024	603.90	60.83	543.07
	May-2024	603.90	63.22	540.68
	Jun-2024	603.90	62.52	541.38
	Jul-2024	603.90	62.45	541.45
	Aug-2024	603.90	62.39	541.51
	Sep-2024	603.90	62.62	541.28
	Oct-2024	603.81	62.73	541.08
	Nov-2024	603.81	64.55	539.26
	Dec-2024	603.81	64.63	539.18
	Jan-2025	603.81	64.51	539.30
	Feb-2025	603.81	64.50	539.31
	Mar-2025	603.81	64.39	539.42
	Apr-2025	603.81	64.17	539.64
	May-2025	603.81	63.69	540.12
	Jun-2025	603.81	63.98	539.83
	Jul-2025	603.81	64.15	539.66
	Aug-2025	603.81	64.27	539.54
	Sep-2025	603.81	64.12	539.69
	Oct-2025	603.81	65.60	538.21
	Nov-2025	603.81	65.78	538.03
	Dec-2025	603.81	65.83	537.98

MSL - Mean Sea Level

TOC - Top of Casing

¹ - Date of water levels collected at beginning of quarter, actual sample date may vary.

NM - Not Measured

Table 9-2. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9.

Well ID	Date ¹	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
G46S	Nov-2015	601.32	95.78	505.54
	May-2016	601.32	96.74	504.58
	Jun-2016	601.32	97.31	504.01
	Aug-2016	601.32	97.32	504.00
	Nov-2016	601.32	97.50	503.82
	Feb-2017	601.32	98.14	503.18
	May-2017	601.32	98.43	502.89
	Jul-2017	601.32	98.96	502.36
	Sep-2017	601.32	96.61	504.71
	Nov-2017	601.32	95.65	505.67
	Mar-2018	601.32	96.80	504.52
	May-2018	601.32	95.59	505.73
	Oct-2018	601.43	91.34	510.09
	May-2019	601.43	101.40	500.03
	Nov-2019	601.43	100.01	503.83
	Apr-2020	601.43	100.19	501.24
	Oct-2020	601.43	101.44	499.99
	Apr-2021	601.43	103.09	498.34
	May-2021	601.43	99.02	502.41
	Jun-2021	601.43	100.03	501.40
	Jul-2021	601.43	94.99	506.44
	Aug-2021	601.43	99.46	501.97
	Sep-2021	601.43	99.09	502.34
	Oct-2021	601.43	100.36	501.07
	Nov-2021	601.43	95.22	506.21
	Dec-2021	601.43	105.28	496.15
	Jan-2022	601.43	95.79	505.64
	Feb-2022	601.43	95.75	505.68
	Mar-2022	601.43	95.71	505.72
	Apr-2022	601.43	105.41	496.02
	May-2022	601.43	102.83	498.60
	Jun-2022	601.43	103.40	498.03
	Jul-2022	601.43	105.51	495.92
	Aug-2022	601.43	107.49	493.94
	Sep-2022	601.43	96.60	504.83
	Oct-2022	601.43	92.39	509.04
	Nov-2022	601.43	93.24	508.19
	Dec-2022	601.43	93.90	507.53
	Jan-2023	601.43	94.61	506.82
	Feb-2023	601.43	95.79	505.64
	Mar-2023	601.43	91.99	509.44
	Apr-2023	601.43	106.56	494.87
	May-2023	601.43	108.96	492.47
	Jun-2023	601.43	104.26	497.17
	Jul-2023	601.43	105.51	495.92
	Aug-2023	601.43	105.75	495.68
	Sep-2023	601.43	106.12	495.31
	Oct-2023	601.43	107.45	493.98
	Nov-2023	601.43	112.32	489.11
	Dec-2023	601.43	109.48	491.95
	Jan-2024	601.43	111.39	490.04
	Feb-2024	601.43	111.22	490.21
	Mar-2024	601.43	109.54	491.89
	Apr-2024	601.43	105.54	495.89
	May-2024	601.43	98.68	502.75
	Jun-2024	601.43	102.09	499.34
	Jul-2024	601.43	101.72	499.71
	Aug-2024	601.43	101.13	500.30
	Sep-2024	601.43	108.30	493.13
	Oct-2024	601.32	113.33	487.99
	Nov-2024	601.32	109.53	491.79
	Dec-2024	601.32	108.79	492.53
	Jan-2025	601.32	111.90	489.42
	Feb-2025	601.32	108.94	492.38
	Mar-2025	601.32	113.22	488.10
	Apr-2025	601.32	110.63	490.69
	May-2025	601.32	107.74	493.58
	Jun-2025	601.32	105.96	495.36
	Jul-2025	601.32	101.95	499.37
	Aug-2025	601.32	100.84	500.48
	Sep-2025	601.32	102.50	498.82
	Oct-2025	601.32	103.32	498.00
	Nov-2025	601.32	103.73	497.59
	Dec-2025	601.32	103.51	497.81

MSL - Mean Sea Level

TOC - Top of Casing

¹ - Date of water levels collected at beginning of quarter, actual sample date may vary.

NM - Not Measured

Table 9-2. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9.

Well ID	Date ¹	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
G47S	Nov-2015	612.32	99.44	512.88
	May-2016	612.32	95.48	516.84
	Jun-2016	612.32	96.58	515.74
	Aug-2016	612.32	96.79	515.53
	Nov-2016	612.32	88.96	523.36
	Feb-2017	612.32	96.41	515.91
	May-2017	612.32	92.61	519.71
	Jul-2017	612.32	93.53	518.79
	Sep-2017	612.32	93.50	518.82
	Nov-2017	612.32	92.57	519.75
	Mar-2018	612.32	93.63	518.69
	May-2018	612.32	93.51	518.81
	Oct-2018	612.10	96.29	515.81
	May-2019	612.10	91.78	520.32
	Nov-2019	612.10	91.98	520.12
	Apr-2020	612.10	89.34	522.76
	Oct-2020	612.10	86.78	525.32
	Apr-2021	612.10	96.78	515.32
	May-2021	612.10	96.77	515.33
	Jun-2021	612.10	96.78	515.32
	Jul-2021	612.10	94.99	517.11
	Aug-2021	612.10	95.92	516.18
	Sep-2021	612.10	96.51	515.59
	Oct-2021	612.10	96.84	515.26
	Nov-2021	612.10	95.49	516.61
	Dec-2021	612.10	95.98	516.12
	Jan-2022	612.10	95.61	516.49
	Feb-2022	612.10	96.08	516.02
	Mar-2022	612.10	94.26	517.84
	Apr-2022	612.10	92.90	519.20
	May-2022	612.10	92.19	519.91
	Jun-2022	612.10	92.26	519.84
	Jul-2022	612.10	93.24	518.86
	Aug-2022	612.10	86.20	525.90
	Sep-2022	612.10	88.85	523.25
	Oct-2022	612.10	88.50	523.60
	Nov-2022	612.10	95.24	516.86
	Dec-2022	612.10	96.57	515.53
	Jan-2023	612.10	96.16	515.94
	Feb-2023	612.10	96.20	515.90
	Mar-2023	612.10	94.95	517.15
	Apr-2023	612.10	94.75	517.35
	May-2023	612.10	95.10	517.00
	Jun-2023	612.10	95.05	517.05
	Jul-2023	612.10	94.38	517.72
	Aug-2023	612.10	95.11	516.99
	Sep-2023	612.10	95.26	516.84
	Oct-2023	612.10	95.74	516.36
	Nov-2023	612.10	95.95	516.15
	Dec-2023	612.10	95.82	516.28
	Jan-2024	612.10	95.84	516.26
	Feb-2024	612.10	94.24	517.86
	Mar-2024	612.10	94.73	517.37
	Apr-2024	612.10	92.96	519.14
	May-2024	612.10	91.45	520.65
	Jun-2024	612.10	91.15	520.95
	Jul-2024	612.10	91.39	520.71
	Aug-2024	612.10	91.66	520.44
	Sep-2024	612.10	92.65	519.45
	Oct-2024	612.16	92.63	519.53
	Nov-2024	612.16	94.99	517.17
	Dec-2024	612.16	94.78	517.38
	Jan-2025	612.16	95.35	516.81
	Feb-2025	612.16	95.29	516.87
	Mar-2025	612.16	95.51	516.65
	Apr-2025	612.16	94.80	517.36
	May-2025	612.16	94.24	517.92
	Jun-2025	612.16	94.60	517.56
	Jul-2025	612.16	94.50	517.66
	Aug-2025	612.16	94.54	517.62
	Sep-2025	612.16	94.65	517.51
	Oct-2025	612.16	95.63	516.53
	Nov-2025	612.16	95.75	516.41
	Dec-2025	612.16	96.11	516.05

MSL - Mean Sea Level

TOC - Top of Casing

¹ - Date of water levels collected at beginning of quarter, actual sample date may vary.

NM - Not Measured

Table 9-2. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9.

Well ID	Date ¹	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
G48S	Nov-2015	620.77	106.83	513.94
	May-2016	620.77	105.20	515.57
	Jun-2016	620.77	104.95	515.82
	Aug-2016	620.77	104.77	516.00
	Nov-2016	620.77	102.41	518.36
	Feb-2017	620.77	103.05	517.72
	May-2017	620.77	100.06	520.71
	Jul-2017	620.77	102.31	518.46
	Sep-2017	620.77	102.88	517.89
	Nov-2017	620.77	100.83	519.94
	Mar-2018	620.77	99.77	521.00
	May-2018	620.77	100.74	520.03
	Oct-2018	620.78	105.79	514.99
	May-2019	620.78	98.18	522.60
	Nov-2019	620.78	98.30	522.48
	Apr-2020	620.78	95.54	525.24
	Oct-2020	620.78	100.63	520.15
	Apr-2021	620.78	104.98	515.80
	May-2021	620.78	103.69	517.09
	Jun-2021	620.78	NM	NM
	Jul-2021	620.78	100.85	519.93
	Aug-2021	620.78	95.92	524.86
	Sep-2021	620.78	105.19	515.59
	Oct-2021	620.78	106.32	514.46
	Nov-2021	620.78	103.91	516.87
	Dec-2021	620.78	105.09	515.69
	Jan-2022	620.78	104.97	515.81
	Feb-2022	620.78	105.59	515.19
	Mar-2022	620.78	104.27	516.51
	Apr-2022	620.78	101.51	519.27
	May-2022	620.78	101.03	519.75
	Jun-2022	620.78	101.51	519.27
	Jul-2022	620.78	102.06	518.72
	Aug-2022	620.78	99.48	521.30
	Sep-2022	620.78	104.86	515.92
	Oct-2022	620.78	105.38	515.40
	Nov-2022	620.78	105.42	515.36
	Dec-2022	620.78	105.61	515.17
	Jan-2023	620.78	104.83	515.95
	Feb-2023	620.78	104.72	516.06
	Mar-2023	620.78	103.74	517.04
	Apr-2023	620.78	103.35	517.43
	May-2023	620.78	104.10	516.68
	Jun-2023	620.78	104.53	516.25
	Jul-2023	620.78	103.51	517.27
	Aug-2023	620.78	103.54	517.24
	Sep-2023	620.78	103.25	517.53
	Oct-2023	620.78	103.04	517.74
	Nov-2023	620.78	103.26	517.52
	Dec-2023	620.78	104.71	516.07
	Jan-2024	620.78	104.38	516.40
	Feb-2024	620.78	102.75	518.03
	Mar-2024	620.78	103.99	516.79
	Apr-2024	620.78	102.04	518.74
	May-2024	620.78	99.81	520.97
	Jun-2024	620.78	100.03	520.75
	Jul-2024	620.78	100.05	520.73
	Aug-2024	620.78	101.24	519.54
	Sep-2024	620.78	101.72	519.06
	Oct-2024	620.73	102.90	517.83
	Nov-2024	620.73	105.00	515.73
	Dec-2024	620.73	104.79	515.94
	Jan-2025	620.73	104.45	516.28
	Feb-2025	620.73	104.18	516.55
	Mar-2025	620.73	104.08	516.65
	Apr-2025	620.73	103.34	517.39
	May-2025	620.73	104.10	516.63
	Jun-2025	620.73	104.84	515.89
	Jul-2025	620.73	105.43	515.30
	Aug-2025	620.73	105.72	515.01
	Sep-2025	620.73	105.48	515.25
	Oct-2025	620.73	105.81	514.92
	Nov-2025	620.73	105.71	515.02
	Dec-2025	620.73	105.79	514.94

MSL - Mean Sea Level

TOC - Top of Casing

¹ - Date of water levels collected at beginning of quarter, actual sample date may vary.

NM - Not Measured

Table 9-2. Groundwater Elevations, Midwest Generation, LLC, Joliet Station #9.

Well ID	Date ¹	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
T03S	Nov-2015	629.65	136.30	493.35
	May-2016	629.65	135.24	494.41
	Jun-2016	629.65	134.26	495.39
	Aug-2016	629.65	134.13	495.52
	Nov-2016	629.65	135.03	494.62
	Feb-2017	629.65	134.92	494.73
	May-2017	629.65	131.87	497.78
	Jul-2017	629.65	135.99	493.66
	Sep-2017	629.65	136.40	493.25
	Nov-2017	629.65	133.61	496.04
	Mar-2018	629.65	131.05	498.60
	May-2018	629.65	134.42	495.23
	Oct-2018	629.89	140.03	489.86
	May-2019	629.89	125.79	504.10
	Oct-2019	629.89	132.92	496.97
	Apr-2020	629.89	133.84	496.05
	Oct-2020	629.89	135.88	494.01
	Apr-2021	629.89	138.78	491.11
	May-2021	629.89	NM	NM
	Jun-2021	629.89	138.84	491.05
	Jul-2021	629.89	134.89	495.00
	Aug-2021	629.89	NM	NM
	Sep-2021	629.89	139.69	490.20
	Oct-2021	629.89	141.48	488.41
	Nov-2021	629.89	138.02	491.87
	Dec-2021	629.89	139.40	490.49
	Jan-2022	629.89	139.64	490.25
	Feb-2022	629.89	140.43	489.46
	Mar-2022	629.89	138.79	491.10
	Apr-2022	629.89	133.53	496.36
	May-2022	629.89	134.64	495.25
	Jun-2022	629.89	134.89	495.00
	Jul-2022	629.89	135.18	494.71
	Aug-2022	629.89	134.83	495.06
	Sep-2022	629.89	140.62	489.27
	Oct-2022	629.89	140.18	489.71
	Nov-2022	629.89	140.29	489.60
	Dec-2022	629.89	140.69	489.20
	Jan-2023	629.89	140.43	489.46
	Feb-2023	629.89	141.27	488.62
	Mar-2023	629.89	140.25	489.64
	Apr-2023	629.89	139.07	490.82
	May-2023	629.89	138.25	491.64
	Jun-2023	629.89	140.27	489.62
	Jul-2023	629.89	139.44	490.45
	Aug-2023	629.89	140.48	489.41
	Sep-2023	629.89	138.60	491.29
	Oct-2023	629.89	141.45	488.44
	Nov-2023	629.89	141.38	488.51
	Dec-2023	629.89	142.03	487.86
	Jan-2024	629.89	141.48	488.41
	Feb-2024	629.89	138.38	491.51
	Mar-2024	629.89	140.69	489.20
	Apr-2024	629.89	136.60	493.29
	May-2024	629.89	134.00	495.89
	Jun-2024	629.89	134.94	494.95
	Jul-2024	629.89	134.89	495.00
	Aug-2024	629.89	135.86	494.03
	Sep-2024	629.89	137.44	492.45
	Oct-2024	629.73	139.68	490.05
	Nov-2024	629.73	141.63	488.10
	Dec-2024	629.73	141.46	488.27
	Jan-2025	629.73	141.70	488.03
	Feb-2025	629.73	142.19	487.54
	Mar-2025	629.73	142.10	487.63
	Apr-2025	629.73	140.94	488.79
	May-2025	629.73	139.56	490.17
	Jun-2025	629.73	140.13	489.60
	Jul-2025	629.73	139.84	489.89
	Aug-2025	629.73	139.00	490.73
	Sep-2025	629.73	139.37	490.36
	Oct-2025	629.73	140.22	489.51
	Nov-2025	629.73	140.69	489.04
	Dec-2025	629.73	140.74	488.99

MSL - Mean Sea Level

TOC - Top of Casing

¹ - Date of water levels collected at beginning of quarter, actual sample date may vary.

NM - Not Measured

Table 9-3. Groundwater Flow Direction and Estimated Seepage Velocity/Flow Rate - Joliet #9 Generation Station (Lincoln Stone Quarry).

DATE	Natural Groundwater Flow Direction	Kavg (ft/sec)*	Average Hydraulic Gradient (ft/ft)	Porosity (unitless)**	Estimated Seepage Velocity (ft/day)
January-25	Northerly and Westerly	1.38E-05	0.0776	0.05	1.85
February-25	Northerly and Westerly	1.38E-05	0.0796	0.05	1.90
March-25	Northerly and Westerly	1.38E-05	0.0435	0.05	1.04
April-25	Northerly and Westerly	1.38E-05	0.0951	0.05	2.27
May-25	Northerly and Westerly	1.38E-05	0.1229	0.05	2.93
June-25	Northerly and Westerly	1.38E-05	0.0889	0.05	2.12
July-25	Northerly and Westerly	1.38E-05	0.0435	0.05	1.04
August-25	Northerly and Westerly	1.38E-05	0.0703	0.05	1.68
September-25	Northerly and Westerly	1.38E-05	0.0362	0.05	0.86
October-25	Northerly and Westerly	1.38E-05	0.0410	0.05	0.98
November-25	Northerly and Westerly	1.38E-05	0.0754	0.05	1.80
December-25	Northerly and Westerly	1.38E-05	0.0308	0.05	0.73

* Kavg - Average hydraulic conductivity (feet/second) from Revised Groundwater Impacts assessment Lincoln Stone Quarry, 3/13/2013.

** - Porosity estimate from Revised Groundwater Impacts assessment Lincoln Stone Quarry, 3/13/2013.

Table 9-4. CCR Groundwater Data - Midwest Generation, LLC, Joliet Station #9, 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 Combined	Selenium	Thallium	Turbidity
G45S up-gradient	11/20/15	0.81	120	180	0.35	7.20	360	810	< 0.0030	0.0081	0.044	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.036	< 0.00020	0.012	1.76	< 0.0025	< 0.0020	NA
	05/12/16	0.68	110	140	0.34	7.37	230	860	< 0.0030	0.0076	0.041	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.036	< 0.00020	0.010	3.01	< 0.0025	< 0.0020	NA
	06/30/16	0.48	87	110	0.34	7.50	170	670	< 0.0030	0.0075	0.031	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.034	< 0.00020	0.0080	2.05	< 0.0025	< 0.0020	NA
	08/25/16	0.47	94	100	0.35	7.28	170	790	< 0.0030	0.0076	0.036	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.031	< 0.00020	0.0086	1.91	< 0.0025	< 0.0020	NA
	11/16/16	0.41	91	90	0.33	7.34	170	620	< 0.0030	0.0079	0.033	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.0094	2.04	< 0.0025	< 0.0020	NA
	02/14/17	0.43	97	97	0.32	7.36	160	620	< 0.0030	0.0093	0.037	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.029	< 0.00020	0.0083	1.85	< 0.0025	< 0.0020	NA
	05/23/17	0.36	85	110	0.35	7.30	150	660	< 0.0030	0.0082	0.033	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.027	< 0.00020	0.0093	1.40	< 0.0025	< 0.0020	NA
	07/07/17	0.42	94	120	< 0.10	7.21	150	600	< 0.0030	0.0086	0.035	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.030	< 0.00020	0.0070	1.88	< 0.0025	< 0.0020	NA
	09/26/17	0.43	110	130	0.30	7.21	160	790	< 0.0030	0.010	0.040	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.029	< 0.00020	0.0079	2.14	< 0.0025	< 0.0020	NA
	11/21/17	0.34	96	130	0.33	7.29	180	700	< 0.0030	0.0094	0.038	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.0072	8.45	< 0.0025	< 0.0020	NA
	03/09/18	0.38	97	110	0.32	7.18	180	710	< 0.0030	0.0093	0.036	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	^< 0.00020	0.0080	1.89	< 0.0025	< 0.0020	NA
	05/21/18	0.76	110	150	0.33	7.00	230	970	NA	0.0072	0.047	NA	NA	NA	< 0.0010	< 0.00050	0.033	NA	0.013	2.37	< 0.0025	NA	NA
	12/07/18	0.46	91	120	0.33	7.02	100	740	NA	0.0090	0.034	NA	NA	NA	< 0.0010	< 0.00050	0.031	NA	0.010	1.91	< 0.0025	NA	NA
	06/28/19	0.39	96	130	0.33	7.51	120	720	NA	0.010	0.039	NA	NA	NA	< 0.0010	< 0.00050	0.032	NA	0.0087	1.99	< 0.0025	NA	NA
	11/14/19	0.48	110	170	0.33	7.33	170	830	NA	< 0.010	0.042	NA	NA	NA	< 0.0010	< 0.00050	0.034	NA	0.010	2.89	< 0.010	NA	NA
	06/26/20	0.62	130	220	0.33	7.21	240	970	NA	0.011	0.049	NA	NA	NA	< 0.0010	< 0.00050	0.039	NA	0.0088	3.1	< 0.0025	NA	NA
	12/11/20	0.70	120	180	0.38	7.16	220	760	NA	0.011	0.042	NA	NA	NA	< 0.0010	^+ < 0.00050	0.038	NA	0.012	1.88	< 0.0025	NA	NA
	03/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87
	04/05/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.33
	04/23/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.54
	518/2021	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.36
	06/28/21	0.44	91	110	0.35	7.20	150	680	< 3.0	0.010	0.034	< 1.0	< 0.50	< 5.0	< 0.0010	< 0.00050	0.031	< 0.00020	0.0083	2.14	< 0.0025	< 2.0	0.64
	07/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.40
	08/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.36
	09/23/21	0.39	85	110	0.35	7.43	140	690	< 0.0030	0.010	0.36	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.030	< 0.00020	0.0076	2.77	< 0.0025	< 0.0020	0.46
	12/16/21	0.34	84	87	0.36	7.35	130	510	< 0.0030	0.0092	0.037	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.0073	1.74	< 0.0025	< 0.0020	0.89
	03/16/22	< 0.50	130	86	0.36	7.35	130	700	< 0.0030	0.0018	0.035	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.075	< 0.00020	0.0092	2.92	< 0.0025	< 0.0020	0.98
	06/10/22	0.34	84	110	0.35	7.28	130	630	< 0.0030	0.0082	0.036	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.0072	2.17	< 0.0025	< 0.0020	0.03
	09/26/22	0.48	97	150	0.35	7.14	180	830	< 0.0030	0.0086	0.042	1+ ^+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.029	< 0.00020	0.011	2.63	< 0.0025	< 0.0020	0.29
	12/21/22	0.39	110	190	0.72	7.06	190	920	< 0.0030	0.010	0.050	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.029	< 0.00020	0.0089	2.91	< 0.0025	< 0.0020	2.04
	03/23/23	0.44	91	130	0.35	7.30	160	740	< 0.0030	0.010	0.040	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.030	< 0.00020	0.011	2.28	< 0.0025	< 0.0020	1.13
	06/30/23	0.44	89	120	0.36	7.23	150	610	< 0.0030	0.0094	0.038	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.0050	0.031	< 0.00020	0.012	1.88	< 0.0025	< 0.0020	0.42
	09/14/23	0.46	67	120	0.36	7.35	F1 150	600	< 0.0020	0.010	0.033	< 0.0010	< 0.00020	< 0.0050	< 0.00050	< 0.00050	0.026	< 0.00020	0.013	1.95	< 0.0050	< 0.0010	0.97
	12/20/23	0.50	81	130	0.35	7.48	160	680	^1+ < 0.0030	0.010	0.036	^+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.012	2.16	< 0.0025	< 0.0020	1.74
	03/12/24	0.39	84	110	0.36	7.49	150	640	^1+ < 0.0030	0.0087	0.035	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.013	2.46	< 0.0025	< 0.0020	0.58
	06/12/24	0.29	84	100	0.38	7.35	150	660	< 0.0030	0.0089	0.033	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.026	< 0.00020	0.010	1.76	< 0.0025	< 0.0020	0.79
	08/23/24	0.45	96	120	0.31	7.30	150	700	< 0.0030	0.0080	0.036	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.027	< 0.00020	0.0084	1.42	< 0.0025	< 0.0020	3.09
	11/26/24	0.52	110	130	0.36	7.31	160	850	< 0.0030	0.0084	0.045	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.027	< 0.00020	0.011	2.30	< 0.0025	< 0.0020	1.75
	03/26/25	0.38	92	120	0.37	7.41	160	710	< 0.0030	0.0088	0.038	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.026	< 0.00020	0.012	1.64	< 0.0025	< 0.0020	0.61
	06/12/25	0.45	87	130	0.37	7.26	160	710	< 0.0030	0.0081	0.038	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.012	2.17	< 0.0025	< 0.0020	0.78
	09/18/25	0.46	96	130	0.40	7.34	160	720	< 0.0030	0.0090	0.041	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.013	2.64	< 0.0025	< 0.0020	0.61
	12/26/25	0.39	95	95	0.41	7.29	170	690	< 0.0030	0.0088	0.038	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.013	2.03	< 0.0025	< 0.0020	0.16

Notes: All units are in mg/L with the exception of Radium (pCi/L).
B = Compound was found in blank and sample.
H = Sample preped or analyzed past holding time.
NA = Not Analyzed. No confirmation sample required.
F1 = MS and/or MSD Recovery outside of limits.

^+ = Continuing calibration verficiation outside limits. High bias.
^1+ = Initial verification calibration outside of limits, biased high.
^ = Denotes instrument related QC exceeds the control limits
* = LCS or LCSD is outside acceptance limits.

Table 9-4. CCR Groundwater Data - Midwest Generation, LLC, Joliet Station #9, 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 Combined	Selenium	Thallium	Turbidity
T03S up-gradient	11/23/15	6.9	130	77	0.19	7.80	520	740	< 0.0030	0.0019	0.052	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.14	< 0.00020	0.41	1.608	0.0061	< 0.0020	NA
	11/19/15	0.52	110	75	0.22	7.07	250	710	< 0.0030	0.0019	0.063	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.019	< 0.00020	0.026	1.101	< 0.0025	< 0.0020	NA
	05/05/16	0.84	100	100	0.21	7.16	190	820	< 0.0030	0.0013	0.081	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.018	< 0.00020	0.030	1.43	< 0.0025	< 0.0020	NA
	06/28/16	0.98	100	94	0.19	7.30	180	910	< 0.0030	0.0011	0.086	< 0.0010	< 0.00050	< 0.0050	0.0011	< 0.00050	0.017	< 0.00020	0.037	1.18	< 0.0025	< 0.0020	NA
	08/25/16	1.1	110	99	0.20	7.32	180	880	< 0.0030	< 0.0010	0.086	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.016	< 0.00020	0.043	1.54	< 0.0025	< 0.0020	NA
	11/17/16	1.3	120	100	0.19	7.14	150	860	< 0.0030	0.0012	0.096	< 0.0010	< 0.00050	< 0.0050	0.0012	< 0.00050	0.022	< 0.00020	0.14	1.61	< 0.0025	< 0.0020	NA
	02/15/17	1.0	98	110	0.19	7.36	230	810	< 0.0030	0.0011	0.086	< 0.0010	< 0.00050	< 0.0050	0.0013	< 0.00050	< 0.050	< 0.00020	0.12	0.938	< 0.0025	< 0.0020	NA
	05/22/17	1.4	110	78	0.23	7.25	160	740	< 0.0030	0.0017	B 0.088	^< 0.0010	< 0.00050	< 0.0050	0.0015	0.00230	0.019	< 0.00020	0.13	1.21	< 0.0025	< 0.0020	NA
	07/07/17	1.1	100	F1 71	< 0.10	7.32	180	710	< 0.0030	< 0.0010	0.078	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.019	< 0.00020	0.099	1.11	< 0.0025	< 0.0020	NA
	09/26/17	1.3	110	80	0.21	7.19	240	790	< 0.0030	0.0011	0.086	< 0.0010	< 0.00050	< 0.0050	0.0013	< 0.00050	0.018	< 0.00020	0.14	1.33	< 0.0025	< 0.0020	NA
	11/20/17	1.7	98	90	0.24	7.13	230	770	< 0.0030	0.0014	0.087	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.020	< 0.00020	0.20	1.59	< 0.0025	< 0.0020	NA
	03/07/18	1.5	110	110	0.23	7.34	250	900	< 0.0030	0.0023	0.093	< 0.0010	< 0.00050	< 0.0050	0.0013	< 0.00050	0.022	< 0.00020	0.26	1.30	< 0.0025	< 0.0020	NA
	05/17/18	1.8	100	82	0.24	7.07	210	890	NA	0.0010	0.087	NA	NA	NA	0.0013	< 0.00050	0.021	NA	0.24	1.25	< 0.0025	NA	NA
	12/11/18	1.8	100	140	0.23	6.96	160	890	NA	0.0014	0.095	NA	NA	NA	0.0012	< 0.00050	0.021	NA	0.27	1.31	< 0.0025	NA	NA
	06/24/19	2.7	100	89	0.27	7.17	260	830	NA	0.0020	0.090	NA	NA	NA	0.0010	< 0.00050	0.027	NA	0.37	1.33	< 0.0025	NA	NA
	10/28/19	1.5	100	73	0.25	7.19	< 500	780	NA	< 0.010	0.088	NA	NA	NA	0.0011	< 0.00500	0.026	NA	0.21	1.38	< 0.010	NA	NA
	06/23/20	2.3	97	74	0.33	7.29	240	770	NA	0.0024	0.093	NA	NA	NA	< 0.0010	< 0.00050	0.025	NA	0.23	1.65	< 0.0025	NA	NA
	12/15/20	1.4	140	F1 170	0.27	7.01	280	960	NA	0.0013	0.11	NA	NA	NA	0.0015	< 0.00050	0.031	NA	0.14	1.74	< 0.0025	NA	NA
	03/15/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.4
	04/01/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.44
	04/22/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	94
	05/17/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.47
	06/07/25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.47
	06/22/21	0.92	120	130	0.23	6.94	220	980	< 0.0030	0.0016	0.085	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.029	H < 0.00020	0.071	1.34	< 0.0025	< 0.0020	NA
	07/01/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.30
	08/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.34
	09/01/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.67
	09/20/21	1.2	110	110	0.21	7.45	250	640	< 0.0030	0.0014	0.083	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.029	< 0.00020	0.12	1.31	< 0.0025	< 0.0020	NA
	12/09/21	2.4	130	110	0.23	7.48	F1 280	870	< 0.0030	0.0011	0.085	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.026	< 0.00020	0.22	1.44	< 0.0025	< 0.0020	0.56
	03/14/22	3.6	31	110	0.22	7.37	280	1000	< 0.0030	0.016	0.041	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.032	< 0.00020	0.93	1.44	< 0.0025	< 0.0020	0.65
	06/13/22	1.7	130	160	0.21	7.44	260	980	< 0.0030	0.0015	0.11	< 0.0010	< 0.00050	< 0.0050	0.0014	< 0.00050	0.025	< 0.00020	0.17	1.46	< 0.0025	< 0.0020	-0.10
	09/26/22	2.2	110	110	0.21	7.00	260	810	< 0.0030	0.0014	0.084	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.22	2.12	< 0.0025	< 0.0020	0.53
	12/21/22	2.9	110	91	0.52	7.44	300	960	< 0.0030	0.0011	0.081	< 0.0010	< 0.00050	< 0.0050	0.0012	< 0.00050	0.028	< 0.00020	0.34	1.16	< 0.0025	< 0.0020	2.03
	03/20/23	3.0	110	100	0.21	7.22	320	890	< 0.0030	0.0011	0.079	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.033	< 0.00020	0.32	1.06	< 0.0025	< 0.0020	1.19
	06/30/23	2.1	120	120	0.20	7.40	230	850	< 0.0030	0.0021	0.077	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.0050	0.031	< 0.00020	0.16	2.17	< 0.0025	< 0.0020	0.39
	09/13/23	1.7	130	130	0.20	7.56	220	910	< 0.0020	< 0.0020	0.080	< 0.0010	< 0.00020	< 0.0050	0.0010	< 0.00050	0.026	< 0.00020	0.14	1.07	< 0.0050	< 0.0010	0.22
	12/12/23	1.7	120	120	0.18	7.42	220	940	< 0.0030	< 0.0010	0.075	< 0.0010	< 0.00050	< 0.0050	0.0011	< 0.00050	0.024	< 0.00020	0.14	1.54	< 0.0025	< 0.0020	1.23
	03/12/24	B 1.8	120	120	0.21	7.50	230	890	^1+ < 0.0030	0.0062	0.077	^1+ < 0.0010	< 0.00050	< 0.0050	0.0010	< 0.00050	0.027	< 0.00020	0.16	2.18	< 0.0025	< 0.0020	3.37
	06/21/24	1.3	100	120	0.21	7.23	190	970	< 0.0030	< 0.0010	0.064	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.017	< 0.00020	0.10	1.02	< 0.0025	< 0.0020	1.05
	09/04/24	1.3	130	120	0.17	7.58	190	850	< 0.0030	< 0.0010	0.076	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.025	< 0.00020	0.11	1.11	< 0.0025	< 0.0020	1.57
	11/27/24	0.47	120	110	0.18	7.52	140	840	< 0.0030	0.0010	0.067	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.018	< 0.00020	0.034	1.01	< 0.0025	< 0.0020	0.99
	03/24/25	0.52	120	110	0.21	7.36	190	910	< 0.0030	< 0.0010	0.065	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.020	< 0.00020	0.034	1.25	< 0.0025	< 0.0020	0.64
	06/16/25	0.44	110	120	0.21	7.07	170	800	< 0.0030	< 0.0010	0.055	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.022	1.28	< 0.0025	< 0.0020	0.38
	09/10/25	0.38	110	75	0.22	7.13	210	810	< 0.0030	< 0.0010	0.053	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.022	3.52	< 0.0025	< 0.0020	0.46
	12/23/25	0.58	140	61	0.22	7.06	400	980	< 0.0030	0.0015	0.060	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.034	< 0.00020	0.047	1.45	< 0.0025	< 0.0020	6.09

Notes: All units are in mg/L with the exception of Radium (pCi/L).

B = Compound was found in blank and sample.

H = Sample preped or analyzed past holding time.

NA = Not Analyzed. No confirmation sample required.

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

^+ = Continuing calibration verification outside limits. High bias.

^1+ = Initial verification calibration outside of limits, biased high.

^ = Denotes instrument related QC exceeds the control limits

* = LCS or LCSD is outside acceptance limits.

Table 9-4. CCR Groundwater Data - Midwest Generation, LLC, Joliet Station #9, 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 Combined	Selenium	Thallium	Turbidity
R08S down-gradient	11/23/15	6.9	130	77	0.19	7.80	520	740	< 0.0030	0.0019	0.052	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.14	< 0.00020	0.41	1.608	0.0061	< 0.0020	NA
	05/06/16	6.1	120	80	0.19	7.70	380	820	< 0.0030	0.0013	0.052	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.14	< 0.00020	0.39	1.08	0.0079	< 0.0020	NA
	06/28/16	6.8	130	89	0.18	7.49	320	960	< 0.0030	0.0019	0.056	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.14	< 0.00020	0.37	1.87	F1 0.0074	< 0.0020	NA
	08/25/16	6.3	120	84	0.19	7.54	350	890	< 0.0030	0.0015	0.053	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.13	< 0.00020	0.33	1.50	0.0032	< 0.0020	NA
	11/21/16	6.4	120	86	0.17	7.53	280	790	< 0.0030	0.0016	0.052	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.14	< 0.00020	0.36	2.13	0.0037	< 0.0020	NA
	02/14/17	5.4	150	220	0.17	7.60	280	1,000	< 0.0030	0.0020	0.081	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.12	< 0.00020	0.30	2.71	0.0029	< 0.0020	NA
	05/25/17	12	250	90	0.17	7.56	340	830	< 0.0060	0.0028	0.092	^< 0.0020	< 0.0010	< 0.010	< 0.0020	< 0.0010	0.25	< 0.00020	0.64	0.821	0.021	< 0.0040	NA
	07/06/17	6.3	140	87	0.17	7.62	350	830	< 0.0030	0.0020	0.052	< 0.0010	< 0.00050	< 0.0050	< 0.0010	^< 0.00050	0.14	< 0.00020	0.35	1.15	0.0054	^< 0.0020	NA
	09/25/17	7.3	140	81	0.15	7.57	390	840	< 0.0030	0.0020	0.048	< 0.0010	< 0.00050	< 0.0050	< 0.0010	0.00067	0.13	< 0.00020	0.38	1.27	0.0079	< 0.0020	NA
	11/21/17	7.3	130	89	0.15	8.05	380	800	< 0.0030	0.0017	0.046	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.14	< 0.00020	0.34	1.09	0.015	< 0.0020	NA
	03/08/18	7.4	150	83	0.14	8.62	420	850	< 0.0030	0.0016	0.050	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.15	< 0.00020	0.37	1.55	0.012	< 0.0020	NA
	05/18/18	7.7	140	82	0.14	8.25	320	920	NA	0.0013	0.046	NA	NA	NA	< 0.0010	< 0.00050	0.15	NA	0.35	1.22	0.017	NA	NA
	12/13/18	7.7	140	79	0.15	8.11	240	800	NA	0.0012	0.046	NA	NA	NA	< 0.0010	< 0.00050	0.15	NA	0.37	1.450	0.017	NA	NA
	06/19/19	8.5	140	83	0.14	8.10	360	820	NA	0.0013	0.044	NA	NA	NA	< 0.0010	< 0.00050	0.16	NA	0.37	1.5	0.015	NA	NA
	11/11/19	6.4	140	84	0.15	7.91	360	730	NA	< 0.010	0.044	NA	NA	NA	< 0.0010	< 0.00050	0.15	NA	0.34	1.31	0.013	NA	NA
	06/26/20	7.9	140	83	0.15	8.32	370	750	NA	0.0011	0.043	NA	NA	NA	< 0.0010	< 0.00050	0.14	NA	0.36	1.68	0.017	NA	NA
	12/14/20	8.0	130	88	0.18	8.15	400	700	NA	0.0015	0.040	NA	NA	NA	< 0.0010	< 0.00050	0.14	NA	0.38	1.53	0.0081	NA	NA
	03/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.19
	04/01/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46
	04/23/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.34
	05/18/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.24
	06/08/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.20
	06/23/21	7.6	140	79	0.16	8.07	430	810	< 0.0030	0.0011	0.042	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.15	H < 0.00020	0.37	1.46	0.011	< 0.0020	NA
	07/01/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17
	08/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.58
	09/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.42
	09/27/21	0.41	150	80	0.15	8.27	430	740	< 0.0030	0.0015	0.042	^+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.0079	< 0.00020	0.40	1.23	0.013	< 0.0020	NA
	12/14/21	7.8	150	77	0.15	8.37	410	830	< 0.0030	< 0.0010	0.042	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.14	< 0.00020	0.39	1.81	0.012	< 0.0020	0.57
	03/11/22	7.7	130	75	0.16	8.21	420	840	< 0.0030	0.0014	0.039	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.13	< 0.00020	0.37	2.33	0.0027	< 0.0020	0.52
	06/07/22	8.7	150	72	0.14	7.94	420	800	< 0.0030	0.0014	0.042	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.15	< 0.00020	0.40	1.33	0.012	< 0.0020	0.23
	09/19/22	8.4	140	79	0.14	8.47	430	780	< 0.0030	0.0013	0.038	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.15	< 0.00020	0.39	1.63	0.015	< 0.0020	0.36
	12/19/22	8.2	140	81	0.35	8.91	370	750	< 0.0030	0.0010	0.041	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.13	< 0.00020	0.37	1.9	0.010	< 0.0020	1.01
	03/22/23	7.6	150	77	0.15	8.39	450	880	< 0.0030	0.0012	0.043	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.16	< 0.00020	0.40	1.68	0.011	< 0.0020	1.41
	06/28/23	8.9	150	77	0.13	7.87	400	750	< 0.0030	0.0013	0.041	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.16	< 0.00020	0.38	1.44	0.013	< 0.0020	0.34
	09/07/23	7.0	130	81	0.13	8.05	410	760	< 0.0080	< 0.0020	0.036	< 0.0010	< 0.00020	< 0.0050	< 0.00050	< 0.00050	0.13	< 0.00020	0.34	0.950	0.0062	< 0.0040	0.15
	12/20/23	8.5	130	75	0.11	7.79	390	800	^1+ < 0.0030	0.0013	0.043	^+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.14	< 0.00020	0.34	2.06	0.0066	< 0.0020	3.33
	02/29/24	8.2	140	71	0.13	7.96	400	770	^1+ < 0.0030	0.0010	0.041	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.16	< 0.00020	0.36	1.91	0.011	< 0.0020	0.64
	06/19/24	8.1	140	71	0.12	7.87	400	800	< 0.0030	0.0010	0.042	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.13	< 0.00020	0.33	2.18	0.012	< 0.0020	0.40
	08/27/24	8.9	140	69	0.11	7.98	410	770	^1+ < 0.0030	0.0012	0.042	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.16	< 0.00020	0.40	1.65	0.010	< 0.0020	0.74
	11/20/24	8.0	140	67	0.11	7.86	380	800	< 0.0150	0.0010	0.039	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.15	< 0.00020	0.33	1.43	0.0049	< 0.0020	0.41
	03/24/25	6.1	140	64	0.14	7.79	320	F1 760	< 0.0030	0.0014	0.053	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.11	< 0.00020	0.24	1.47	0.0084	< 0.0020	0.52
	06/13/25	8.6	140	70	0.10	8.18	390	750	< 0.0030	0.0018	0.046	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.14	< 0.00020	0.30	1.64	0.0026	< 0.0020	0.63
	09/16/25	7.6	130	81	0.14	7.70	360	840	< 0.0030	0.0021	0.049	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.12	< 0.00020	0.27	2.49	0.0028	< 0.0020	0.61
	12/23/25	8.1	140	76	0.12	8.07	460	720	< 0.0030	0.0020	0.045	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.13	< 0.00020	0.33	2.43	< 0.0025	< 0.0020	0.46

Notes: All units are in mg/L with the exception of Radium (pCi/L).

B = Compound was found in blank and sample.

H = Sample preped or analyzed past holding time.

NA = Not Analyzed. No confirmation sample required.

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

^+ = Continuing calibration verficiation outside limits. High bias.

^1+ = Initial verification calibration outside of limits, biased high.

^ = Denotes instrument related QC exceeds the control limits

* = LCS or LCSD is outside acceptance limits.

Table 9-4. CCR Groundwater Data - Midwest Generation, LLC, Joliet Station #9, 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 Combined	Selenium	Thallium	Turbidity
G20S down-gradient	11/19/15	1.2	59	12	0.82	7.73	110	410	< 0.0030	< 0.0010	0.049	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.036	< 0.00020	0.0068	2.078	< 0.0025	< 0.0020	NA
	05/11/16	1.2	53	12	0.81	7.52	77	410	< 0.0030	< 0.0010	0.049	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.037	0.00027	0.011	2.52	< 0.0025	< 0.0020	NA
	06/29/16	1.2	54	12	0.82	7.38	69	460	< 0.0030	< 0.0010	0.051	< 0.0010	< 0.00050	< 0.0050	0.0011	< 0.00050	0.040	< 0.00020	0.014	2.79	< 0.0025	< 0.0020	NA
	08/23/16	1.3	56	13	0.81	7.41	67	420	< 0.0030	< 0.0010	0.047	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.039	< 0.00020	0.017	3.67	< 0.0025	< 0.0020	NA
	11/17/16	1.3	59	11	0.74	7.44	55	420	< 0.0030	< 0.0010	0.056	< 0.0010	< 0.00050	< 0.0050	0.0018	< 0.00050	0.042	< 0.00020	0.019	1.98	< 0.0025	< 0.0020	NA
	02/13/17	1.2	54	13	0.69	7.30	93	400	< 0.0030	< 0.0010	0.046	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.040	< 0.00020	0.018	2.44	< 0.0025	< 0.0020	NA
	05/24/17	1.3	55	12	0.81	7.45	66	430	< 0.0030	< 0.0010	0.046	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.038	< 0.00020	0.017	2.15	< 0.0025	< 0.0020	NA
	07/05/17	1.3	61	12	0.76	7.37	70	400	< 0.0030	< 0.0010	0.054	< 0.0010	< 0.00050	< 0.0050	0.0021	^< 0.00050	0.040	< 0.00020	0.019	1.83	< 0.0025	^< 0.0020	NA
	09/25/17	1.3	60	12	0.78	7.30	76	440	< 0.0030	< 0.0010	0.051	< 0.0010	< 0.00050	< 0.0050	0.0015	< 0.00050	0.036	< 0.00020	0.022	2.19	< 0.0025	< 0.0020	NA
	11/20/17	1.3	59	13	0.78	7.06	85	390	< 0.0030	< 0.0010	0.051	< 0.0010	< 0.00050	< 0.0050	0.0022	< 0.00050	0.041	< 0.00020	0.021	2.50	< 0.0025	< 0.0020	NA
	03/06/18	1.4	63	12	0.76	7.32	88	460	< 0.0030	< 0.0010	0.049	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.042	< 0.00020	0.021	2.83	< 0.0025	< 0.0020	NA
	05/16/18	1.2	61	12	0.75	7.06	87	410	NA	< 0.0010	0.049	NA	NA	NA	0.0024	^< 0.00050	0.040	NA	0.019	2.12	< 0.0025	NA	NA
	12/07/18	1.2	58	12	0.76	7.41	65	480	NA	< 0.0010	0.048	NA	NA	NA	0.0010	0.00480	0.042	NA	0.023	2.26	< 0.0025	NA	NA
	06/18/19	1.3	62	13	0.75	7.18	65	440	NA	< 0.0010	0.051	NA	NA	NA	0.0018	< 0.00050	0.041	NA	0.017	2.11	< 0.0025	NA	NA
	11/05/19	1.2	58	13	0.74	7.88	71	410	NA	< 0.0100	0.050	NA	NA	NA	0.0023	< 0.00050	0.044	NA	0.021	1.74	< 0.010	NA	NA
	06/24/20	1.3	58	13	0.79	7.81	63	360	NA	< 0.0100	0.045	NA	NA	NA	< 0.0010	< 0.00050	0.038	NA	0.019	2.07	< 0.0025	NA	NA
	12/11/20	1.4	61	14	0.89	7.41	69	390	NA	< 0.0010	0.043	NA	NA	NA	< 0.0010	^+< 0.00050	0.042	NA	0.022	2.16	< 0.0025	NA	NA
	03/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.32
	04/01/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.29
	04/22/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.14
	05/18/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.63
	06/08/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.20
	06/23/21	1.3	60	14	0.77	7.46	70	390	< 0.0030	< 0.0010	0.047	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.047	H < 0.00020	0.022	2.06	< 0.0025	< 0.0020	NA
	07/01/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.29
	08/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.32
	09/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48
	09/23/21	1.3	57	14	0.76	7.79	69	320	< 0.0030	< 0.0010	0.050	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.042	< 0.00020	0.024	1.97	< 0.0025	< 0.0020	NA
	12/10/21	1.4	60	14	0.77	8.33	69	360	< 0.0030	0.0019	0.045	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.041	< 0.00020	0.025	2.26	< 0.0025	< 0.0020	1.28
	03/15/22	1.4	110	15	0.75	7.49	74	500	< 0.0030	0.0010	0.083	< 0.0010	< 0.00050	< 0.0050	0.0010	< 0.00050	0.025	< 0.00020	0.28	2.34	< 0.0025	< 0.0020	0.46
	06/07/22	1.3	60	15	0.76	7.07	71	400	< 0.0030	< 0.0010	0.047	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.040	< 0.00020	0.016	3.55	< 0.0025	< 0.0020	0.50
	09/19/22	1.4	58	17	0.78	7.58	55 F1	410	< 0.0030	0.0017	0.090	< 0.0010	< 0.00050	< 0.0050	0.014	< 0.00050	0.039	< 0.00020	0.012	7.79	< 0.0025	< 0.0020	2.47
	11/08/22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.09	NA	NA	NA
	12/19/22	1.3	59	15	0.95	7.06	57	410	< 0.0030	< 0.0010	0.048	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.038	< 0.00020	0.0091	3.08	< 0.0025	< 0.0020	2.61
	03/14/23	1.3	62	16	0.75	7.53	64	410	< 0.0030	< 0.0010	0.050	< 0.0010	< 0.00050	< 0.0050	0.0015	< 0.00050	0.042	< 0.00020	0.010	3.06	< 0.0025	< 0.0020	0.39
	06/28/23	1.4	65	16	0.78	7.2	57	380	< 0.0030	< 0.0010	0.048	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00500	0.042	< 0.00020	0.012	3.40	< 0.0025	< 0.0020	0.25
	09/06/23	1.2	57	18	0.77	7.47	62	400	< 0.0020	< 0.0020	0.043	< 0.0010	< 0.00020	< 0.0050	< 0.00050	< 0.00050	0.033	< 0.00020	0.012	2.26	< 0.0050	< 0.0010	1.17
	12/11/23	1.3	54	16	0.72	7.36	67	420	< 0.0030	< 0.0010	0.045	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.040	< 0.00020	0.014	2.76	< 0.0025	< 0.0020	1.40
	02/29/24	1.3	63	17	0.79	7.61	65	370	^1+ < 0.0030	< 0.0010	0.049	^1+ < 0.0010	< 0.00050	< 0.0050	0.0011	< 0.00050	0.042	< 0.00020	0.016	2.51	< 0.0025	< 0.0020	4.18
	06/18/24	1.2	56	17	0.79	7.62	63	410	< 0.0030	0.0013	0.044	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.037	< 0.00020	0.015	2.64	< 0.0025	< 0.0020	0.80
	08/23/24	1.3	62	16	0.73	7.18	64	400	^1+ < 0.0030	< 0.0010	0.046	^+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.040	< 0.00020	0.020	2.11	< 0.0025	< 0.0020	0.39
	11/20/24	1.1	58	14	0.77	7.51	59	430	< 0.0030	< 0.0010	0.045	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.039	< 0.00020	0.017	2.01	< 0.0025	< 0.0020	0.77
	03/21/25	1.2	60	16	0.80	7.48	65	390	< 0.0030	< 0.0010	0.047	< 0.0010	< 0.00050	< 0.0050	^+ < 0.0010	< 0.00050	0.040	< 0.00020	0.018	2.26	< 0.0025	< 0.0020	2.39
	06/11/25	1.3	58	17	0.76	7.51	64	400	< 0.0030	< 0.0010	0.052	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.045	< 0.00020	0.018	3.00	< 0.0025	< 0.0020	0.27
	09/16/25	1.2	57	17	0.84	7.43	64	370	< 0.0030	< 0.0010	0.050	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.040	< 0.00020	0.015	2.37	< 0.0025	< 0.0020	0.41
	12/22/25	1.1	67	16	0.85	7.63	74	380	< 0.0030	< 0.0010	0.051	< 0.0010	< 0.00050	< 0.0050	0.0011	< 0.00050	0.040	< 0.00020	0.015	2.37	< 0.0025	< 0.0020	0.79

Notes: All units are in mg/L with the exception of Radium (pCi/L).

B = Compound was found in blank and sample.

H = Sample preped or analyzed past holding time.

NA = Not Analyzed. No confirmation sample required.

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

^+ = Continuing calibration verification outside limits. High bias.

^1+ = Initial verification calibration outside of limits, biased high.

^ = Denotes instrument related QC exceeds the control limits

* = LCS or LCSD is outside acceptance limits.

Table 9-4. CCR Groundwater Data - Midwest Generation, LLC, Joliet Station #9, 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 Combined	Selenium	Thallium	Turbidity
G30S down-gradient	11/20/15	5.8	63	190	1.3	7.46	580	1000	< 0.0030	0.014	0.041	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.022	< 0.00020	0.33	1.484	< 0.0025	< 0.0020	NA
	05/10/16	5.4	53	190	1.3	7.68	390	1100	< 0.0030	0.017	0.039	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.021	< 0.00020	0.30	1.41	< 0.0025	< 0.0020	NA
	06/30/16	5.2	60	F1 180	1.3	7.73	410	990	< 0.0030	0.013	0.040	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.30	1.17	< 0.0025	< 0.0020	NA
	08/25/16	5.7	59	F1 180	1.3	7.70	390	1100	< 0.0030	0.015	0.039	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.020	< 0.00020	0.31	1.87	< 0.0025	< 0.0020	NA
	11/18/16	6.4	57	170	1.2	8.04	320	1100	< 0.0030	0.016	0.043	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.33	2.36	< 0.0025	< 0.0020	NA
	02/14/17	5.4	62	190	1.2	7.70	450	1000	< 0.0030	0.011	0.042	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.021	< 0.00020	0.24	1.84	< 0.0025	< 0.0020	NA
	05/25/17	11	110	180	1.4	7.67	430	1100	< 0.0060	0.019	0.078	^< 0.0020	< 0.0010	< 0.010	< 0.0020	< 0.0010	0.040	< 0.00020	0.45	1.76	< 0.0050	< 0.0040	NA
	07/07/17	6.6	54	190	1.3	7.48	410	1100	< 0.0030	0.011	0.039	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.021	< 0.00020	0.26	1.59	< 0.0025	< 0.0020	NA
	09/26/17	6.7	62	190	1.3	8.07	460	1100	< 0.0030	0.011	0.041	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.021	< 0.00020	0.20	1.41	< 0.0025	< 0.0020	NA
	11/20/17	6.1	52	210	1.3	7.77	440	1100	< 0.0030	0.010	0.040	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.019	< 0.00020	0.19	1.73	< 0.0025	< 0.0020	NA
	03/07/18	5.1	56	200	1.3	7.97	470	1100	< 0.0030	0.011	0.043	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.019	< 0.00020	0.14	1.94	< 0.0025	< 0.0020	NA
	05/17/18	5.7	55	210	1.2	7.77	540	1100	NA	0.011	0.043	NA	NA	NA	< 0.0010	< 0.00050	0.021	NA	0.13	1.57	F1 < 0.0025	NA	NA
	12/15/18	5.8	57	200	1.2	7.99	200	1100	NA	0.0069	0.041	NA	NA	NA	< 0.0010	< 0.00050	0.022	NA	0.065	2.04	< 0.0025	NA	NA
	06/26/19	5.4	57	220	1.1	7.98	350	1100	NA	0.0074	0.041	NA	NA	NA	< 0.0010	< 0.00050	0.018	NA	0.065	1.18	F1 < 0.0025	NA	NA
	11/06/19	4.5	58	210	1.1	7.99	350	1100	NA	0.010	0.041	NA	NA	NA	< 0.0010	< 0.00050	0.019	NA	0.013	1.620	0.010	NA	NA
	06/25/20	4.9	57	220	1.1	8.33	410	1100	NA	0.0053	0.042	NA	NA	NA	< 0.0010	< 0.00050	0.019	NA	0.020	2.19	< 0.0025	NA	NA
	12/07/20	5.3	57	220	1.2	7.83	450	1100	NA	0.0044	0.043	NA	NA	NA	< 0.0010	< 0.00050	0.024	NA	0.018	2.16	< 0.0025	NA	NA
	03/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05
	04/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.14
	04/23/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.25
	05/18/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43
	06/08/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.61
	06/30/21	B 5.9	61	200	1.1	7.88	470	1100	< 3.0	< 0.017	0.048	^1+ < 1.0	< 0.50	< 5.0	< 0.0010	< 0.00050	0.024	< 0.00020	0.017	2.57	< 0.0025	< 2.0	NA
	07/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48
	08/13/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31
	09/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48
	09/24/21	0.26	60	210	0.99	8.16	460	1100	< 0.0030	0.0038	0.047	^+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.024	< 0.00020	0.012	2.23	< 0.0025	< 0.0020	NA
	12/15/21	5.1	63	200	1.0	7.95	450	1200	< 0.0030	0.0028	0.045	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.022	< 0.00020	0.010	2.45	< 0.0025	< 0.0020	0.09
	03/15/22	4.9	57	200	1.0	7.91	480	1300	< 0.0030	< 0.0010	0.047	< 0.0010	< 0.00050	< 0.0050	0.0012	< 0.00050	0.039	< 0.00020	0.017	1.34	< 0.0025	< 0.0020	0.45
	06/10/22	5.1	60	200	0.99	7.29	450	1200	< 0.0030	0.0024	0.046	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.010	2.32	< 0.0025	< 0.0020	0.16
	09/28/22	4.9	60	200	0.98	7.72	470	1100	< 0.0030	0.0023	0.044	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.021	< 0.00020	0.014	2.43	< 0.0025	< 0.0020	0.61
	12/19/22	5.1	61	210	1.2	7.80	440	1200	< 0.0030	0.0020	0.046	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.021	< 0.00020	0.010	1.83	< 0.0025	< 0.0020	1.04
	03/17/23	5.2	63	200	0.93	7.82	470	1200	< 0.0030	0.0022	0.046	< 0.0010	< 0.00050	< 0.0050	< 0.0010	0.00051	0.022	< 0.00020	0.010	1.22	< 0.0025	< 0.0020	2.43
	06/29/23	5.4	65	200	0.95	7.55	480	1200	< 0.0030	0.0023	0.045	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.0050	0.022	< 0.00020	0.0088	2.45	< 0.0025	< 0.0020	0.74
	09/12/23	4.5	48	220	0.93	7.67	480	1300	< 0.0020	< 0.0020	0.042	< 0.0010	< 0.00020	< 0.0050	< 0.00050	< 0.00050	0.021	< 0.00020	0.0058	1.60	< 0.0050	0.0021	0.71
	12/19/23	5.1	64	210	0.88	7.88	480	1200	< 0.0030	0.0069	0.047	< 0.0010	< 0.00050	< 0.0050	< 0.0010	0.00072	0.021	< 0.00020	0.015	2.04	< 0.0025	< 0.0020	3.05
	03/07/24	4.9	63	190	0.93	7.78	470	1300	^1+ < 0.0030	0.0056	0.044	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.024	< 0.00020	0.029	1.59	< 0.0025	< 0.0020	4.14
	06/19/24	5.1	62	190	0.94	7.82	470	1300	< 0.0030	0.0014	0.047	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.022	< 0.00020	< 0.0050	2.24	< 0.0025	< 0.0020	0.26
	08/26/24	5.1	70	200	0.76	7.59	490	1300	^1+ < 0.0030	< 0.0010	0.047	^+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	< 0.050	< 0.00020	< 0.0050	2.19	< 0.0025	< 0.0020	0.57
	11/25/24	4.6	69	180	0.86	7.75	500	1300	< 0.0030	< 0.0010	0.048	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.024	< 0.00020	< 0.0050	2.62	< 0.0025	< 0.0020	0.88
	03/21/25	5.1	70	200	0.87	7.35	560	1300	< 0.0030	0.0020	0.050	< 0.0010	< 0.00050	< 0.0050	^+ < 0.0010	< 0.00050	0.024	< 0.00020	< 0.0050	1.71	< 0.0025	< 0.0020	0.72
	06/11/25	5.0	66	220	0.86	7.89	530	1300	< 0.0030	< 0.0010	0.051	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.026	< 0.00020	< 0.0050	3.31	< 0.0025	< 0.0020	0.67
	09/18/25	4.5	68	190	0.87	7.93	480	1300	< 0.0030	< 0.0010	0.054	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	< 0.0050	3.17	F1 < 0.0025	< 0.0020	0.89
	12/22/25	4.9	73	190	0.93	7.76	540	1300	< 0.0030	0.0013	0.049	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.024	< 0.00020	0.0080	2.64	< 0.0025	< 0.0020	1.3

Notes: All units are in mg/L with the exception of Radium (pCi/L).

B = Compound was found in blank and sample.

H = Sample preped or analyzed past holding time.

NA = Not Analyzed. No confirmation sample required.

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

^+ = Continuing calibration verficiation outside limits. High bias.

^1+ = Initial verification calibration outside of limits, biased high.

^ = Denotes instrument related QC exceeds the control limits

* = LCS or LCSD is outside acceptance limits.

Table 9-4. CCR Groundwater Data - Midwest Generation, LLC, Joliet Station #9, 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 Combined	Selenium	Thallium	Turbidity
R32S down-gradient	11/19/15	1.3	99	88	0.28	7.32	210	640	< 0.0030	0.0018	0.033	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.040	< 0.00020	0.16	1.928	< 0.0025	< 0.0020	NA
	05/05/16	1.9	100	140	0.32	7.38	210	810	< 0.0030	0.0034	0.039	< 0.0010	< 0.00050	< 0.0050	< 0.0010	0.00050	0.069	< 0.00020	0.29	2.26	< 0.0025	< 0.0020	NA
	06/29/16	2.5	110	110	0.35	7.53	280	860	< 0.0030	0.0021	0.042	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.065	< 0.00020	0.43	2.12	< 0.0025	< 0.0020	NA
	08/26/16	3.0	120	100	0.40	7.30	330	850	< 0.0030	0.0014	0.043	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.056	< 0.00020	0.48	2.39	< 0.0025	< 0.0020	NA
	11/18/16	3.3	120	99	0.34	7.38	270	830	< 0.0030	0.0016	0.042	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.063	< 0.00020	0.55	3.17	< 0.0025	< 0.0020	NA
	02/16/17	F1 4.0	120	99	0.34	7.39	340	830	< 0.0030	0.0020	0.039	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.064	< 0.00020	0.57	1.76	F1 < 0.0025	< 0.0020	NA
	05/25/17	8.3	240	88	0.42	7.54	320	850	< 0.0060	0.0042	0.075	^< 0.0020	< 0.0010	< 0.010	< 0.0020	< 0.0010	0.14	< 0.00020	1.4	1.82	< 0.0050	< 0.0040	NA
	07/07/17	6.2	120	96	0.42	7.61	360	830	< 0.0030	0.0043	0.040	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.10	< 0.00020	0.87	2.08	< 0.0025	< 0.0020	NA
	09/28/17	4.8	140	78	0.36	7.29	290	870	< 0.0030	0.0030	0.044	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.086	< 0.00020	0.57	1.79	< 0.0025	< 0.0020	NA
	11/21/17	5.7	120	97	0.38	7.50	390	900	< 0.0030	0.0037	0.041	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.11	< 0.00020	0.74	1.82	< 0.0025	< 0.0020	NA
	03/07/18	5.8	130	86	0.32	7.57	350	880	< 0.0030	0.0029	0.042	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.11	< 0.00020	0.67	2.56	< 0.0025	< 0.0020	NA
	05/21/18	4.4	120	77	0.29	7.13	310	1000	NA	0.0024	0.040	NA	NA	NA	< 0.0010	< 0.00050	0.10	NA	0.64	2.22	< 0.0025	NA	NA
	12/13/18	3.5	120	F1 72	0.26	7.43	280	880	NA	0.0019	0.043	NA	NA	NA	< 0.0010	0.0017	0.080	NA	0.56	2.23	< 0.0025	NA	NA
	06/27/19	6.3	140	74	0.27	7.33	380	880	NA	0.0027	0.041	NA	NA	NA	< 0.0010	< 0.00050	0.090	NA	0.81	2.67	< 0.0025	NA	NA
	11/06/19	4.8	150	69	0.27	7.45	360	820	NA	< 0.010	0.039	NA	NA	NA	< 0.0010	< 0.00050	0.13	NA	0.58	2.37	< 0.010	NA	NA
	06/29/20	6.0	130	71	0.28	7.47	400	790	NA	0.0021	0.038	NA	NA	NA	< 0.0010	< 0.00050	0.11	NA	0.64	3.92	< 0.0025	NA	NA
	12/16/20	6.1	150	F1 66	0.34	7.43	430	840	NA	0.0025	0.038	NA	NA	NA	< 0.0010	^+ < 0.00050	0.11	NA	0.75	3.22	F1 < 0.0025	NA	NA
	03/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.42
	04/05/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.81
	04/23/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.23
	05/18/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.78
	06/08/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.14
	06/28/21	B 4.0	130	56	0.30	7.16	430	790	< 3.0	< 0.0010	0.036	< 1.0	< 0.50	< 5.0	< 0.0010	< 0.00050	0.071	< 0.00020	0.53	2.10	< 0.0025	< 2.0	NA
	07/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.42
	08/13/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.57
	09/30/21	6.0	160	62	0.31	7.47	520	970	< 0.0030	0.0029	0.037	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.12	< 0.00020	0.95	2.45	< 0.0025	< 0.0020	0.39
	12/15/21	4.9	150	59	0.32	7.42	490	930	< 0.0030	0.0016	0.037	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.097	< 0.00020	0.75	2.68	< 0.0025	< 0.0020	0.84
	03/16/22	4.0	9.6	50	0.31	7.56	430	1100	< 0.0030	0.037	0.012	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.043	< 0.00020	0.51	2.61	< 0.0025	< 0.0020	1.31
	06/10/22	5.5	120	54	0.31	7.23	460	880	< 0.0030	0.0017	0.034	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.089	< 0.00020	0.58	2.96	< 0.0025	< 0.0020	-0.10
	09/26/22	5.1	130	57	0.30	7.23	450	870	< 0.0030	0.0032	0.034	1+ ^+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.12	< 0.00020	0.69	2.27	< 0.0025	< 0.0020	0.66
	12/16/22	4.7	130	61	0.51	7.41	400	860	< 0.0030	0.0021	0.035	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.11	< 0.00020	0.63	2.06	< 0.0025	< 0.0020	1.53
	03/23/23	4.6	130	56	0.29	7.57	390	940	< 0.0030	0.0026	0.034	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.10	< 0.00020	0.62	1.86	< 0.0025	< 0.0020	1.59
	06/29/23	1.4	100	47	0.29	7.07	380	770	< 0.0030	0.0016	0.028	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.0050	0.035	< 0.00020	0.092	2.02	< 0.0025	< 0.0020	0.74
	09/12/23	2.8	88	50	0.29	7.60	380	790	< 0.0020	< 0.0020	0.030	< 0.0010	< 0.00020	< 0.0050	< 0.00050	< 0.00050	0.074	< 0.00020	0.42	1.97	< 0.0050	< 0.0010	0.52
	12/19/23	0.48	88	43	0.28	7.43	350	780	< 0.0030	< 0.0010	0.027	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.025	< 0.00020	0.031	2.54	< 0.0025	< 0.0020	2.10
	03/07/24	2.4	110	43	0.30	7.41	370	920	^1+ < 0.0030	0.0011	0.032	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.059	< 0.00020	0.35	1.12	< 0.0025	< 0.0020	0.83
	06/21/24	0.36	94	37	0.30	7.52	290	730	< 0.0030	< 0.0010	0.029	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.019	< 0.00020	0.046	1.97	< 0.0025	< 0.0020	1.03
	08/29/24	3.0	120	47	0.24	7.67	410	840	< 0.0030	0.0014	0.034	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.083	< 0.00020	0.380	2.52	< 0.0025	< 0.0020	2.52
	11/26/24	4.1	130	39	0.25	7.57	390	880	< 0.0030	0.0024	0.032	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.10	< 0.00020	0.48	2.08	< 0.0025	< 0.0020	2.00
	03/24/25	3.2	110	40	0.28	7.53	380	900	< 0.0030	0.0019	0.029	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.081	< 0.00020	0.39	1.20	< 0.0025	< 0.0020	1.20
	06/16/25	2.3	100	41	0.27	7.23	390	770	< 0.0030	0.0011	0.030	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.064	< 0.00020	0.28	2.89	< 0.0025	< 0.0020	0.83
	09/18/25	4.0	120	38	0.31	7.35	390	830	< 0.0030	0.0029	0.036	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.098	< 0.00020	0.53	2.62	< 0.0025	< 0.0020	1.31
	12/23/25	2.1	94	35	0.30	7.39	400	740	< 0.0030	< 0.0010	0.030	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.051	< 0.00020	0.24	2.67	< 0.0025	< 0.0020	0.84

Notes: All units are in mg/L with the exception of Radium (pCi/L).

B = Compound was found in blank and sample.

H = Sample preped or analyzed past holding time.

NA = Not Analyzed. No confirmation sample required.

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

^+ = Continuing calibration verification outside limits. High bias.

^1+ = Initial verification calibration outside of limits, biased high.

^ = Denotes instrument related QC exceeds the control limits

* = LCS or LCSD is outside acceptance limits.

Table 9-4. CCR Groundwater Data - Midwest Generation, LLC, Joliet Station #9, 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 Combined	Selenium	Thallium	Turbidity
G44S down-gradient	11/20/15	1.0	120	43	0.21	7.11	220	640	< 0.0030	0.0012	0.053	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.017	< 0.00020	0.10	1.161	< 0.0025	< 0.0020	NA
	05/09/16	0.91	110	37	0.18	7.39	120	690	< 0.0030	< 0.0010	0.049	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.015	< 0.00020	0.046	< 0.415	< 0.0025	< 0.0020	NA
	06/30/16	0.69	100	32	0.18	7.59	99	620	< 0.0030	< 0.0010	0.044	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.014	< 0.00020	0.025	0.879	< 0.0025	< 0.0020	NA
	08/26/16	0.89	120	36	0.19	7.12	110	710	< 0.0030	< 0.0010	0.053	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.014	< 0.00020	0.047	0.816	< 0.0025	< 0.0020	NA
	11/16/16	0.82	120	26	0.17	7.15	88	530	< 0.0030	< 0.0010	0.048	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.011	< 0.00020	0.041	0.475	< 0.0025	< 0.0020	NA
	02/16/17	0.86	120	30	0.15	7.38	120	620	< 0.0030	< 0.0010	0.051	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.014	< 0.00020	0.044	0.729	< 0.0025	< 0.0020	NA
	05/24/17	0.83	120	31	0.19	7.08	95	600	< 0.0030	< 0.0010	0.048	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.011	< 0.00020	0.031	1.02	< 0.0025	< 0.0020	NA
	07/10/17	0.83	110	30	< 0.10	7.00	110	700	< 0.0030	< 0.0010	0.049	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.012	< 0.00020	0.061	0.667	< 0.0025	< 0.0020	NA
	09/28/17	0.99	130	30	0.19	7.13	100	730	< 0.0030	< 0.0010	0.048	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.014	< 0.00020	0.081	0.614	< 0.0025	< 0.0020	NA
	11/21/17	0.79	110	35	0.18	7.06	120	640	< 0.0030	< 0.0010	0.051	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.016	< 0.00020	0.055	0.913	< 0.0025	< 0.0020	NA
	03/07/18	0.91	120	36	0.18	7.19	110	670	< 0.0030	0.0014	0.053	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.017	< 0.00020	0.049	1.31	< 0.0025	< 0.0020	NA
	05/17/18	0.98	120	35	0.18	7.02	96	780	NA	< 0.0010	0.054	NA	NA	NA	< 0.0010	< 0.00050	0.016	NA	0.071	0.714	< 0.0025	NA	NA
	12/10/18	1.1	120	43	0.19	7.41	78	630	NA	< 0.0010	0.057	NA	NA	NA	< 0.0010	< 0.00050	0.019	NA	0.14	0.454	< 0.0025	NA	NA
	06/19/19	1.3	130	59	0.19	7.02	140	720	NA	< 0.0010	0.062	NA	NA	NA	< 0.0010	< 0.00050	0.023	NA	0.13	0.841	< 0.0025	NA	NA
	11/12/19	1.3	140	53	0.21	7.22	160	670	NA	< 0.010	0.065	NA	NA	NA	< 0.0010	< 0.00050	0.026	NA	0.20	1.01	< 0.010	NA	NA
	06/29/20	1.4	130	52	0.21	7.30	160	670	NA	< 0.0010	0.060	NA	NA	NA	< 0.0010	< 0.00050	0.024	NA	0.15	1.860	< 0.0025	NA	NA
	12/15/20	1.7	140	52	0.25	7.17	180	650	NA	< 0.0010	0.062	NA	NA	NA	< 0.0010	< 0.00050	0.03	NA	0.28	1.18	< 0.0025	NA	NA
	03/15/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.66
	04/05/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.89
	04/23/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.31
	05/18/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.41
	06/08/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.42
	6/30/2021	B 1.9	120	65	0.21	7.00	170	730	< 3.0	< 0.0010	0.058	^1+< 1.0	< 0.50	< 5.0	< 0.0010	< 0.00050	0.026	< 0.00020	0.22	1.29	< 0.0025	< 2.0	NA
	07/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.37
	08/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.56
	09/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.38
	09/27/21	0.39	130	62	0.20	7.30	180	650	< 0.0030	< 0.0010	0.065	^+< 0.0010	< 0.00050	< 0.00050	< 0.0010	< 0.00050	0.0056	< 0.00020	0.29	1.19	< 0.0025	< 0.0020	NA
	12/16/21	1.9	140	62	0.20	7.21	170	690	< 0.0030	< 0.0010	0.066	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.027	< 0.00020	0.29	1.12	< 0.0025	< 0.0020	1.29
	03/15/22	2.1	58	63	0.21	7.24	180	860	< 0.0030	0.0025	0.045	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.022	< 0.00020	0.0093	0.98	< 0.0025	< 0.0020	1.09
	06/09/22	1.6	130	75	0.20	7.02	160	730	< 0.0030	< 0.0010	0.067	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.17	1.36	< 0.0025	< 0.0020	0.78
	09/26/22	1.8	130	69	0.21	7.01	180	810	< 0.0030	< 0.0010	0.065	^1+< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.027	< 0.00020	0.24	1.6	< 0.0025	< 0.0020	0.86
	12/21/22	1.9	130	67	0.49	7.07	180	870	< 0.0030	< 0.0010	0.069	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.29	1.84	< 0.0025	< 0.0020	11.70
	03/15/23	1.9	130	66	0.20	7.1	190	720	< 0.0030	< 0.0010	0.067	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.026	< 0.00020	0.26	0.783	< 0.0025	< 0.0020	1.13
	06/29/23	1.8	140	64	0.21	7.00	160	680	< 0.0030	< 0.010	0.069	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.0050	0.026	< 0.00020	0.24	1.36	< 0.0025	< 0.0020	3.04
	09/13/23	1.7	100	68	0.21	7.01	160	720	< 0.0020	< 0.0020	0.062	< 0.0010	< 0.00020	< 0.0050	< 0.00050	< 0.00050	0.024	< 0.00020	0.21	1.54	< 0.0050	< 0.0010	0.93
	12/19/23	1.6	130	63	0.20	7.24	170	750	< 0.0030	0.0011	0.067	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.17	1.50	< 0.0025	< 0.0020	12.60
	03/06/24	1.4	130	66	0.21	7.29	150	710	^1+< 0.0030	< 0.0010	0.065	^1+< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.021	< 0.00020	0.14	0.873	< 0.0025	< 0.0020	6.71
	06/21/24	1.2	130	64	0.22	7.24	150	850	< 0.0030	< 0.0010	0.064	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.018	< 0.00020	0.11	1.18	< 0.0025	< 0.0020	3.52
	08/29/24	1.4	140	60	0.18	7.34	160	760	< 0.0030	< 0.0010	0.071	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.022	< 0.00020	0.15	1.48	< 0.0025	< 0.0020	3.59
	11/26/24	1.6	130	50	0.21	7.14	150	800	< 0.0030	< 0.0010	0.065	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.024	< 0.00020	0.19	1.40	< 0.0025	< 0.0020	57.60
	03/26/25	1.7	130	F1 57	0.22	7.13	170	720	< 0.0030	< 0.0010	0.068	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.20	0.806	< 0.0025	< 0.0020	2.07
	06/12/25	1.8	130	59	0.22	7.00	170	700	< 0.0030	< 0.0010	0.070	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.21	1.76	< 0.0025	< 0.0020	9.64
	09/19/25	1.7	130	57	0.24	7.01	160	710	< 0.0030	< 0.0010	0.070	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.025	< 0.00020	0.20	1.92	< 0.0025	< 0.0020	1.79
	12/26/25	F1,F2 1.9	140	59	0.32	7.01	180	660	F1< 0.0030	F1,F2< 0.0010	F1,F2 0.071	F1< 0.0010	F1< 0.00050	F1< 0.0050	F1< 0.0010	F1< 0.00050	F1,F2 0.027	< 0.00020	F1,F2 0.23	1.65	F1< 0.0025	F1< 0.0020	2.4

Notes: All units are in mg/L with the exception of Radium (pCi/L).

B = Compound was found in blank and sample.

H = Sample preped or analyzed past holding time.

NA = Not Analyzed. No confirmation sample required.

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

^+ = Continuing calibration verficiation outside limits. High bias.

^1+ = Initial verification calibration outside of limits, biased high.

^ = Denotes instrument related QC exceeds the control limits

* = LCS or LCSD is outside acceptance limits.

Table 9-4. CCR Groundwater Data - Midwest Generation, LLC, Joliet Station #9, 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 Combined	Selenium	Thallium	Turbidity
G46S down-gradient	11/23/15	6.0	110	80	0.27	7.32	430	780	< 0.0030	0.0033	0.064	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.073	< 0.00020	0.50	1.468	< 0.0025	< 0.0020	NA
	05/09/16	7.7	100	100	0.28	7.77	360	940	< 0.0030	0.0018	0.099	< 0.0010	< 0.00050	< 0.0050	< 0.0010	0.00050	0.11	< 0.00020	0.70	1.85	< 0.0025	< 0.0020	NA
	06/30/16	7.9	100	99	0.29	8.26	290	880	< 0.0030	0.0014	0.098	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.13	< 0.00020	0.71	1.94	< 0.0025	< 0.0020	NA
	08/26/16	7.2	100	120	0.35	7.48	350	1000	< 0.0030	0.0027	0.054	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.12	< 0.00020	1.2	1.17	< 0.0025	< 0.0020	NA
	11/18/16	6.5	110	120	0.39	7.56	330	1000	< 0.0030	0.0025	0.051	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.13	< 0.00020	1.8	< 0.601	< 0.0025	< 0.0020	NA
	02/16/17	6.1	100	150	0.41	7.94	410	1000	< 0.0030	0.0024	0.053	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.091	< 0.00020	1.4	1.07	< 0.0025	< 0.0020	NA
	05/22/17	6.8	100	130	0.44	7.37	350	970	< 0.0030	0.0033	B 0.046	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.11	< 0.00020	1.4	0.683	< 0.0025	< 0.0020	NA
	07/06/17	4.9	100	150	0.41	7.33	290	880	< 0.0030	0.0034	0.044	< 0.0010	< 0.00050	< 0.0050	0.0010	^< 0.00050	0.076	< 0.00020	0.92	0.709	< 0.0025	^< 0.0020	NA
	09/27/17	4.9	88	160	0.40	7.28	270	890	< 0.0030	0.0043	0.031	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.091	< 0.00020	0.63	0.754	< 0.0025	< 0.0020	NA
	11/21/17	5.3	78	170	0.43	7.73	270	800	< 0.0030	0.0055	0.032	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.11	< 0.00020	0.68	0.776	< 0.0025	< 0.0020	NA
	03/08/18	5.9	110	140	0.41	7.75	350	940	< 0.0030	0.0039	0.049	< 0.0010	< 0.00050	< 0.0050	< 0.0010	0.00053	0.093	< 0.00020	0.82	1.29	< 0.0025	< 0.0020	NA
	05/18/18	5.9	110	120	0.40	7.66	260	1100	NA	0.0028	0.048	NA	NA	NA	< 0.0010	< 0.00050	0.073	NA	0.84	1.07	< 0.0025	NA	NA
	12/11/18	7.6	120	110	0.38	7.66	270	1100	NA	0.0023	0.055	NA	NA	NA	< 0.0010	< 0.00050	0.096	NA	1.20	1.22	< 0.0025	NA	NA
	06/19/19	13	89	69	0.33	7.64	440	1000	NA	0.014	0.040	NA	NA	NA	< 0.0010	< 0.00050	0.22	NA	1.80	1.37	< 0.0025	NA	NA
	11/13/19	10	120	68	0.37	7.68	470	1000	NA	< 0.050	0.041	NA	NA	NA	< 0.0010	< 0.0050	0.11	NA	1.60	1.30	< 0.010	NA	NA
	06/29/20	13	96	74	0.34	7.06	510	980	NA	0.075	0.050	NA	NA	NA	< 0.0010	< 0.0050	0.23	NA	1.7	2.780	< 0.0025	NA	NA
	12/15/20	10	120	73	0.35	7.74	540	1000	NA	0.27	0.075	NA	NA	NA	< 0.0010	< 0.00085	0.21	NA	1.5	2.16	< 0.0025	NA	NA
	03/15/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.4
	04/05/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	106.5
	04/23/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	59.2
	05/18/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	181
	06/08/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3140
	06/30/21	B 15	120	67	0.30	7.40	590	1000	< 3.0	0.044	0.050	^1+< 1.0	< 0.5	< 5.0	< 0.0010	< 0.00050	0.21	< 0.00020	1.6	2.17	< 0.0025	< 2.0	NA
	07/01/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.6
	08/12/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	112.0
	09/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.3
	09/27/21	0.24	130	66	0.25	7.80	560	1000	< 0.0030	0.046	0.043	^+< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.0042	< 0.00020	1.6	1.54	< 0.0025	< 0.0020	NA
	12/15/21	11	140	66	0.27	7.53	500	990	< 0.0030	0.18	0.067	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.16	< 0.00020	1.4	2.61	< 0.0025	< 0.0020	73.1
	03/11/22	12	130	54	0.34	7.38	600	1200	< 0.0030	0.17	0.069	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.13	< 0.00020	1.6	3.65	< 0.0025	< 0.0020	99.3
	06/09/22	11	110	68	0.26	7.36	460	930	< 0.0030	0.017	0.042	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.18	< 0.00020	1.2	1.72	< 0.0025	< 0.0020	6.63
	09/26/22	11	120	63	0.31	7.31	580	1000	< 0.0030	0.11	0.057	^1+< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.19	< 0.00020	1.7	2.59	< 0.0025	< 0.0020	34.4
	12/20/22	13	140	51	F1 0.58	7.68	670	1200	< 0.0030	0.12	0.065	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.17	< 0.00020	1.9	4.78	< 0.0025	< 0.0020	77.9
	03/22/23	10	130	72	0.31	7.70	500	1100	< 0.0030	0.056	0.053	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.20	< 0.00020	1.5	2.57	< 0.0025	< 0.0020	88.6
	06/29/23	8.6	140	69	0.23	7.50	440	890	< 0.0030	0.044	0.056	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.17	< 0.00020	1.0	2.55	< 0.0025	< 0.0020	32.3
	09/13/23	7.5	100	72	0.24	7.48	460	920	< 0.0020	0.11	0.059	< 0.0010	< 0.00020	< 0.0050	0.0012	< 0.00050	0.17	< 0.00020	1.1	3.85	< 0.0050	< 0.0010	113.0
	12/20/23	10	120	69	0.23	7.48	490	980	^1+< 0.0030	0.051	0.057	^+< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.18	< 0.00020	1.1	2.67	< 0.0025	< 0.0020	58.7
	03/07/24	9.6	120	63	0.24	7.36	520	1100	^1+< 0.0030	0.11	0.059	^1+< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.20	< 0.00020	1.2	2.10	< 0.0025	< 0.0020	71.1
	06/20/24	11	130	54	0.34	7.29	580	1100	< 0.0030	0.019	0.050	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.18	0.00032	1.6	2.55	< 0.0025	< 0.0020	8.46
	08/27/24	10	130	55	0.23	7.55	500	1000	^1+< 0.0030	0.073	0.046	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.22	< 0.00020	1.2	3.15	< 0.0025	< 0.0020	56.3
	11/25/24	9.3	120	62	0.22	7.53	500	1000	< 0.0300	0.057	0.045	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.23	< 0.00020	1.0	2.56	< 0.0025	< 0.0020	59.4
	03/24/25	9.5	120	61	0.22	7.46	490	980	< 0.0030	0.10	0.048	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.21	< 0.00020	1.0	2.18	< 0.0025	< 0.0020	41.9
	06/12/25	10	130	60	0.21	8.02	560	950	< 0.0030	0.39	0.097	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.22	< 0.00020	1.1	8.05	< 0.0025	< 0.0020	134.0
	09/16/25	11	130	53	0.33	8.04	560	1000	< 0.0030	0.035	0.046	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.18	< 0.00020	1.2	3.53	< 0.0025	< 0.0020	27.3
	12/26/25	9.6	140	62	0.27	7.65	570	970	< 0.0030	0.061	0.047	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.21	< 0.00020	1.2	3.51	< 0.0025	< 0.0020	57.6

Notes: All units are in mg/L with the exception of Radium (pCi/L).

B = Compound was found in blank and sample.

H = Sample preped or analyzed past holding time.

NA = Not Analyzed. No confirmation sample required.

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

^+ = Continuing calibration verficiation outside limits. High bias.

^1+ = Initial verification calibration outside of limits, biased high.

^ = Denotes instrument related QC exceeds the control limits

* = LCS or LCSD is outside acceptance limits.

Table 9-4. CCR Groundwater Data - Midwest Generation, LLC, Joliet Station #9, 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 Combined	Selenium	Thallium	Turbidity
G47S down-gradient	11/23/15	4.6	11	160	0.45	9.22	480	700	< 0.0030	0.018	0.018	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.036	< 0.00020	0.32	0.898	0.0030	< 0.0020	NA
	05/06/16	5.0	7.8	140	0.72	9.86	410	910	< 0.0030	0.034	0.017	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.033	< 0.00020	0.41	0.736	0.0033	< 0.0020	NA
	07/01/16	6.4	8.4	150	0.68	9.32	340	860	< 0.0030	0.022	0.019	< 0.0010	^< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.038	< 0.00020	0.53	1.01	< 0.0025	< 0.0020	NA
	08/24/16	9.3	9.2	140	0.67	9.19	300	830	< 0.0030	0.017	0.023	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.41	1.06	< 0.0025	< 0.0020	NA
	11/16/16	15	1.3	F1 150	1.8	10.08	620	1700	< 0.0030	0.14	0.0091	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.015	< 0.00020	1.4	< 1.38	0.0038	< 0.0020	NA
	02/15/17	7.6	4.4	160	1.1	9.26	540	1200	< 0.0030	0.059	0.016	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	< 0.050	< 0.00020	0.57	0.716	0.0035	< 0.0020	NA
	05/23/17	18	0.93	160	2.2	10.03	720	1800	< 0.0030	0.18	0.0081	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.013	< 0.00020	1.3	< 0.361	0.0025	< 0.0020	NA
	07/10/17	18	1.2	150	2.1	10.06	780	1800	< 0.0030	0.17	0.0085	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.013	< 0.00020	1.2	0.733	< 0.0025	< 0.0020	NA
	09/27/17	18	1.1	150	2.0	10.15	750	1900	< 0.0030	0.21	0.0085	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.014	< 0.00020	1.3	0.836	0.0027	< 0.0020	NA
	11/22/17	21	1.1	150	2.1	10.56	710	1800	< 0.0030	0.23	0.0090	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.012	< 0.00020	1.5	0.692	0.0044	< 0.0020	NA
	03/08/18	18	1.1	170	2.1	10.67	780	1900	< 0.0030	0.25	0.0090	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.014	< 0.00020	1.4	0.790	0.0042	< 0.0020	NA
	05/18/18	3.7	1.1	160	1.7	7.79	570	1800	NA	0.23	0.0087	NA	NA	NA	< 0.0010	< 0.00050	0.015	NA	1.5	1.01	0.0039	NA	NA
	12/11/18	13	2.8	140	1.1	10.14	440	1300	NA	0.140	0.011	NA	NA	NA	< 0.0010	< 0.00050	0.023	NA	1.10	0.597	0.0031	NA	NA
	06/28/19	13	2.9	130	1.3	9.95	450	1400	NA	0.13	0.012	NA	NA	NA	< 0.0010	< 0.00050	0.028	NA	1.00	0.566	< 0.0025	NA	NA
	11/07/19	4.3	15	140	0.55	8.39	410	1100	NA	0.029	0.017	NA	NA	NA	< 0.0010	< 0.00500	0.053	NA	0.38	1.02	< 0.0100	NA	NA
	06/30/20	5.2	16	120	0.59	9.04	F1 440	1000	NA	0.037	0.015	NA	NA	NA	< 0.0010	< 0.00500	0.052	NA	0.46	1.240	0.0040	NA	NA
	12/07/20	7.6	11	120	1.1	9.13	500	1100	NA	0.066	0.012	NA	NA	NA	< 0.0010	< 0.00050	0.047	NA	0.62	< 0.466	< 0.0030	NA	NA
	03/15/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.12
	04/05/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10
	04/22/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.16
	05/18/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.14
	06/08/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.53
	06/24/21	B 6.1	12	110	0.66	8.68	470	1000	< 0.0030	0.04	0.013	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.050	H < 0.00020	0.48	0.871	0.0027	< 0.0020	NA
	07/01/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.30
	08/13/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18
	09/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.68
	09/22/21	6.5	11	100	0.62	8.83	440	910	< 0.0030	0.041	0.014	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.053	< 0.00020	0.52	0.764	0.0030	< 0.0020	NA
	12/16/21	6.7	11	98	0.65	8.63	440	900	< 0.0030	0.039	0.014	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.046	< 0.00020	0.54	1.16	0.0031	< 0.0020	0.59
	03/16/22	6.9	40	96	0.66	8.94	450	1200	< 0.0030	0.0074	0.021	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.021	< 0.00020	0.48	2.12	< 0.0025	< 0.0020	0.26
	06/09/22	7.3	9.2	96	0.63	8.39	460	1000	< 0.0030	0.038	0.013	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.043	< 0.00020	0.53	0.76	0.0028	< 0.0020	-0.11
	09/22/22	10	5.8	100	0.9	9.85	510	1100	< 0.0030	0.064	0.011	1+ ^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.044	< 0.00020	0.71	0.903	< 0.0025	< 0.0020	0.35
	12/21/22	7.0	7.9	100	F1 1.1	9.50	450	1100	< 0.0030	0.036	0.014	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.044	< 0.00020	0.59	0.864	0.0028	< 0.0020	0.76
	03/23/23	6.7	11	100	0.65	9.22	440	1100	< 0.0030	0.039	0.013	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.049	< 0.00020	0.52	0.984	0.0025	< 0.0020	1.12
	06/30/23	7.7	12	96	0.64	8.30	470	970	< 0.0030	0.038	0.012	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.052	0.00058	0.55	1.26	0.0033	< 0.0020	0.76
	09/07/23	6.1	9.4	F1 100	0.64	7.77	450	1000	< 0.0080	0.033	0.011	< 0.0010	< 0.00020	< 0.0050	< 0.0005	< 0.00050	0.039	< 0.00020	0.50	1.07	< 0.0050	< 0.0040	0.18
	12/18/23	7.1	11	110	0.59	8.52	470	980	< 0.0030	0.038	0.013	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.054	< 0.00020	0.55	2.23	< 0.0025	< 0.0020	1.15
	03/04/24	5.9	16	100	0.57	8.49	470	1100	^1+ < 0.0030	0.030	0.012	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.053	< 0.00020	0.48	0.792	< 0.0025	< 0.0020	0.74
	06/20/24	4.7	14	96	0.55	9.34	440	1100	< 0.0030	0.024	0.011	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.043	< 0.00020	0.38	< 0.492	< 0.0025	< 0.0020	0.48
	08/28/24	6.0	14	84	0.46	7.81	450	1100	^1+ < 0.0030	0.027	0.012	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.059	< 0.00020	0.48	1.12	< 0.0025	< 0.0020	0.82
	11/22/24	5.6	12	83	0.54	8.44	430	1100	< 0.0150	0.026	0.013	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.058	< 0.00020	0.48	< 0.652	< 0.0025	< 0.0020	0.77
	03/26/25	6.0	11	83	0.57	7.89	440	990	< 0.0030	0.028	0.013	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.052	< 0.00020	0.48	0.782	0.0027	< 0.0020	0.38
	06/16/25	6.5	11	91	0.55	8.96	460	970	< 0.0030	0.027	0.013	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.057	< 0.00020	0.48	1.37	< 0.0025	< 0.0020	0.35
	09/15/25	6.9	11	87	0.58	9.09	430	1000	< 0.0030	0.027	0.014	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.056	< 0.00020	0.51	1.03	< 0.0025	< 0.0020	0.36
	12/26/25	6.8	11	83	0.62	9.17	500	910	< 0.0030	0.028	0.015	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.057	< 0.00020	0.53	< 0.846	< 0.0025	< 0.0020	0.32

Notes: All units are in mg/L with the exception of Radium (pCi/L).

B = Compound was found in blank and sample.

H = Sample preped or analyzed past holding time.

NA = Not Analyzed. No confirmation sample required.

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

^+ = Continuing calibration verficiation outside limits. High bias.

^1+ = Initial verification calibration outside of limits, biased high.

^ = Denotes instrument related QC exceeds the control limits

* = LCS or LCSD is outside acceptance limits.

Table 9-4. CCR Groundwater Data - Midwest Generation, LLC, Joliet Station #9, 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 Combined	Selenium	Thallium	Turbidity
G48S down-gradient	11/20/15	11	6.9	120	1.5	9.08	760	1100	< 0.0030	0.03	0.015	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.015	< 0.00020	1.4	0.8512	< 0.0025	< 0.0020	NA
	05/05/16	9.3	5.9	120	1.5	9.53	560	1200	< 0.0030	0.046	0.014	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.016	< 0.00020	1.2	0.800	< 0.0025	< 0.0020	NA
	07/01/16	9.5	4.2	120	1.4	9.60	480	1100	< 0.0030	0.038	0.011	< 0.0010	^< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.013	< 0.00020	1.2	1.01	< 0.0025	< 0.0020	NA
	08/24/16	10	5.5	120	1.4	9.31	420	1100	< 0.0030	0.032	0.014	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.012	< 0.00020	1.1	1.16	< 0.0025	< 0.0020	NA
	11/16/16	9.8	10	110	1.4	9.61	340	1100	< 0.0030	0.03	0.018	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.016	< 0.00020	1.1	1.65	< 0.0025	< 0.0020	NA
	02/15/17	8.4	8.3	120	1.2	9.63	490	1100	< 0.0030	0.038	0.015	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.014	< 0.00020	0.79	0.824	< 0.0025	< 0.0020	NA
	05/23/17	9.2	8.1	120	1.3	9.49	470	1100	< 0.0030	0.03	0.014	^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.016	< 0.00020	0.95	0.661	< 0.0025	< 0.0020	NA
	07/10/17	7.8	11	110	1.2	8.77	460	1000	< 0.0030	0.022	0.017	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.016	< 0.00020	0.84	1.39	< 0.0025	< 0.0020	NA
	09/27/17	7.6	18	100	1.1	8.94	480	1100	< 0.0030	0.024	0.019	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.019	< 0.00020	0.72	1.32	< 0.0025	< 0.0020	NA
	11/22/17	8.6	12	120	1.2	9.42	450	1000	< 0.0030	0.027	0.015	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.016	< 0.00020	0.77	1.27	< 0.0025	< 0.0020	NA
	03/08/18	5.3	62	100	0.85	8.13	450	1000	< 0.0030	0.017	0.031	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.51	2.30	< 0.0025	< 0.0020	NA
	05/18/18	5.9	53	100	0.92	7.79	370	1100	NA	0.022	0.023	NA	NA	NA	< 0.0010	< 0.00050	0.023	NA	0.49	0.962	< 0.0025	NA	NA
	12/11/18	7.3	23	110	1.1	8.42	310	1000	NA	0.023	0.016	NA	NA	NA	< 0.0010	0.0049	0.019	NA	0.79	0.921	< 0.0025	NA	NA
	06/25/19	7.1	28	110	1.0	8.07	390	1000	NA	0.022	0.018	NA	NA	NA	< 0.0010	< 0.00050	0.022	NA	0.73	1.33	< 0.0025	NA	NA
	11/07/19	5.8	18	100	0.89	7.83	380	1000	NA	0.012	0.027	NA	NA	NA	< 0.0010	< 0.0050	0.019	NA	0.59	1.24	< 0.010	NA	NA
	06/26/20	7.1	16	110	1.0	9.20	400	940	NA	0.022	0.017	NA	NA	NA	< 0.0010	< 0.0050	0.021	NA	0.54	0.971	< 0.0025	NA	NA
	12/07/20	6.0	29	110	1.1	8.4	410	890	NA	0.016	0.020	NA	NA	NA	< 0.0010	< 0.00050	0.026	NA	0.41	2.00	< 0.0025	NA	NA
	03/15/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.47
	04/05/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.14
	04/22/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.22
	05/18/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.44
	06/08/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.24
	06/24/21	B 4.3	96	96	0.71	7.27	480	1100	< 0.0030	0.0026	0.035	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.032	H < 0.00020	0.26	3.89	< 0.0025	< 0.0020	NA
	07/01/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.91
	08/13/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.23
	09/02/21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.63
	09/22/21	5.4	45	100	0.74	7.68	440	1000	< 0.0030	0.0061	0.027	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.030	< 0.00020	0.46	2.15	< 0.0025	< 0.0020	NA
	12/16/21	6.0	46	99	0.91	7.02	430	880	< 0.0030	0.0076	0.023	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.024	< 0.00020	0.52	1.87	< 0.0025	< 0.0020	0.62
	03/16/22	5.8	130	99	0.96	7.87	430	1100	< 0.0030	< 0.0010	0.064	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.024	< 0.00020	0.27	2.56	< 0.0025	< 0.0020	0.31
	06/09/22	5.6	58	98	0.87	7.47	440	1000	< 0.0030	0.0084	0.025	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.027	< 0.00020	0.38	1.36	< 0.0025	< 0.0020	0.22
	09/22/22	6.8	34	98	0.97	8.14	430	950	< 0.0030	0.011	0.019	1+ ^< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.43	2.51	< 0.0025	< 0.0020	0.96
	12/21/22	6.4	28	100	1.3	8.66	410	1100	< 0.0030	0.014	0.018	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.022	< 0.00020	0.43	1.12	< 0.0025	< 0.0020	3.73
	03/23/23	6.0	24	100	0.96	8.68	370	1000	< 0.0030	0.016	0.017	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.021	< 0.00020	0.37	1.25	< 0.0025	< 0.0020	3.13
	06/30/23	6.4	39	91	0.89	8.03	380	850	< 0.0030	0.011	0.021	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.32	< 0.711	< 0.0025	< 0.0020	1.87
	09/07/23	5.1	25	100	0.93	7.75	390	940	< 0.0020	0.010	0.016	< 0.0010	< 0.00020	< 0.0050	< 0.00050	< 0.00050	0.019	< 0.00020	0.32	0.839	< 0.0050	< 0.0040	1.56
	12/18/23	5.8	27	110	0.88	8.11	390	910	< 0.0030	0.012	0.019	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.024	< 0.00020	0.35	1.42	< 0.0025	< 0.0020	2.61
	03/06/24	5.5	38	97	0.82	8.06	420	910	^1+ < 0.0030	0.0085	0.023	^1+ < 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.028	< 0.00020	0.42	1.15	< 0.0025	< 0.0020	1.08
	06/20/24	4.6	46	81	0.90	8.26	390	1000	< 0.0030	0.010	0.026	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.031	< 0.00020	0.38	2.67	< 0.0025	< 0.0020	0.61
	08/28/24	5.6	43	81	0.77	7.77	410	970	^1+ < 0.0030	0.008	0.022	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.032	< 0.00020	0.43	1.82	< 0.0025	< 0.0020	1.63
	11/22/24	5.1	37	86	0.93	7.74	390	980	< 0.0150	0.0074	0.023	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.027	< 0.00020	0.41	2.06	< 0.0025	< 0.0020	0.88
	03/26/25	5.2	39	96	0.96	7.74	420	950	< 0.0030	0.0072	0.022	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.022	< 0.00020	0.41	1.22	< 0.0025	< 0.0020	0.83
	06/13/25	6.4	36	98	0.98	8.18	420	920	< 0.0030	0.010	0.023	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.025	< 0.00020	0.52	1.08	< 0.0025	< 0.0020	0.71
	09/15/25	6.7	27	99	0.95	8.59	410	960	< 0.0030	0.010	0.020	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.023	< 0.00020	0.50	1.36	< 0.0025	< 0.0020	1.48
	12/26/25	6.5	23	96	1.0	8.15	470	910	< 0.0030	0.011	0.020	< 0.0010	< 0.00050	< 0.0050	< 0.0010	< 0.00050	0.022	< 0.00020	0.53	1.91	< 0.0025	< 0.0020	1.06

Notes: All units are in mg/L with the exception of Radium (pCi/L).

B = Compound was found in blank and sample.

H = Sample preped or analyzed past holding time.

NA = Not Analyzed. No confirmation sample required.

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

^+ = Continuing calibration verficiation outside limits. High bias.

^1+ = Initial verification calibration outside of limits, biased high.

^ = Denotes instrument related QC exceeds the control limits

* = LCS or LCSD is outside acceptance limits.

Table 9-5. Summary of Sample Bottles, Preservation Holding Time, and Analytical Methods. Midwest Generation, LLC, Joliet #9 Generating Station, Joliet, IL.

PARAMETER	ANALYTICAL METHOD	CONTAINER	PRESERVATION	HOLD TIME	METHOD DETECTION LIMIT (MG/L)	Section 845.600(a) Standards
Boron	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.0245	2
Calcium	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.106	NS
Chloride	SM4500 Cl-E	1 L plastic	None, < 6 °C	28 days	1.22	200
Fluoride	SM4500 F-C	1 L plastic	None, < 6 °C	28 days	0.019	4
pH	SM4500 H ⁺ -B	1 L plastic	None, < 6 °C	immediate *	Field Parameter	6.5 - 9.0 (secondary standard)
Sulfate	SM4500 SO ₄ -E	1 L plastic	None, < 6 °C	28 days	2	400
Total Dissolved Solids	SM2400 C	1 L plastic	None, < 6 °C	7 days	6.1	1200
Antimony	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.00101	0.006
Arsenic	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.000439	0.01
Barium	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.000841	2
Beryllium	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.000237	0.004
Cadmium	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.00019	0.005
Chromium	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.000608	0.1
Cobalt	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.000189	0.006
Lead	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.000141	0.0075
Lithium	6010 C	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.00215	0.04
Mercury	7470 A	250 mL plastic	HNO ₃ , < 6 °C	28 days	0.0000611	0.002
Molybdenum	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.00162	0.1
Selenium	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.000834	0.05
Thallium	6020 A	250 mL plastic	HNO ₃ , < 6 °C	6 months	0.000591	0.002
Radium 226	903.0	1 L plastic	HNO ₃	180 days	1 pCi/L	5 pCi/L **
Radium 228	904.0	2 L plastic	HNO ₃	180 days	1 pCi/L	5 pCi/L **

Notes: It is noted that some parameters may be combined with others within the same container.

* - The result for pH is obtained in the field and is not submitted to the laboratory.

** - Combined Radium 226/228

mL - milliliters

L - liters

°C - degrees Celsius

HNO₃ - Nitric Acid

NS- No Standard

Table 9-6. Proposed S-zone Groundwater Protection Standards - Joliet #9 Lincoln Stone Quarry

Upgradient Well	Parameter	Section 845.600 Standards	Interwell Background Prediction Limit	Site Specific GWPS
G45S	Antimony	0.006	0.001	0.006
	Arsenic	0.01	0.011**	0.011
	Barium	2.0	0.048	2.0
	Beryllium	0.004	0.0004	0.004
	Boron	2.0	0.62	2.0
	Cadmium	0.005	0.0005	0.005
	Chloride	200	195.6**	200
	Chromium	0.1	0.005	0.1
	Cobalt	0.006	0.001	0.006
	Combined Radium 226 +228 (pCi/L)	5.0	3.39	5.0
	Fluoride	4.0	0.49*	4.0
	Lead	0.0075	0.0005	0.0075
	Lithium	0.04	0.033	0.04
	Mercury	0.002	0.0002	0.002
	Molybdenum	0.10	0.017	0.10
	pH (standard units)	6.5-9.0	7.08-7.59	6.5-9.0
	Selenium	0.05	0.0025	0.05
	Sulfate	400	200.3**	400
	Thallium	0.002	0.0004	0.002
	TDS	1200	897.3	1200
	Calcium	NSP	120.8	120.8
	Turbidity	NSP	3.818	3.818

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

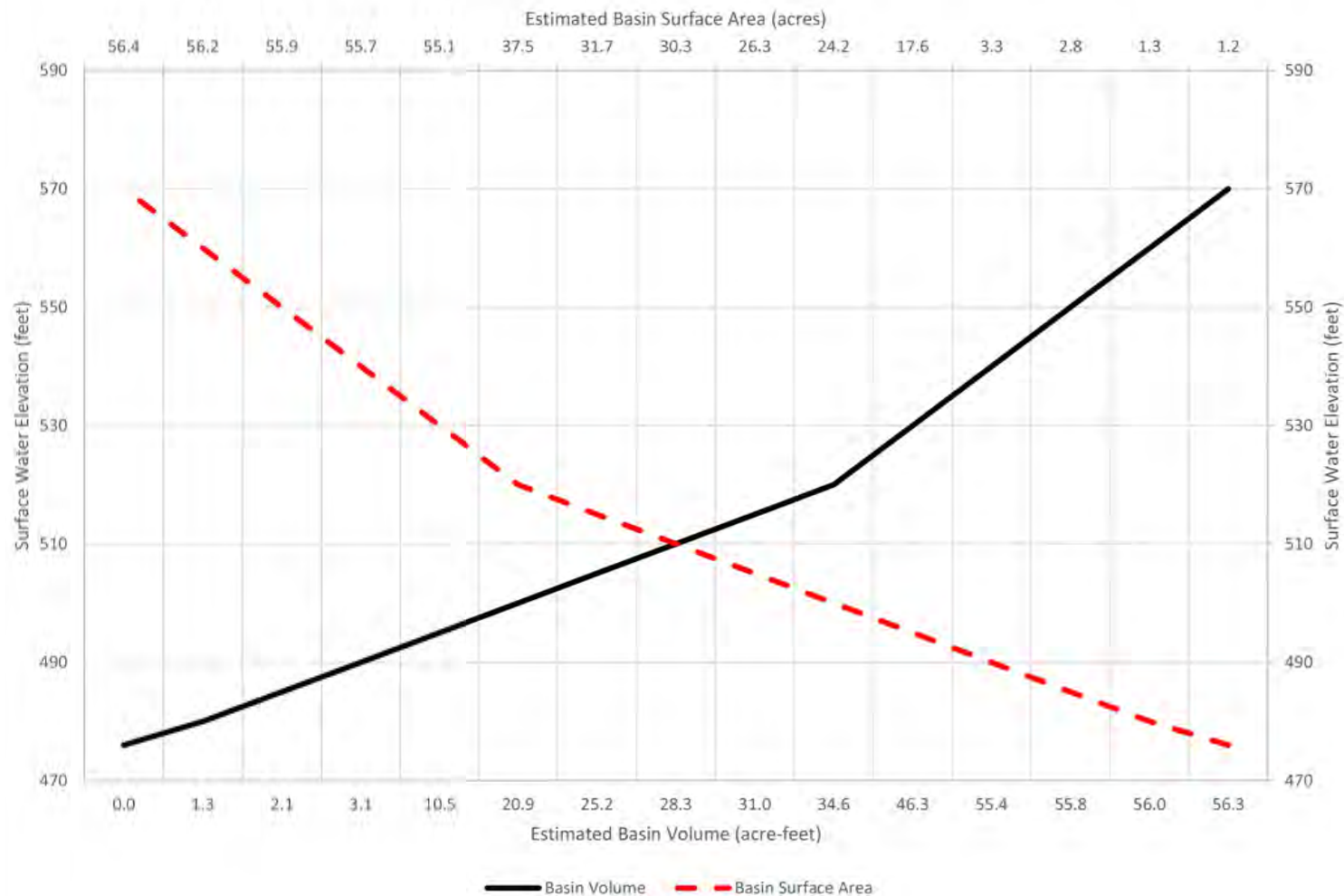
NE - Not Established

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

* - generated using reduced dataset (last 8 rounds).

** - generated using expanded dataset (last 16 rounds)

FIGURES



NOTES:

- 1. SURFACE WATER ELEVATIONS ARE NAVD88.
- 2. BASIN VOLUMES ARE ESTIMATED BASED ON AS-BUILT INFORMATION AND 2008 SITE TOPOGRAPHY.
- 3. AREA-CAPACITY CURVE CREATED BY ROUX ASSOCIATES, INC. AS PART OF COMPLETING THE OPERATING PERMIT IN ACCORDANCE WITH TITLE 35 PART 845.

Title:

LINCOLN STONE QUARRY
AREA-CAPACITY CURVE

JOLIET STATION #9

Prepared for:

MIDWEST GENERATION

ROUX

Compiled by: NK

Prepared by: NK

Project Mgr: TS

File: FIGURE 1 - AREA CAPACITY CURVE.DWG

Date: 06/30/2026

Scale: AS SHOWN

Project: 2873.00061007

FIGURE
1

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSO\REVISED LSO\REVISED FIGURES\3Q2025_4Q25 FIGURES.DWG

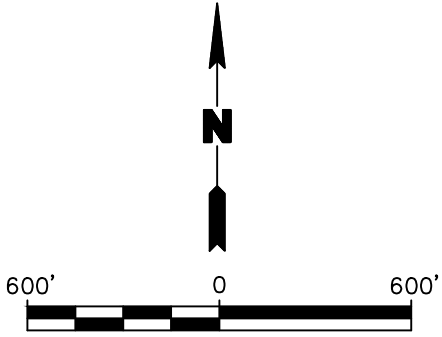


LEGEND

- G41D LANDFILL PERMIT MONITORING WELL*
- T05S POTENTIAL CCR ASSESSMENT MONITORING WELL (EXISTING)
- G44S PROPOSED CCR MONITORING WELL (EXISTING)
- G30WT PROPOSED CCR MONITORING WELL (TO BE INSTALLED)
- X101 EXTRACTION WELL

NOTES

- WT — WATER TABLE WELL
- S — SHALLOW ZONE WELL
- D — DEEP ZONE WELL
- * — ALL WELLS ON THIS MAP ARE A PART OF THE LANDFILL PERMIT, EXCEPT FOR T14S AND T16S. WELLS DESIGNATED AS "LANDFILL PERMIT MONITORING WELL" ARE NOT PART OF THE CCR MONITORING WELL NETWORK OR EXTRACTION WELL SYSTEM.



Title:

SITE MAP

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:

MIDWEST GENERATION



Compiled by: NK

Date: 7/01/2026

FIGURE

Prepared by: NK

Scale: AS SHOWN

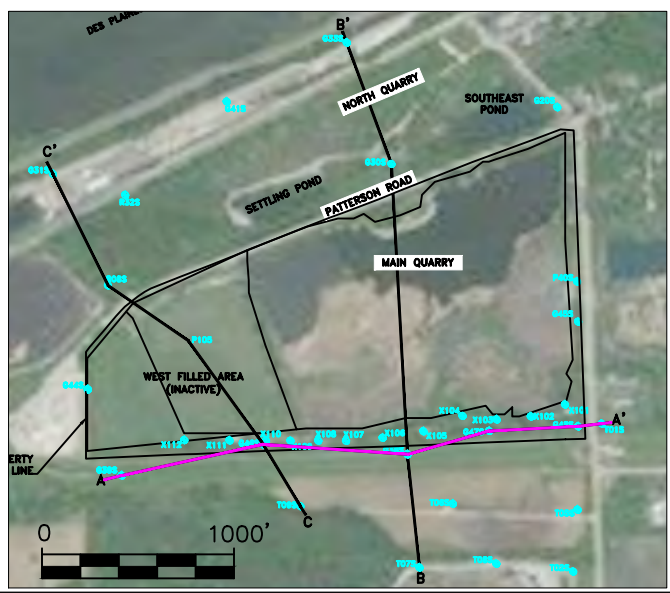
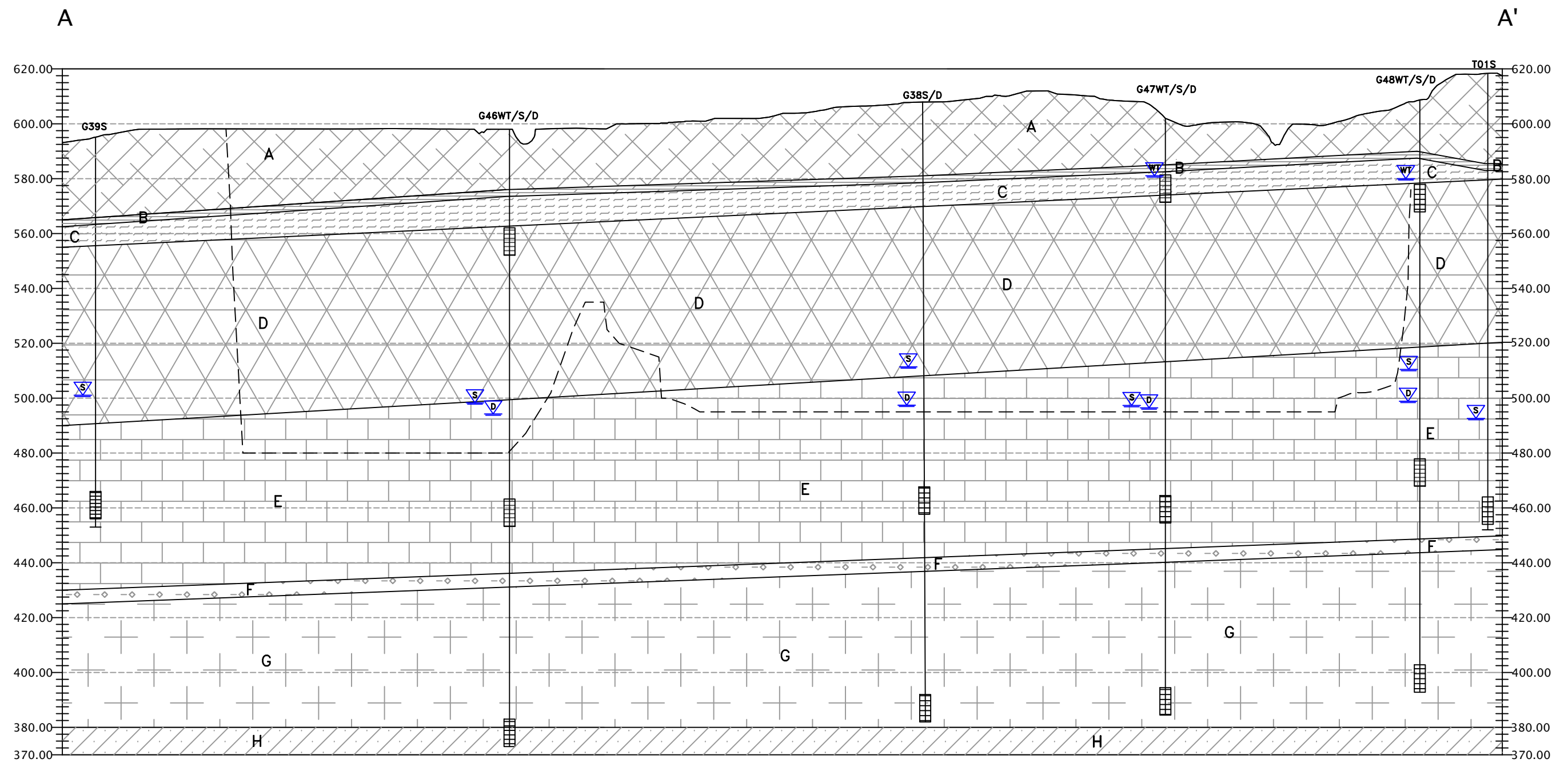
Project Mgr: TS

Project: 2873.00061007

File: 3Q2025_4Q25 FIGURES.DWG

9-1

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSQ\REVISED LSQ APPLIC FOR OP PERMIT 2026\REVISED FIGURES\CAD FILES\LSQ X-SECTION FIGURES.DWG



LEGEND

A

B

C

D

E

F

G

H

WT—WELLS WATER LEVEL (11/2025)

D—WELLS WATER LEVEL (11/2025)

S—WELLS WATER LEVEL (11/2025)

PROJECTED POND OUTLINE

UNCONSOLIDATED OVERBURDEN

WEATHERED DOLOMITE

JOLIET FORMATION DOLOMITE

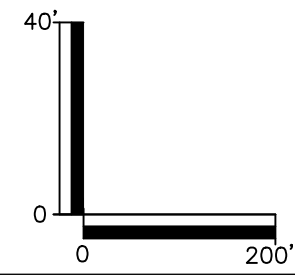
KANKAKEE FORMATION DOLOMITE

ELWOOD/WILHELMI DOLOMITE

BRAINARD SHALE

FORT ATKINSON DOLOMITE

SCALES SHALE



Title:

CROSS SECTION A-A'

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:

MIDWEST GENERATION

Compiled by: NK

Date: 06/30/2026

Prepared by: NK

Scale: AS SHOWN

Project Mgr: TS

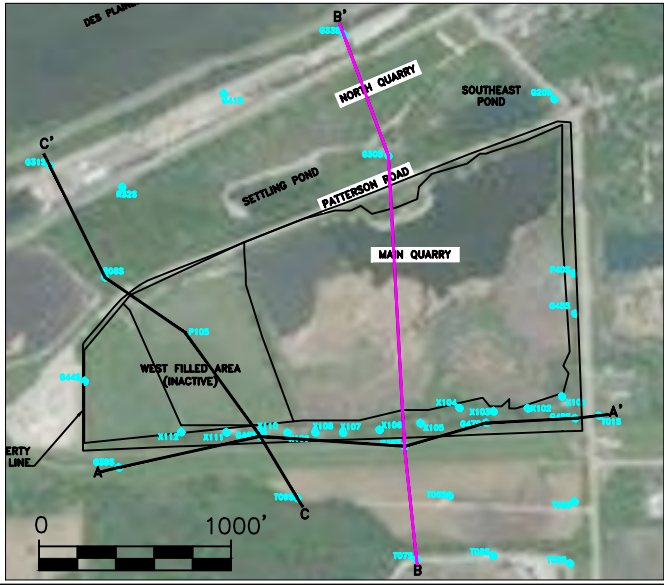
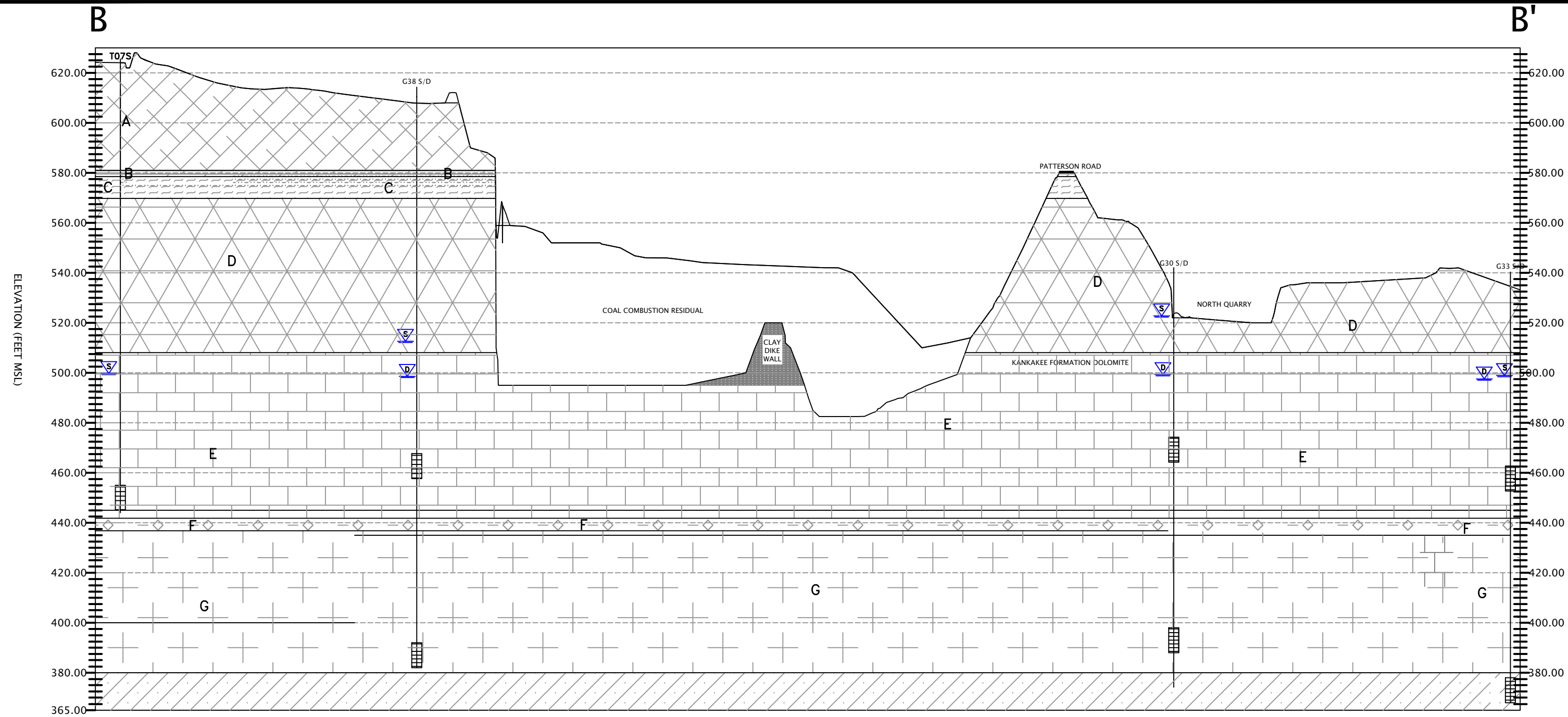
Project: 2873.00061007

File: LSQ X-SECTION FIGURES.DWG

FIGURE

9-2

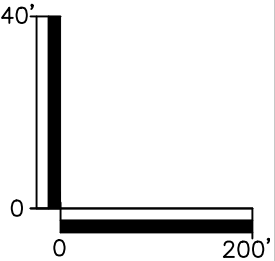
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LEGEND

- A UNCONSOLIDATED OVERBURDEN
- B WEATHERED DOLOMITE
- C JOLIET FORMATION DOLOMITE
- D KANKAKEE FORMATION DOLOMITE
- E ELWOOD/WILHELMI DOLOMITE
- F BRAINARD SHALE
- G FORT ATKINSON DOLOMITE
- H SCALES SHALE

- WT WELLS WATER LEVEL (11/2025)
- D WELLS WATER LEVEL (11/2025)
- S WELLS WATER LEVEL (11/2025)



Title:

CROSS SECTION B-B'

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

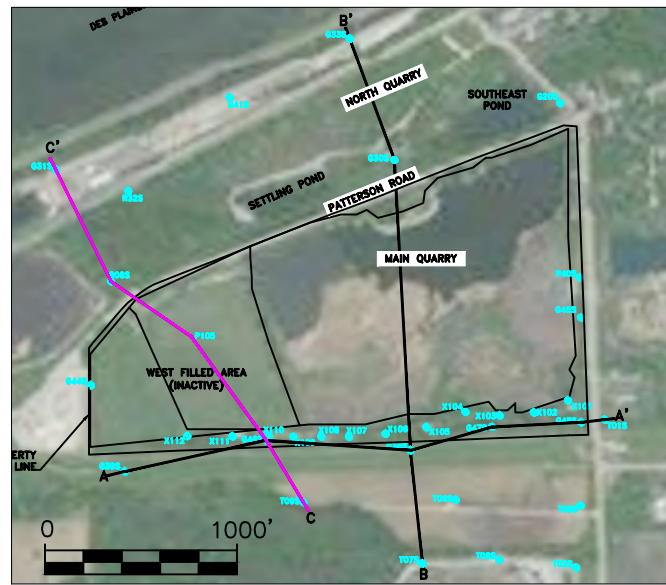
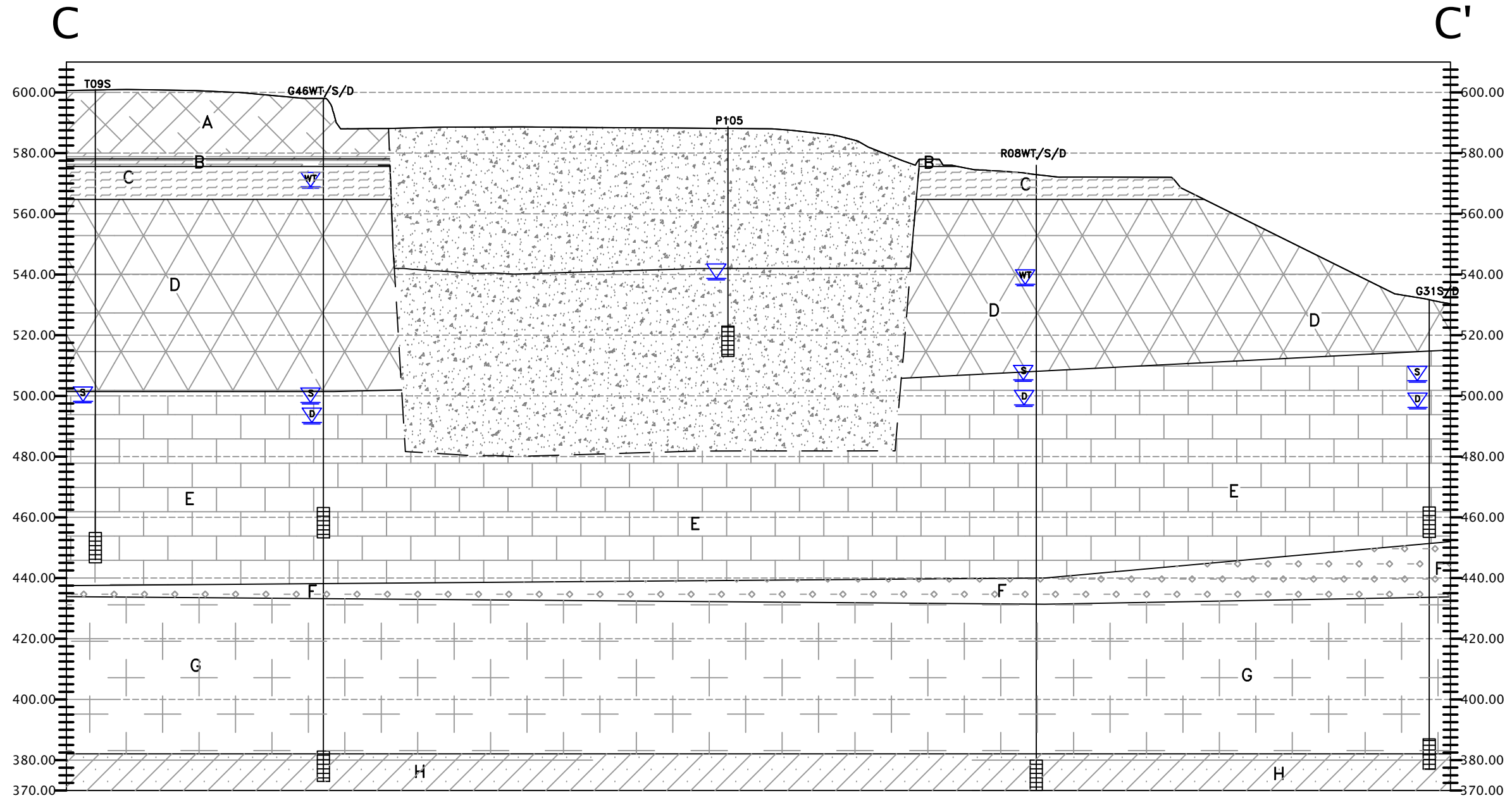
Prepared for:

MIDWEST GENERATION

ROUX

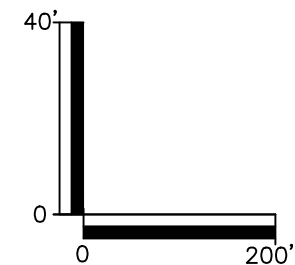
Compiled by: NK	Date: 06/30/2026	FIGURE 9-3
Prepared by: NK	Scale: AS SHOWN	
Project Mgr: TS	Project: 2873.00061007	
File: LSQ X-SECTION FIGURES.DWG		

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSQ\REVISED LSO\REVISED FIGURES\CAD FILES\LSQ X-SECTION FIGURES.DWG



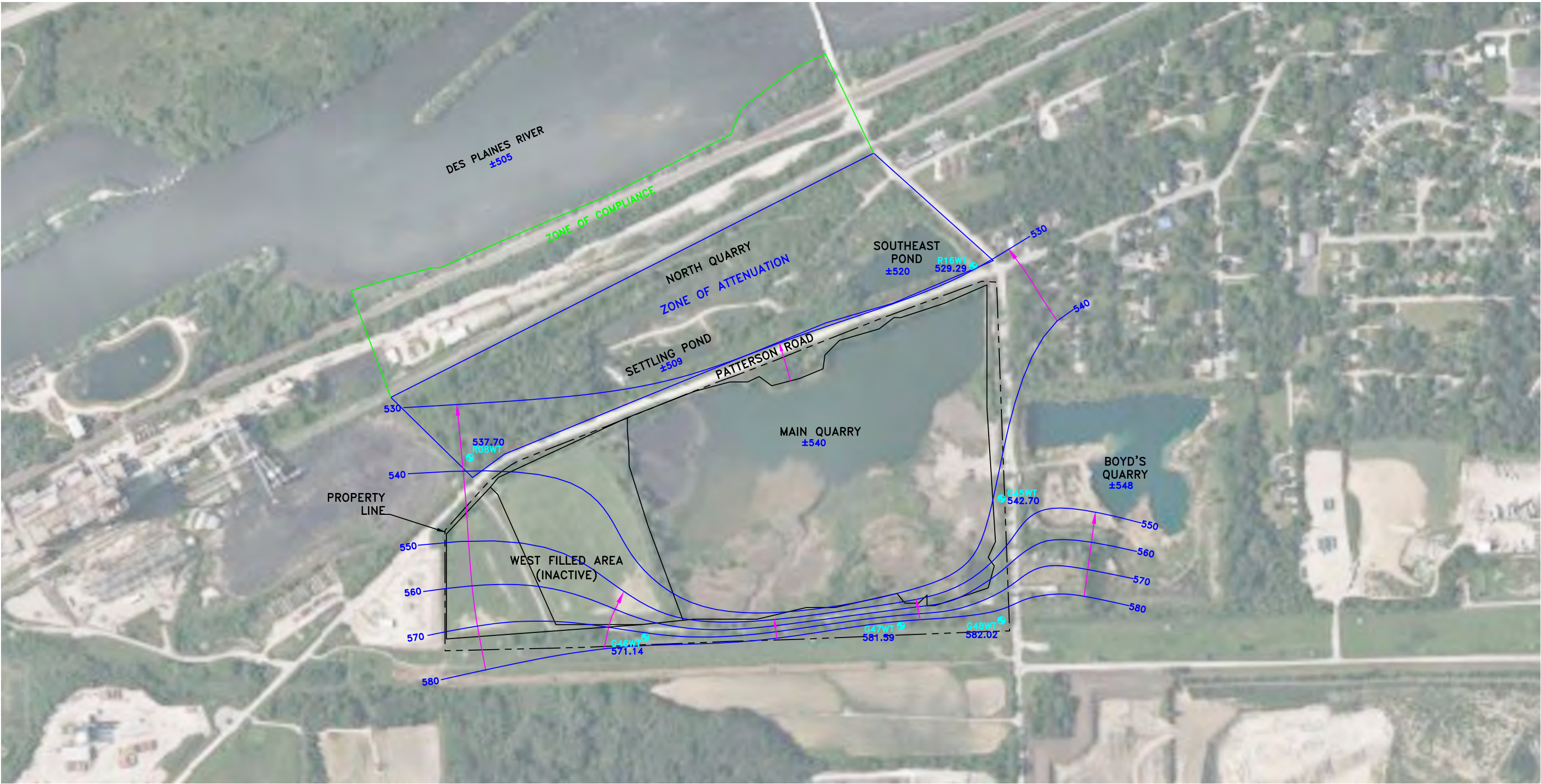
LEGEND

	UNCONSOLIDATED OVERBURDEN		WT—WELLS WATER LEVEL (11/2025)
	WEATHERED DOLOMITE		D—WELLS WATER LEVEL (11/2025)
	JOLIET FORMATION DOLOMITE		S—WELLS WATER LEVEL (11/2025)
	KANKAKEE FORMATION DOLOMITE		PROJECTED POND OUTLINE
	ELWOOD/WILHELMI DOLOMITE		
	BRAINARD SHALE		
	FORT ATKINSON DOLOMITE		
	SCALES SHALE		



Title: CROSS SECTION C-C'			
LINCOLN STONE QUARRY JOLIET, ILLINOIS			
Prepared for: MIDWEST GENERATION			
	Compiled by: NK	Date: 06/30/2026	FIGURE 9-4
	Prepared by: NK	Scale: AS SHOWN	
	Project Mgr: TS	Project: 2873.00061007	
	File: LSQ X-SECTION FIGURES.DWG		

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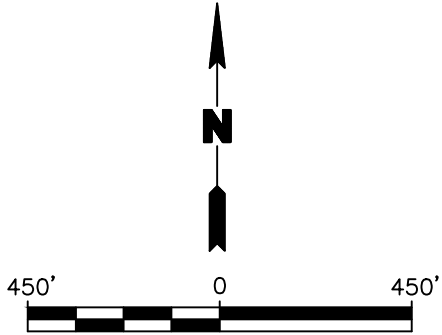


LEGEND

- POTENTIOMETRIC CONTOUR (10' INTERVALS)
- FLOW LINE

NOTE

- WT — WATER TABLE WELL
- S — SHALLOW ZONE WELL
- D — DEEP ZONE WELL



Title:

**WATER TABLE POTENTIOMETRIC
SURFACE MAP
JANUARY/FEBRUARY 2025**

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:

MIDWEST GENERATION

ROUX

Compiled by: NK

Prepared by: NK

Project Mgr: TS

File: 1Q25_2Q25 FIGURES.DWG

Date: 7/01/2026

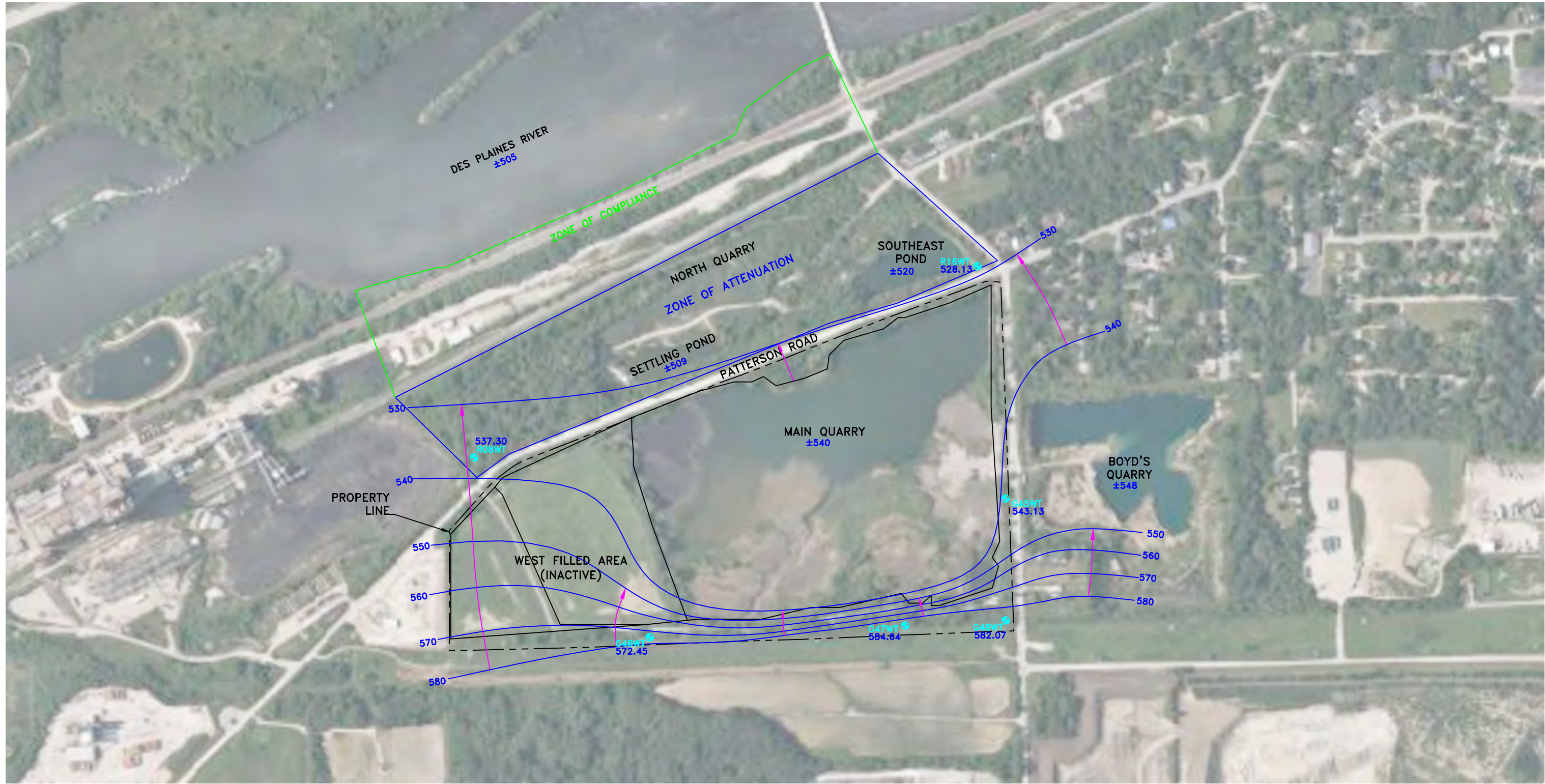
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Project: 2873.00061007

FIGURE

9-5

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSG\REVISED LSG APPLIC FOR OP PERMIT 2026\REVISED FIGURES\CAD FILES\1Q25_2Q25 FIGURES.DWG

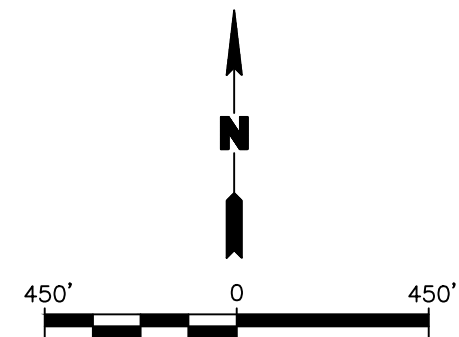


LEGEND

- POTENTIOMETRIC CONTOUR (10' INTERVALS)
- FLOW LINE

NOTE

- WT — WATER TABLE WELL
- S — SHALLOW ZONE WELL
- D — DEEP ZONE WELL



Title:

WATER TABLE POTENTIOMETRIC
SURFACE MAP
APRIL/MAY 2025

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:

MIDWEST GENERATION

ROUX

Compiled by: NK

Prepared by: NK

Project Mgr: TS

File: 1Q25_2Q25 FIGURES.DWG

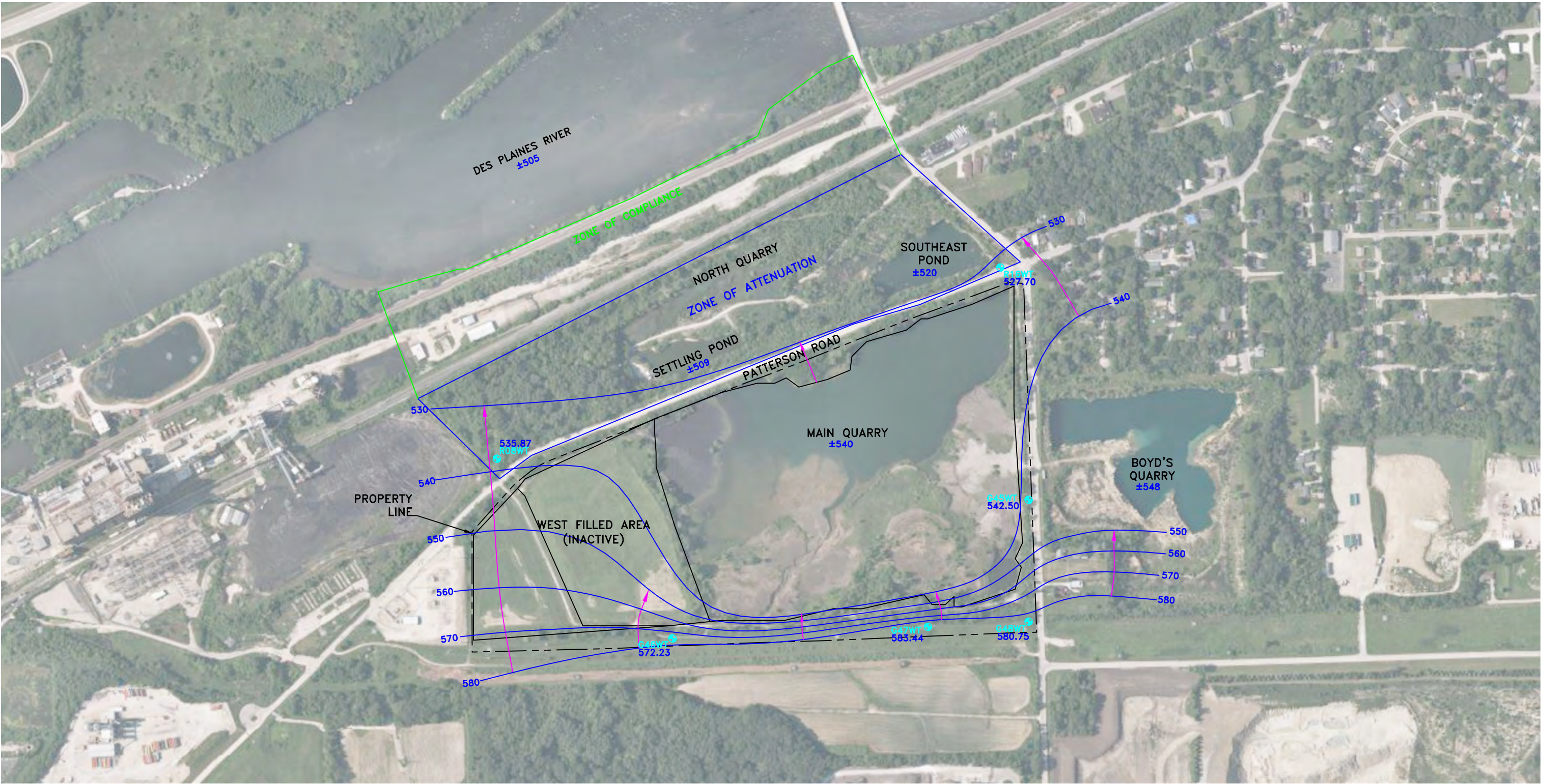
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Scale: AS SHOWN

Project: 2873.00061007

FIGURE
9-6

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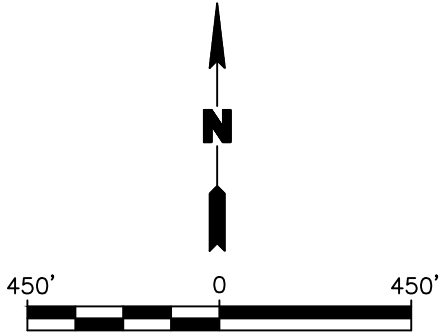


LEGEND

- POTENTIOMETRIC CONTOUR (10' INTERVAL)
- FLOW LINE

NOTE

- WT — WATER TABLE WELL
- S — SHALLOW ZONE WELL
- D — DEEP ZONE WELL



Title:

**WATER TABLE POTENTIOMETRIC
SURFACE MAP
JULY/AUGUST 2025**

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:

MIDWEST GENERATION

Compiled by: NK

Prepared by: NK

Project Mgr: TS

File: 3Q2025_4Q25 FIGURES.DWG

Date: 7/01/2026

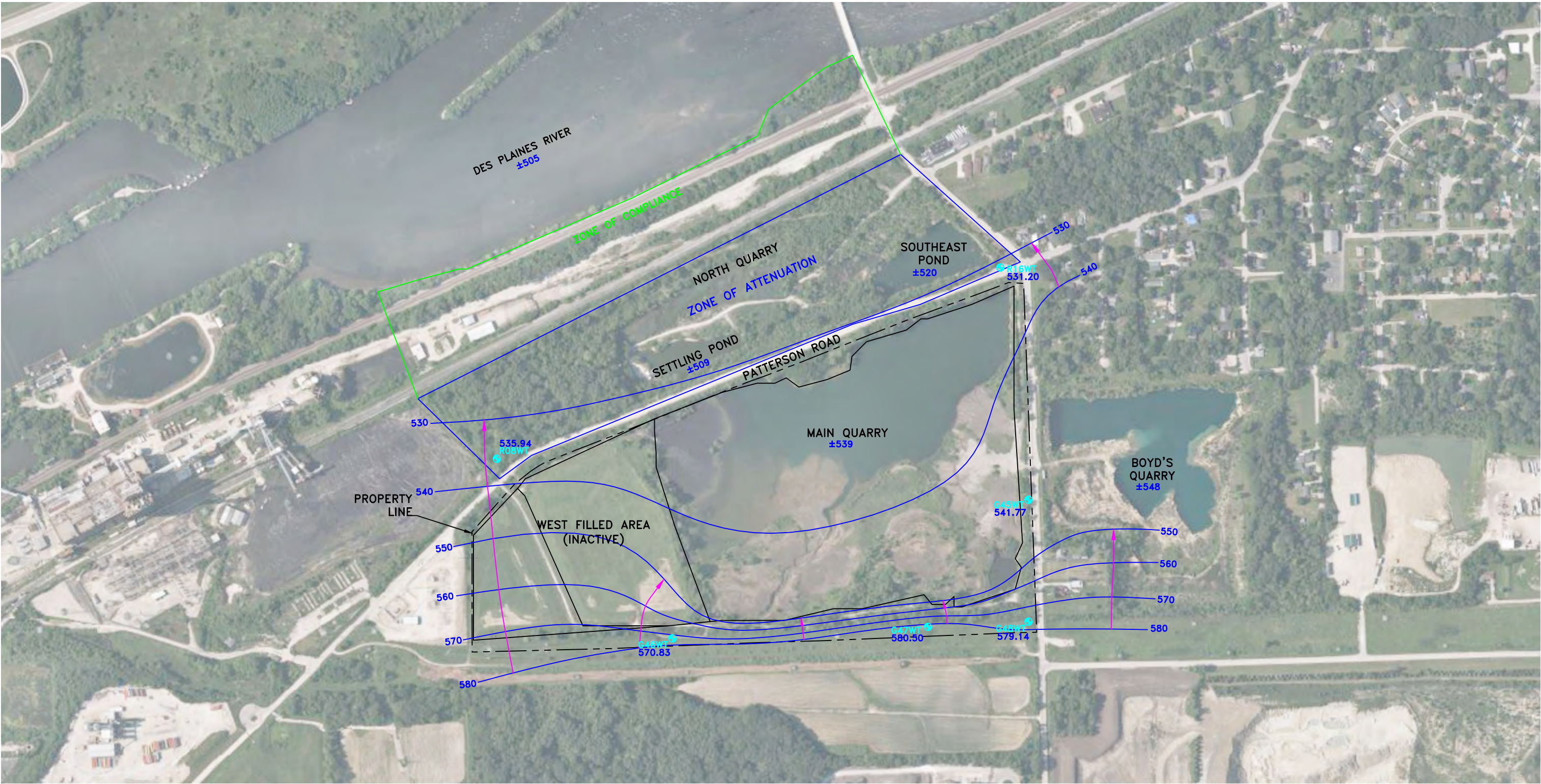
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Project: 2873.00061007

FIGURE

9-7

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSG\REVISED LSG APPLIC FOR OP PERMIT 2026\REVISED FIGURES\CAD FILES\3Q2025_4Q25 FIGURES.DWG

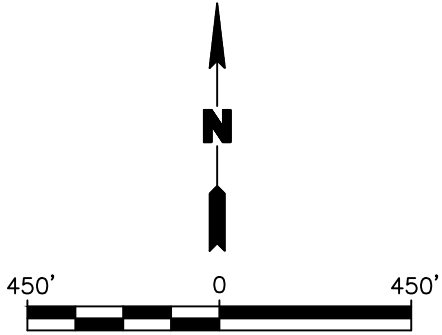


LEGEND

- POTENTIOMETRIC CONTOUR (10' INTERVAL)
- FLOW LINE

NOTE

- WT — WATER TABLE WELL
- S — SHALLOW ZONE WELL
- D — DEEP ZONE WELL



Title:

**WATER TABLE POTENTIOMETRIC
SURFACE MAP
OCTOBER/NOVEMBER 2025**

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:

MIDWEST GENERATION

ROUX

Compiled by: NK

Date: 7/01/2026

Prepared by: NK

Scale: AS SHOWN

Project Mgr: TS

Project: 2873.00061007

File: 3Q2025_4Q25 FIGURES.DWG

FIGURE

9-8

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSO\REVISED LSO\REVISED FIGURES\CAD FILES\1Q25_2Q25 FIGURES.DWG

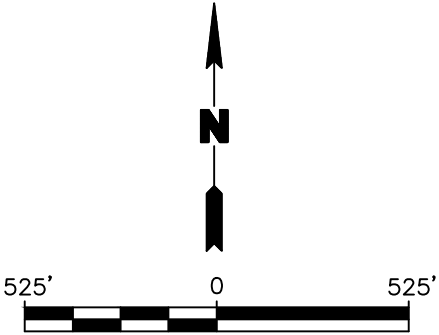


LEGEND

- POTENTIOMETRIC CONTOUR (10' INTERVALS)
- FLOW LINE

NOTE

- 1. WT — WATER TABLE WELL
- 2. S — SHALLOW ZONE WELL
- 3. D — DEEP ZONE WELL



Title:

SHALLOW ZONE POTENTIOMETRIC
SURFACE MAP
JANUARY/FEBRUARY 2025

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:

MIDWEST GENERATION

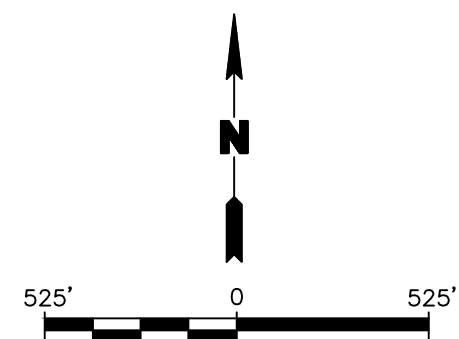
ROUX

Compiled by: NK	Date: 7/01/2026	FIGURE 9-9
Prepared by: NK	Scale: AS SHOWN	
Project Mgr: TS	Project: 2873.00061007	
File: 1Q25_2Q25 FIGURES.DWG		

POTENTIOMETRIC CONTOUR (10' INTERVALS)

FLOW LINE

1. WT – WATER TABLE WELL
2. S – SHALLOW ZONE WELL
3. D – DEEP ZONE WELL

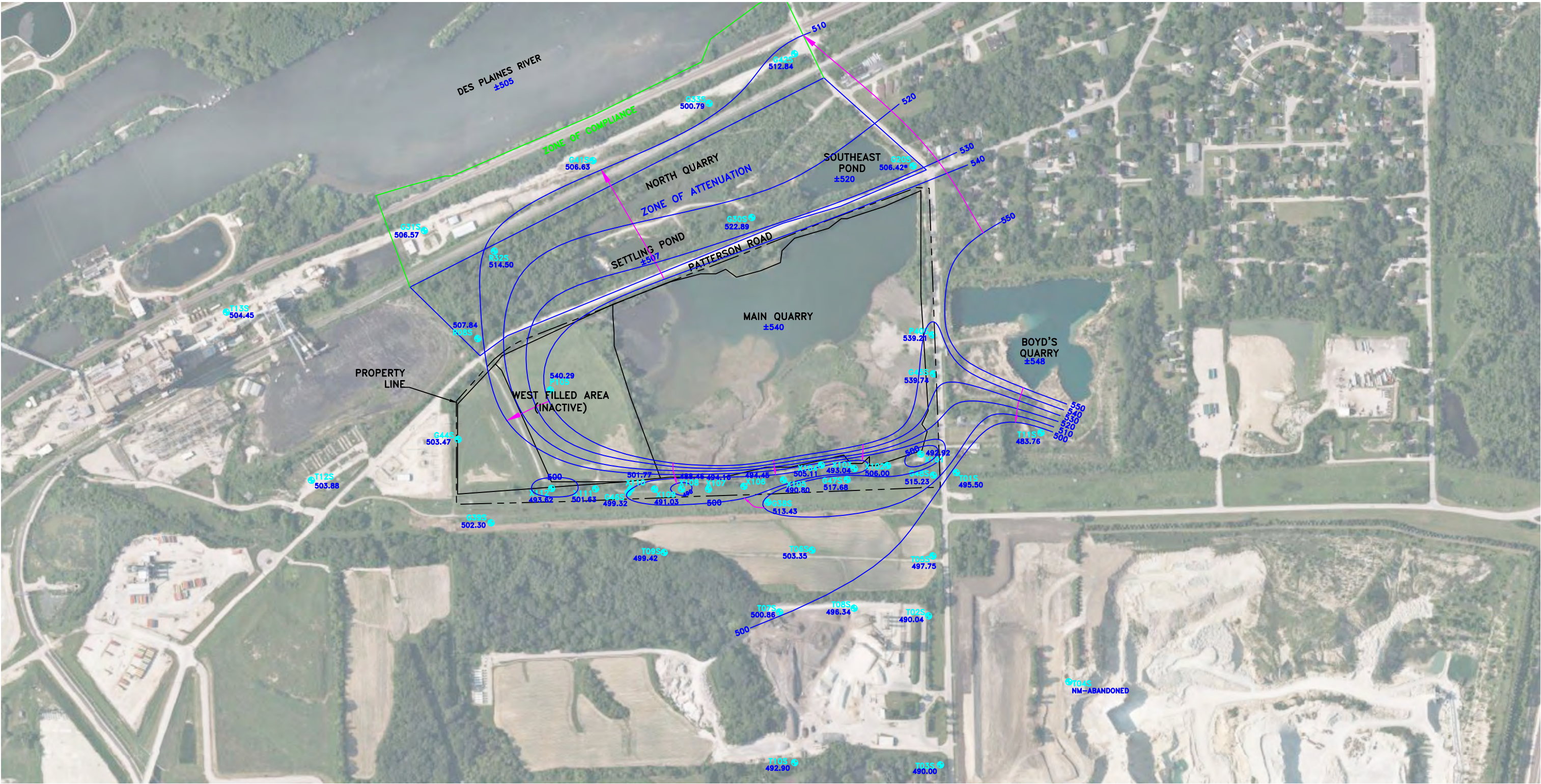
LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:

MIDWEST GENERATION

	Compiled by: NK	Date: 7/01/2026	FIGURE 9-10
	Prepared by: NK	Scale: AS SHOWN	
	Project Mgr: TS	Project: 2873.0006I007	
	File: 1Q25_2Q25 FIGURES.DWG		

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSG\REVISED LSG\REVISED FIGURES\CAD FILES\3Q2025_4Q25 FIGURES.DWG

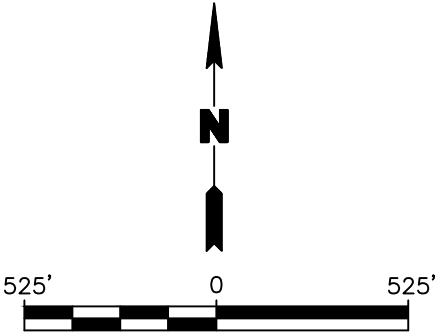


LEGEND

- POTENTIOMETRIC CONTOUR (10' INTERVAL)
- FLOW LINE

NOTE

- WT — WATER TABLE WELL
- S — SHALLOW ZONE WELL
- D — DEEP ZONE WELL



Title:

SHALLOW ZONE POTENTIOMETRIC
SURFACE MAP
JULY/AUGUST 2025

Prepared for:

MIDWEST GENERATION

Compiled by: NK

Date: 7/01/2026

Prepared by: NK

Scale: AS SHOWN

Project Mgr: TS

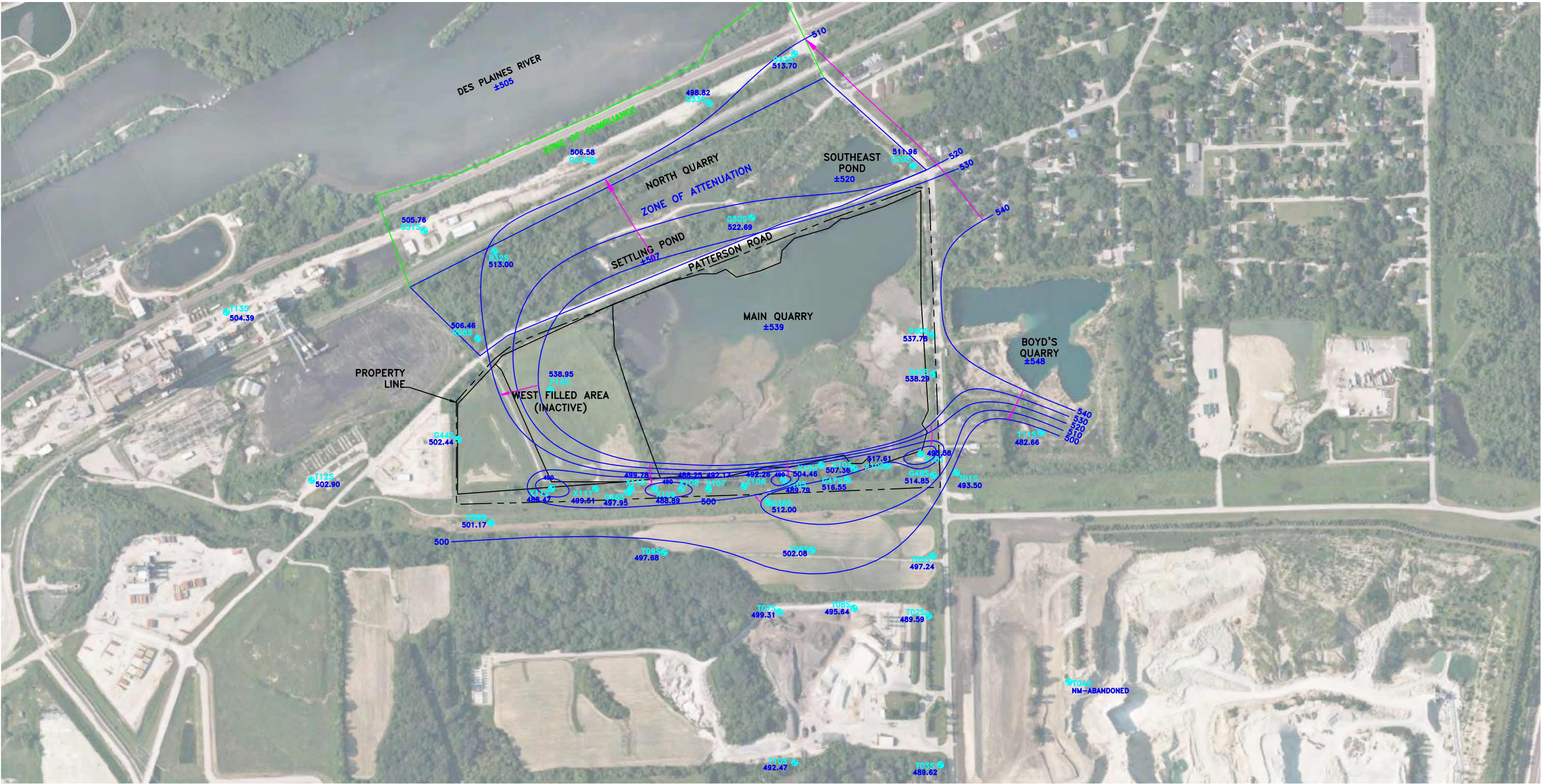
Project: 2873.00061007

File: 3Q2025_4Q25 FIGURES.DWG

FIGURE

9-11

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSG\REVISED LSG\REVISED FIGURES\2025_4Q25 FIGURES.DWG

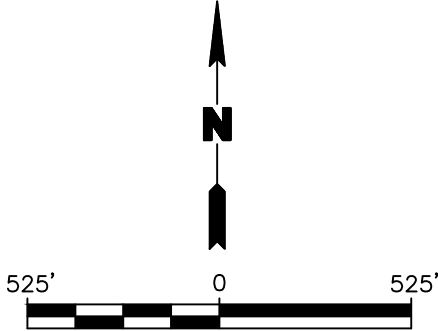


LEGEND

- POTENTIOMETRIC CONTOUR (10' INTERVAL)
- FLOW LINE

NOTE

- WT — WATER TABLE WELL
- S — SHALLOW ZONE WELL
- D — DEEP ZONE WELL



Title: **SHALLOW ZONE POTENTIOMETRIC SURFACE MAP**
OCTOBER/NOVEMBER 2025

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:
MIDWEST GENERATION

ROUX	Compiled by: NK	Date: 7/01/2026	FIGURE 9-12
	Prepared by: NK	Scale: AS SHOWN	
	Project Mgr: TS	Project: 2873.00061007	
	File: 3Q2025_4Q25 FIGURES.DWG		

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSG\REVISED LSG\REVISED FIGURES\CAD FILES\1Q25_2Q25 FIGURES.DWG

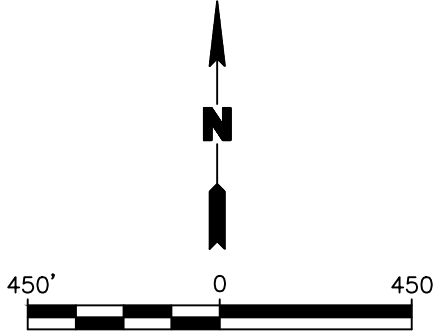


LEGEND

- POTENTIOMETRIC CONTOUR (5' INTERVALS)
- DETAIL POTENTIOMETRIC CONTOUR
- FLOW LINE

NOTE

- WT — WATER TABLE WELL
- S — SHALLOW ZONE WELL
- D — DEEP ZONE WELL



Title:

**DEEP ZONE POTENTIOMETRIC
SURFACE MAP
JANUARY/FEBRUARY 2025**

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:

MIDWEST GENERATION

ROUX

Compiled by: NK

Prepared by: NK

Project Mgr: TS

File: 1Q25_2Q25 FIGURES.DWG

Date: 7/01/2026

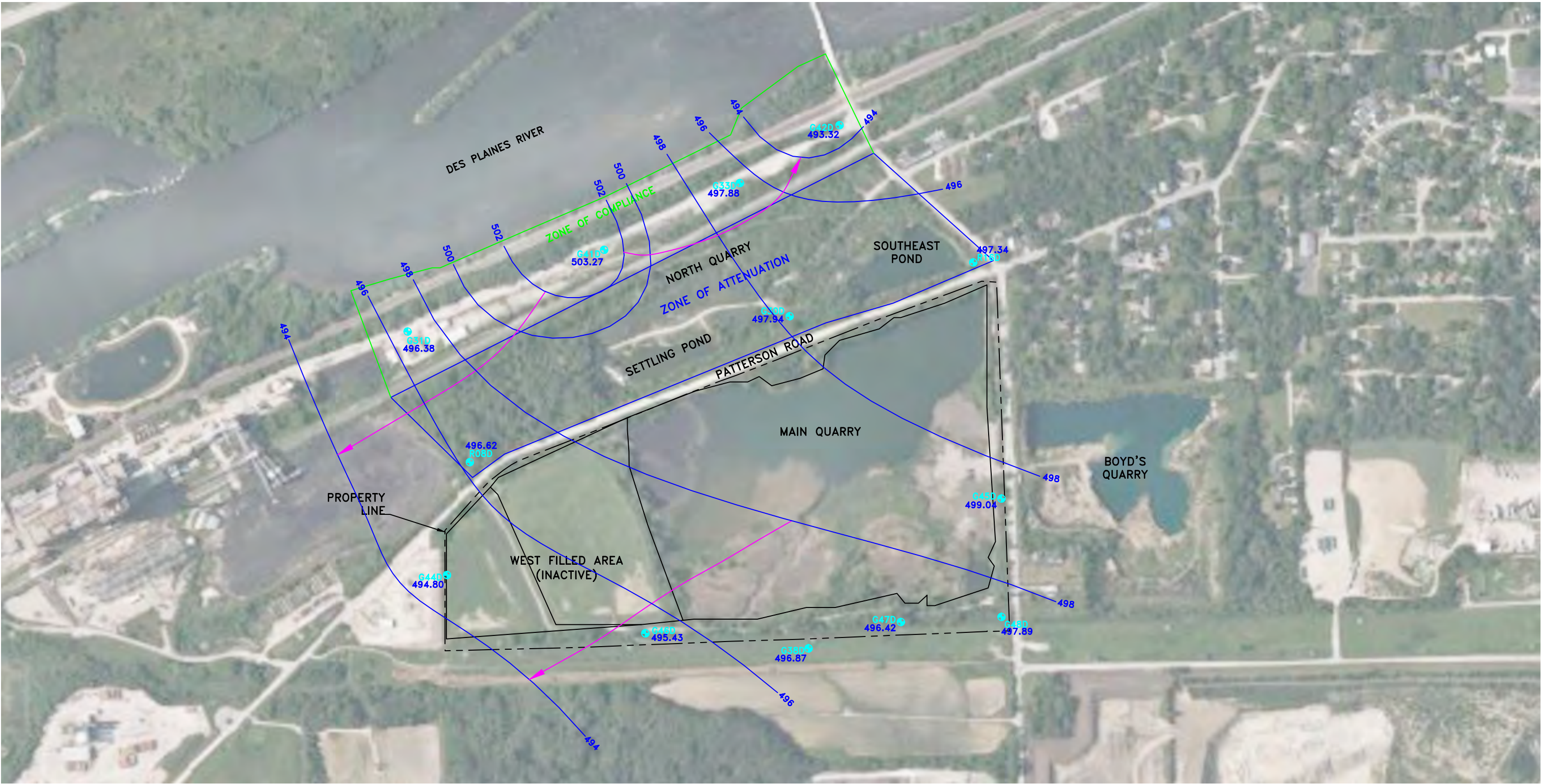
Scale: AS SHOWN

Project: 2873.00061007

FIGURE

9-13

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSG\REVISED LSG\REVISED FIGURES\CAD FILES\1Q25_2Q25 FIGURES.DWG

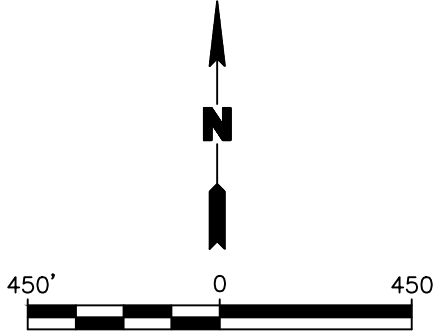


LEGEND

- POTENTIOMETRIC CONTOUR (2' INTERVALS)
- FLOW LINE

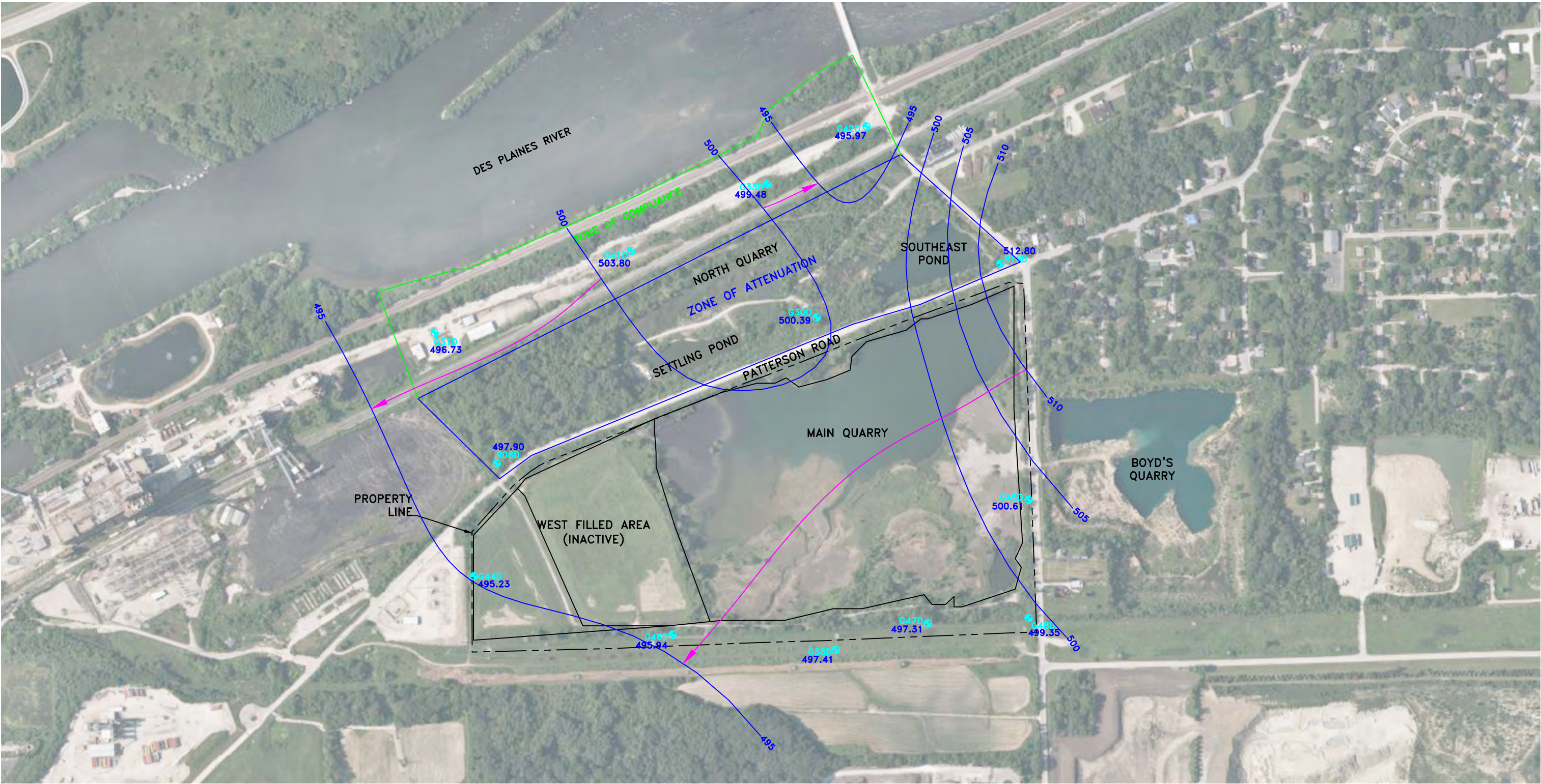
NOTE

- WT — WATER TABLE WELL
- S — SHALLOW ZONE WELL
- D — DEEP ZONE WELL



Title: DEEP ZONE POTENTIOMETRIC SURFACE MAP APRIL/MAY 2025 LINCOLN STONE QUARRY JOLIET, ILLINOIS			
Prepared for: MIDWEST GENERATION			
ROUX	Compiled by: NK	Date: 7/01/2026	FIGURE 9-14
	Prepared by: NK	Scale: AS SHOWN	
	Project Mgr: TS	Project: 2873.00061007	
	File: 1Q25_2Q25 FIGURES.DWG		

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSG\REVISED LSG APPLIC FOR OP PERMIT 2026\REVISED FIGURES\CAD FILES\3Q2025_4Q25 FIGURES.DWG

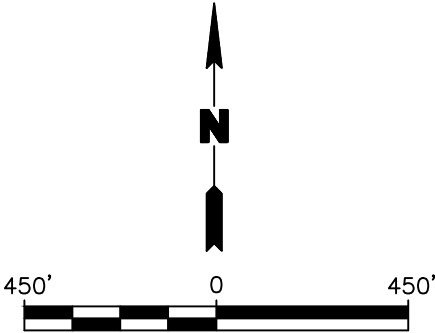


LEGEND

- POTENTIOMETRIC CONTOUR (5' INTERVAL)
- FLOW LINE

NOTE

- WT — WATER TABLE WELL
- S — SHALLOW ZONE WELL
- D — DEEP ZONE WELL



Title:

**DEEP ZONE POTENTIOMETRIC
SURFACE MAP
JULY/AUGUST 2025**

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Prepared for:

MIDWEST GENERATION

Compiled by: NK

Prepared by: NK

Project Mgr: TS

File: 3Q2025_4Q25 FIGURES.DWG

Date: 7/01/2026

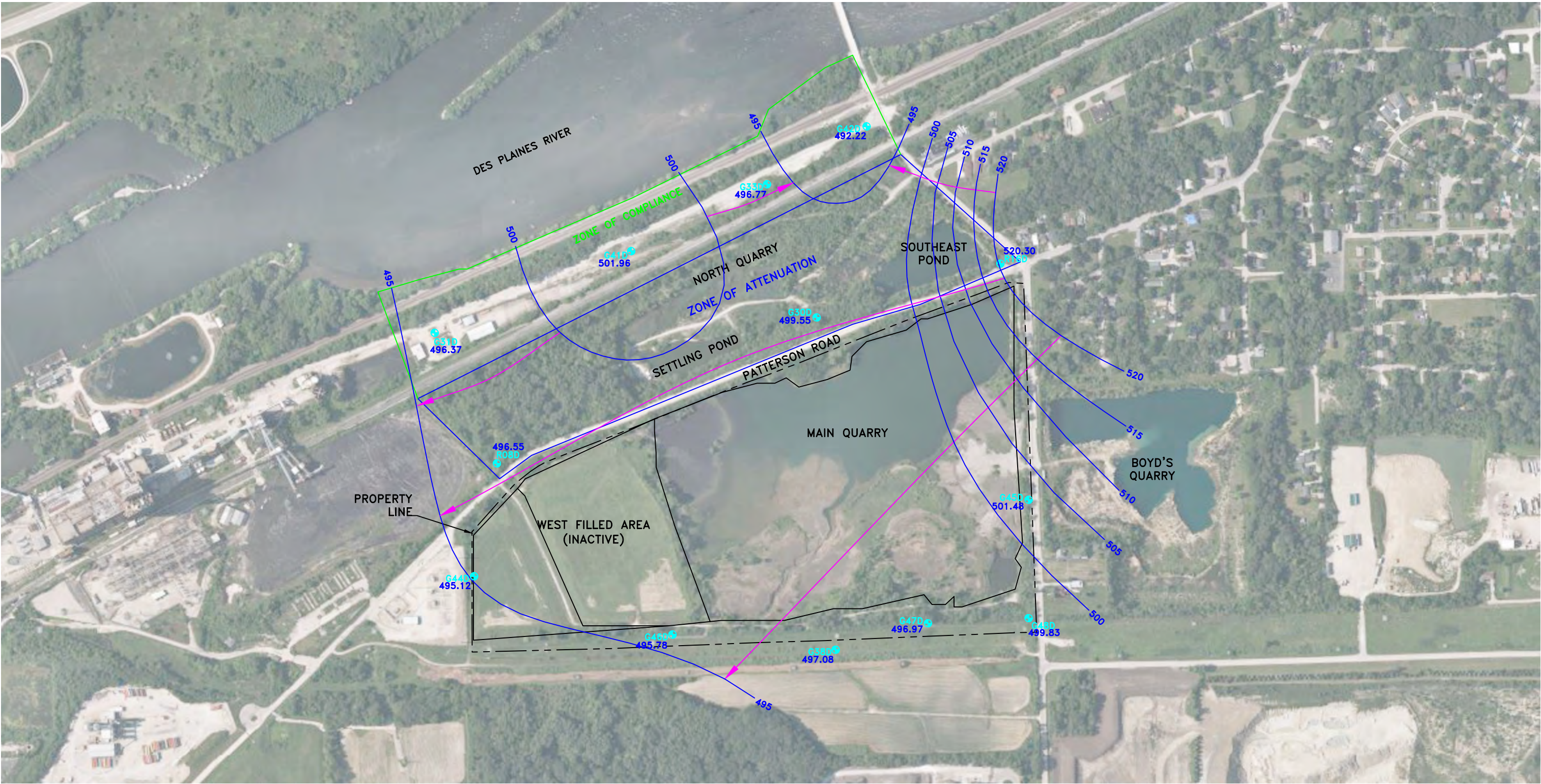
Scale: AS SHOWN

Project: 2873.00061007

FIGURE

9-15

T:\NRG\MIDWEST GENERATION\19520 - MWGEN OPERATING PERMITS VARIOUS STATIONS\19520.4 - LSG\REVISED LSG APPLIC FOR OP PERMIT 2026\REVISED FIGURES\CAD FILES\3Q2025_4Q25 FIGURES.DWG

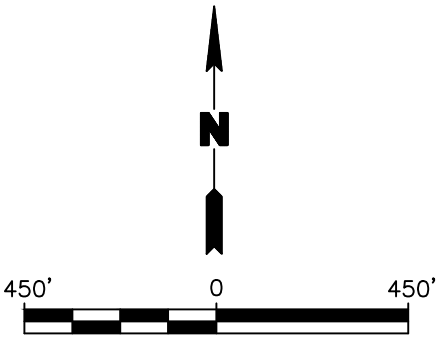


LEGEND

POTENTIOMETRIC CONTOUR (5' INTERVAL)

FLOW LINE

- NOTE**
- 1. WT — WATER TABLE WELL
 - 2. S — SHALLOW ZONE WELL
 - 3. D — DEEP ZONE WELL



Title:

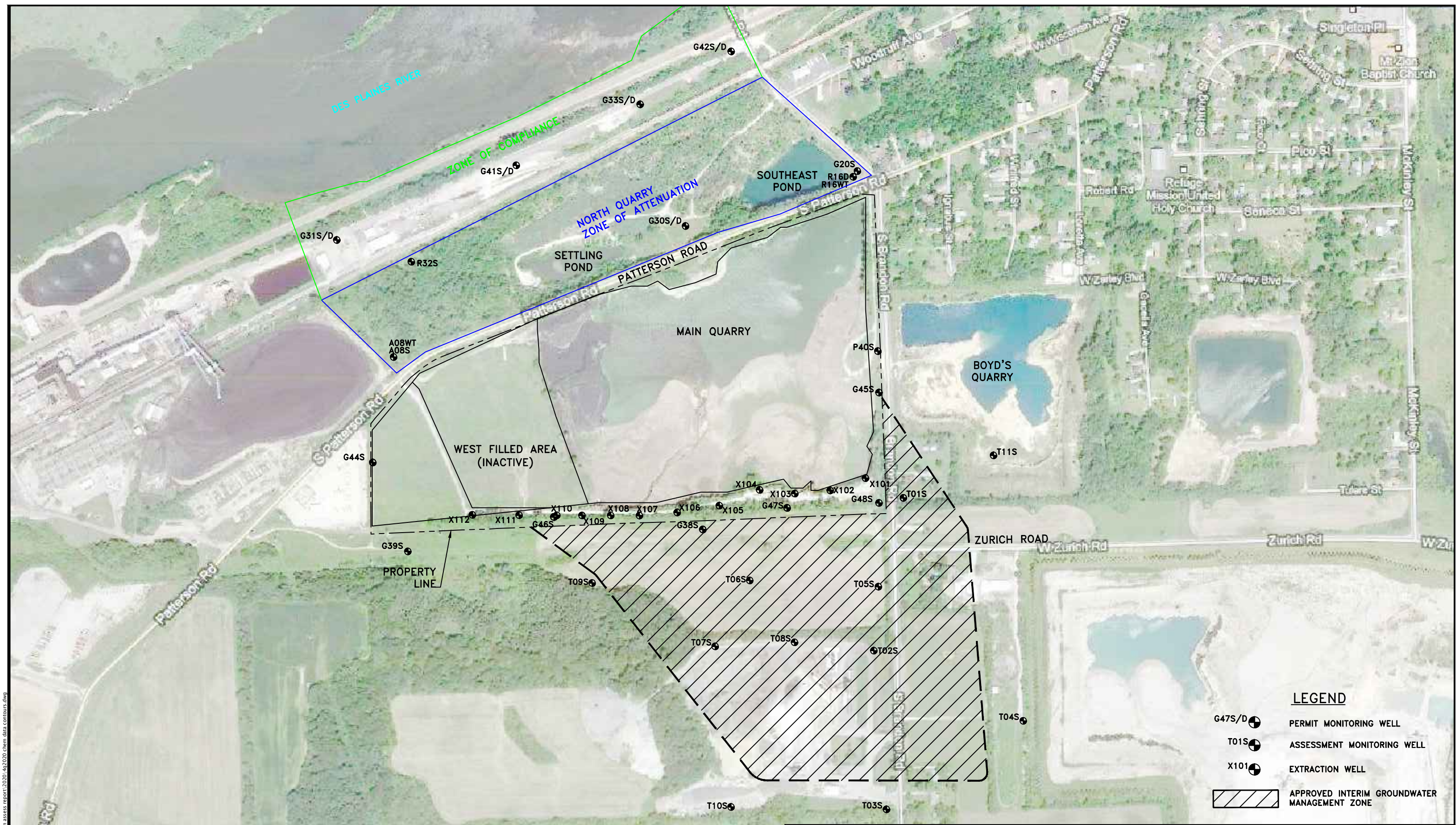
**DEEP ZONE POTENTIOMETRIC
SURFACE MAP
OCTOBER/NOVEMBER 2025**

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

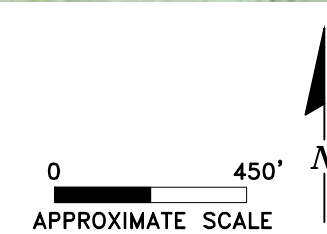
Prepared for:

MIDWEST GENERATION

Compiled by: NK	Date: 7/01/2026	FIGURE 9-16
Prepared by: NK	Scale: AS SHOWN	
Project Mgr: TS	Project: 2873.00061007	
File: 3Q2025_4Q25 FIGURES.DWG		



Note: WT – Water Table Well; S – Shallow Zone Well; D – Deep Zone Well



LEGEND

- G47S/D PERMIT MONITORING WELL
- T01S ASSESSMENT MONITORING WELL
- X101 EXTRACTION WELL
- APPROVED INTERIM GROUNDWATER MANAGEMENT ZONE

ENVIRONMENTAL CONSULTATION & REMEDIATION		GROUNDWATER MANAGEMENT ZONE	
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		LINCOLN STONE QUARRY JOLIET, ILLINOIS	
		Scale: 1" = 450'	Date: February 22, 2021
KPRG Project No. 21406.14		FIGURE 9-17	



Note: * — NO TOTAL DEPTH GIVEN

LEGEND

- WATER WELL
- 42053 SHORT API WELL ID
- 900 TOTAL DEPTH
- ⓐ WELL EITHER MISLOCATED OR NO LONGER EXISTS (SEE TEXT DISCUSSION)



ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, inc.

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

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

2500' RADIUS POTABLE WELL MAP

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Scale: 1" = 600' Date: September 13, 2021

KPRG Project No. 19520.4

FIGURE 9-18

ATTACHMENT 1

History of Construction

ATTACHMENT 2-1

CCR Laboratory Data Package

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-204544-1
Client Project/Site: Joliet #29 Ash

For:

KPRG and Associates, Inc.
14665 West Lisbon Road,
Suite 1A
Brookfield, Wisconsin 53005

Attn: Richard Gnat



Authorized for release by:
9/15/2021 5:41:59 PM

Diana Mockler, Project Manager I
(219)252-7570
Diana.Mockler@Eurofinset.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Method Summary	4
Sample Summary	5
Client Sample Results	6
Definitions	7
QC Association	8
QC Sample Results	10
Chain of Custody	14
Receipt Checklists	15
Certification Summary	16

Case Narrative

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Job ID: 500-204544-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-204544-1

Comments

No additional comments.

Receipt

The sample was received on 8/31/2021 1:00 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 22.4° C.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL CHI
7471A	Mercury (CVAA)	SW846	TAL CHI
9056A	Anions, Ion Chromatography	SW846	TAL CHI
Moisture	Percent Moisture	EPA	TAL CHI
SM 4500 Cl- E	Chloride, Total	SM	TAL CHI
SM 4500 F C	Fluoride	SM	TAL CHI
300_Prep	Anions, Ion Chromatography, 10% Wt/Vol	MCAWW	TAL CHI
3050B	Preparation, Metals	SW846	TAL CHI
7471A	Preparation, Mercury	SW846	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-204544-1	Joliet #29 Ash	Solid	08/31/21 10:00	08/31/21 13:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Client Sample ID: Jolet #29 Ash

Lab Sample ID: 500-204544-1

Date Collected: 08/31/21 10:00

Matrix: Solid

Date Received: 08/31/21 13:00

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.8	F1	1.8		mg/Kg		09/10/21 08:41	09/12/21 15:18	1
Arsenic	1.5	F1	0.89		mg/Kg		09/10/21 08:41	09/12/21 15:18	1
Barium	3000		4.4		mg/Kg		09/10/21 08:41	09/13/21 21:10	5
Beryllium	1.5	F1	0.35		mg/Kg		09/10/21 08:41	09/12/21 15:18	1
Boron	130	F1 V	4.4		mg/Kg		09/10/21 08:41	09/12/21 15:18	1
Cadmium	<0.18		0.18		mg/Kg		09/10/21 08:41	09/12/21 15:18	1
Calcium	100000		89		mg/Kg		09/10/21 08:41	09/13/21 21:10	5
Chromium	12	F1	0.89		mg/Kg		09/10/21 08:41	09/12/21 15:18	1
Cobalt	15		11		mg/Kg		09/10/21 08:41	09/14/21 10:57	25
Lead	5.6		0.44		mg/Kg		09/10/21 08:41	09/12/21 15:18	1
Lithium	20	V	0.89		mg/Kg		09/10/21 08:41	09/12/21 15:18	1
Molybdenum	1.1	F1	0.89		mg/Kg		09/10/21 08:41	09/12/21 15:18	1
Selenium	<0.89	F1	0.89		mg/Kg		09/10/21 08:41	09/12/21 15:18	1
Thallium	2.9		0.89		mg/Kg		09/10/21 08:41	09/12/21 15:18	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.016		0.016		mg/Kg		09/09/21 13:15	09/10/21 09:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	560		19		mg/Kg		09/14/21 11:45	09/14/21 17:58	10
Chloride	<20		20		mg/Kg		09/15/21 09:49	09/15/21 15:04	1
Fluoride	<1.0		1.0		mg/Kg		09/15/21 09:49	09/15/21 12:47	1

Definitions/Glossary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
F3	Duplicate RPD exceeds the control limit
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
V	Serial Dilution exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Metals

Prep Batch: 617888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	7471A	
MB 500-617888/12-A	Method Blank	Total/NA	Solid	7471A	
LCS 500-617888/13-A	Lab Control Sample	Total/NA	Solid	7471A	

Prep Batch: 618052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	3050B	
MB 500-618052/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 500-618052/2-A	Lab Control Sample	Total/NA	Solid	3050B	
500-204544-1 MS	Joliet #29 Ash	Total/NA	Solid	3050B	
500-204544-1 MSD	Joliet #29 Ash	Total/NA	Solid	3050B	
500-204544-1 DU	Joliet #29 Ash	Total/NA	Solid	3050B	

Analysis Batch: 618070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	7471A	617888
MB 500-617888/12-A	Method Blank	Total/NA	Solid	7471A	617888
LCS 500-617888/13-A	Lab Control Sample	Total/NA	Solid	7471A	617888

Analysis Batch: 618247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	6010B	618052
MB 500-618052/1-A	Method Blank	Total/NA	Solid	6010B	618052
LCS 500-618052/2-A	Lab Control Sample	Total/NA	Solid	6010B	618052
500-204544-1 MS	Joliet #29 Ash	Total/NA	Solid	6010B	618052
500-204544-1 MSD	Joliet #29 Ash	Total/NA	Solid	6010B	618052
500-204544-1 DU	Joliet #29 Ash	Total/NA	Solid	6010B	618052

Analysis Batch: 618479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	6010B	618052
500-204544-1 MS	Joliet #29 Ash	Total/NA	Solid	6010B	618052
500-204544-1 MSD	Joliet #29 Ash	Total/NA	Solid	6010B	618052
500-204544-1 DU	Joliet #29 Ash	Total/NA	Solid	6010B	618052

Analysis Batch: 618576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	6010B	618052
500-204544-1 MS	Joliet #29 Ash	Total/NA	Solid	6010B	618052
500-204544-1 MSD	Joliet #29 Ash	Total/NA	Solid	6010B	618052
500-204544-1 DU	Joliet #29 Ash	Total/NA	Solid	6010B	618052

General Chemistry

Analysis Batch: 617356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	Moisture	

Prep Batch: 618524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	300_Prep	

Eurofins TestAmerica, Chicago

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

General Chemistry (Continued)

Prep Batch: 618524 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-618524/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 500-618524/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 618534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	9056A	618524
MB 500-618524/1-A	Method Blank	Total/NA	Solid	9056A	618524
LCS 500-618524/2-A	Lab Control Sample	Total/NA	Solid	9056A	618524

Prep Batch: 618692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	300_Prep	
MB 500-618692/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 500-618692/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 618739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	SM 4500 F C	618692
MB 500-618692/1-A	Method Blank	Total/NA	Solid	SM 4500 F C	618692
LCS 500-618692/2-A	Lab Control Sample	Total/NA	Solid	SM 4500 F C	618692

Analysis Batch: 618775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	SM 4500 Cl- E	618692
MB 500-618692/1-A	Method Blank	Total/NA	Solid	SM 4500 Cl- E	618692
LCS 500-618692/2-A	Lab Control Sample	Total/NA	Solid	SM 4500 Cl- E	618692

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 500-618052/1-A
Matrix: Solid
Analysis Batch: 618247

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 618052

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<2.0		2.0		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Arsenic	<1.0		1.0		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Barium	<1.0		1.0		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Beryllium	<0.40		0.40		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Boron	<5.0		5.0		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Cadmium	<0.20		0.20		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Calcium	<20		20		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Chromium	<1.0		1.0		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Cobalt	<0.50		0.50		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Lead	<0.50		0.50		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Lithium	<1.0		1.0		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Molybdenum	<1.0		1.0		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Selenium	<1.0		1.0		mg/Kg		09/10/21 08:41	09/12/21 15:12	1
Thallium	<1.0		1.0		mg/Kg		09/10/21 08:41	09/12/21 15:12	1

Lab Sample ID: LCS 500-618052/2-A
Matrix: Solid
Analysis Batch: 618247

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 618052

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	50.0	49.5		mg/Kg		99	80 - 120
Arsenic	10.0	9.09		mg/Kg		91	80 - 120
Barium	200	196		mg/Kg		98	80 - 120
Beryllium	5.00	4.54		mg/Kg		91	80 - 120
Boron	100	83.6		mg/Kg		84	80 - 120
Cadmium	5.00	4.69		mg/Kg		94	80 - 120
Calcium	1000	912		mg/Kg		91	80 - 120
Chromium	20.0	18.3		mg/Kg		91	80 - 120
Cobalt	50.0	46.6		mg/Kg		93	80 - 120
Lead	10.0	9.03		mg/Kg		90	80 - 120
Lithium	50.0	53.2		mg/Kg		106	80 - 120
Molybdenum	100	99.6		mg/Kg		100	80 - 120
Selenium	10.0	8.61		mg/Kg		86	80 - 120
Thallium	10.0	8.77		mg/Kg		88	80 - 120

Lab Sample ID: 500-204544-1 MS
Matrix: Solid
Analysis Batch: 618247

Client Sample ID: Joliet #29 Ash
Prep Type: Total/NA
Prep Batch: 618052

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	<1.8	F1	49.6	6.04	F1	mg/Kg		12	75 - 125
Arsenic	1.5	F1	9.92	9.59		mg/Kg		81	75 - 125
Beryllium	1.5	F1	4.96	5.09	F1	mg/Kg		72	75 - 125
Boron	130	F1 V	99.2	178	F1	mg/Kg		50	75 - 125
Cadmium	<0.18		4.96	3.82		mg/Kg		75	75 - 125
Chromium	12	F1	19.8	24.8	F1	mg/Kg		67	75 - 125
Lead	5.6		9.92	16.2		mg/Kg		107	75 - 125
Lithium	20	V	49.6	62.1		mg/Kg		85	75 - 125
Molybdenum	1.1	F1	99.2	68.4	F1	mg/Kg		68	75 - 125

Eurofins TestAmerica, Chicago

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 500-204544-1 MS

Matrix: Solid

Analysis Batch: 618247

Client Sample ID: Joliet #29 Ash

Prep Type: Total/NA

Prep Batch: 618052

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	<0.89	F1	9.92	6.39	F1	mg/Kg		64	75 - 125
Thallium	2.9		9.92	10.9		mg/Kg		80	75 - 125

Lab Sample ID: 500-204544-1 MS

Matrix: Solid

Analysis Batch: 618479

Client Sample ID: Joliet #29 Ash

Prep Type: Total/NA

Prep Batch: 618052

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	3000		198	2980	4	mg/Kg		11	75 - 125
Calcium	100000		992	97600	4	mg/Kg		-533	75 - 125

Lab Sample ID: 500-204544-1 MS

Matrix: Solid

Analysis Batch: 618576

Client Sample ID: Joliet #29 Ash

Prep Type: Total/NA

Prep Batch: 618052

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	15		49.6	67.5		mg/Kg		105	75 - 125

Lab Sample ID: 500-204544-1 MSD

Matrix: Solid

Analysis Batch: 618247

Client Sample ID: Joliet #29 Ash

Prep Type: Total/NA

Prep Batch: 618052

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Antimony	<1.8	F1	45.0	4.97	F1	mg/Kg		11	75 - 125	19	20
Arsenic	1.5	F1	9.01	8.21	F1	mg/Kg		74	75 - 125	16	20
Beryllium	1.5	F1	4.50	4.74	F1	mg/Kg		72	75 - 125	7	20
Boron	130	F1 V	90.1	183	F1	mg/Kg		61	75 - 125	3	20
Cadmium	<0.18		4.50	3.56		mg/Kg		77	75 - 125	7	20
Chromium	12	F1	18.0	23.7	F1	mg/Kg		67	75 - 125	4	20
Lead	5.6		9.01	14.4		mg/Kg		98	75 - 125	12	20
Lithium	20	V	45.0	57.0		mg/Kg		82	75 - 125	9	20
Molybdenum	1.1	F1	90.1	59.6	F1	mg/Kg		65	75 - 125	14	20
Selenium	<0.89	F1	9.01	5.78	F1	mg/Kg		64	75 - 125	10	20
Thallium	2.9		9.01	10.6		mg/Kg		85	75 - 125	3	20

Lab Sample ID: 500-204544-1 MSD

Matrix: Solid

Analysis Batch: 618479

Client Sample ID: Joliet #29 Ash

Prep Type: Total/NA

Prep Batch: 618052

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Barium	3000		180	3090	4	mg/Kg		74	75 - 125	4	20
Calcium	100000		901	104000	4	mg/Kg		99	75 - 125	6	20

Lab Sample ID: 500-204544-1 MSD

Matrix: Solid

Analysis Batch: 618576

Client Sample ID: Joliet #29 Ash

Prep Type: Total/NA

Prep Batch: 618052

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Cobalt	15		45.0	58.0		mg/Kg		95	75 - 125	15	20

Eurofins TestAmerica, Chicago

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 500-204544-1 DU
Matrix: Solid
Analysis Batch: 618247

Client Sample ID: Jolet #29 Ash
Prep Type: Total/NA
Prep Batch: 618052

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Antimony	<1.8	F1	<1.8		mg/Kg		NC	20
Arsenic	1.5	F1	2.20	F5	mg/Kg		36	20
Beryllium	1.5	F1	1.48		mg/Kg		2	20
Boron	130	F1 V	118		mg/Kg		9	20
Cadmium	<0.18		0.195		mg/Kg		NC	20
Chromium	12	F1	11.3		mg/Kg		2	20
Lead	5.6		5.71		mg/Kg		2	20
Lithium	20	V	19.9		mg/Kg		0	20
Molybdenum	1.1	F1	1.20		mg/Kg		8	20
Selenium	<0.89	F1	<0.90		mg/Kg		NC	20
Thallium	2.9		1.94	F3	mg/Kg		41	20

Lab Sample ID: 500-204544-1 DU
Matrix: Solid
Analysis Batch: 618479

Client Sample ID: Jolet #29 Ash
Prep Type: Total/NA
Prep Batch: 618052

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Barium	3000		2840		mg/Kg		4	20
Calcium	100000		104000		mg/Kg		1	20

Lab Sample ID: 500-204544-1 DU
Matrix: Solid
Analysis Batch: 618576

Client Sample ID: Jolet #29 Ash
Prep Type: Total/NA
Prep Batch: 618052

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Cobalt	15		13.9		mg/Kg		10	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 500-617888/12-A
Matrix: Solid
Analysis Batch: 618070

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 617888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.017		0.017		mg/Kg		09/09/21 13:15	09/10/21 08:27	1

Lab Sample ID: LCS 500-617888/13-A
Matrix: Solid
Analysis Batch: 618070

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 617888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.179		mg/Kg		107	80 - 120

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 500-618524/1-A
Matrix: Solid
Analysis Batch: 618534

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 618524

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<2.0		2.0		mg/Kg		09/14/21 11:45	09/14/21 12:53	1

Lab Sample ID: LCS 500-618524/2-A
Matrix: Solid
Analysis Batch: 618534

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 618524

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	53.9		mg/Kg		108	80 - 120

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 500-618692/1-A
Matrix: Solid
Analysis Batch: 618775

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 618692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<20		20		mg/Kg		09/15/21 09:49	09/15/21 15:03	1

Lab Sample ID: LCS 500-618692/2-A
Matrix: Solid
Analysis Batch: 618775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 618692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	200	202		mg/Kg		101	85 - 115

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 500-618692/1-A
Matrix: Solid
Analysis Batch: 618739

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 618692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<1.0		1.0		mg/Kg		09/15/21 09:49	09/15/21 12:27	1

Lab Sample ID: LCS 500-618692/2-A
Matrix: Solid
Analysis Batch: 618739

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 618692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	100	103		mg/Kg		103	80 - 120

244-ATLANTA : Eurofins

Ver 06/08/2021 9/15/2021

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-204544-1

Login Number: 204544

List Source: Eurofins TestAmerica, Chicago

List Number: 1

Creator: Hernandez, Stephanie

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	22.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Accreditation/Certification Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-1

Laboratory: Eurofins TestAmerica, Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Illinois	NELAP	IL00035	04-29-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
7471A	7471A	Solid	Mercury
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-204543-1
Client Project/Site: Joliet #9 Ash

For:

KPRG and Associates, Inc.
14665 West Lisbon Road,
Suite 1A
Brookfield, Wisconsin 53005

Attn: Richard Gnat



Authorized for release by:
9/21/2021 10:47:01 AM

Diana Mockler, Project Manager I
(219)252-7570
Diana.Mockler@Eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Method Summary	4
Sample Summary	5
Client Sample Results	6
Definitions	7
QC Association	8
QC Sample Results	10
Chain of Custody	13
Receipt Checklists	14
Chronicle	15

Case Narrative

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

Job ID: 500-204543-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-204543-1

Comments

No additional comments.

Receipt

The sample was received on 8/31/2021 1:00 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 22.4° C.

Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL CHI
7471A	Mercury (CVAA)	SW846	TAL CHI
9056A	Anions, Ion Chromatography	SW846	TAL CHI
Moisture	Percent Moisture	EPA	TAL CHI
SM 4500 Cl- E	Chloride, Total	SM	TAL CHI
SM 4500 F C	Fluoride	SM	TAL CHI
300_Prep	Anions, Ion Chromatography, 10% Wt/Vol	MCAWW	TAL CHI
3050B	Preparation, Metals	SW846	TAL CHI
7471A	Preparation, Mercury	SW846	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-204543-1	Joliet #9 Ash	Solid	08/31/21 09:30	08/31/21 13:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

Client Sample ID: Joliet #9 Ash

Lab Sample ID: 500-204543-1

Date Collected: 08/31/21 09:30

Matrix: Solid

Date Received: 08/31/21 13:00

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.8		1.8		mg/Kg		09/15/21 15:57	09/17/21 20:42	1
Arsenic	<0.88		0.88		mg/Kg		09/15/21 15:57	09/17/21 20:42	1
Barium	4400		22		mg/Kg		09/15/21 15:57	09/20/21 14:39	25
Beryllium	3.3		0.35		mg/Kg		09/15/21 15:57	09/17/21 20:42	1
Boron	110		4.4		mg/Kg		09/15/21 15:57	09/17/21 20:42	1
Cadmium	<0.18		0.18		mg/Kg		09/15/21 15:57	09/17/21 20:42	1
Calcium	110000		88		mg/Kg		09/15/21 15:57	09/20/21 12:37	5
Chromium	37		0.88		mg/Kg		09/15/21 15:57	09/17/21 20:42	1
Cobalt	20		11		mg/Kg		09/15/21 15:57	09/20/21 14:39	25
Lead	0.67		0.44		mg/Kg		09/15/21 15:57	09/17/21 20:42	1
Lithium	32		0.88		mg/Kg		09/15/21 15:57	09/20/21 12:33	1
Molybdenum	<0.88		0.88		mg/Kg		09/15/21 15:57	09/17/21 20:42	1
Selenium	<0.88		0.88		mg/Kg		09/15/21 15:57	09/17/21 20:42	1
Thallium	3.6		0.88		mg/Kg		09/15/21 15:57	09/17/21 20:42	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.015		0.015		mg/Kg		09/09/21 13:15	09/10/21 08:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<2.0		2.0		mg/Kg		09/14/21 11:45	09/14/21 13:19	1
Chloride	<20		20		mg/Kg		09/15/21 09:49	09/15/21 15:04	1
Fluoride	<1.0		1.0		mg/Kg		09/15/21 09:49	09/15/21 12:35	1

Definitions/Glossary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

Metals

Prep Batch: 617888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	7471A	
MB 500-617888/12-A	Method Blank	Total/NA	Solid	7471A	
LCS 500-617888/13-A	Lab Control Sample	Total/NA	Solid	7471A	

Analysis Batch: 618070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	7471A	617888
MB 500-617888/12-A	Method Blank	Total/NA	Solid	7471A	617888
LCS 500-617888/13-A	Lab Control Sample	Total/NA	Solid	7471A	617888

Prep Batch: 618772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	3050B	
MB 500-618772/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 500-618772/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Analysis Batch: 619274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	6010B	618772
MB 500-618772/1-A	Method Blank	Total/NA	Solid	6010B	618772
LCS 500-618772/2-A	Lab Control Sample	Total/NA	Solid	6010B	618772

Analysis Batch: 619359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	6010B	618772
500-204543-1	Joliet #9 Ash	Total/NA	Solid	6010B	618772
MB 500-618772/1-A	Method Blank	Total/NA	Solid	6010B	618772
LCS 500-618772/2-A	Lab Control Sample	Total/NA	Solid	6010B	618772

Analysis Batch: 619496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	6010B	618772

General Chemistry

Analysis Batch: 617356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	Moisture	

Prep Batch: 618524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	300_Prep	
MB 500-618524/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 500-618524/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 618534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	9056A	618524
MB 500-618524/1-A	Method Blank	Total/NA	Solid	9056A	618524
LCS 500-618524/2-A	Lab Control Sample	Total/NA	Solid	9056A	618524

Eurofins TestAmerica, Chicago

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

General Chemistry

Prep Batch: 618692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	300_Prep	
MB 500-618692/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 500-618692/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
500-204543-1 MS	Joliet #9 Ash	Total/NA	Solid	300_Prep	
500-204543-1 MSD	Joliet #9 Ash	Total/NA	Solid	300_Prep	

Analysis Batch: 618739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	SM 4500 F C	618692
MB 500-618692/1-A	Method Blank	Total/NA	Solid	SM 4500 F C	618692
LCS 500-618692/2-A	Lab Control Sample	Total/NA	Solid	SM 4500 F C	618692
500-204543-1 MS	Joliet #9 Ash	Total/NA	Solid	SM 4500 F C	618692
500-204543-1 MSD	Joliet #9 Ash	Total/NA	Solid	SM 4500 F C	618692

Analysis Batch: 618775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	SM 4500 Cl- E	618692
MB 500-618692/1-A	Method Blank	Total/NA	Solid	SM 4500 Cl- E	618692
LCS 500-618692/2-A	Lab Control Sample	Total/NA	Solid	SM 4500 Cl- E	618692
500-204543-1 MS	Joliet #9 Ash	Total/NA	Solid	SM 4500 Cl- E	618692
500-204543-1 MSD	Joliet #9 Ash	Total/NA	Solid	SM 4500 Cl- E	618692

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 500-618772/1-A
Matrix: Solid
Analysis Batch: 619274

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 618772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<2.0		2.0		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Arsenic	<1.0		1.0		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Barium	<1.0		1.0		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Beryllium	<0.40		0.40		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Boron	<5.0		5.0		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Cadmium	<0.20		0.20		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Calcium	<20		20		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Chromium	<1.0		1.0		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Cobalt	<0.50		0.50		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Lead	<0.50		0.50		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Molybdenum	<1.0		1.0		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Selenium	<1.0		1.0		mg/Kg		09/15/21 15:57	09/17/21 19:34	1
Thallium	<1.0		1.0		mg/Kg		09/15/21 15:57	09/17/21 19:34	1

Lab Sample ID: MB 500-618772/1-A
Matrix: Solid
Analysis Batch: 619359

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 618772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<1.0		1.0		mg/Kg		09/15/21 15:57	09/20/21 12:27	1

Lab Sample ID: LCS 500-618772/2-A
Matrix: Solid
Analysis Batch: 619274

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 618772

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	50.0	46.8		mg/Kg		94	80 - 120
Arsenic	10.0	9.29		mg/Kg		93	80 - 120
Barium	200	197		mg/Kg		98	80 - 120
Beryllium	5.00	4.68		mg/Kg		94	80 - 120
Boron	100	83.5		mg/Kg		83	80 - 120
Cadmium	5.00	4.54		mg/Kg		91	80 - 120
Calcium	1000	936		mg/Kg		94	80 - 120
Chromium	20.0	18.4		mg/Kg		92	80 - 120
Cobalt	50.0	46.1		mg/Kg		92	80 - 120
Lead	10.0	8.86		mg/Kg		89	80 - 120
Molybdenum	100	98.7		mg/Kg		99	80 - 120
Selenium	10.0	8.49		mg/Kg		85	80 - 120
Thallium	10.0	8.45		mg/Kg		85	80 - 120

Lab Sample ID: LCS 500-618772/2-A
Matrix: Solid
Analysis Batch: 619359

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 618772

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	50.0	47.9		mg/Kg		96	80 - 120

Eurofins TestAmerica, Chicago

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 500-617888/12-A
Matrix: Solid
Analysis Batch: 618070

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 617888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.017		0.017		mg/Kg		09/09/21 13:15	09/10/21 08:27	1

Lab Sample ID: LCS 500-617888/13-A
Matrix: Solid
Analysis Batch: 618070

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 617888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.167	0.179		mg/Kg		107	80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 500-618524/1-A
Matrix: Solid
Analysis Batch: 618534

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 618524

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<2.0		2.0		mg/Kg		09/14/21 11:45	09/14/21 12:53	1

Lab Sample ID: LCS 500-618524/2-A
Matrix: Solid
Analysis Batch: 618534

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 618524

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	53.9		mg/Kg		108	80 - 120

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 500-618692/1-A
Matrix: Solid
Analysis Batch: 618775

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 618692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<20		20		mg/Kg		09/15/21 09:49	09/15/21 15:03	1

Lab Sample ID: LCS 500-618692/2-A
Matrix: Solid
Analysis Batch: 618775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 618692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	200	202		mg/Kg		101	85 - 115

Lab Sample ID: 500-204543-1 MS
Matrix: Solid
Analysis Batch: 618775

Client Sample ID: Joliet #9 Ash
Prep Type: Total/NA
Prep Batch: 618692

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	<20		197	189		mg/Kg		96	75 - 125

Eurofins TestAmerica, Chicago

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

Method: SM 4500 Cl- E - Chloride, Total (Continued)

Lab Sample ID: 500-204543-1 MSD

Matrix: Solid

Analysis Batch: 618775

Client Sample ID: Joliet #9 Ash

Prep Type: Total/NA

Prep Batch: 618692

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	<20		197	189		mg/Kg		96	75 - 125	0	20

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 500-618692/1-A

Matrix: Solid

Analysis Batch: 618739

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 618692

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<1.0		1.0		mg/Kg		09/15/21 09:49	09/15/21 12:27	1

Lab Sample ID: LCS 500-618692/2-A

Matrix: Solid

Analysis Batch: 618739

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 618692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	100	103		mg/Kg		103	80 - 120

Lab Sample ID: 500-204543-1 MS

Matrix: Solid

Analysis Batch: 618739

Client Sample ID: Joliet #9 Ash

Prep Type: Total/NA

Prep Batch: 618692

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	<1.0		49.2	50.1		mg/Kg		102	75 - 125

Lab Sample ID: 500-204543-1 MSD

Matrix: Solid

Analysis Batch: 618739

Client Sample ID: Joliet #9 Ash

Prep Type: Total/NA

Prep Batch: 618692

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	<1.0		49.2	50.1		mg/Kg		102	75 - 125	0	20

244-ATLANTA : eurofins

Ver 06/08, 2019/21/2021

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-204543-1

Login Number: 204543

List Source: Eurofins TestAmerica, Chicago

List Number: 1

Creator: Hernandez, Stephanie

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	22.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-1

Client Sample ID: Joliet #9 Ash

Lab Sample ID: 500-204543-1

Date Collected: 08/31/21 09:30

Matrix: Solid

Date Received: 08/31/21 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			618772	09/15/21 15:57	LK	TAL CHI
Total/NA	Analysis	6010B		1	619274	09/17/21 20:42	JJB	TAL CHI
Total/NA	Prep	3050B			618772	09/15/21 15:57	LK	TAL CHI
Total/NA	Analysis	6010B		1	619359	09/20/21 12:33	JJB	TAL CHI
Total/NA	Prep	3050B			618772	09/15/21 15:57	LK	TAL CHI
Total/NA	Analysis	6010B		5	619359	09/20/21 12:37	JJB	TAL CHI
Total/NA	Prep	3050B			618772	09/15/21 15:57	LK	TAL CHI
Total/NA	Analysis	6010B		25	619496	09/20/21 14:39	JJB	TAL CHI
Total/NA	Prep	7471A			617888	09/09/21 13:15	MJG	TAL CHI
Total/NA	Analysis	7471A		1	618070	09/10/21 08:30	MJG	TAL CHI
Total/NA	Prep	300_Prep			618524	09/14/21 11:45	EAT	TAL CHI
Total/NA	Analysis	9056A		1	618534	09/14/21 13:19	PSP	TAL CHI
Total/NA	Analysis	Moisture		1	617356	09/04/21 11:46	PFK	TAL CHI
Total/NA	Prep	300_Prep			618692	09/15/21 09:49	MS	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		1	618775	09/15/21 15:04	MS	TAL CHI
Total/NA	Prep	300_Prep			618692	09/15/21 09:49	MS	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	618739	09/15/21 12:35	MS	TAL CHI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-204543-2

Client Project/Site: Joliet #9 Ash

For:

KPRG and Associates, Inc.
14665 West Lisbon Road,
Suite 1A
Brookfield, Wisconsin 53005

Attn: Richard Gnat



Authorized for release by:
10/26/2021 8:26:21 AM

Diana Mockler, Project Manager I
(219)252-7570

Diana.Mockler@Eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Method Summary	4
Sample Summary	5
Client Sample Results	6
Definitions	7
QC Association	8
QC Sample Results	9
Chain of Custody	11
Receipt Checklists	13
Chronicle	15
Tracer Carrier Summary	16



Case Narrative

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-2

Job ID: 500-204543-2

Laboratory: Eurofins TestAmerica, Chicago

Narrative

**Job Narrative
500-204543-2**

Comments

No additional comments.

Receipt

The sample was received on 8/31/2021 1:00 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 22.4° C.

RAD

Methods 903.0, 9315: Radium 226 prep batch 160-527617

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Joliet #9 Ash (500-204543-1), (LCS 160-527617/2-A), (MB 160-527617/1-A), (500-204327-A-20-D) and (500-204327-A-20-E DU)

Method 904.0: Radium-228 prep batch 160-528400:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Joliet #9 Ash (500-204543-1), (LCS 160-528400/2-A), (MB 160-528400/1-A) and (500-204543-A-1-D DU)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Methods 6010B, NONE: The following sample was diluted to bring the concentration of target analytes within the calibration range: Joliet #9 Ash (500-204543-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
DPS-0	Preparation, Digestion/ Precipitate	None	TAL SL
DPS-21	Preparation, Digestion/Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-204543-1	Joliet #9 Ash	Solid	08/31/21 09:30	08/31/21 13:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-2

Client Sample ID: Joliet #9 Ash

Lab Sample ID: 500-204543-1

Date Collected: 08/31/21 09:30

Matrix: Solid

Date Received: 08/31/21 13:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.41		0.352	0.414	1.00	0.180	pCi/g	09/19/21 19:06	10/15/21 17:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					09/19/21 19:06	10/15/21 17:10	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.97		0.409	0.448	1.00	0.482	pCi/g	09/22/21 16:04	10/06/21 12:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110					09/22/21 16:04	10/06/21 12:35	1
Y Carrier	78.9		40 - 110					09/22/21 16:04	10/06/21 12:35	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.38		0.540	0.610	5.00	0.482	pCi/g		10/25/21 17:38	1

Definitions/Glossary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-2

Rad

Prep Batch: 527617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	DPS-21	
MB 160-527617/1-A	Method Blank	Total/NA	Solid	DPS-21	
LCS 160-527617/2-A	Lab Control Sample	Total/NA	Solid	DPS-21	

Prep Batch: 528400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204543-1	Joliet #9 Ash	Total/NA	Solid	DPS-0	
MB 160-528400/1-A	Method Blank	Total/NA	Solid	DPS-0	
LCS 160-528400/2-A	Lab Control Sample	Total/NA	Solid	DPS-0	
500-204543-1 DU	Joliet #9 Ash	Total/NA	Solid	DPS-0	

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-527617/1-A

Matrix: Solid

Analysis Batch: 531966

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 527617

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1252	U	0.144	0.144	1.00	0.234	pCi/g	09/19/21 19:06	10/15/21 17:14	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.9		40 - 110					09/19/21 19:06	10/15/21 17:14	1

Lab Sample ID: LCS 160-527617/2-A

Matrix: Solid

Analysis Batch: 531966

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 527617

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.3	12.04		1.37	1.00	0.272	pCi/g	106	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	82.8		40 - 110							

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-528400/1-A

Matrix: Solid

Analysis Batch: 530453

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 528400

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1697	U	0.277	0.278	1.00	0.467	pCi/g	09/22/21 16:04	10/06/21 12:35	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.5		40 - 110					09/22/21 16:04	10/06/21 12:35	1
Y Carrier	80.0		40 - 110					09/22/21 16:04	10/06/21 12:35	1

Lab Sample ID: LCS 160-528400/2-A

Matrix: Solid

Analysis Batch: 530453

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 528400

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228		9.27	10.17		1.24	1.00	0.492	pCi/g	110	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	78.9		40 - 110							
Y Carrier	77.4		40 - 110							

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-2

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 500-204543-1 DU
Matrix: Solid
Analysis Batch: 530453

Client Sample ID: Joliet #9 Ash
Prep Type: Total/NA
Prep Batch: 528400

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	1.97		2.501		0.485	1.00	0.427	pCi/g	0.57	1

Carrier	DU %Yield	DU Qualifier	Limits
Ba Carrier	88.7		40 - 110
Y Carrier	79.6		40 - 110

244-ATLANTA : eurofins

Ver 06/08, 2021 10/26/2021



Ver: 06/08/2021

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-204543-2

Login Number: 204543

List Source: Eurofins TestAmerica, Chicago

List Number: 1

Creator: Hernandez, Stephanie

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	22.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-204543-2

Login Number: 204543

List Number: 2

Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

List Creation: 09/01/21 05:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-2

Client Sample ID: Joliet #9 Ash

Lab Sample ID: 500-204543-1

Date Collected: 08/31/21 09:30

Matrix: Solid

Date Received: 08/31/21 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	DPS-21			527617	09/19/21 19:06	HA	TAL SL
Total/NA	Analysis	903.0		1	531971	10/15/21 17:10	ANW	TAL SL
Total/NA	Prep	DPS-0			528400	09/22/21 16:04	ASG	TAL SL
Total/NA	Analysis	904.0		1	530453	10/06/21 12:35	EMH	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	533568	10/25/21 17:38	CAH	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Tracer/Carrier Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #9 Ash

Job ID: 500-204543-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
500-204543-1	Joliet #9 Ash	100	
LCS 160-527617/2-A	Lab Control Sample	82.8	
MB 160-527617/1-A	Method Blank	80.9	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
500-204543-1	Joliet #9 Ash	95.3	78.9
500-204543-1 DU	Joliet #9 Ash	88.7	79.6
LCS 160-528400/2-A	Lab Control Sample	78.9	77.4
MB 160-528400/1-A	Method Blank	87.5	80.0
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-204544-2

Client Project/Site: Joliet #29 Ash

For:

KPRG and Associates, Inc.
14665 West Lisbon Road,
Suite 1A
Brookfield, Wisconsin 53005

Attn: Richard Gnat



Authorized for release by:
10/26/2021 8:28:20 AM

Diana Mockler, Project Manager I
(219)252-7570

Diana.Mockler@Eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Method Summary	4
Sample Summary	5
Client Sample Results	6
Definitions	7
QC Association	8
QC Sample Results	9
Chain of Custody	10
Receipt Checklists	12
Certification Summary	14
Tracer Carrier Summary	15



Case Narrative

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-2

Job ID: 500-204544-2

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative 500-204544-2

Comments

No additional comments.

Receipt

The sample was received on 8/31/2021 1:00 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 22.4° C.

RAD

Methods 903.0, 9315: Radium 226 prep batch 160-527617

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Joliet #29 Ash (500-204544-1), (LCS 160-527617/2-A), (MB 160-527617/1-A), (500-204327-A-20-D) and (500-204327-A-20-E DU)

Method 904.0: Radium-228 prep batch 160-528400:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Joliet #29 Ash (500-204544-1), (LCS 160-528400/2-A), (MB 160-528400/1-A), (500-204543-A-1-C) and (500-204543-A-1-D DU)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Methods 6010B, NONE: The following sample was diluted to bring the concentration of target analytes within the calibration range: Joliet #29 Ash (500-204544-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-2

Method	Method Description	Protocol	Laboratory
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
DPS-0	Preparation, Digestion/ Precipitate	None	TAL SL
DPS-21	Preparation, Digestion/Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-204544-1	Joliet #29 Ash	Solid	08/31/21 10:00	08/31/21 13:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-2

Client Sample ID: Jolet #29 Ash

Lab Sample ID: 500-204544-1

Date Collected: 08/31/21 10:00

Matrix: Solid

Date Received: 08/31/21 13:00

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.54		0.311	0.341	1.00	0.252	pCi/g	09/19/21 19:06	10/15/21 17:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					09/19/21 19:06	10/15/21 17:11	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.63		0.377	0.406	1.00	0.443	pCi/g	09/22/21 16:04	10/06/21 12:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.3		40 - 110					09/22/21 16:04	10/06/21 12:36	1
Y Carrier	78.1		40 - 110					09/22/21 16:04	10/06/21 12:36	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.17		0.489	0.530	5.00	0.443	pCi/g		10/25/21 17:38	1

Definitions/Glossary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-2

Rad

Prep Batch: 527617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	DPS-21	
MB 160-527617/1-A	Method Blank	Total/NA	Solid	DPS-21	
LCS 160-527617/2-A	Lab Control Sample	Total/NA	Solid	DPS-21	

Prep Batch: 528400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-204544-1	Joliet #29 Ash	Total/NA	Solid	DPS-0	
MB 160-528400/1-A	Method Blank	Total/NA	Solid	DPS-0	
LCS 160-528400/2-A	Lab Control Sample	Total/NA	Solid	DPS-0	

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-2

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-527617/1-A

Matrix: Solid

Analysis Batch: 531966

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 527617

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1252	U	0.144	0.144	1.00	0.234	pCi/g	09/19/21 19:06	10/15/21 17:14	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.9		40 - 110					09/19/21 19:06	10/15/21 17:14	1

Lab Sample ID: LCS 160-527617/2-A

Matrix: Solid

Analysis Batch: 531966

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 527617

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.3	12.04		1.37	1.00	0.272	pCi/g	106	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	82.8		40 - 110							

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-528400/1-A

Matrix: Solid

Analysis Batch: 530453

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 528400

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1697	U	0.277	0.278	1.00	0.467	pCi/g	09/22/21 16:04	10/06/21 12:35	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.5		40 - 110					09/22/21 16:04	10/06/21 12:35	1
Y Carrier	80.0		40 - 110					09/22/21 16:04	10/06/21 12:35	1

Lab Sample ID: LCS 160-528400/2-A

Matrix: Solid

Analysis Batch: 530453

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 528400

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228		9.27	10.17		1.24	1.00	0.492	pCi/g	110	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	78.9		40 - 110							
Y Carrier	77.4		40 - 110							

244-ATLANTA : Eurofins

Ver 06/08/2021
10/26/2021

[illegible]

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-204544-2

Login Number: 204544

List Source: Eurofins TestAmerica, Chicago

List Number: 1

Creator: Hernandez, Stephanie

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	22.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-204544-2

Login Number: 204544

List Number: 2

Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis

List Creation: 09/01/21 05:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Accreditation/Certification Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-2

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-21
California	Los Angeles County Sanitation Districts	10259	06-30-22
California	State	2886	06-30-21 *
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-22
HI - RadChem Recognition	State	n/a	06-30-22
Illinois	NELAP	004553	11-30-21
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-21
Kentucky (DW)	State	KY90125	01-01-22
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-21
Louisiana	NELAP	04080	06-30-22
Louisiana (DW)	State	LA011	12-31-21
Maryland	State	310	09-30-22
MI - RadChem Recognition	State	9005	06-30-22
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-22
New Jersey	NELAP	MO002	06-30-22
New York	NELAP	11616	04-01-22
North Dakota	State	R-207	06-30-22
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-22
Oregon	NELAP	4157	09-01-22
Pennsylvania	NELAP	68-00540	03-01-22
South Carolina	State	85002001	06-30-22
Texas	NELAP	T104704193	07-31-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	08-01-22
Virginia	NELAP	10310	06-14-22
Washington	State	C592	08-30-22
West Virginia DEP	State	381	10-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Chicago

Tracer/Carrier Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 Ash

Job ID: 500-204544-2

Method: 903.0 - Radium-226 (GFPC)

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
		Ba					
Lab Sample ID	Client Sample ID	(40-110)					
500-204544-1	Joliet #29 Ash	104					
LCS 160-527617/2-A	Lab Control Sample	82.8					
MB 160-527617/1-A	Method Blank	80.9					
Tracer/Carrier Legend							
Ba = Ba Carrier							

Method: 904.0 - Radium-228 (GFPC)

Matrix: Solid

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)					
		Ba	Y				
Lab Sample ID	Client Sample ID	(40-110)	(40-110)				
500-204544-1	Joliet #29 Ash	91.3	78.1				
LCS 160-528400/2-A	Lab Control Sample	78.9	77.4				
MB 160-528400/1-A	Method Blank	87.5	80.0				
Tracer/Carrier Legend							
Ba = Ba Carrier							
Y = Y Carrier							

ATTACHMENT 2-2

LSQ/WFA P105 Piezometer Leachate Chemistry Data

Midwest Generation, LLC - Joliet/Lincoln Stone Quarry--1978090001 - 2012 Assessment Well P105 Data

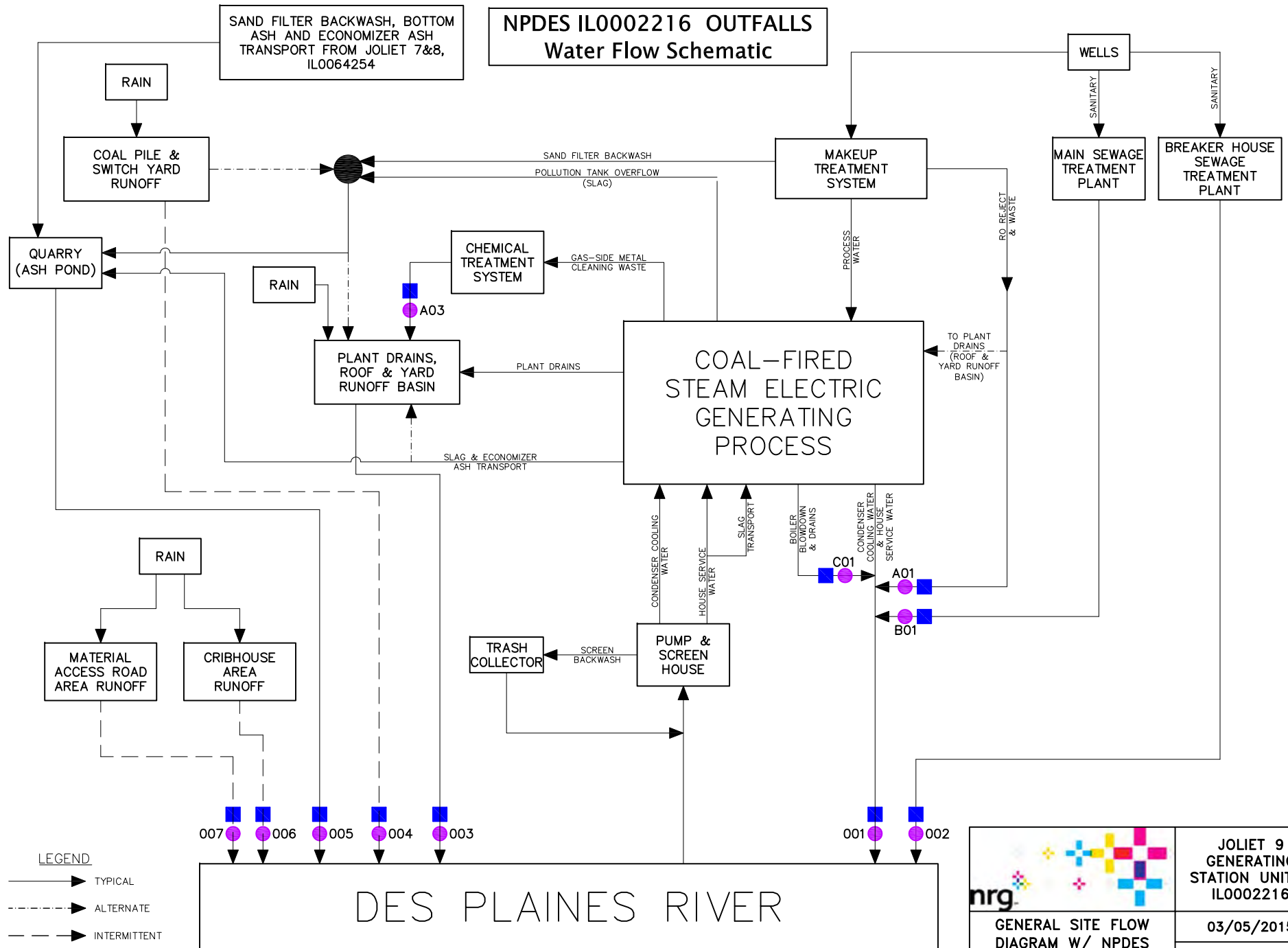
	Well	P105			
Parameter	Units	1stQtr12	2ndQtr12	3rdQtr12	4thQtr12
Ammonia, Dissolved	mg/L	8.3	8.7	8.8	8.3
Arsenic, Dissolved	ug/L	20	11	13	<10
Barium	ug/L	240	70	53	29
Barium, Dissolved	ug/L	31	27	30	26
Boron, Dissolved	ug/L	10000	11000	12000	10000
Cadmium, Dissolved	ug/L	<2.0	<2.0	<2.0	<2.0
Chloride, Dissolved	mg/L	170	200	190	190
Copper	ug/L	26	<10	11	<10
Depth to Water (ft from MP)	ft	49.75	50.49	50.50	53.35
Depth to Water (ft bls)	ft	47.00	47.74	47.75	50.60
Elevation of GW Surface	ft	541.72	540.98	540.97	538.12
Elevation of Well (MP)	ft	591.47	591.47	591.47	591.47
Elevation Well Bottom	ft	513.71	513.71	513.71	513.71
Field pH	SU	7.38	11.56	7.85	10.55
Field Temperature	Degrees F	35.8	46.0	67.5	60.8
Fluoride, Dissolved	mg/L	0.15	0.15	<0.10	0.16
Iron	ug/L	NA	2000	NA	NA
Lead	ug/L	NA	<5.0	NA	NA
Manganese, Dissolved	ug/L	<10	<10	<10	<10
Mercury	ug/L	NA	<0.20	NA	NA
Molybdenum, Dissolved	ug/L	13000	12000	14000	12000^
Nitrogen, Nitrate	mg/L	<0.10	<0.10	<0.10	<0.10
Nitrogen, Nitrate, Dissolved	mg/L	<0.10	<0.10	<0.10	<0.10
Potassium, Dissolved	mg/L	83	79	81	77
Selenium, Dissolved	ug/L	13	<10	<10	<10
Sodium, Dissolved	mg/L	220	220	220	210
Specific Conductance	umhos/cm	1153	1530	1396	1403
Sulfate, Dissolved	mg/L	410	360	460	460
Total Dissolved Solids	mg/L	1100	1100	1100	1000
Total Organic Carbon	mg/L	5.2	4.7	6.7	7.0
Zinc, Dissolved	ug/L	<20	<20	<20	<20

- Notes: 1. A '<' sign means that the analyte was not detected at or above the reporting limit
2. A 'B' sign indicates that the result is less than the reporting limit, but greater than or equal to the method detection limit
3. A '^' sign indicates that an instrument related QC exceeds the control limits
4. NA = Not Analyzed

ATTACHMENT 3-1

2015 Flow Diagram

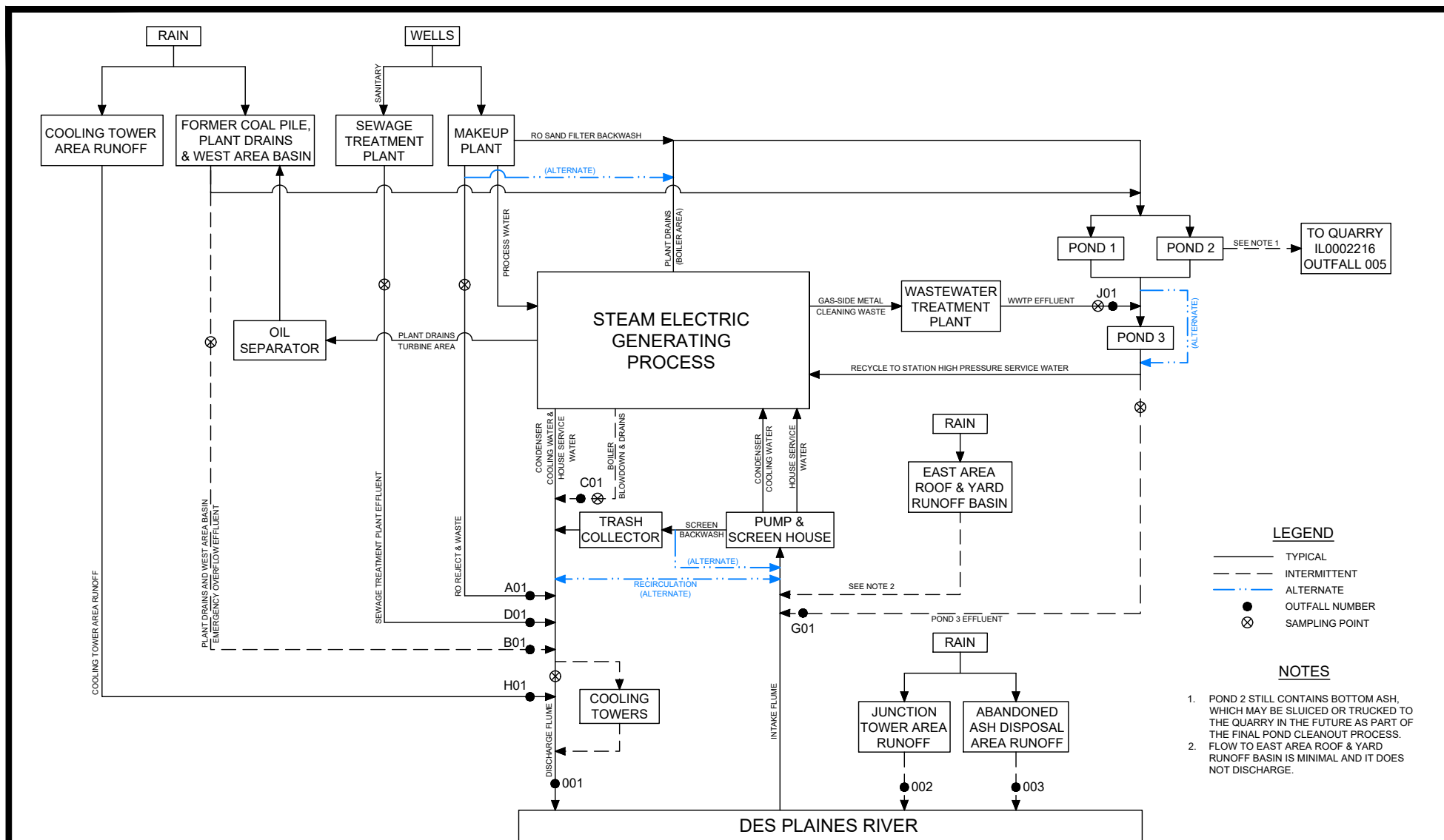
NPDES IL0002216 OUTFALLS Water Flow Schematic



	JOLIET 9 GENERATING STATION UNIT 6 IL0002216	
	03/05/2015	
	CHKD: HJE	

ATTACHMENT 3-2

Joliet #29 Flow Diagram



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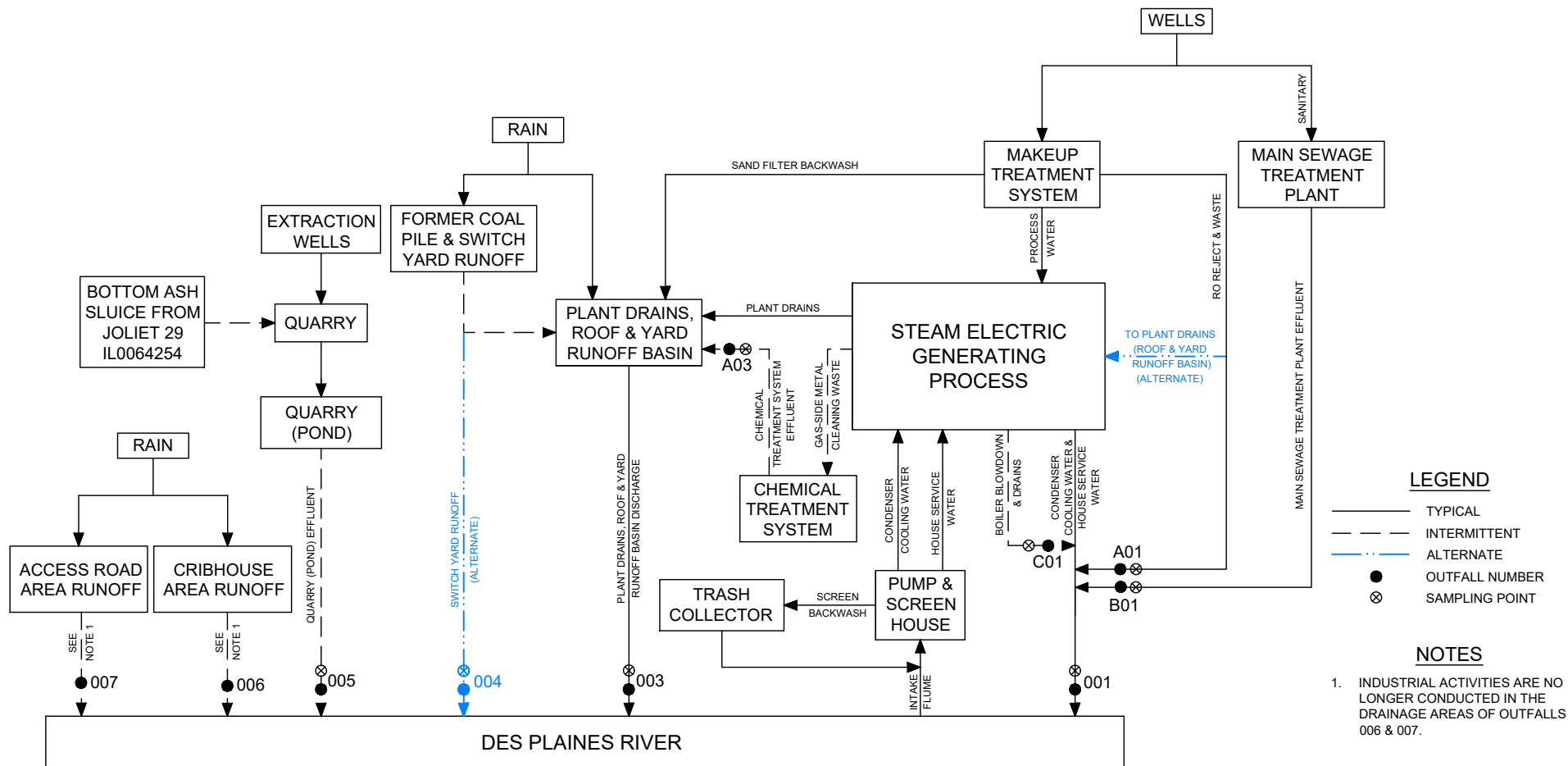
MIDWEST GENERATION, LLC JOLIET 29 GENERATING STATION

GENERAL FLOW DIAGRAM WITH NPDES OUTFALLS NPDES PERMIT NO. IL0064254

DRAWN BY:	ORC	APPROVED BY:	SZF	PROJ. NO.:	631237225	DATE:	JANUARY 2019
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ATTACHMENT 3-3

2019 Flow Diagram



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MIDWEST GENERATION, LLC JOLIET 9 GENERATING STATION

GENERAL FLOW DIAGRAM WITH NPDES OUTFALLS NPDES PERMIT NO. IL0002216

DRAWN BY:	ORC	APPROVED BY:	SZF	PROJ. NO.:	631237225	DATE:	JANUARY 2019
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ATTACHMENT 4

Locations Determinations

**PLACEMENT ABOVE THE UPPERMOST AQUIFER LOCATION RESTRICTIONS
LINCOLN STONE QUARRY
JOLIET #9 STATION
OCTOBER 2018**

Pursuant to Code of Federal Regulations Title 40, Part 257, Subpart D (40 CFR), Section 257.60, KPRG and Associates, Inc (KPRG) prepared this report to document compliance with location restrictions related to placement above the uppermost aquifer for the existing Lincoln Stone Quarry (the Quarry) at the Joliet #9 Station (Site) in Joliet, Illinois.

The work presented in this report was performed under the direction of Joshua Davenport in accordance with §257.60. Richard Gnat reviewed this report in accordance with KPRG's quality assurance/quality control procedures.

1. *Placement Location Restriction Determination*

The base of the Quarry is elevation 501 ft amsl and the upper limit groundwater elevation is 555.35 ft amsl. The Quarry is not separated from the upper limit of the uppermost aquifer by a minimum of five (5) feet.

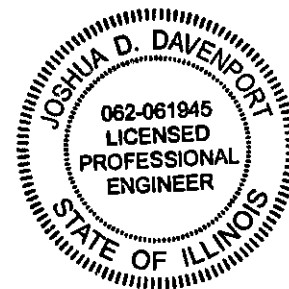
2. *Limitations and Certification*

This report was prepared in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in the field of civil engineering. The contents of this report are based solely on the observations of the conditions observed by KPRG personnel and information provided to KPRG by Midwest Generation. Consistent with applicable professional standards of care, our opinions and recommendations were based in part on data furnished by others, which was consistent with other information that we developed in the course of our performance of the scope of services. The information contained in this report is intended for use solely by Midwest Generation and their subconsultants.

Joshua D. Davenport, P.E.

Illinois Professional Engineer No. 062.061945

License Expires: 11/30/2019



**WETLANDS LOCATION RESTRICTIONS
LINCOLN STONE QUARRY
JOLIET #9 STATION
OCTOBER 2018**

Pursuant to Code of Federal Regulations Title 40, Part 257, Subpart D (40 CFR), Section 257.61, KPRG and Associates, Inc (KPRG) prepared this report to document compliance with location restrictions related to wetlands for the existing Lincoln Stone Quarry (the Quarry) at the Joliet #9 Station (Site) in Joliet, Illinois.

The work presented in this report was performed under the direction of Joshua Davenport in accordance with §257.61. Richard Gnat reviewed this report in accordance with KPRG's quality assurance/quality control procedures.

1. Wetlands Location Restriction Determination

In order to determine if the Quarry was located in wetlands, it was necessary to determine if wetlands are present in the area of the Quarry. Site visits to the Quarry did not identify any wetlands around the perimeter of the Quarry that would indicate if wetlands were present prior to the mining of the Quarry. The national wetlands inventory (NWI) and the Will County Geographical Information System (GIS) Data Viewer were viewed to identify the presence of wetlands around the Quarry. Neither the NWI nor the Will County GIS Data Viewer identified wetlands around the Quarry, but the NWI did identify wetlands located inside the Quarry. The wetlands identified inside the Quarry were classified as a lake habitat with a classification code of L1UBHx. The definition of each component of this classification code is as follows:

- L = System: Lacustrine. The Lacustrine System includes wetlands and deepwater habitats with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, and emergent mosses or lichens with 30 percent or greater areal coverage; and (3) total area of at least 20 acres. Similar wetlands and deepwater habitats totaling less than 8 ha are also included in the Lacustrine System if an active wave-formed or bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin equals or exceeds 8.2 ft at low water.
- 1 = Subsystem: Limnetic. This Subsystem includes all deepwater habitats (i.e., areas > 8.2 ft deep below low water) in the Lacustrine System. Many small Lacustrine Systems have no Limnetic Subsystem.
- UB = Class: Unconsolidated Bottom. Includes all wetlands and deepwater habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%.
- H = Water Regime: Permanently Flooded. Water covers the substrate throughout the year

in all years.

- x = Water Chemistry: Excavated. This Modifier is used to identify wetland basins or channels that were excavated by humans.

The active mining of the limestone and the use of this open Quarry to store CCR from the burning of coal at Joliet generating stations 9 and 29 created the necessary conditions for the wetland that has been classified inside the Quarry. The removal of the limestone created the manmade topographical depression that fulfills the first requirement for a Lacustrine System and the excavated water chemistry (x) designation as noted above. The exposure of the limestone during the mining activities removed vegetation within the area, which fulfills the second requirement for a Lacustrine System. The sluicing of CCR from the generating stations into the Quarry for storage created the standing water and the manmade depression was large enough to allow the surface of the water to be at least 20 acres in size, which meets the third requirement for a Lacustrine System. In addition, the standing water will minimize the potential for vegetation to establish itself on the CCR. The limestone was removed to a depth that allowed the stored water to achieve a depth greater than 8.2 feet deep, which is why the Limnetic Subsystem (1) designation is applicable. The manmade depression is permanently flooded because it was created in a way that does not allow for the natural drainage of the water, which is why the water regime permanently flooded (H) designation is applicable.

The wetland classification given to the standing water and the area within the Quarry is a result of the mining operation and the CCR material storage activities that took place in this area. Therefore, based on this evaluation, the Quarry is not located in a wetland, but an area classified as a wetland that was artificially created within the Quarry.

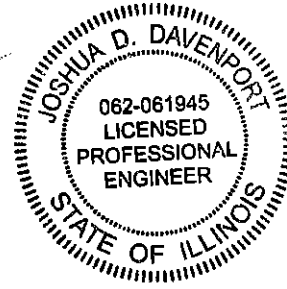
2. Limitations and Certification

This report was prepared in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in the field of engineering. The contents of this report are based solely on the observations of the conditions observed by KPRG personnel and information provided to KPRG by Midwest Generation. Consistent with applicable professional standards of care, our opinions and recommendations were based in part on data furnished by others, which was consistent with other information that we developed in the course of our performance of the scope of services. The information contained in this report is intended for use solely by Midwest Generation and their subconsultants.

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Illinois Professional Engineer No. 062.061945

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3. *References*

U.S. Fish and Wildlife Service, 2018. "National Wetlands Inventory," <https://www.fws.gov/wetlands/>, accessed 7 September 2018.

Will County, 2018. "GIS Data Viewer," <http://www.willcogis.org/website2014/gis/applications.html>, accessed 7 September 2018.

**FAULT AREAS LOCATION RESTRICTIONS
LINCOLN STONE QUARRY
JOLIET #9 STATION
OCTOBER 2018**

Pursuant to Code of Federal Regulations Title 40, Part 257, Subpart D (40 CFR), Section 257.62, KPRG and Associates, Inc (KPRG) prepared this report to document compliance with location restrictions related to fault areas for the existing Lincoln Stone Quarry (the Quarry) at the Joliet #9 Station (Site) in Joliet, Illinois.

The work presented in this report was performed under the direction of Joshua Davenport in accordance with §257.62. Richard Gnat reviewed this report in accordance with KPRG's quality assurance/quality control procedures.

1. *Fault Areas Location Restriction Determination*

The Quarry is not located within 200 feet (60 meters) of a mapped Holocene-aged fault, as mapped by the United States Geological Survey (USGS) Quaternary Fault Database [USGS, 2018]. Therefore, the location of the Quarry complies with the requirements outlined in §257.62(a).

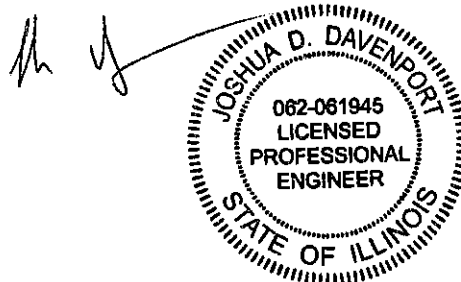
2. *Limitations and Certification*

This report was prepared in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in the field of civil engineering. The contents of this report are based solely on the observations of the conditions observed by KPRG personnel and information provided to KPRG by Midwest Generation. Consistent with applicable professional standards of care, our opinions and recommendations were based in part on data furnished by others, which was consistent with other information that we developed in the course of our performance of the scope of services. The information contained in this report is intended for use solely by Midwest Generation and their subconsultants.

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Illinois Professional Engineer No. 062.061945

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3. *References*

USGS, 2018. "Quaternary Fault and Fold Database," <https://earthquake.usgs.gov/hazards/qfaults/>, accessed 17 September 2018.

**SEISMIC IMPACT ZONES LOCATION RESTRICTIONS
LINCOLN STONE QUARRY
JOLIET #9 STATION
OCTOBER 2018**

Pursuant to Code of Federal Regulations Title 40, Part 257, Subpart D (40 CFR), Section 257.63, KPRG and Associates, Inc (KPRG) prepared this report to document compliance with location restrictions related to seismic impact zones for the existing Lincoln Stone Quarry (the Quarry) at the Joliet #9 Station (Site) in Joliet, Illinois.

The work presented in this report was performed under the direction of Joshua Davenport in accordance with §257.63. Richard Gnat reviewed this report in accordance with KPRG's quality assurance/quality control procedures.

1. Seismic Impact Zones Location Restriction Determination

The U.S. Geological Survey (USGS) National Seismic Hazard Tool website was used to provide the peak ground acceleration based on a 2% probability in 50 years, with a land designation of 'a site on rock' with a ground acceleration of 760 m/s in the upper 30 meters. The peak ground acceleration was determined to be 0.070 g in 50 years, which is less than 0.10 g in 50 years. The Quarry complies with the location requirement in 257.63(a) and is not located in a seismic impact zone. The peak ground acceleration where the Quarry is located is 0.070 g in 50 years, which is less than 0.10 g in 50 years, which is the minimum threshold specified in the regulations.

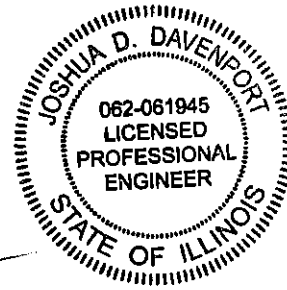
2. Limitations and Certification

This report was prepared in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in the field of engineering. The contents of this report are based solely on the observations of the conditions observed by KPRG personnel and information provided to KPRG by Midwest Generation. Consistent with applicable professional standards of care, our opinions and recommendations were based in part on data furnished by others, which was consistent with other information that we developed in the course of our performance of the scope of services. The information contained in this report is intended for use solely by Midwest Generation and their subconsultants.

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Illinois Professional Engineer No. 062.061945

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3. *References*

USGS, 2018. "National Seismic Hazard Tool,"
<https://www.earthquake.usgs.gov/hazards/interactive/>, accessed 17 September 2018.

**UNSTABLE AREAS LOCATION RESTRICTIONS
LINCOLN STONE QUARRY
JOLIET #9 STATION
OCTOBER 2018**

Pursuant to Code of Federal Regulations Title 40, Part 257, Subpart D (40 CFR), Section 257.64, KPRG and Associates, Inc (KPRG) prepared this report to document compliance with location restrictions related to unstable areas for the existing Lincoln Stone Quarry (the Quarry) at the Joliet #9 Station (Site) in Joliet, Illinois.

The work presented in this report was performed under the direction of Joshua Davenport in accordance with §257.64. Richard Gnat reviewed this report in accordance with KPRG's quality assurance/quality control procedures.

1. *Unstable Areas Location Restriction Determination*

The Quarry is not located in unstable areas. Therefore, the location of the Quarry complies with the requirements outlined in 257.64(a).

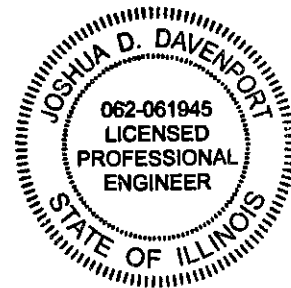
2. *Limitations and Certification*

This report was prepared in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in the field of engineering. The contents of this report are based solely on the observations of the conditions observed by KPRG personnel and information provided to KPRG by Midwest Generation. Consistent with applicable professional standards of care, our opinions and recommendations were based in part on data furnished by others, which was consistent with other information that we developed in the course of our performance of the scope of services. The information contained in this report is intended for use solely by Midwest Generation and their subconsultants.

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Illinois Professional Engineer No. 062.061945

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A handwritten signature in black ink, appearing to be "JD", located below the professional seal.

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for possible updated flood hazard information prior to use of this map for property purchase or construction purposes.

Coastal base flood elevations apply only inlandward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD), and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Areas of special flood hazard (100-year flood) include Zones A, AE, AH, AO, A99, V, and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For community map revision history prior to countywide mapping, see section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

DIGITAL DATA AVAILABILITY: Digital files containing the thematic floodplain information shown on these maps are published by the Federal Emergency Management Agency in DLG-3 Optional format on CD-ROM. Requests for data should include the full name of the community or county and the Flood Insurance Rate Map panel numbers covered by the request. Contact the Federal Emergency Management Agency, Flood Map Distribution Center, 6930 (A-F) San Tomas Road, Baltimore, Maryland 21227-6227. Telephone 1-800-358-9616.

NOTE: The coordinate system used for the production of this Flood Insurance Rate Map (FIRM) is Universal Transverse Mercator (UTM), North American Datum of 1927 (NAD27), Clarke 1866 spheroid. Corner coordinates shown on the FIRM are in latitude and longitude referenced to the Transverse Mercator projection, NAD27. Differences in the datum and spheroid used in the production of FIRMs for adjacent counties may result in slight positional differences in map features of the county boundaries. These differences do not affect the accuracy of the information shown on the FIRM.

ATTENTION: Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, contact the National Geodetic Survey at the following address:
Vertical Network Branch, N/CG13
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

Base Map Source: 1:100,000 USGS Digital Line Graphs. Map users should be aware that this base map source causes road alignment distortions at and near road intersections. These alignment problems have been corrected in the vicinity of identified floodplains.

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION IN FT. (NGVD) ¹	DESCRIPTION OF LOCATION
RM 137	591.62	A chiseled square on top of east downstream wing wall located at Sugar Creek Road bridge.

¹National Geodetic Vertical Datum of 1929.

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year floodplain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS*

Identified 1985

Identified 1990

Otherwise Protected Areas

* Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

Base Flood Elevation Line; Elevation in Feet**

Cross Section Line

Base Flood Elevation in Feet Where Uniform Within Zone**

Elevation Reference Mark

River Mile

**Referenced to the National Geodetic Vertical Datum of 1929

MAP REPOSITORY

Refer to Repository Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

SEPTEMBER 6, 1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

Refer to the FLOOD INSURANCE RATE MAP effective date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

WILL COUNTY, ILLINOIS AND INCORPORATED AREAS

PANEL 280 OF 585

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
JOLIET, CITY OF	170702	0280	E
ROCKDALE, VILLAGE OF	170710	0280	E
UNINCORPORATED AREAS	170695	0280	E

Notice to User: The MAP NUMBER shown below should be used when placing map orders. The COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER

17197C0280 E

EFFECTIVE DATE:

SEPTEMBER 6, 1995

Federal Emergency Management Agency

ATTACHMENT 5

Signage Documentation



1. Lincoln Stone Quarry Posted IEPA ID Sign

ATTACHMENT 6

No Attachment

ATTACHMENT 7

Emergency Action Plan

EMERGENCY ACTION PLAN

**JOLIET/LINCOLN STONE QUARRY
MIDWEST GENERATION, LLC
JOLIET, ILLINOIS
Permit No. 1994-241-LFM

IEPA Site No. 1978090001**

Prepared for:

Midwest Generation, LLC
1800 Channahon Road
Joliet, IL 60436

Prepared by:

KPRG and Associates, Inc.
14665 W. Lisbon Road, Suite 1A
Brookfield, WI 53005

Project No: 19520.4

May 2026

TABLE OF CONTENTS

1. INTRODUCTION	2
2. FACILITY INFORMATION	3
3. EVENTS THAT REPRESENT A SAFETY EMERGENCY	6
3.1 Main Quarry Discharge Pipes.....	6
3.1.1 Destruction of the Pipes by a Tornado	6
3.1.2 Vehicle Traffic Damages the Pipes.....	6
3.2 Groundwater Extraction System	6
3.2.1 Natural Disaster.....	6
3.2.2 Transformer Malfunction.....	7
3.3 Other Scenarios of Concern	7
3.3.1 Natural Disaster affecting the West Filled Area Cap	7
3.3.2 Severe Weather Occurs at LSQ	8
3.3.3 Releases other than CCR or CCB.....	8
3.3.4 Beneficial Reuse of Bottom Ash/Boiler Slag.....	9
4. INCIDENT RESPONSE ACTIONS	9
4.1 General Response Procedures for Release and/or Spill	9
4.2 Fire Response	10
4.3 Emergency Responders Contact Information	10
5. INFORMATION FOR INCIDENT NOTIFICATION	11
5.1 Facility Address and Location	11
5.2 Notification Chain within Midwest Generation, LLC	11
5.3 Other Contact Information	12
6.0 SITE MAP AND A SITE MAP DELINEATING DOWNSTREAM AREA	12
7.0 ANNUAL FACE-TO-FACE MEETING.....	12
8.0 LIMITATIONS AND CERTIFICATION	13

FIGURES

Figure 1 – Site Map Including Generating Stations

Figure 2 – Lincoln Stone Quarry Site Map

1. **INTRODUCTION**

This Emergency Action Plan (EAP) has been prepared in accordance with 35 Ill. Adm. Code Part 845.520 for Lincoln Stone Quarry (LSQ) associated with Joliet 9 Generating Station in Joliet, Illinois. This EAP describes the measures that will be implemented by Midwest Generation, LLC and any contractors and/or subcontractors working on behalf of Midwest Generation, LLC at Lincoln Stone Quarry (LSQ) to prevent a safety emergency or in the event of a safety emergency, to respond in a safe, effective and timely manner to mitigate the situation.

Safety emergencies can result from natural disasters or malfunctioning equipment while work is being performed. A risk assessment was performed to identify the most likely safety emergencies to occur and opportunities to mitigate or minimize the impacts and occurrence of those emergencies. As always, Midwest Generation, LLC strives for a safety emergency/injury free work experience, but in the event of a safety emergency this EAP will act as a reference.

This EAP is to be used as a reference describing the operation of LSQ, to communicate practices for preventing and responding to safety emergency response situations, and the notification procedures during emergency response situations.

2. FACILITY INFORMATION

Facility Name: Lincoln Stone Quarry

Mailing Address: 1800 Channahon Road
Joliet, Illinois 60436

Site Address: Southeast Corner of Patterson & Brandon Road
Joliet, Illinois 60436

Operator: Midwest Generation, LLC

Contact Name: James Thorne
1800 Channahon Road
Joliet, Illinois 60436
Telephone:
815-671-3397

Owner: Midwest Generation Holdings III, LLC
Attn: Mr. Bradley Kranz
804 Carnegie Center
Princeton, New Jersey 08540

The final disposal of the bottom ash/boiler slag was in the Main Quarry, which last received ash in 2019. In the Main Quarry, the bottom ash/boiler slag settled out of the water and was contained in the Main Quarry. Historically, the water has gravity drained from the Main Quarry to the North Quarry through two underground discharge pipes that are located under Patterson Road. The flow rate from the Main Quarry to the North Quarry can be controlled. The water would then enter the North Quarry into the pond where it would be aerated before it was pumped to the Des Plaines River under NPDES discharge permit no. IL0002216, Outfall 005. The North Quarry was not used to manage/store CCR but rather as a settling pond that is used to treat the water discharged from the Main Quarry. Following the sale of the North Quarry property in 2025, Midwest Generation is in the process of planning to create a sump area within LSQ whereby decant water will be pumped to the existing Switchyard (formerly Coal Pile) Runoff Basin and then discharged into the Des Plaines River under the NPDES permit (once approved).

As warranted by market demand, some of the CCB material was removed from the Main Quarry and reused. As allowed by the permit, up to 40,000 tons of CCB material could be removed from the Main Quarry and hauled offsite for beneficial reuse. The removal was performed by LaFarge, which would excavate the bottom ash/boiler slag from the disposal area using a mechanical excavator, load the ash/slag material into dump trucks and haul offsite. Recycling operations ceased circa 2019.

A groundwater extraction system was installed along the south edge of LSQ to address the component of groundwater flow away from the Main Quarry to the southeast. The extraction system consists of twelve extraction wells, X101 through X112, that are approximately 145 feet deep and each well contains one pump. The pumps are set 100 feet deep inside each extraction

well and their pump rates generally range from 3 to 12 gallons per minute (gpm). The pumps discharge through a series of pipes and valves and exit into the Main Quarry. The flow rate for each pump is manually controlled using ball valves and globe valves. As needed, the valves are manually opened and closed to adjust the flow rate of the pump. The valves for extraction wells X101 through X104 are located in an underground vault that is near extraction well X104. The valves for extraction wells X105 through X107 are located in individual ground level vaults for each extraction well. The valves for extraction wells X108 through X112 are located in an underground vault that is near the sluice pipes discharge, between extraction wells X108 and X109. The set of twelve pumps are controlled by three panels, which turn the pumps on and off, record the water level in each extraction well, and record the flow rates of each pump. The components of the extraction system are identified on Figure 2.

The pumps and controls are supplied by electrical power that comes from Patterson Road and Brandon Road. The pumps and control panel for extraction wells X101 through X104 are supplied power by overhead power lines that come from Brandon Road. The overhead power lines connect to a transformer on the east side of Brandon Road, cross Brandon Road, connect to an electrical meter on the west side of Brandon Road, and then run overhead to the control panel. The pumps and controls for extraction wells X105 through X112 are powered by overhead power lines that first come from Patterson Road and run south adjacent to the access road and then turn east when the access road turns east, from this point the power lines run underground and connect to a transformer. This transformer then drops the power from three-phase, high-voltage power down to single-phase 200-240 volts, which is then connected to the control panel for extraction wells X108 through X112 and the control panel for extraction wells X105 through X107.

The above-described groundwater extraction system was necessary due to the influence on the groundwater flow caused by Laraway Quarry. Boyd's Quarry, which is an inactive quarry owned by Midwest Generation, LLC, is used by the owner as a hydraulic control to maintain natural groundwater flow on the east side of LSQ to counteract the unnatural groundwater flow caused by the influence of the Laraway Quarry dewatering. Boyd's Quarry has established a static water level since being inactive and it has an influence on groundwater flow in the area. Field observations identified that Boyd's Quarry is connected to the Main Quarry by the same permeable portion of the Silurian dolomite described above. If the water level in Boyd's Quarry were to drop below the water level in the Main Quarry, the natural groundwater flow would be affected. This would result in groundwater flow going to the east/northeast, which would be opposite of the natural groundwater flow direction. The natural groundwater flow direction is from Boyd's Quarry going west and northwest towards the Main Quarry and the Des Plaines River. In order to maintain compliance with the operations permit for LSQ and to avoid the need for an additional groundwater extraction system, the natural groundwater flow must be maintained and this is accomplished by ensuring the water level in the Main Quarry is lower than the static water level in Boyd's Quarry.

The water levels in Boyd's Quarry and the Main Quarry are monitored continuously using pressure transducers. The water levels are recorded and uploaded to a website so the LSQ operator can monitor the difference in water levels between Boyd's Quarry and the Main Quarry. It is important that the water level in the Main Quarry remain below the water level in Boyd's Quarry and this is accomplished by keeping the Main Quarry water level at least three (3) feet lower than the water level in Boyd's Quarry. If the water level in the Main Quarry is less than three feet lower

than the water level in Boyd's Quarry, then the discharge from the Main Quarry must be increased in order to lower the water level in the Main Quarry. The North Quarry pond is able (and in the future the Switchyard (formerly Coal Pile) Runoff Basin will be able) to accommodate any additional water from the Main Quarry by increasing the pumping rate from the pond/Basin to the Des Plaines River.

3. **EVENTS THAT REPRESENT A SAFETY EMERGENCY**

In accordance with 35 Ill. Adm. Code 845.520, this section identifies the events or circumstances that represent a safety emergency, along with a description of the procedures that will be followed to detect a safety emergency in a timely manner. The safety emergencies discussed below are based on LSQ not accepting CCR or any other waste streams and its existence as an incised surface impoundment.

3.1 Main Quarry Discharge Pipes

The scenarios that would affect the Main Quarry discharge pipes are as follows:

3.1.1 Destruction of the Pipes by a Tornado

If a tornado were to touch down at LSQ, damage to the discharge pipes may be possible because they are exposed. Any type of damage from a tornado or other natural disaster is unavoidable. The probability of a tornado touching down at LSQ is low, so the overall hazard rating for this scenario is low probability/low impact because the sluice pipes are no longer in use.

3.1.2 Vehicle Traffic Damages the Pipes

Making contractors aware of the pipes and having spotters when large vehicles are maneuvering near the pipes will prevent any damage and/or collisions to the pipes. Also ensuring proper maintenance of the pipes will maintain the structural integrity of the pipes, which will help to minimize or eliminate any damage to the pipes in the event a collision occurs. The overall hazard rating for this event is low probability/low impact because the vehicle traffic around the pipes is minimal, but if a pipe is damaged that will cause an inconvenience requiring repair.

3.2 Groundwater Extraction System

The groundwater extraction system in general consists of twelve (12) extraction wells, twelve (12) pumps, three control panels, and two underground vaults. Further detail was provided previously in Section 2.2. The scenarios that would affect the groundwater extraction system are as follows:

3.2.1 Natural Disaster

In the event that a natural disaster knocks down the power lines at LSQ, the groundwater extraction system will be without power. The groundwater extraction system going offline is not considered a release; however, the operation of the system is important to the operation of LSQ and is required to be in compliance with LSQ's permit. Power should be restored to the system as soon as possible, but this plan recognizes that the power distribution through the power lines is out of the control of Midwest Generation, LLC. If a prolonged power outage is to occur, other precautions should be made, such as powering the system with a temporary generator.

In addition, a tornado or severe storm could destroy or cause the control panels to malfunction. Destruction or malfunctioning of the control panels causing the pumps to go offline is not considered a release, for the same reasons the power going out is not a release, which is noted above. As noted above it is important to return the pumps to full operation as quickly as possible to ensure compliance with LSQ's landfill permit. This event has occurred in the past as a result of a lightning strike near the control panel for X101 through X104, which caused the pumps to stop operating. The non-operational pumps were discovered as part of the regular maintenance of the system and were returned to operational status as quickly as possible.

The overall hazard ratings for these scenarios are medium probability/high impact. This is a result of the fact that lightning has struck nearby one of the cabinets before and caused the system to stop operating and also thunderstorms occur on a regular basis throughout the spring and summer months.

3.2.2 Transformer Malfunction

The power for extraction wells X105-X112 is relayed to the system using a transformer that is adjacent to the sluice pipe discharge into the Main Quarry. In the event this transformer malfunctions, those pumps would be non-operational. Malfunctioning could include a simple failure or an explosion of the transformer as a worst-case situation. In the event the transformer fails, notify the appropriate personnel, as outlined in this Plan. If the transformer explodes, notify the appropriate personnel and the electric utility, whose contact information is included in this Plan, see section 6. The overall hazard rating for this scenario is low probability/high impact because the chance it would happen is very unlikely but the impact to the groundwater extraction system is high because this would cause the system to lose power, potentially for a long time.

3.3 Other Scenarios of Concern

Some scenarios for other areas of the site are presented below.

3.3.1 Natural Disaster affecting the West Filled Area Cap

A fire on the cap of the WFA would damage the grass and loosen the soil allowing for the potential for erosion to occur. Erosion of the cap would expose CCR and allow for a potential release to occur. If CCR is released from the WFA, extent of the CCR release could extend north on to Patterson Road, west on to the Commonwealth Edison substation, south on to agricultural land, and east into the Main Quarry. This release would not extend into a waterway even if it enters the Main Quarry. If a CCR release were to enter the Main Quarry, it would be handled as part of the normal disposal process of the other CCR that enters the Main Quarry. The overall hazard rating for this scenario is low probability/medium impact because the chance for a fire is low and the effect to the cap would be detrimental. The CCR release would create a temporary nuisance relative to the affected land, but the nuisance could be cleaned up and taken care of relatively quickly and easily.

A tornado would cause more damage to the WFA cap than a fire and has the potential to create a greater extent of a release. Any type of damage from a tornado is unavoidable. The tornado

would certainly expose the CCR material and potentially transport it to an offsite location. The probability of a tornado touching down at LSQ is low but the potential for damage to the cap and a CCR release is high, so the overall hazard rating for this scenario is low probability/high impact.

3.3.2 Severe Weather Occurs at LSQ

There is the possibility for severe weather to occur at LSQ when workers are present. The presence of workers at LSQ takes place at least twice a month when the groundwater extraction system is serviced. The workers present consist of two people using typical passenger vehicles and tools to change pumps in the extraction wells. On rare occasions, additional personnel and equipment are used to service the groundwater extraction system. The weather is monitored prior to personnel being at LSQ, and if the potential for severe weather does exist, the weather is monitored while personnel are at LSQ.

If severe weather occurs while workers are present and evacuation of the site is required, the workers should notify the Midwest Generation plant contact and proceed to the nearest Midwest Generation structure. The Midwest Generation contact will provide the workers with further instructions if additional shelter is needed, say in the event of a tornado or nearby chemical spill.

If severe weather causes a fire while workers are present, they should follow the notification procedures outlined in this Plan and also call the fire department using 911. Workers should not attempt to extinguish a large fire, but they can attempt to extinguish a small fire by smothering or with a fire extinguisher.

The overall hazard rating for severe weather occurring at LSQ is medium probability/high impact. Thunderstorms and large precipitation events occur every year without damaging LSQ, but it is the presence of these events and their ability to turn into something more severe that warrants the medium probability rating. A typical thunderstorm and/or large precipitation event would not cause damage to LSQ, but if the weather turns severe, damage may occur and it may affect some operation and/or portion of the LSQ property.

3.3.3 Releases other than CCR or CCB

Releases that involve material other than CCR and/or CCB have the potential to occur. The releases would mainly consist of oil and or fuel from vehicles that are used by personnel at LSQ during typical maintenance operations. The potential quantity of material released is small, typically less than 20 gallons and the release would have the potential to enter the Main Quarry. If the release enters the Main Quarry notify the appropriate personnel as outlined in this Plan. Another potential for a release would be during the acid treatment of the groundwater extraction system. This treatment consists of mixing an acidic solution which is then pumped through the underground discharge piping associated with the extraction systems to remove build-up of precipitated scale. The release would be from the storage tank used to contain the acid mixture as it is being pumped. This quantity is typically between 200 to 400 gallons. A release of this material does have a chance of entering the Main Quarry, but the small quantity does not pose a risk to the Main Quarry, Des Plaines River or other waterway. If a release occurs notify the appropriate personnel as outlined in this Plan.

3.3.4 Beneficial Reuse of Bottom Ash/Boiler Slag

As noted above in Section 2.2, some of the bottom ash/boiler slag from Joliet #9 Generating Station was beneficially reused. Lafarge removed the material as it was needed based upon market demand for their products in which the bottom ash/boiler slag is reused. Lafarge personnel were in charge of removing the material from the Main Quarry and they used their own mechanical excavator at LSQ when needed. This activity ceased circa 2019.

4. INCIDENT RESPONSE ACTIONS

4.1 General Response Procedures for Release and/or Spill

This section describes the general response procedures once an incident occurs and/or is discovered at LSQ. The following actions should be taken:

- Stabilize the Incident:
 - Evacuate the area if necessary;
 - If material has been released but is no longer flowing, contain the material to prevent further migration of the material, place a stop-gap measure at the point of release to prevent immediate reoccurrence;
 - If a material has been released that presents an immediate danger to people or the environment, initiate recovery operations of the material. Recovery operations should be completed only by qualified and trained personnel;
 - Initiate cleanup of the spilled product if a threat to human health is not present;
 - Remove equipment from the spill area, if possible;
 - If a structure or site infrastructure is damaged, assess the situation to evaluate if containment or shoring measures need to be put in place to prevent further damage;
 - Establish a security perimeter if needed, and limit personnel from the area.
- Notify appropriate personnel
 - Notify the supervising personnel at LSQ (i.e., Midwest Generation contact);
 - Notify Operations/shift supervisor (i.e., Midwest Generation contact);
 - Notify emergency personnel (Fire Dept/EMS/Police), if necessary;
 - Notify the Regional Environmental Manager;
 - Notify cleanup contractors and consultants, who can begin planning the recovery/repair options;

- Notify Will County Emergency Management Agency, IEPA, and Illinois Emergency Management Agency as necessary.
- Document the discovery, nature, and extent of the incident
 - Date/time and who discovered the incident;
 - Name of responsible party of the incident;
 - Describe the incident, including location and whether any danger or threat exists;
 - Source and cause of the incident;
 - Estimate of the quantity of material if the incident is a release;
 - Number and types of injuries (if any);
 - Media affected or threatened by the incident (i.e., water, land, or air);
 - If material entered any surface water, name the surface water and identify where the material entered the surface water;
 - Describe the weather at time of incident;
 - Describe stabilization actions;
 - Take photographs of the incident including the point of release, extent of release, and stabilization methods.
- Initiate Privileged and Confidential Protocols for CCB and CCR Material
 - Initiate privileged and confidential protocols if CCB and/or CCR material was released, any material left Midwest Generation, LLC owned/operated property, or any material entered surface water;
 - Notify corporate counsel for further instructions, use “Privileged and Confidential” on all communications.

4.2 Fire Response

If a small fire breaks out and if there is no immediate danger to personnel, attempt to extinguish it using a fire extinguisher or other appropriate measures. If the fire cannot be contained using a fire extinguisher or other appropriate measures, call the fire department. The Site location information is as follows:

- Address: 1601 S. Patterson Road, Joliet, IL 60436;
- Location: Southwest corner of Brandon Road and Patterson Road, gate entrance on Patterson Road, after the bend. The gate is approximately 0.5 miles west of the intersection.

If possible, attempts should be made to control the fire with either fire breaks or by wetting the perimeter area around the fire or in its path.

4.3 Emergency Responders Contact Information

Section 5.3 below provides the contact information for the emergency responders. The appropriate Midwest Generation personnel will determine who to notify, including any affected residents, in the case of an imminent or actual site failure. Appropriate contractors will be utilized to assist Midwest Generation personnel with mitigated actions being undertaken in order

to minimize the impact of an event that has occurred. Contact information for contractors and consultants are provided below.

5. INFORMATION FOR INCIDENT NOTIFICATION

5.1 Facility Address and Location

- Address: Lincoln Stone Quarry, 1601 Patterson Road, Joliet, IL 60436
- Location: Southwest corner of Brandon Road and Patterson Road, gate entrance on Patterson Road, approximately 0.5 miles west of the corner of Patterson Road and Brandon Road.
- Entrances and Exits (see Figure 2) – There are three gates that provide access to LSQ:
 - Gate 1 – Northeast corner of LSQ, at the intersection of Brandon and Patterson Road;
 - Gate 2 – Approximately 0.5 miles west along Patterson Road from Brandon Road, this gate provides access to the Joliet Generating Station 9 bottom ash/boiler slag disposal area;
 - Gate 3 – Approximately 0.5 miles west along Patterson Road from Brandon Road, this gate provides access to the WFA and the groundwater extraction system.

5.2 Notification Chain within Midwest Generation, LLC

Priority	Midwest Generation, LLC Contacts
1a	Joliet 9 Environmental, Health & Safety Specialist 815-671-3397 815-207-4902
1b	Joliet 9 Plant Manager 815-207-5410 815 207-5412 815-715-8532
1c	Joliet 9 Security 331-262-5378
2	Regional Environmental Manager Sharene Shealey – 724-255-3220
3	LSQ Consultant – KPRG and Associates, Inc., 262-781-0475 Richard Gnat – 262-227-7755; Tim Stohner – 630-325-1300
4	Site Cleanup Contractor SET Environmental – 877-437-7455

5.3 Other Contact Information

Agency	Contact
Joliet Fire Department	911 or 815-724-3500
Joliet Police Department	911 or 815-724-3100 Non-emergency 815-726-2491
Will County Emergency Management Agency	EMERGENCY – 815-740-0911 Non-Emergency/Office – 815-740-8351
National Response Center	800-424-8802
Illinois Emergency Management Agency	Office – 217-782-2700 24-hour Response – 800-782-7860
Illinois Environmental Protection Agency	Imran Syed 217-782-7813

6.0 SITE MAP AND A SITE MAP DELINEATING DOWNSTREAM AREA

In accordance with 845.520(b)(i), a site map is provided as Figure 1 and a site map close-up is provided as Figure 2. Figure 2 shows the extent of LSQ and the areas downstream of LSQ.

7.0 ANNUAL FACE-TO-FACE MEETING

In accordance with 845.520(b)(5), a face-to-face meeting or an exercise between representatives of LSQ and the local emergency responders shall be offered by Midwest Generation and, if accepted, held on an annual basis. The purpose of the annual meeting is to review the EAP to assure that contacts, addresses, telephone numbers, etc. are current. The annual meeting would be held whether or not an incident occurred in the previous year. In the event an incident occurs, the annual meeting date may be moved up in order to discuss the incident closer to the date of occurrence. If no incidents have occurred, the annual meeting would be held to inform local emergency responders on the contents of the EAP and changes from the previous year. Documentation of the annual face to face meeting may be recorded and placed in the operating record for the Station.

Pursuant to §845.520(d), the EAP requires modification whenever there is a change in conditions that would substantially affect the EAP in effect. Changes to the plan shall be made as appropriate, and a copy of the changes will be kept at the station, with the revised EAP placed in the facility's operating record. The written EAP must be evaluated, at a minimum, every five years to ensure the EAP is accurate with §845.520.

8.0 LIMITATIONS AND CERTIFICATION

This Emergency Action Plan was prepared to meet the requirements of 845.520(b). 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.

Signature: 

Name: Timothy J. Stohner, P.E.

Date of Certification: 5/22/26

Illinois Professional Engineer No.: 062.057635

License Expires: 11/30/2027



FIGURES



T:\Projects\1 - MWC Project Files\12815 - LSG Emergency Response Plan ERP Map.dwg

0 500'
APPROXIMATE SCALE



ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, inc.

14665 West Lisbon Road, Suite 2B 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

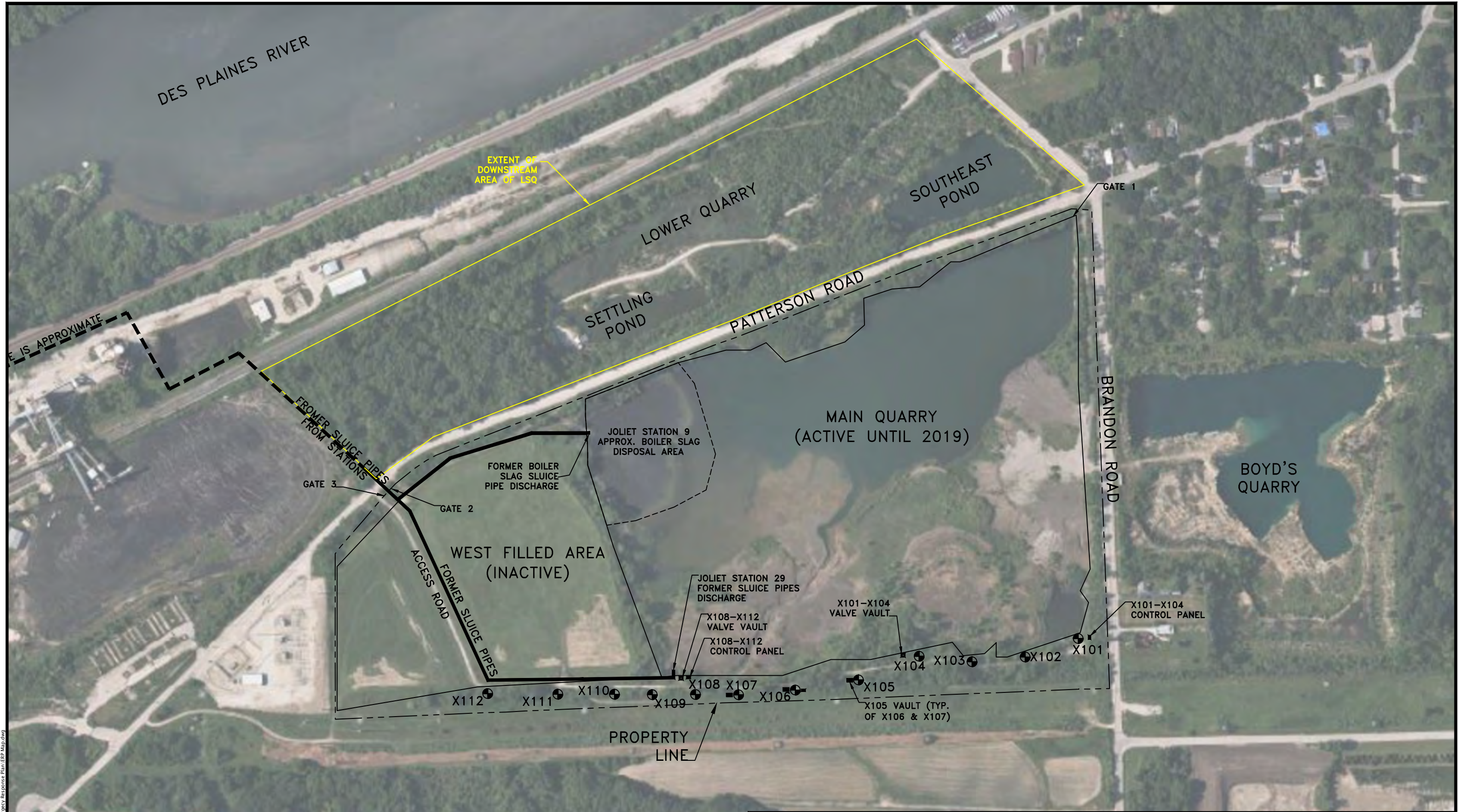
SITE MAP INCLUDING GENERATING STATIONS

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Scale: 1" = 500' Date: May 18, 2026

KPRG Project No. 19520.4

FIGURE 1



T:\Projects\1 - MWC Project Files\12815 - LSO Emergency Response Plan ERP Map.dwg

0 300'
APPROXIMATE SCALE



ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, Inc.

14665 West Lisbon Road, Suite 2B 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

LINCOLN STONE QUARRY SITE MAP

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Scale: 1" = 300'

Date: May 18, 2026

KPRG Project No. 19520.4

FIGURE 2

ATTACHMENT 8

Fugitive Dust Control Plan

Annual CCR Fugitive Dust Control Report

Joliet #9 Generating Station

1601 South Patterson 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 #9 Generating Station, operated by Midwest Generation, LLC (MWG), is located at 1601 South Patterson Road, Joliet, Will County, Illinois. The facility consists of a retired natural gas-fired electric power generating station (formerly coal-fired) situated on approximately 170 acres and the associated Lincoln Stone Quarry (LSQ) occupying approximately 120 acres, each are located on the south side of the Des Plaines River. The Station has one generating unit, identified as Unit 6, that retired on June 1, 2023. Lincoln Stone Quarry includes a former ash placement site referred to as the West Filled Area that ceased receiving CCR prior to 1994 and the Main Quarry which is permitted as a landfill by Illinois EPA for bottom ash and slag and has ceased receiving CCR. Lincoln Stone Quarry may remain open to allow for the beneficial reuse of slag. The Rule applies to this facility due to the management of CCR that was generated from the combustion of coal. The CCR unit associated with the station is the LSQ Main Quarry.

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 complied with the requirements as specified in §845.500(b)(1-7) of the IL CCR Rule and placed in the Lincoln Stone Quarry 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)

Annual CCR Fugitive Dust Control Report

Joliet #9 Generating Station

1601 South Patterson Road, Joliet, Illinois

The Annual Report must be submitted as part of the annual consolidated report required by §845.550. This document represents the 2025 Annual Report for LSQ 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 CCR Fugitive Dust Control Plan (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. As a result of the fuel conversion, and the correlated fact that all coal combustion ceased at the facility as of March 20, 2016 and the cessation of receipt of CCR, the only remaining potential CCR fugitive dust source is final closure of LSQ.

2.1 Lincoln Stone Quarry

Prior to the 2016 fuel conversion of Joliet #9 and Joliet #29 to Natural Gas, LSQ used to receive bottom ash and slag from both generating stations. Ash in the Main Quarry is approximately 40 feet below grade and is confined by the quarry walls and, therefore, not readily susceptible to wind erosion and generation of potential CCR fugitive dust emissions. If slag or ash are removed from the Main Quarry for beneficial use, loading of the moisture laden material would also be performed within the Main Quarry at a level well below grade. Therefore, the loading operation is also not susceptible to wind erosion. The ash in the West Filled Area lies beneath a vegetated soil cover which mitigates any wind erosion impacts and the potential for CCR fugitive dust emissions.

No CCR was removed from the Main Quarry for beneficial use during the reporting period.

Operation of the Main Quarry and West Filled Area is performed in accordance with the conditions of the state issued permit, No. 1994-241-LFM, dated June 11, 2018, Modification No. 24. The issued permit includes the requirement to control dust to prevent wind dispersal of particulate matter off site. Additionally, the permit requires quarterly inspections of the West Filled Area and requires repair of erosion and scoured channels observed during the inspection.

Annual CCR Fugitive Dust Control Report

Joliet #9 Generating Station

1601 South Patterson Road, Joliet, Illinois

3.0 Fugitive CCR Dust Assessments

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

No assessments were deemed necessary in the past year based on the weekly CCR impoundment inspections and lack of changes to operations at this unit.

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 are performed as soon as feasible. If the assessment finds that the Plan does not effectively minimize the CCR from becoming airborne, the Plan is amended to include additional control measures. No issues were identified during this Annual Report's period of record covering January through December 2025.

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 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 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.

Annual CCR Fugitive Dust Control Report
Joliet #9 Generating Station
1601 South Patterson Road, Joliet, Illinois

No complaints were registered during this Annual Report's period of record covering January through December 2025.

5.0 Summary of Corrective Actions Taken

For the January through December 2025 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 currently 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
Joliet Generating Station
1800 Channahon Road
Joliet, Illinois 60436

April 7, 2025

Illinois Environmental Protection Agency
DWPC – Permits Section (MC 15)
Attn: Part 845 Coal Combustion Residual Rule Submittal
2520 W Iles Ave
Springfield, IL 62704

Re: Midwest Generation, LLC – Joliet 9 Generating Station
Account No. W1970450046
Pond ID: W1970450046-01
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 2025 at Joliet 9 Generating Station. There were no complaints received from members of the public during the period January 1, 2025 through March 31, 2025.

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".

Phillip Raush
Plant Manager
Joliet Generating Station



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

July 7, 2025

Illinois Environmental Protection Agency
DWPC – Permits Section (MC 15)
Attn: Part 845 Coal Combustion Residual Rule Submittal
2520 W Iles Avenue
Springfield, IL 62704

Re: Midwest Generation, LLC – Joliet 9 Generating Station
Account No. W1970450046
Pond ID: W1970450046-01
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 2025 at Joliet 9 Generating Station. There were no complaints received from members of the public during the period April 1, 2025 through June 30, 2025.

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".

Phillip Raush
Plant Manager, Joliet Generating Station



Midwest Generation, LLC

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

October 3, 2025

Illinois Environmental Protection Agency
Bureau of Land - # 33
Permit Section
2520 West Iles Avenue
Springfield, IL 62704

Re: Midwest Generation, LLC – Joliet 9 Generating Station
Site ID: 1978090001
Log No.: 2021-482
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 2025 at Joliet 9 Generating Station. There were no complaints received from members of the public during the period July 1, 2025 through September 30, 2025.

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".

Phillip Raush
Plant Manager, Joliet Generating Station



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

January 8, 2026

Illinois Environmental Protection Agency
Bureau of Land - # 33
Permit Section
2520 West Iles Avenue
Springfield, IL 62704

Re: Midwest Generation, LLC – Joliet 9 Generating Station
Site ID: 1978090001
Log No.: 2021-482
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 2025 at Joliet 9 Generating Station. There were no complaints received from members of the public during the period October 1, 2025 through December 31, 2025.

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

Sincerely,

For A handwritten signature in blue ink, appearing to read "Philip Raush".

Philip Raush
Plant Manager, Joliet Generating Station

CCR COMPLIANCE CCR FUGITIVE DUST CONTROL PLAN

**Midwest Generation, LLC
Joliet #9 Generating Station and Lincoln
Stone Quarry
1601 South Patterson Road
Joliet, Illinois**

PREPARED BY:

KPRG and Associates, Inc.
14665 W. Lisbon Road, Suite 1A
Brookfield, Wisconsin 53005

August 18, 2023

TABLE OF CONTENTS

SECTION/DESCRIPTION	PAGE
1.0 INTRODUCTION	1
2.0 SITE INFORMATION	2
2.1 Owner/Operator and Address:	2
2.2 Owner Representative/Responsible Person Contact Information:.....	2
2.3 Location and Description of Facility Operations	2
3.0 POTENTIAL CCR FUGITIVE DUST SOURCES	3
4.0 DESCRIPTION OF CONTROL MEASURES	4
4.1 Purpose.....	4
4.2 Lincoln Stone Quarry.....	4
5.0 PLAN ASSESSMENTS/AMENDMENTS	5
5.1 CCR Fugitive Dust Assessments	5
5.2 Plan Amendments	5
5.3 Citizen Complaints.....	5
6.0 CCR FUGITIVE DUST PLAN REPORTING/RECORDKEEPING REQUIREMENTS	6
7.0 PROFESSIONAL ENGINEER CERTIFICATION	7

APPENDICES

Appendix A - Site Diagram/Potential CCR Fugitive Dust Sources

Appendix B - Assessment Record

Appendix C - Plan Review and Amendment Record

Appendix D - Citizen Complaint Log

1.0 INTRODUCTION

On April 17, 2015, the United States Environmental Protection Agency published a final rule regulating coal combustion residuals (CCR) as part of 40 CFR Part 257. On April 15, 2021, the Illinois Environmental Protection Agency adopted 35 Ill. Adm. Code 845 creating statewide standards for the disposal of CCR in surface impoundments. Both 40 CFR Part 257 and 35 Ill. Adm. Code specifically require that “the owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit (surface impoundment), must adopt measures that will effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units (surface impoundments), roads, and other CCR management and material handling activities”. As a result, each regulated facility must develop a CCR fugitive dust control plan that complies with 40 CFR Part 257.80 and 35 Ill. Adm. Code 845.500(b). It should be noted that 40 CFR Part 257 also regulates CCR landfills but 35 Ill. Adm. Code only regulates CCR surface impoundments.

This site specific CCR Fugitive Dust Control Plan (Plan) has been developed to comply with the requirements specified in 40 CFR Part 257.80(b)(1-7) and 35 Ill. Adm. Code 845.500(b). In general, the Plan identifies the potential CCR fugitive dust sources subject to the regulations and describes the control measures that will be implemented to minimize CCR fugitive dust emissions. The Plan also includes a procedure for the periodic assessment of the Plan’s effectiveness, documentation of any Plan amendments deemed necessary to assure continued compliance, a record of any citizen complaints received pertaining to CCR fugitive dust emissions, and an outline of the required reporting and recordkeeping requirements in 40 CFR Part 257.80 and 35 Ill. Adm. Code 845.500.

This Plan has been revised to combine the requirements of both 40 CFR Part 257.80 and 35 Ill. Adm. Code 845.500 into one plan and reflect the current conditions at the facility.

2.0 SITE INFORMATION

2.1 Owner/Operator and Address:

Midwest Generation, LLC
Joliet #9 Generating Station
1601 South Patterson Road
Joliet, Illinois

2.2 Owner Representative/Responsible Person Contact Information:

Plant Manager
815-207-5412

2.3 Location and Description of Facility Operations

The Midwest Generation Joliet #9 Generating Station is located at 1601 South Patterson Road, Joliet, Will County, Illinois. The facility is a retired gas-fired (formerly coal-fired) electric power generating station that occupies approximately 170 acres. The last remaining gas-fired unit at the Station, Unit 6, ceased operation in June 2023. Electrical power was transmitted from the site to the area grid through overhead transmission power lines.

The Lincoln Stone Quarry occupies approximately 120 acres and includes a former ash placement site, referred to as the West Filled Area, that ceased receiving CCR prior to 1994, and the Main Quarry, which was used as a landfill for bottom ash and slag and has ceased receiving CCR. Lincoln Stone Quarry may remain open to allow for the beneficial reuse of slag.

The general vicinity includes other commercial and industrial facilities, residential development and agricultural areas.

3.0 POTENTIAL CCR FUGITIVE DUST SOURCES

As a result of the fuel conversion, and the correlated fact that all coal combustion ceased at the facility as of March 20, 2016 and the cessation of receipt of CCR, the only remaining potential CCR fugitive dust source is final closure of Lincoln Stone Quarry. CCR Fugitive dust could potentially be generated from this source as a result of wind erosion, housekeeping issues and/or the nature of the operation. Specifically, these identified sources were further evaluated to determine the probability of CCR fugitive dust being generated and to determine the level of emission controls that are warranted to mitigate CCR fugitive dust emissions. The findings of the evaluation are individually discussed in the following paragraphs.

Lincoln Stone Quarry was used for routine disposal of bottom ash and slag from the Joliet #9 and Joliet #29 Generating Stations. Occasionally Joliet #29 Ash Pond 2 was used for Joliet #29 bottom ash; Joliet #29 Ash Pond 2 is covered by a separate CCR Fugitive Dust Plan. Both Joliet #9 and Joliet #29 facilities no longer generate ash thus eliminating ash disposal in Lincoln Stone Quarry (and disposal to Joliet #29 Ash Pond 2). Ash from the Joliet #29 Ash Pond 2 has been disposed of in Lincoln Stone Quarry from cleaning activities associated with Ash Pond 2. Therefore, Ash Pond 2 is no longer a potential CCR fugitive dust source.

Lincoln Stone Quarry currently consists of a closed portion referred to as the West Filled Area, which has a vegetated soil cover over the historically disposed ash and is not subject to 40 CFR Part 257.80 and 35 Ill. Adm. Code 845.500, and the recently inactive bottom ash and slag disposal area referred to as the Main Quarry. Ash in the Main Quarry is approximately 40 feet below grade and is confined by the quarry walls and, therefore, not readily susceptible to wind erosion and generation of potential CCR fugitive dust emissions. If slag or ash are removed from the Main Quarry for beneficial use, loading of the moisture laden material would also be performed within the Main Quarry at a level well below grade. Therefore, the loading operation is also not susceptible to wind erosion. After settling occurs, water from the Main Quarry is discharged through a final settling basin and then ultimately discharged through a regulated NPDES outfall.

This potential CCR fugitive dust source is identified on the Site Diagram included in Appendix A.

4.0 DESCRIPTION OF CONTROL MEASURES

4.1 Purpose

The purpose of developing appropriate control measures is to minimize and reduce the emissions of CCR fugitive dust from the identified potential emission sources. The control measures and work practices implemented at the facility are described in the following sections.

4.2 Lincoln Stone Quarry

Lincoln Stone Quarry used to receive bottom ash and slag from the Joliet #9 and Joliet #29 Generating Stations. Ash in the Main Quarry is approximately 40 feet below grade and is confined by the quarry walls and, therefore, not readily susceptible to wind erosion and generation of potential CCR fugitive dust emissions. Loading of the moisture-laden slag to be used as a beneficial material would also be performed within the Main Quarry at a level well below grade. Therefore, the loading operation is also not susceptible to wind erosion. The ash in the West Filled Area lies beneath a vegetated soil cover, which mitigates any wind erosion impacts and the potential for CCR fugitive dust emissions.

Operation of the Main Quarry and West Filled Area is performed in accordance with the conditions of the issued landfill permit, No. 1994-241-LFM, dated August 14, 2015, Modification No. 21. The issued permit includes the requirement to control dust to prevent wind dispersal of particulate matter off site. Additionally, the permit requires quarterly inspections of the West Filled Area and requires repair of erosion and scoured channels observed during the inspection.

5.0 PLAN ASSESSMENTS/AMENDMENTS

To assure that the work practices being implemented adequately control the dust from the identified potential CCR fugitive dust emission source at the facility, routine assessments and record keeping are performed. These procedures include the following:

5.1 CCR Fugitive Dust Assessments

Pursuant to 40 CFR 257.80(b)(1) and 35 Ill. Adm. Code 845.500(b)(3), assessments of the potential CCR fugitive dust emission source identified within this Plan will be conducted to assess the effectiveness of this Plan. The assessment will include observation of Lincoln Stone Quarry to confirm the adequacy of the control measures. The assessments will be conducted as needed to comply with the issued permit by an individual designated by the contact identified in Section 2.2 of this Plan. Observations made during each assessment will be recorded on a form similar to the one included in Appendix B, however, the station may create their own form.

If the results of the assessment determine that the control measures are not adequate, the necessary response measures will be implemented. If the assessment finds that this Plan does not effectively minimize the CCR from becoming airborne, this Plan will be amended to include additional control measures.

5.2 Plan Amendments

This CCR Fugitive Dust Plan will be reviewed whenever there is a change in conditions that would substantially affect the written Plan currently in place. A record of the reviews and any modifications or amendments made to the Plan currently in place will be kept on a form similar to the one included in Appendix C, however, the station may create their own form. The amended Plan will be reviewed by a Registered Professional Engineer and, if deemed acceptable, will be recertified.

5.3 Citizen Complaints

Any written or verbal complaints received from a citizen involving alleged CCR fugitive dust emission events at the facility will be recorded by an individual designated by the contact identified in Section 2.2 of this Plan. The complaints will be recorded on a form similar to the one included in Appendix D, however, the station may create their own form. Upon receipt of the complaint, an investigation of the alleged source of the CCR fugitive dust emissions will be performed and the results of that investigation recorded on the form. If the CCR fugitive dust emission event is confirmed, any necessary response measures or changes in operation required to mitigate the CCR fugitive dust emissions will be implemented as soon as practicable.

6.0 CCR FUGITIVE DUST PLAN REPORTING/RECORDKEEPING REQUIREMENTS

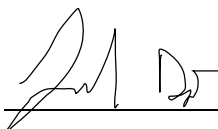
This section outlines the Plan reports that must be prepared and records that must be maintained to meet the requirements specified in 40 CFR Part 257 and 35 Ill. Adm. Code Section 845.500. These requirements include the following:

- Place the Plan in the facility's operating record and publicly accessible internet site. If the Plan is amended, replace the initial Plan with the amended Plan. Only the most recent amended Plan will be maintained in the facility's operating record and internet site.
- Prepare an annual CCR Fugitive Dust Control Report compliant with 40 CFR 257.80(c) and place it in the facility's operating record and post to the publicly accessible internet site. The annual report will include:
 - A description of the actions taken to control CCR fugitive dust,
 - A record of all citizen complaints, and
 - A summary of any corrective measures taken.
- Prepare an annual CCR Fugitive Dust Control Report compliant with 35 Ill. Adm. Code 845.500(c), place it in the facility's operating record, and submit to the IEPA as part of the annual consolidated report required by 35 Ill. Adm. Code 845.550. The annual report will be posted to the publicly accessible website and will include:
 - A description of the actions taken to control CCR fugitive dust,
 - A record of all citizen complaints, and
 - A summary of any corrective measures taken.
- Provide notification to IEPA and, if applicable, the Tribal authority when the Plan and reports are placed in the facility's operating record and publicly accessible internet site.
- Submit quarterly reports compliant with 35 Ill. Adm. Code 845.500(b)(2) to IEPA within 14 days from the end of the quarter of all complaints received in that quarter. The quarterly reports will include:
 - The date of the complaint,
 - The date of the incident,
 - The name and contact information of the complainant, and
 - All actions taken to assess and resolve the complaint.

7.0 PROFESSIONAL ENGINEER CERTIFICATION

The undersigned Registered Professional Engineer is familiar with the requirements of 40 CFR 257.80 and 35 Ill. Adm. Code 845.500 and has visited and examined the facility or has supervised examination of the facility by appropriately qualified personnel. The undersigned Registered Professional Engineer attests that this CCR Fugitive Dust Control Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and meets the requirements of 40 CFR 257.80 and 35 Ill. Adm. Code 845.500, and that this Plan is adequate for the facility. This certification was prepared as required by 40 CFR 257.80(b)(7) and 35 Ill. Adm. Code 845.500(b)(7).

Engineer: Joshua D. Davenport

Signature: _____

Date: 8/18/2023_____

Company: KPRG and Associates, Inc.

Registration State: Illinois

Registration Number: 062.061945

License Expiration Date: November 30, 2023

Professional Engineer Stamp:



APPENDIX A

SITE DIAGRAM POTENTIAL CCR FUGITIVE DUST SOURCES



0 550'
APPROXIMATE SCALE

ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, inc.

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

14665 West Lisbon Road, Suite 2B Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

SITE DIAGRAM/CCR FUGITIVE DUST SOURCES

JOLIET 9 GENERATING STATION
JOLIET, ILLINOIS

Scale: 1" = 550' Date: August 9, 2023

KPRG Project No. 15315

APPENDIX A

APPENDIX B

EXAMPLE ASSESSMENT RECORD

APPENDIX B

JOLIET #9 STATION

EXAMPLE ASSESSMENT RECORD

Date	Inspector	Unit Inspected (See Key Below)	Maintenance/Cleanup Required (yes/no)	Response Action Performed (completion date)	Inspector Signature

Unit Key:

1 - Lincoln Stone Quarry

APPENDIX C

EXAMPLE PLAN REVIEW AND AMENDMENT RECORD

APPENDIX C

JOLIET #9 STATION

EXAMPLE CCR PLAN REVIEW/AMENDMENT RECORD

[illegible]

APPENDIX D

EXAMPLE CITIZEN COMPLAINT LOG

JOLIET #9 STATION[illegible]

ATTACHMENT 9-1

Boring Logs

(R085)

- Installed

Sheet No. 15
Date 11/15

Date 4/6/93

Hole No. R108 / R109 adjacent to flow hole
 Feature Early Core P to N, w/ fill
 Coordinates: N _____
 E _____
 Core Sizes _____

Angle (from Horizontal) VERTICAL
 Bearing _____
 Date Started 4/6/93
 Date Completed 4/2/93
 Total Depth 208'

Ground Elevation 5'
 Rock Elevation _____
 Overburden Thickness 23'
 Ground-Water Elevation _____
 Logged by JEGRI665

Depth (Elevation)	Graphic Log			Classification and Physical Condition	C.R. - Graphic Core Rec. %	RQD %	Remarks (Sample Data, Water Levels, Drilling Characteristics etc.)
	Lithology	Structure	Attitude				
0				Logged from cuttings 0-23': FILL			DRILLING SITE 8.5' SW OF G108
10							0-208': 6" Air Hammer
20							Gardner Denver Rig
30							Completed as a mined well pair. PVC well installed at 120' and 204'
40				23' - 43': DOLOMITE; pinkish gray; fresh angular chips; green streaky shale			

Hole No. <u>R108</u>	Angle (from Horizontal) <u>VERTICAL</u>	Ground Elevation _____
Feature <u>East of Gravel Pit N. of West Field</u>	Bearing <u>—</u>	Rock Elevation _____
Coordinates: N _____	Date Started <u>4/6/93</u>	Overburden Thickness <u>23'</u>
E _____	Date Completed <u>4/7/93</u>	Ground-Water Elevation _____
Core Sizes <u>—</u>	Total Depth <u>208'</u>	Logged by <u>JEGRIGES</u>

[illegible]

PROJECT JOULET/LINCOLN QUARRY SH44GHole No. R108Feature East of Rock Pile N of West F. Rd.

Coordinates: N

E

Core Sizes

Angle (from Horizontal) VERTICAL

Bearing

Date Started 4/6/93Date Completed 4/7/93Total Depth 208'

Ground Elevation

Rock Elevation

Overburden Thickness 23'

Ground-Water Elevation

Logged by JF 601665

Depth (Elevation)	Graphic Log			Classification and Physical Condition	C.R. - Graphic	Core Rec. %	RQD %	Remarks (Sample Data, Water Levels, Drilling Characteristics etc.)
	Lithology	Structure	Attitude					
160				160' - 168': SHALE; black; fresh angular chips				
170				168' - 202': DOLOMITE; light gray; fresh angular chips; green sticky shale				
180					NO SAMPLE	NO SAMPLE	NO SAMPLE	
190								
200								

Logged by JE 621665

Depth (Elevation)	Graphic Log			Classification and Physical Condition	C.R. - Graphic	Core Rec. %	RQD %	Remarks (Sample Data, Water Levels, Drilling Characteristics etc.)
	Lithology	Structure	Attitude					
200	1 [=] 7			202' - 208' : SHALE; green and black; green stringy				
210				END OF BORING 208'				



Illinois Environmental Protection Agency

Well Completion Report

Site Number: 1978090001

County: Will

(R08S)

Well #: A08S

Site Name: Midwest Generation - Lincoln Quarry, Joliet, IL

State

Plane Coordinate: X 1758220 Y 1045679 (or) Latitude: _____ Longitude: _____

Borehole #: A08S

Surveyed by: Jacob & Hefner Associates

IL Registration #: 35-003247

Drilling Contractor: Layne Northwest

Driller: R. Treptow

Consulting Firm: KPRG and Associates, Inc.

Geologist: P. Allenstein

Drilling Method: Core / Air Rotary

Drilling Fluid (Type): none

Logged By: P. Allenstein

Date Started: 02/02/06 Date Finished: 02/06/06

Report Form

Completed By: P. Allenstein

Date: 03/01/06

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite Grout

Installation Method: tremie pump

Setting Time: _____

Type of Bentonite Seal - - Granular, Pellet, Slurry
(Choose One)

Installation Method: _____

Setting Time: _____

Type of Sand Pack: Filter Sand

Grain Size: 5 (Sieve Size)

Installation Method: gravity

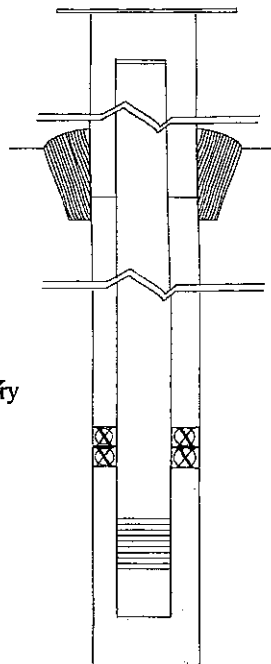
Type of Backfill Material: none
(if applicable)

Installation Method: _____

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other



Elevations (MSL)*	Depths (BGS)	(.01ft.)
	-3.2	Top of Protective Casing
578.109	-3.0	Top of Riser Pipe
575.606	0.0	Ground Surface
	2.0	Top of Annular Sealant
		Static Water Level (After Completion)
		Top of Seal
469.606	106	Top of Sand Pack
465.606	110	Top of Screen
455.606	120	Bottom of Screen
455.606	120	Bottom of Well
455.606	120	Bottom of Borehole

* Referenced to a National Geodetic Datum

CASING MEASUREMENTS

Diameter of Borehole (inches)	7
ID of Riser Pipe (inches)	2
Protective Casing Length (feet)	5
Riser Pipe Length (feet)	113
Bottom of Screen to End Cap (feet)	0.5
Screen Length (1" slot to last slot) (feet)	10
Total Length of Casing (feet)	123
Screen Slot Size **	0.010

**Hand-Slotted Well Screens are Unacceptable

PROJECT JOINT LINCOLN QUARRY 5446

Hole No. R16 - G205 Cluster Angle (from Horizontal) VERTICAL Ground Elevation _____
 Nature SE Corner of N. Quarry Bearing _____ Rock Elevation _____
 Coordinates: N _____ Date Started 4/5/93 Overburden Thickness NONE
 E _____ Date Completed 4/16/93 Ground-Water Elevation _____
 Core Sizes _____ Total Depth 190.5' Logged by JEGR/605

Depth (Elevation)	Graphic Log			Classification and Physical Condition	C.R. - Graphic	Core Rec. %	RQD %	Remarks (Sample Data, Water Levels, Drilling Characteristics etc.)
	Lithology	Structure	Attitude					
0				Logged from cuttings 0-20': DOLOMITE; light gray; fresh angular chips; some white chert	NO SAMPLE	NO SAMPLE	NO SAMPLE	DRILLING SITE ≈ 7' SE OF LOCATION G16
10								0-190.5': 6" Air Hammer
								Gardner-Denver RIG
								Completed as a misted well point. PUC well installed at 134' and 188'.
20				20'-39': DOLOMITE; pinkish gray; fresh angular chips; green sticky shale				
30								
40								

PROJECT JOLIET/LINCOLN QUARRY 5444G

Hole No. R16 Angle (from Horizontal) VERTICAL Ground Elevation _____
 Location SE corner of N. Quarry Bearing _____ Rock Elevation _____
 Coordinates: N _____ Date Started 4/5/93 Overburden Thickness None
 E _____ Date Completed 4/6/93 Ground-Water Elevation _____
 Core Sizes _____ Total Depth 190.5' Logged by JEGR1605

Depth (Elevation)	Graphic Log			Classification and Physical Condition	C.R. - Graphic	Core Rec. %	RQD %	Remarks (Sample Data, Water Levels, Drilling Characteristics etc.)
	Lithology	Structure	Attitude					
40		NO SAMPLE	NO SAMPLE	39' - 78': DOLOMITE; light gray; fresh angular chips; green sticky shale	NO SAMPLE	NO SAMPLE	NO SAMPLE	
50								
60								
70								
80								
				78' - 114': DOLOMITE; light gray; fresh angular chips; green sticky shale; white chert				

PROJECT JULIE/LINCOLN QUARRY 5444G

Hole No. R16 Angle (from Horizontal) VERTICAL Ground Elevation _____
 Nature SE corner of N Quarry Bearing _____ Rock Elevation _____
 Coordinates: N Date Started 4/5/93 Overburden Thickness NONE
 E Date Completed 4/6/93 Ground-Water Elevation _____
 Core Sizes _____ Total Depth 190.5' Logged by JEGRIKGS

Depth (Elevation)	Graphic Log			Classification and Physical Condition	C.R. - Graphic	Core Rec. %	RQD %	Remarks (Sample Data, Water Levels, Drilling Characteristics etc.)
	Lithology	Structure	Attitude					
80	[Handwritten symbols]							
90	[Handwritten symbols]							
100	[Handwritten symbols]							
110	[Handwritten symbols]							
120	[Handwritten symbols]							
				114' - 146' DOLOMITE; mostly dark open; fresh angular chips; black shale				

PROJECT JOLIET/LINCOLN QUARRY S.W. 1/4

Hole No. R16 Angle (from Horizontal) VERTICAL Ground Elevation _____
 Location SE Corner of N. Quarry Bearing _____ Rock Elevation _____
 Coordinates: N _____ Date Started 4/5/93 Overburden Thickness NONE
 E _____ Date Completed 4/6/93 Ground-Water Elevation _____
 Core Sizes _____ Total Depth 152.5' Logged by JE 621665

Depth (Elevation)	Graphic Log			Classification and Physical Condition	C.R. - Graphic	Core Rec. %	ROD %	Remarks (Sample Data, Water Levels, Drilling Characteristics etc.)
	Lithology	Structure	Attitude					
120		NO SAMPLE	NO SAMPLE		NO SAMPLE	NO SAMPLE	NO SAMPLE	
130								
140								
150								
160								
170								
180								
190								
200								
210								
				146' - 154' SHALE; black; fresh angular chips				
				154' - 189' DOLOMITE; light gray; fresh angular chips; green streaky shale				

PROJECT JX1FT/LINCOLN QUARRY

Hole No. R16 Angle (from Horizontal) VERTICAL Ground Elevation _____
 Nature SE Corner of N. Quarry Bearing _____ Rock Elevation _____
 Coordinates: N _____ Date Started 4/5/93 Overburden Thickness NONE
 E _____ Date Completed 4/6/93 Ground-Water Elevation _____
 Core Sizes _____ Total Depth 190.5 Logged by JE 621665

Depth (Elevation)	Graphic Log			Classification and Physical Condition	C.R. - Graphic	Core Rec. %	RQD %	Remarks (Sample Data, Water Levels, Drilling Characteristics etc.)
	Lithology	Structure	Attitude					
160	[Hand-drawn lithology symbols: alternating horizontal and vertical lines with dots]	No Sample	No Sample		No Sample	No Sample	No Sample	
170								
180								
190								
187-190.5'				SHALE, green and black; green sticks				
				END OF BORING 190.5'				



Illinois Environmental Protection Agency

Well Completion Report

Site #: 1978990001

County: Will

Well #: G205

Site Name: Joliet/Lincoln Quarry

Grid Coordinate: Northing 1,759,155.3 Easting 1,048,014.7

Drilling Contractor: TSC

Date Drilled Start: 9/8/93

Driller: Greg Donovan

Geologist: John Pyrich

Date Completed: 9/10/93

Drilling Method: Mud Rotary

Drilling Fluids (type): Bentonite

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: High Solids Bentonite Grout

Amount of cement: # of bags _____ lbs. per bag _____

Amount of bentonite: # of bags _____ lbs. per bag _____

Type of Bentonite Seal (Granular, Pellet): Pellet

Amount of bentonite: # of bags _____ lbs. per bag _____

Type of Sand Pack: Silica Sand

Source of Sand: Colorado

Amount of Sand: # of bags _____ lbs. per bag _____

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint			40	
Riser pipe above w.t.			40	
Riser pipe below w.t.			40	
Screens			40	
Coupling joint screen to riser			40	
Protective casing				Steel

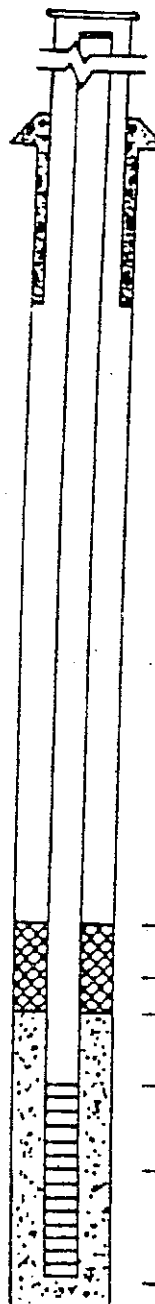
Measurements

to .01 ft. (where applicable)

Riser pipe length	125.73
Protective casing length	5
Screen length	10
Bottom of screen to end cap	0.5
Top of screen to first joint	10
Total length of casing	-
Screen slot size	10
% of openings in screen	1.6
Diameter of borehole (in)	6-3/4
ID of riser pipe (in)	2

Elevations - .01 ft.

_____ 580.23 MSL Top of Protective Casing
 _____ 2.73 MSL Top of Riser Pipe
 _____ ft. Casing Stickup
 _____ 577.5 MSL Ground Surface
 _____ 3 ft. Top of annular sealant



_____ 117 ft. Top of Seal
 _____ 3 ft. Total Seal Interval
 _____ 120 ft. Top of Sand
 _____ 123 ft. Top of Screen
 _____ 10 ft. Total Screen Interval
 _____ 133 ft. Bottom of Screen
 _____ 140 ft. Bottom of Borehole

Completed by: _____

Surveyed by: _____

Ill. registration # _____

HARZA

GEOLOGIC LOG

BOREHOLE NUMBER

92-5

G30S

PROJECT NUMBER 3444 G

CLIENT Commonwealth Edison

PROJECT NAME Joliet/Lincoln Quarry Ash Landfill

DRILLING COMPANY Testing Service Corporation

CORE SIZE NX

ANGLE 90 BEARING

COORDINATES (N) 1758877.989

(E) 1047147.728

LOGGED BY John E. Griggs

DATE STARTED 9/23/92

DATE COMPLETED 9/24/92

WEATHER

TOTAL DEPTH 144.0

GROUND SURFACE ELEVATION 922.1' MSL

SHEET 1

OF 2

STATIC WATER LEVEL (BLS)

WD=While Drilling AD=After Drilling

Depth (ft)

Time

Date

ELEV (FT)	DEPTH (FT)	SAMPLE NUMBER	RECOVERY %	ROD #	DESCRIPTION	LITHOLOGY	COMMENTS
922.0	0.0			201608	FILL 0 - 5.0' NOT SAMPLED gravel fill, debris from quarry operations		Drilling site 60' north of quarry wall at east end of bridge in North Quarry
917.0	5.0	1	100		DOLOMITE SHALEY 5.8 - 26.4' light gray, shale partings green, thin bedded <0.1' to 0.9', shale partings very thin <1/4" thick, irregularly spaced, shale is sticky, rock breaks along partings with light hammer blow.		0-5' 1.25" OD SSA 6'-8.8" NW casing with bit 8.8' - 144.0' NX
912.0	10.0	2	97		10.0' - 22.3' broken along shale partings, likely during drilling, max 0.6', min 0.05', several thin vuggy zones lined with calcite and pyrite crystals, most shale partings spaced 0.2', core segments have ground against each other at breaks during coring lends show rotation.		Mobile B51 rig modified with new driver head equivalent to B80
907.0	15.0	3	100		22.3' - 26.4' broken across shale partings and vuggy zones, max 1.0', min 0.1', more porous and vuggy than above, vugs lined with calcite crystals, dark green speckles in rock, occasional fossils, vug openings up to 0.1', some clay infilling in vuggy zones.		Coring rate ranged between 20' and 30' per hour
902.0	20.0	4	100		DOLOMITE CHERT 26.4' - 79.5' shaley, light gray, chert white, shale green, chert nodules spaced 2.5' to 6.0', most <0.7', irregularly spaced, fossiliferous, chalky locally, shale partings spaced <0.1' to 0.3', <1/4" thick, irregularly spaced, sticky, chert scratched with knife, chalky locally.		Return fluid initially milky
897.0	25.0	5	99		26.4' - 41.5' mostly broken along shale partings and chert nodules, max 0.7', min <0.1', chert nodules <0.1' to 0.3' in diameter, dolomite vuggy, openings up to 0.5', most <1/4", lined with calcite and pyrite crystals, occasional fossils.		Completed as a nested pair of PVC wells installed at 60' and 132'
892.0	30.0	6	100		41.5' - 79.5' broken along shale partings and chert nodules, max 1.3', min <0.1', chert nodules <0.1' to 0.2' in diameter, shale partings more numerous, thinner and wavy, vugs less common than above, lined with calcite and pyrite crystals, fossils.		
887.0	35.0	7	100				
882.0	40.0	8	100				
877.0	45.0	9	100		DOLOMITE SHALEY 79.5' - 93.2' light to dark gray, shale black, shale partings irregularly spaced up to 0.15', very thin, wavy, dense, occasional vugs lined with calcite and pyrite crystals, broken along shale partings max 2.5', min 0.1', occasional fossils, shale partings predominant toward bottom.		
872.0	50.0	10	100		SHALE 93.2' - 100.2' dolomitic, black to greenish, black toward bottom, dolomite light gray, very thin bedded, <0.1' to 0.2' thick, spaced 0.4' to 0.9', dense, friable, can break easily with hands, broken along shale partings, max 1.2', min <0.1', occasional fossils.		
867.0	55.0				98.0' color change from black to green across bedding planes.		

HARZA

GEOLOGIC LOG

BOREHOLE NUMBER

92-5

PROJECT NUMBER 5444 6
CLIENT Commonwealth Edison
PROJECT NAME Joliet/Lincoln Quarry Ash Landfill
DRILLING COMPANY Testing Service Corporation
CORE SIZE NX
ANGLE 90 BEARING
COORDINATES (N) 1758877.989
(E) 1047147.728

WEATHER
TOTAL DEPTH 144.0 SOIL THICKNESS 6.0'
GROUND SURFACE ELEVATION 522.1' MSL
SHEET 2 OF 2

STATIC WATER LEVEL (BLS)

WD=While Drilling AD=After Drilling

Depth (ft)		
Time		
Date		

LOGGED BY John E. Griggs

DATE STARTED 9/23/92 DATE COMPLETED 9/24/92

ELEV (FT)	DEPTH (FT)	SAMPLE NUMBER	RECOVERY %	ROD %	DESCRIPTION	LITHOLOGY	COMMENTS
				70 40 80			
-100.0		11	100		DOLomite SHALEY 100.2' - 132.8' light gray, shale green and black, vuggy with some very vuggy horizons, lined with calcite and pyrite crystals, vuggy horizons 0.05' to 0.3' thick, shale partings irregularly spaced, <1/4" to 0.5", up to 0.3' thick, broken along shale partings and vuggy horizons, max 1.2', min <0.1', vug openings up to 0.1', green speckles on rock, fossils		
-110.0		12	100				
-120.0		13	100				
-130.0		14	73		SHALE 132.8' - 141.3' top 4' green, remainder black, thin bedded, laminated with calcite (dolomite) layers, broken along bedding planes, breaks easily with hands, scratches easily with knife, dense		
-140.0					BOTTOM OF CORING AT 144.0 FT		
-150.0							
-160.0							
-170.0							
-180.0							
-190.0							
-200.0							



Illinois Environmental Protection Agency

Well Completion Report

Site #: 1978090001 County Will Well # 92-55 630 S
 Site Name: Joliet/Lincoln Quarry Grid Coordinate: Northing 1,758,876.0 Easting 1,047,147.7
 Drilling Contractor: TSC Date Drilled Start: 9/23/92
 Driller: Greg Donovan Geologist: John E. Griggs Date Completed: 10/8/92
 Drilling Method: NX Core/Rotary Drilling Fluids (type): Water

Annular Space Details

Type of Surface Seal: Concrete
 Type of Annular Sealant: High Solids Bentonite Grout
 Amount of cement: # of bags _____ lbs. per bag _____
 Amount of bentonite: # of bags _____ lbs. per bag _____
 Type of Bentonite Seal (Granular, Pellet): Pellet

Amount of bentonite: # of bags _____ lbs. per bag _____
 Type of Sand Pack: Silica Sand
 Source of Sand: Colorado
 Amount of Sand: # of bags _____ lbs. per bag _____

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint			40	
Riser pipe above w.l.			40	
Riser pipe below w.l.			40	
Screen			40	
Coupling joint screen to riser			40	
Protective casing				Steel

Measurements

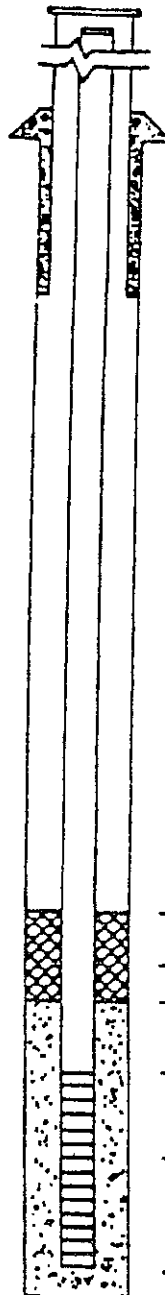
to .01 ft. (where applicable).

Riser pipe length	52.16
Protective casing length	5
Screen length	10
Bottom of screen to end cap	0.5
Top of screen to first joint	10
Total length of casing	-
Screen slot size	10
% of openings in screen	1.6
Diameter of borehole (in)	6
ID of riser pipe (in)	2

Elevations - .01 ft.

_____ 524.26 MSL Top of Protective Casing
 _____ 2.16 MSL Top of Riser Pipe
 _____ ft. Casing Stickup
 _____ 522.1 MSL Ground Surface
 _____ 3 ft. Top of annular sealant

Note: 92-5D installed in same boring



_____ 45 ft. Top of Seal
 _____ 3 ft. Total Seal Interval
 _____ 48 ft. Top of Sand
 _____ 50 ft. Top of Screen
 _____ 10 ft. Total Screen Interval
 _____ 60 ft. Bottom of Screen
 _____ 144 ft. Bottom of Borehole

Completed by: _____ Surveyed by: _____ ILL registration # _____

G31 S/D

HARZA		GEOLOGIC LOG		BOREHOLE NUMBER			
				G310			
PROJECT NUMBER 15448 6 CLIENT ComEd PROJECT NAME Joliet/Lincoln Quarry Ash Landfill DRILLING COMPANY Testing Service Corporation CORE SIZE NX ANGLE 90 BEARING COORDINATES (N) 1758807.242 (E) 1045388.601 LOGGED BY Jeff Dickson DATE STARTED 07/30/99 DATE COMPLETED 08/03/99				WEATHER TOTAL DEPTH 155 0' SOIL THICKNESS 6 5' GROUND SURFACE ELEVATION pending (MSL) SHEET 1 OF 2			
				STATIC WATER LEVEL (SLSL) WD=While Drilling AD=After Drilling Depth (Ft) _____ Time _____ Date _____			
ELEV (FT)	DEPTH (FT)	SAMPLE NUMBER	RECOVERY %	ROD #	DESCRIPTION	LITHOLOGY	COMMENTS
0 0	0 0			20 40 00	GLACIAL DRIFT 0 - 6 5' NOT SAMPLED overburden, gravel with dark yellow-brown silty clay		0' - 6 5' 3 1/4" ID Auger blind drill 155 0' NX core Mobile Gas Pech 750 air rotary rig with potable water fluid boring rate ranged between 15' and 20' per hour Reamed with 5 7/8" rotary bit to 156' using potable water fluid installed PVC well at 155'
10 0	10 0	1	86		DOLOMITE 6 5' - 48' dolomitized bioclastic calcarenites, oxidized yellow-orange, broken at top due to the weathering, thin wavy laminations with shale partings, fossiliferous, vuggy where fossiliferous		
20 0	20 0	2	100		11 5' 6" fracture with oxidized sides and some clay		
30 0	30 0	3	100		13 0' many fossils showing modic porosity		
40 0	40 0	4	100		20 0' white gray dolomite, thin laminations with green shale partings, fossiliferous		
50 0	50 0	5	100		38 0' - 48 0' white gray dolomite with green shale partings, rock easily breaks along partings		
60 0	60 0	6	85				
70 0	70 0	7	100		DOLOMITE CHERTY 48' - 85' shaley, white to light gray dolomite, chert white, shale green, chert nodules spaced <0 1' to 1', most <0 5', irregularly spaced, fossiliferous, shale partings spaced <0 1' to 0 3', <1/4" thick, irregularly spaced		
80 0	80 0	8	100				
90 0	90 0	9	100				
100 0	100 0	10	100				
110 0	110 0	11	100		DOLOMITE SHALEY 85' - 98 5' chert nodules discontinuous, rock becomes more shaley, color change from light gray to gray as clay content increases with depth		
120 0	120 0	12	100				
130 0	130 0				SHALE 98 5' - 122 8' dolomitic, gray-green and chert		

G31 5/10

HARZA		GEOLOGIC LOG		SOREHOLE NUMBER	
				G310	
PROJECT NUMBER 15448 G CLIENT ComEd PROJECT NAME Joliet/Lincoln Quarry Ash Landfill DRILLING COMPANY Testing Service Corporation CORE SIZE NX ANGLE 90 BEARING COORDINATES (N) 1758807.242 (E) 1045388.601 LOGGED BY Jeff Dickson DATE STARTED 07/30/99 DATE COMPLETED 08/03/99				WEATHER TOTAL DEPTH 155 0' SOIL THICKNESS 6 5' GROUND SURFACE ELEVATION pending (MSL) SHEET 2 OF 2	
				STATIC WATER LEVEL (BLS)	
				WD=While Drilling AQ=After Drilling	
				Depth (Ft)	
				Time	
				Date	

ELEV (FT)	DEPTH (FT)	SAMPLE NUMBER	RECOVERY %	REMARKS	DESCRIPTION	UNIT	COMMENTS
100 0	-100 0	13	100	20 40 60 80	to dark gray with depth, very thinly bedded <0 1' to 0 2' thick, rock broken along shale bedding planes. Fossiliferous		
		14	100		122 4' color change from dark gray to green		
110 0	-110 0	15	100				
120 0	-120 0	16	100				
130 0	-130 0	17	100				
140 0	-140 0	18	100				
150 0	-150 0	19	100				
		20	99				
160 0	-160 0		100				
170 0	-170 0						
180 0	-180 0						
190 0	-190 0						
200 0	-200 0						

DOLOMITE 122 8' - 155 0' gray dolomite
124 5' 4" thick soft green mud stone
125 0' -155.0' Fossiliferous dolomite, vuggy with some occasional very vuggy horizons, modic porosity, vuggy horizons 0 05' to 0 2' thick, shale partings irregularly spaced, broken along shale partings and vuggy horizons. Fractures are cemented

BOTTOM OF CORING AT 155 0 FT

HARZA		GEOLOGIC LOG		BOREHOLE NUMBER							
PROJECT NUMBER 5444 B CLIENT Commonwealth Edison PROJECT NAME Joliet/Lincoln Quarry Ash Landfill DRILLING COMPANY Testing Service Corporation CORE SIZE NX ANGLE 90 BEARING COORDINATES (N) 1758706.812 (E) 1045763.421 LOGGED BY John Pyrich DATE STARTED 9/1/93 DATE COMPLETED 9/3/93		WEATHER TOTAL DEPTH 83.0' GROUND SURFACE ELEVATION 534.41' MSL SHEET 1 OF		93-12 R325 SOIL THICKNESS 3.0'							
				STATIC WATER LEVEL (BSL) WD-While Drilling AD-After Drilling							
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Depth (Ft)</th> <th>Time</th> <th>Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>		Depth (Ft)	Time	Date					
Depth (Ft)	Time	Date									
ELEV (FT)	DEPTH (FT)	SAMPLE NUMBER	RECOVERY %	ROD X	DESCRIPTION	LITHOLOGY	COMMENTS				
530.0	0.0			20 40 60 80	GLACIAL DRIFT 0 - 3.0' NOT SAMPLED brown, silty clay		Drilling site 57' west of 6th wooden utility pole, west of Brangbn, 15' inside fence				
520.0	10.0	1	100		DOLOMITE SHALEY 3.0' - 49.5' light gray, shale green, thin bedded <0.1" to 0.4", shale partings thin <1/4" thick, irregularly spaced, shale is sticky, rock breaks along partings with light hammer blow, occasional fossils, occasional vuggy horizons, openings up to 0.05", lined with calcite and pyrite crystals		0-3' 5 7/8" DO SSA 3'-83' NX core with clear water GUS PECH GP 1100 ATV rig Coring rate ranged between 20' and 30' per hour Return Fluid initially silky				
510.0	20.0	2	100		5.9' color change from light gray to pinkish						
500.0	30.0	3	100								
490.0	40.0	4	100								
480.0	50.0	5	100		DOLOMITE CHERTY 49.5' - 83.0' shaley, light gray, chert white, shale green, chert nodules spaced <0.1" to 1.0", most <0.8", irregularly spaced, fossiliferous, chalky locally, shale partings spaced <0.1" to 0.3", <1/4" thick, irregularly spaced, sticky		Reamed with 6 3/4" rotary bit to using Super Gel X with GUS PECH GP 1100 ATV rig Installed PVC well at 77'				
470.0	60.0	6	100		49.5' - 62.0' broken along shale partings and chert nodules, max 0.7", min <0.1", chert nodules <0.1" to 0.2" in diameter, dolomite vuggy, openings up to 0.1", most <1/4", lined with calcite and pyrite crystals, occasional fossils						
460.0	70.0	7	100		62.0' - 83' dolomite less vuggy, shale wavy						
450.0	80.0	8	100		77.6' dolomite darker and denser						
440.0	90.0				BOTTOM OF CORING AT 83.0 FT						
430.0	100.0										



Illinois Environmental Protection Agency

Well Completion Report

SITE #: 1978090001

COUNTY: Will

WELL #: R32S

SITE NAME: Joliet/Lincoln Quarry Ash Landfill

BOREHOLE #: R32S

STATE

PLANE COORDINATE: N 1758697.521 E 1045764.711 (or) LATITUDE

LONGITUDE

SURVEYED BY: Mark Wood

ILL. REGISTRATION #: 0352958

DRILLING CONTRACTOR: Testing Service Corporation

DRILLER: Bruce Alexander

CONSULTING FIRM: Harza Engineering Company

GEOLOGIST: Hoss Najjar-Pour

DRILLING METHOD: Air Rotary

DRILLING FLUIDS (TYPE): Potable Water

LOGGED BY: Hoss Najjar-Pour

DATE STARTED: 8/10/99 DATE FINISHED: 8/11/99

REPORT FORM COMPLETED BY: Hoss Najjar-Pour

DATE: 9/3/99

ANNULAR SPACE DETAILS

ELEVATIONS DEPTHS
(MSL)* (EGS) (0.01 ft)

TYPE OF SURFACE SEAL: Concrete

TYPE OF UPPER SEALANT: Bentonite Pellet

INSTALLATION METHOD: Surface Pour

SETTING TIME: 30 min.

TYPE OF ANNULAR SEALANT: High Solids Bentonite Grout

INSTALLATION METHOD: Tremie Pipe

SETTING TIME: 30 min.

TYPE OF BENTONITE SEAL: GRANULAR PELLET CHIPS

INSTALLATION METHOD: Surface Pour

SETTING TIME: 30 min.

TYPE OF FINE SAND PACK: Washed Silica Sand

GRAIN SIZE: 20-40 (SIEVE SIZE)

INSTALLATION METHOD: Surface Pour

TYPE OF SAND PACK: Washed Silica Sand

GRAIN SIZE: 10-20 (SIEVE SIZE)

INSTALLATION METHOD: Surface Pour

TYPE OF BACKFILL MATERIAL: Washed Silica Sand

(IF APPLICABLE)

INSTALLATION METHOD: Surface Pour

WELL CONSTRUCTION
MATERIALS
(CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	TYPE	PVC	OTHER	steel
RISER PIPE ABOVE W.T.	SS304	SS316	TYPE	PVC	OTHER	
RISER PIPE BELOW W.T.	SS304	SS316	TYPE	PVC	OTHER	
SCREEN	SS304	SS316	TYPE	PVC	OTHER	

REMARKS: Refer to boring log for well 93-12

for description of geologic materials encountered

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	6
ID OF RISER PIPE	(in)	2
PROTECTIVE CASING LENGTH	(ft)	5
RISER PIPE LENGTH	(ft)	
BOTTOM OF SCREEN TO END CAP	(ft)	0.5
SCREEN LENGTH FROM SLOT TO LAST SLOT	(ft)	10
TOTAL LENGTH OF CASING	(ft)	5
SCREEN SLOT SIZE	(in)	0.01

HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

HARZA

GEOLOGIC LOG

BOREHOLE NUMBER

G330

PROJECT NUMBER 154486

CLIENT ComEd

PROJECT NAME Joliet/Lincoln Quarry Ash Landfill

DRILLING COMPANY Testing Service Corporation

CORE SIZE NX

ANGLE 90 BEARING

COORDINATES (N) 1759485.478

(E) 1046925.246

LOGGED BY J. Dickson

DATE STARTED 7/19/99

DATE COMPLETED 7/22/99

WEATHER

TOTAL DEPTH 155.0'

SOIL THICKNESS 4.0'

GROUND SURFACE ELEVATION pending (MSL)

SHEET 1

OF 2

STATIC WATER LEVEL (BSL)

WD-While Drilling AD-After Drilling

Depth (Ft)

Time

Date

ELEV (FT)	DEPTH (FT)	SAMPLE NUMBER	RECOVERY %	ROD X	DESCRIPTION	LITHOLOGY	COMMENTS
0.0	0.0			20 40 60 80	GLACIAL DRIFT 0 - 4.0' NOT SAMPLED dark-brown silty clay		
		1	84				
		2	97		DOLOMITE 4.0' - 80.0' dolomitized bioclastic calcarenite, very highly weathered and broken on top, occasional green shale, some fractures and vugs ranging from 1 mm to 5mm, bedding is very wavy with green shale partings. Fossiliferous locally, chert nodules are irregularly shaped and increase with depth		0-4.0' 3 7/8" air rotary 4.0' - 155.0' NX core Mobile Gus Pech 750 rig turning rate ranged 15 and 20 per hour with potable water fluid. Reached with 5 7/8" bit to depth of 155' installed PVC well at 155'
10.0	-10.0				60.0' - 80.0' shaly, very thinly bedded, rock breaks along bedding planes		
		3	98				
20.0	-20.0						
		4	100				
30.0	-30.0						
		5	100				
40.0	-40.0						
		6	100				
50.0	-50.0						
		7	100				
		8	88				
60.0	-60.0						
		9	93				
70.0	-70.0						
		10	100				
80.0	-80.0						
		11	100				
90.0	-90.0						
		12	100		DOLOMITE SHALEY 80.0' - 98.0' very thinly bedded, fossiliferous, rock separates along beds with green shale partings, rock breaks along thin partings with light hammer blows, chert less abundant, fossiliferous locally, some vugs 1-3mm in diameter with pyrite and calcite filling		
100.0	-100.0				87.0' - 98.0' chert almost absent, some corals, occasional pyrite filled vugs, rock breaks along partings with light tap of hammer		
		13	70				
		14	100				
					SHALE 98.0' - 119.5' dolomitic shale, gray, very		

G 33 S/D

HARZA

GEOLOGIC LOG

BOREHOLE NUMBER

G33D

PROJECT NUMBER 154486

CLIENT ComEd

PROJECT NAME Joliet/Lincoln Quarry Ash Landfill

DRILLING COMPANY Testing Service Corporation

CORE SIZE NX

ANGLE 90 BEARING

COORDINATES (N) 1759485.478

(E) 1046925.246

LOGGED BY J. Dickson

DATE STARTED 7/19/99

DATE COMPLETED 7/22/99

WEATHER

TOTAL DEPTH 155.0' SOIL THICKNESS 4.0'

GROUND SURFACE ELEVATION pending (MSL)

SHEET 2 OF 2

STATIC WATER LEVEL (SLS)

ND=While Drilling AD=After Drilling

Depth (ft)

Time

Date

ELEV (FT)	DEPTH (FT)	SAMPLE NUMBER	RECOVERY %	ROD %	DESCRIPTION	LITHOLOGY	COMMENTS
100.0	-100.0			20 100	competent, thin partings, gray, shale becomes becomes black with increase in depth 118 0' - 119 5' shale, greenish		
110.0	-110.0	15	100				
120.0	-120.0	16	100				
130.0	-130.0	17	100		DOLOMITE 119 5' - 150 0' bioclastic calcarenite, very vuggy locally with modic porosity, fossiliferous, shale partings with irregular bedding, fractured locally and mostly cemented 127 0' - 127 25' very thin laminated shale 130 0' - 131 0' texture changes; few fossils; highly fractured and cemented 140 0' - 148 0' dolomite is alternating between bioclastic calcarenite and thin bedded siltstone with green shale lenses, occasional fractures and mostly are cemented 148 0' - 150 0' 2' vertical fracture and partially recemented		
140.0	-140.0	18	100				
150.0	-150.0	19	100				
155.0	-155.0	20	86		SHALE 150 0' - 155 0' green at top 1' and becoming black to very dark brown, thinly bedded and easily breaks along bedding planes, fossiliferous BOTTOM OF CORING AT 155.0 FT		
160.0	-160.0						
170.0	-170.0						
180.0	-180.0						
190.0	-190.0						
200.0	-200.0						

HARZA

GEOLOGIC LOG

BOREHOLE NUMBER

6410

/G415

PROJECT NUMBER 15448 G

CLIENT ComEd

PROJECT NAME Joliet/Lincoln Quarry Ash Landfill

DRILLING COMPANY Testing Service Corporation

CORE SIZE NX

ANGLE 90 BEARING

COORDINATES (N) 1759183.826

(E) 1046293.576

LOGGED BY Jeff Dickson

DATE STARTED 07/23/99

DATE COMPLETED 07/27/99

WEATHER

TOTAL DEPTH 155.0'

SOIL THICKNESS 9.0'

GROUND SURFACE ELEVATION pending (MSL)

SHEET 1

OF 2

STATIC WATER LEVEL (GLS)

WD=While Drilling AD=After Drilling

Depth (ft)

Time

Date

DEPTH (FT)	DEPTH (FT)	SAMPLE NUMBER	RECOVERY %	ROD %	DESCRIPTION	LITHOLOGY	COMMENTS
0.0	0.0			20 40 60 80	GLACIAL DRIFT 0 - 9.0' NOT SAMPLED gravel with dark-yellow brown silty clay		0' - 9' 3 1/4" 10 Auger boring drill 9' - 155.0' NX 550 Mobile Gas Pesh 550 air rotary rig with potable water fluid Coring rate ranged between 15' and 20' per hour Reamed with 5 7/8" rotary bit to 155' using potable water fluid installed PVC well at 155'
10.0	-10.0	1			DOLOMITE 9' - 45' dolomitized bioclastic calcarenite, very highly weathered at upper surface, reddish-yellow iron color, vuggy and highly broken, dolomite is white-gray in color, some vertical stress fractures-cemented; the remaining portion of run is more competent showing thin laminations, shale partings, green, 1-2 mm thick; rock easily breaks along shale partings, fossiliferous		
20.0	-20.0	2	98		20 0' - 25 0' some grayish-white with many laminations, few vugs, rock separates along wavy bedding planes filled with green shale, 1-2 mm thick		
30.0	-30.0	3	100		29 0' - 39.0' with wavy shaley partings, occasional zones with fossils, 0.1'-0.3' thick showing modic porosity, rock breaks along bedding fractures, filled with green shale		
40.0	-40.0	4	100		39 0' - 45 0' white gray dolomite, thinly laminated, larger coral zones, vugs associated with coral zones, 4-5 mm in diameter		
50.0	-50.0	5	100		DOLOMITE CHERTY 45' - 80' shaley, chert, irregular nodules up to 2" thick, gray-white, dolomite wavy and laminated, thin shale parting, green, fossiliferous, many coral zones with modic porosity, rock easily breaks along partings		
60.0	-60.0	6	100		73 7' - 74 7' shale lenses		
70.0	-70.0	7	100		77 5' - 78 5' vertical fracture, filled with green shale		
80.0	-80.0	8	100				
90.0	-90.0	9	100		DOLOMITE SHALEY 80' - 113' dark gray cherty shaley dolomite, fossiliferous, increase in coral, vuggy where coral exist, 1-3mm in diameter, very wavy laminations, more shaley, chert nodules fewer		
100.0	-100.0	10	100		88 0' - 100 0' shaley dolomite with lenses of fossils, chert nodules discontinuous, rock becomes more shaley, rock very competent, core breaks along wavy bedding, fossiliferous, fossils exhibit modic porosity		
110.0	-110.0				100 0' - 113 0' shaley dolomite with fossiliferous zones, lenses 1/2" thick separated by very wavy laminations of dark gray shale and lighter dolomite, occasional irregular fractures		
120.0	-120.0						
130.0	-130.0						
140.0	-140.0						
150.0	-150.0						

HARZA

GEOLOGIC LOG

BOREHOLE NUMBER

G410/0415

PROJECT NUMBER 15448 G
 CLIENT ComEd
 PROJECT NAME Joliet/Lincoln Quarry Ash Landfill
 DRILLING COMPANY Testing Service Corporation
 CORE SIZE NX
 ANGLE 90 BEARING
 COORDINATES (N) 1759183.828
 (E) 1046293.576

LOGGED BY Jeff Dickson

DATE STARTED 07/23/99

DATE COMPLETED 07/27/99

WEATHER

TOTAL DEPTH 155.0' SOIL THICKNESS 9.0'

GROUND SURFACE ELEVATION pending (MSL)

SHEET 2 OF 2

STATIC WATER LEVEL (BSL)

WD=While Drilling AD=After Drilling

Depth (Ft)

Time

Date

ELEV (FT)	DEPTH (FT)	SAMPLE NUMBER	RECOVERY %	ROD %	DESCRIPTION	LITHOLOGY	COMMENTS
100.0	-100.0			20 40 60 80			
110.0	-110.0	11	100				
120.0	-120.0	12	100		SHALE 113.0' - 121.2' dark gray thinly laminated mudstone and shale, occasionally mottled. Fossil zone discontinued.		
					120.7' - 121.2' abrupt change from very dark gray shale to green softer shale		
130.0	-130.0	13	100		DOLOMITE 122.5' - 154.5' bioclastic calcarenite dolomite, fossiliferous, very vuggy with modic porosity, wavy thin laminations, shale partings, green, occasional stress fractures, cemented.		
					136.0' - 137.0' very vuggy		
					137.0' - 138.0' rock highly broken		
					140.0' - 141.0' clay filled, green, vertical fracture		
					140.0' - 141.0' very fossiliferous, vuggy		
					152.0' - 153.0' very fossiliferous, vuggy		
					153.0' - 154.0' fossiliferous, vuggy		
140.0	-140.0	14	100				
150.0	-150.0	15	100				
			100		SHALE block		
					BOTTOM OF CORING AT 155.0 FT		
160.0	-160.0						
170.0	-170.0						
180.0	-180.0						
190.0	-190.0						
200.0	-200.0						

HARZA					GEOLOGIC LOG		BOREHOLE NUMBER													
							G-420 / 6423													
PROJECT NUMBER 15448 B CLIENT ComEd PROJECT NAME Joliet/Lincoln Quarry Ash Landfill DRILLING COMPANY Testing Service Corporation CORE SIZE NX ANGLE 90 BEARING COORDINATES: (N) 1759757.912 (E) 1047377.300 LOGGED BY Hoss Najjar-Pour DATE STARTED 08/03/99 DATE COMPLETED 08/09/99					WEATHER: TOTAL DEPTH 155.0' SOIL THICKNESS 2.0' GROUND SURFACE ELEVATION pending (MSL) SHEET 1 OF 2															
					STATIC WATER LEVEL (BLS)															
					WD=While Drilling AD=After Drilling															
					<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Depth (Ft)</td> <td style="width: 30%;"></td> <td style="width: 30%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Time</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Date</td> <td></td> <td></td> <td></td> </tr> </table>				Depth (Ft)				Time				Date			
Depth (Ft)																				
Time																				
Date																				
ELEV (Ft)	DEPTH (Ft)	SAMPLE NUMBER	RECOVERY %	ROD #	DESCRIPTION	LITHOLOGY	COMMENTS													
0.0	0.0	1		20 40 60 80	GLACIAL DRIFT 0 - 2.0' NOT SAMPLED: gravel up to 2" in diameter with brown sand		0' - 2' 3 1/4" 20 Aug 99 drilling drill mobile gas pump 920 air rotary rig with portable water fluid coring rate ranged between 15' and 20' per hour. Reamed with 5 7/8" rotary bit to 151' using portable water fluid installed PVC well at 150'													
10.0	10.0	2	56		DOLOMITE 2.0' - 39.0' dolomitized bioclastic calcarenite, light gray pinkish; occasional thin laminated bedding, shale partings, green, fossiliferous, vugs <1/4" in diameter; rock easily breaks along partings															
20.0	20.0	3	102		17.0' - 39.0' dolomite, gray, irregular laminations, shale partings, green, fossiliferous, vugs associated with fossil horizons; rock easily breaks along partings															
30.0	30.0	4	100																	
40.0	40.0	5	105																	
50.0	50.0	6	95																	
60.0	60.0	7	97																	
70.0	70.0	8	98		DOLOMITE 'CHERT' 39' - 74' shaley, white to light gray dolomite, chert white, chert nodules mostly <0.5", fossiliferous; vugs <1/8" in diameter; occasional wavy, irregular laminations, shale partings, green															
80.0	80.0	9	100																	
90.0	90.0	10	99																	
100.0	100.0	11	100		DOLOMITE SHALEY 74' - 103.7' chert nodules discontinuous, rock becomes more shaley, less fossiliferous with occasional vugs of <1/8" in diameter															
110.0	110.0	12	100		82' - 103.7' dark gray shaley dolomite, color changes from light gray to dark gray as clay content increases with depth															
120.0	120.0	13	100																	
130.0	130.0																			
140.0	140.0																			
150.0	150.0																			

HARZA

GEOLOGIC LOG

BOREHOLE NUMBER

G420/G42S

PROJECT NUMBER 15449 G

CLIENT ComEd

PROJECT NAME Joliet/Lincoln Quarry Ash Landfill

DRILLING COMPANY Testing Service Corporation

CORE SIZE NX

ANGLE 90 BEARING

COORDINATES (N) 1759757.912

(E) 1047377.300

LOGGED BY Hoss Najjar-Pour

DATE STARTED 08/03/99

DATE COMPLETED 08/09/99

WEATHER

TOTAL DEPTH 155.0'

SOIL THICKNESS 2.0'

GROUND SURFACE ELEVATION pending (MSL)

SHEET 2

OF 2

STATIC WATER LEVEL (BLS)

WD=While Drilling AD=After Drilling

Depth (Ft)

Time

Date

ELEV (FT)	DEPTH (FT)	SAMPLE NUMBER	RECOVERY %	ROD #	DESCRIPTION	LITHOLOGY	COMMENTS
100.0	-100.0	14	100	20 40 60 80	SHALE 103.7' - 111.9' dolomitic, dark gray, increase in clay content with depth		
		15	96				
		16	100				
110.0	-110.0				DOLOMITE 111.9' - 141.6' white gray dolomite, fossiliferous, vuggy, some occasional very vuggy horizons; modic porosity		
		17	94				
120.0	-120.0						
		18	95				
130.0	-130.0						
		19	91				
140.0	-140.0				SHALE 141.6' - 155.0' dark gray dolomitic shale, rock is competent, occasional vugs with calcite filling		
		20	99				
		21	99				
150.0	-150.0						
		101			BOTTOM OF CORING AT 155.0 FT		
160.0	-160.0						
170.0	-170.0						
180.0	-180.0						
190.0	-190.0						
200.0	-200.0						



Site Information:

Name: Joliet/Lincoln Stone Quarry
Location: Joliet, Illinois
County: Will
Site No.: 1978090001
AEEI No.: 2002-124/2003-125

Location:

Coord. System: Site Grid
Northing: 57679.8
Easting: 45567.6

Weather:

Sunny, hot

Boring Information:

Boring No.: G44D
Well No.: G44S
Surf. Elev.: 585.14

Depth Information:

Total: 209.3
Auger:
Core:

Drilling Contractor:

Name: Raimonde Drilling Corp.
City: Elmwood Park, Illinois
Equipment: CME 55 - 8 1/4" HSA

Personnel:

Geologist: L. Janczak
Driller: D. Stefenson
Helper (s):

Dates:

Start: 7/19/2004
Finish: 7/21/2004

Sample Type:



- Continuous Barrel



- Split Spoon



- Shelby Tube



- Core



- Blind Drill

Depth (ft.)	Run No.	Sample Type	Sample No.	Recov.	RQD (%)	Fractures (no./ft.)	Unit	Borehole Detail	Lithology	Description/Comments	USC	Elev. (MSL)
0								Stickup=2.47'		Topsoil		585
1								Concrete		Mottled brown, clayey SILT, some gravel, moist		
5				3.8						Grey, clayey SILT, moist, very dense		
10				3.9				Bentonite Chips		Intervals of silty CLAY, moist		580
15				3.4						Mottled grey and brown, sandy CLAY with dolomite gravel		575
20				4.0						Brown, gravelly SAND, moist		
										Brown, gravelly, silty SAND		570
										Brown, sandy SILT, moist to wet, iron-stained		
										Brown, sandy GRAVEL, iron-stained		

NOTES:



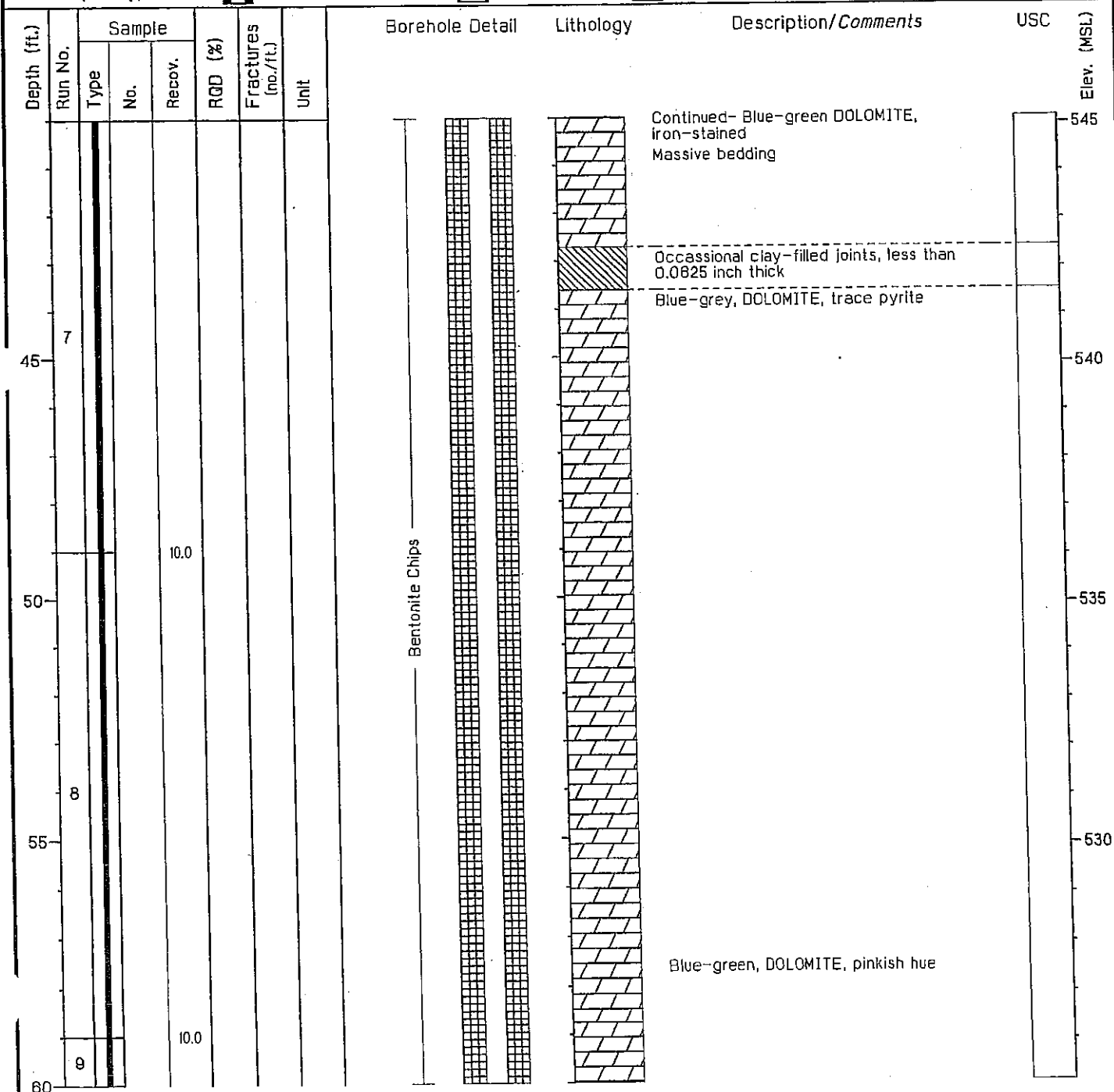
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Field Boring Log

Site Information: Name: Joliet/Lincoln Stone Quarry Location: Joliet, Illinois County: Will Site No.: 1978090001 AEEI No.: 2002-124/2003-125		Location: Coord. System: Site Grid Northing: 57679.8 Easting: 45567.6	Boring Information: Boring No.: G44D Well No.: G44S Surf. Elev.: 585.14
		Weather: Sunny, hot	Depth Information: Total: 209.3 Auger: Core:
Drilling Contractor: Name: Raimonde Drilling Corp. City: Elmwood Park, Illinois Equipment: CME 55 - 8 1/4" HSA		Personnel: Geologist: L. Janczak Driller: D. Stefenson Helper (s):	Dates: Start: 7/19/2004 Finish: 7/21/2004

Sample Type: ☒ - Continuous Barrel ☒ - Split Spoon ☒ - Shelby Tube ☒ - Core ☐ - Blind Drill



NOTES:



Andrews Environmental Engineering, Inc.

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Field Boring Log

Site Information:

Name: Joliet/Lincoln Stone Quarry
Location: Joliet, Illinois
County: Will
Site No.: 1978090001
AEEI No.: 2002-124/2003-125

Location:

Coord. System: Site Grid
Northing: 57679.8
Easting: 45567.6

Weather:

Sunny, hot

Boring Information:

Boring No.: G44D
Well No.: G44S
Surf. Elev.: 585.14

Depth Information:

Total: 209.3
Auger:
Core:

Drilling Contractor:

Name: Raimonde Drilling Corp.
City: Elmwood Park, Illinois
Equipment: CME 55 - 8 K" HSA

Personnel:

Geologist: L. Janczak
Driller: D. Stefenson
Helper (s):

Dates:

Start: 7/19/2004
Finish: 7/21/2004

Sample Type:



- Continuous Barrel



- Split Spoon



- Shelby Tube



- Core



- Blind Drill

Depth (ft.)	Run No.	Sample			RQD (%)	Fractures (no./ft.)	Unit	Borehole Detail	Lithology	Description/Comments	USC	Elev. (MSL)
		Type	No.	Recov.								
65	9									Continued- Blue-green, DOLOMITE, pinkish hue		525
70				10.0				Bentonite Chips		Blue-green, dolomitic SHALE partings, wavy, pinkish hue		520
75	10									Shale partings up to 1 inch thick		515
										Pink banding		510
80	11			10.0								

NOTES:



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Field Boring Log

Site Information:

Name: Joliet/Lincoln Stone Quarry
Location: Joliet, Illinois
County: Will
Site No.: 1978090001
AEEI No.: 2002-124/2003-125

Location:

Coord. System: Site Grid
Northing: 57679.8
Easting: 45567.6

Boring Information:

Boring No.: G44D
Well No.: G44S
Surf. Elev.: 585.14

Weather:

Sunny, hot

Depth Information:

Total: 209.3
Auger:
Core:

Drilling Contractor:

Name: Raimonde Drilling Corp.
City: Elmwood Park, Illinois
Equipment: CME 55 - 8 1/4" HSA

Personnel:

Geologist: L. Janczak
Driller: D. Stefenson
Helper (s):

Dates:

Start: 7/19/2004
Finish: 7/21/2004

Sample Type:



- Continuous Barrel



- Split Spoon



- Shelby Tube



- Core



- Blind Drill

Depth (ft.)	Run No.	Sample			RGD (%)	Fractures (no./ft.)	Unit	Borehole Detail	Lithology	Description/Comments	USC	Elev. (MSL)
		Type	No.	Recov.								
85	11									Continued- Blue-green, dolomitic SHALE partings, pink banding		505
										Pink banding ends, increase in vugs, less than 0.0625 inch in diameter		500
90				10.0						Light blue-grey, DOLOMITE		495
95	12											490
100	13			10.0								

NOTES:



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Field Boring Log

Site Information:

Name: Joliet/Lincoln Stone Quarry
Location: Joliet, Illinois
County: Will
Site No.: 1978090001
AEEI No.: 2002-124/2003-125

Location:

Coord. System: Site Grid
Northing: 57679.8
Easting: 45567.6

Boring Information:

Boring No.: G44D
Well No.: G44S
Surf. Elev.: 585.14

Weather:

Sunny, hot

Depth Information:

Total: 209.3
Auger:
Core:

Drilling Contractor:

Name: Raimonde Drilling Corp.
City: Elmwood Park, Illinois
Equipment: CME 55 - 8 1/4" HSA

Personnel:

Geologist: L. Janczak
Driller: D. Stefenson
Helper (s):

Dates:

Start: 7/19/2004
Finish: 7/21/2004

Sample Type:



- Continuous Barrel



- Split Spoon



- Shelby Tube



- Core



- Blind Drill

Depth (ft.)	Run No.	Sample			RGD (%)	Fractures (no./ft.)	Unit	Borehole Detail	Lithology	Description/Comments	USC Elev. (MSL)
		Type	No.	Recov.							
105	13									Continued-Light blue-grey, DOLOMITE Occasional vugs, 0.25 to 0.5 inch in diameter, increase in joints filled with blue-green clay, violet hue	485
										Fracture filled with blue-green CLAY	
										Vuggy seam, 0.75 inch thick	480
										Vuggy seam, 0.5 inch thick	
110					10.0						
	14										
115											
										Large vug cavity, filled with calcite	470
	15				10.0						
120											

NOTES:



Finish: 7/21/2004

☐ - Blind Drill

NOTES:



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Field Boring Log

Site Information:

Name: Joliet/Lincoln Stone Quarry
Location: Joliet, Illinois
County: Will
Site No.: 1978090001
AEEI No.: 2002-124/2003-125

Location:

Coord. System: Site Grid
Northing: 57679.8
Easting: 45567.6

Boring Information:

Boring No.: G44D
Well No.: G44S
Surf. Elev.: 585.14

Weather:

Sunny, hot

Depth Information:

Total: 209.3
Auger:
Core:

Drilling Contractor:

Name: Raimonde Drilling Corp.
City: Elmwood Park, Illinois
Equipment: CME 55 - 8 1/2" HSA

Personnel:

Geologist: L. Janczak
Driller: D. Stefenson
Helper (s):

Dates:

Start: 7/19/2004
Finish: 7/21/2004

Sample Type:



- Continuous Barrel



- Split Spoon



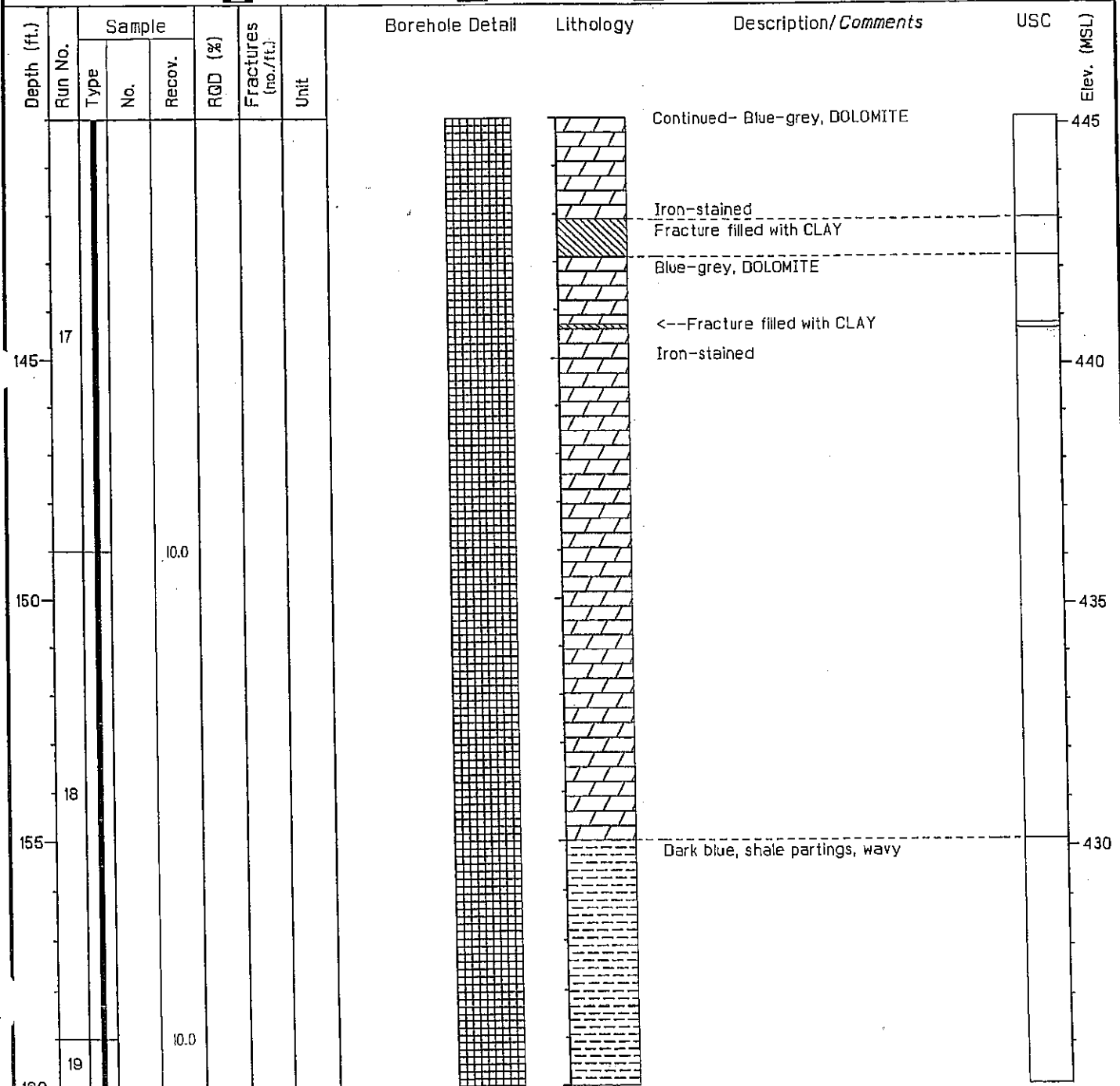
- Shelby Tube



- Core



- Blind Drill



NOTES:



Andrews Environmental Engineering, Inc.

3535 Mayflower Boulevard, Springfield, IL 62707 (217) 787-2334

Field Boring Log

Site Information:

Name: Joliet/Lincoln Stone Quarry
Location: Joliet, Illinois
County: Will
Site No.: 1978090001
AEEI No.: 2002-124/2003-125

Location:

Coord. System: Site Grid
Northing: 57679.8
Easting: 45567.6

Weather:

Sunny, hot

Boring Information:

Boring No.: G44D
Well No.: G44S
Surf. Elev.: 585.14

Depth Information:

Total: 209.3
Auger:
Core:

Drilling Contractor:

Name: Raimonde Drilling Corp.
City: Elmwood Park, Illinois
Equipment: CME 55 - 8 1/4" HSA

Personnel:

Geologist: L. Janczak
Driller: D. Stefenson
Helper (s):

Dates:

Start: 7/19/2004
Finish: 7/21/2004

Sample Type:



- Continuous Barrel



- Split Spoon



- Shelby Tube



- Core



- Blind Drill

Depth (ft.)	Run No.	Sample			RQD (%)	Fractures (no./ft.)	Unit	Borehole Detail	Lithology	Description/Comments	USC	Elev. (MSL)
		Type	No.	Recov.								
165	19									Dark blue, shale partings, wavy		425
										Dark blue-grey shale partings, trace pyrite, less than 0.5 inch thick		
										Blue-grey, DOLOMITE		
										Calcite vein, vuggy, 0.5 inch thick, trace pyrite		420
										Increase vuggy veins		
170				10.0								415
										Dark blue-grey shale partings, decrease in vugs, 0.3 to 0.4 foot thick		
175	20									Blue-grey, DOLOMITE		410
										Trace fossils		
180	21				10.0							

NOTES:



Andrews Environmental Engineering, Inc.

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Field Boring Log

Site Information:

Name: Joliet/Lincoln Stone Quarry
Location: Joliet, Illinois
County: Will
Site No.: 1978090001
AEEI No.: 2002-124/2003-125

Location:

Coord. System: Site Grid
Northing: 57679.8
Easting: 45567.6

Weather:

Sunny, hot

Boring Information:

Boring No.: G44D
Well No.: G44S
Surf. Elev.: 585.14

Depth Information:

Total: 209.3

Auger:

Core:

Dates:

Start: 7/19/2004

Finish: 7/21/2004

Drilling Contractor:

Name: Raimonde Drilling Corp.
City: Elmwood Park, Illinois
Equipment: CME 55 - 8 1/4" HSA

Personnel:

Geologist: L. Janczak
Driller: D. Stefenson
Helper (s):

Sample Type:



- Continuous Barrel



- Split Spoon



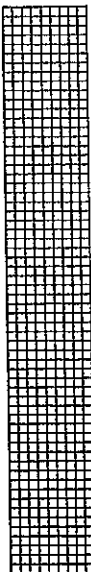
- Shelby Tube



- Core



- Blind Drill

Depth (ft.)	Run No.	Sample			RQD (%)	Fractures (no./ft.)	Unit	Borehole Detail	Lithology	Description/Comments	USC Elev. (MSL)
		Type	No.	Recov.							
205	23									Continued-DOLOMITE Light grey, DOLOMITE, chalky Numerous blue-green clay-filled joints and intervals of small vugs less than 0.0625 inch in diameter	385
210				10.0						End of Boring = 209.3'	375
215											370
220											

NOTES:



Illinois Environmental Protection Agency

Well Completion Report

Site #: 1978090001

County: Will

Well #: G44S

Site Name: Joliet/Lincoln Stone Quarry

Borehole #: G44S

Coordinates: X 45568.1 Y 57679.8 (or) Latitude: ° ' " Longitude: ° ' "

Surveyed by: Peter Campbell, Andrews Environmental Engineering, Inc. IL Registration #:

Drilling Contractor: Raimonde Drilling Corp. Consulting Firm: AEEI

Driller: D. Stefenson Geologist: S. Radulovic

Drilling Method: Hollow stem auger/rotary Logged by: S. Radulovic

Drilling Fluids (type): water for reaming Report Form Completed by: S. Radulovic

Date Well Started: 07/19/2004 Date Well Finished: 07/23/2004 Date Form Completed: 07/30/2004

ANNULAR SPACE DETAILS

Type of surface seal: Concrete

Type of annular sealant: Bentonite chips

Installation method: Free drop

Setting time: 24+ hours

Type of bentonite seal - Granular, Chips
(circle one)

Installation method: Free drop

Setting time: 24+ hours

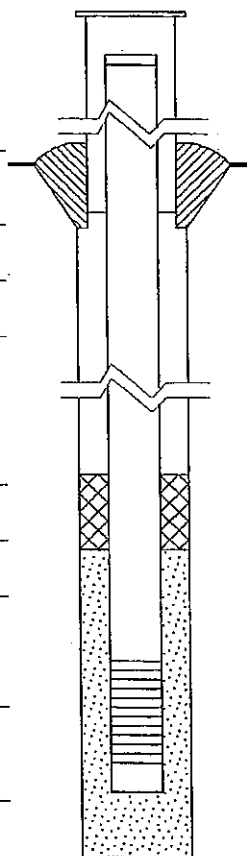
Type of sand pack: Quartz Sand

Grain size: 10/30 (sieve size)

Installation method: Free drop

Type of backfill material: Bentonite Chips
(if applicable)

Installation method: Free drop



ELEVATION (MSL)*	DEPTH (BGS)*	(0.01 ft)
587.03	-1.89	Top of Protective Casing
586.52	-1.38	Top of Riser Pipe
585.14	.00	Ground Surface
583.14	2.00	Top of Annular Sealant
n/a	n/a	Static Water Level Measured on (after completion)
583.14	2.00	Top of Seal
466.64	118.50	Top of Sandpack
463.46	121.68	Top of Screen
453.97	131.17	Bottom of Screen
453.26	131.88	Bottom of Well
376.11	209.03	Bottom of Borehole

* Referenced to a National Geodetic Vertical Datum
 * positive (+) values below GS, negative (-) values above GS

CASING MEASUREMENTS

Diameter of Borehole (in)	8.0
ID of Riser Pipe (in)	2.0
Protective Casing Length (ft)	5.0
Riser Pipe Length (ft)	123.06
Bottom of Screen to End Cap (ft)	.71
Screen Length (1st slot to last slot) (ft)	9.49
Total Length of Casing (ft)	133.26
Screen Slot Size*	#10 (0.01")

WELL CONSTRUCTION MATERIALS
(circle one)

Protective Casing	SS304, SS316, PTFE, PVC or Other:
Riser Pipe Above W.T.	SS304, SS316, PTFE, <u>PVC</u> or Other:
Riser Pipe Below W.T.	SS304, SS316, PTFE, <u>PVC</u> , or Other:
Screen	SS304, SS316, PTFE, <u>PVC</u> , or Other:

(AE850315)

*Hand-slotted well screens are unacceptable.



Site Information:

Name: Joliet/Lincoln Stone Quarry
Location: Joliet, Illinois
County: Will
Site No.: 1978090001
AEEI No.: 2002-124

Location:

Coord. System: Site Grid
Northing: 58057.56
Easting: 48125.64

Weather:

Sunny/60 deg F

Boring Information:

Boring No.: G45S
Well No.: G45S
Surf. Elev.: 600.30

Depth Information:

Total: 132.48
Auger: 4.0
Core: 132.48

Dates:

Start: 11/2/2004
Finish: 11/4/2004

Drilling Contractor:

Name: RD-n-P Drilling, Inc.
City: Crown Point, Indiana
Equipment: HQ Core

Personnel:

Geologist: S. Radulovic
Driller: D. Eger
Helper (s):

Sample Type:



- Continuous Barrel



- Split Spoon



- Shelby Tube



- Core



- Blind Drill

Depth (ft.)	Run No.	Sample Type	Sample No.	Recov.	Blow Count	q_p [q_s] (in tsf)	% Moisture	Borehole Detail	Lithology	Description/Comments	USC Elev. (MSL)
1								Stickup=2.88'		Topsoil	600
2								Concrete		Dark grey, Clayey SAND, with trace intervals of grey clayey silt.	
3										Light grey with a beige hue, LIMESTONE, with small vugs (1/16-1/2"). Weathered from 4-10'.	595
4											
5											
6								Bentonite		Trace shale partings.	590
7										6" vertical joint with trace iron staining on exposed faces.	585
20											

NOTES: Geological descriptions obtained from the boring log for G45D.



Site Information: Name: Joliet/Lincoln Stone Quarry Location: Joliet, Illinois County: Will Site No.: 1978090001 AEEI No.: 2002-124		Location: Coord. System: Site Grid Northing: 58057.56 Easting: 48125.64	Boring Information: Boring No.: G45S Well No.: G45S Surf. Elev.: 600.30
		Weather: Sunny/60 deg F	Depth Information: Total: 132.48 Auger: 4.0 Core: 132.48
Drilling Contractor: Name: RD-n-P Drilling, Inc. City: Crown Point, Indiana Equipment: HQ Core		Personnel: Geologist: S. Radulovic Driller: D. Eger Helper (s):	Dates: Start: 11/2/2004 Finish: 11/4/2004

Sample Type: ☒ - Continuous Barrel ☒ - Split Spoon ☒ - Shelby Tube ☒ - Core ☐ - Blind Drill

Depth (ft.)	Sample			Blow Count	C _p [q _s] (in tsf)	% Moisture	Borehole Detail	Lithology	Description/Comments	USC Elev. (MSL)
	Run No.	Type	No.							
8										
25										
9										
30										
10										
35										
40										

NOTES: Geological descriptions obtained from the boring log for G45D.



Site Information:

Name: Joliet/Lincoln Stone Quarry
Location: Joliet, Illinois
County: Will
Site No.: 1978090001
AEEI No.: 2002-124

Location:

Coord. System: Site Grid
Northing: 58057.56
Easting: 48125.64

Weather:

Sunny/60 deg F

Boring Information:

Boring No.: G45S
Well No.: G45S
Surf. Elev.: 600.30

Depth Information:

Total: 132.48
Auger: 4.0
Core: 132.48

Dates:

Start: 11/2/2004
Finish: 11/4/2004

Drilling Contractor:

Name: RD-n-P Drilling, Inc.
City: Crown Point, Indiana
Equipment: HQ Core

Personnel:

Geologist: S. Radulovic
Driller: D. Eger
Helper(s):

Sample Type:



- Continuous Barrel



- Split Spoon



- Shelby Tube



- Core



- Blind Drill

Depth (ft.)	Run No.	Type	Sample No.	Recov.	Blow Count	q _p [q _s] (in tsf)	% Moisture	Borehole Detail	Lithology	Description/Comments	USC	Elev. (MSL)
45	11									(continued) Light grey with pink banding, LIMESTONE, some small vugs.		560
50								Bentonite		Color grading to a pinkish red.		555
55	12									4" vertical fracture.		550
60										Vertical fracture from 57.5-58.5', filled with blueish grey clayey shale.		545

NOTES: Geological descriptions obtained from the boring log for G45D.



Site Information:

Name: Joliet/Lincoln Stone Quarry
 Location: Joliet, Illinois
 County: Will
 Site No.: 1978090001
 AEEI No.: 2002-124

Location:

Coord. System: Site Grid
 Northing: 58057.56
 Easting: 48125.64

Weather:

Sunny/60 deg F

Boring Information:

Boring No.: G45S
 Well No.: G45S
 Surf. Elev.: 600.30

Depth Information:

Total: 132.48
 Auger: 4.0
 Core: 132.48

Dates:

Start: 11/2/2004
 Finish: 11/4/2004

Drilling Contractor:

Name: RD-n-P Drilling, Inc.
 City: Crown Point, Indiana
 Equipment: HQ Core

Personnel:

Geologist: S. Radulovic
 Driller: D. Eger
 Helper (s):

Sample Type:



- Continuous Barrel



- Split Spoon



- Shelby Tube



- Core



- Blind Drill

Depth (ft.)	Run No.	Sample			Blow Count	q _p [q _s] (in tsf)	% Moisture	Borehole Detail	Lithology	Description/Comments	USC	Elev. (MSL)
		Type	No.	Recov.								
65	13									(continued) Pinkish, LIMESTONE, some small vugs. Vertical fractures from 60.6-62.3', filled with blueish grey clayey shale and pyrite.		540
										Vertical fractures from 65.0-65.8', filled with blueish grey clayey shale and pyrite.		535
										Vertical fractures from 67.2-68.2', filled with blueish grey clayey shale and pyrite.		
70								Bentonite		Vuggy intervals up to 1" thick.		530
										Closed vertical joint.		
75	14											525
80												

NOTES: Geological descriptions obtained from the boring log for G45D.



Site Information:

Name: Joliet/Lincoln Stone Quarry
Location: Joliet, Illinois
County: Will
Site No.: 1978080001
AEEI No.: 2002-124

Location:

Coord. System: Site Grid
Northing: 58057.56
Easting: 48125.64

Weather:

Sunny/60 deg F

Boring Information:

Boring No.: G45S
Well No.: G45S
Surf. Elev.: 600.30

Depth Information:

Total: 132.48
Auger: 4.0
Core: 132.48

Dates:

Start: 11/2/2004
Finish: 11/4/2004

Drilling Contractor:

Name: RD-n-P Drilling, Inc.
City: Crown Point, Indiana
Equipment: HQ Core

Personnel:

Geologist: S. Radulovic
Driller: D. Eger
Helper (s):

Sample Type:

☐ - Continuous Barrel ☒ - Split Spoon ☐ - Shelby Tube ☐ - Core ☐ - Blind Drill

Depth (ft.)	Run No.	Sample			Blow Count	q_p [q_s] (in tsf)	% Moisture	Borehole Detail	Lithology	Description/Comments	USC	Elev. (MSL)
		Type	No.	Recov.								
85	15									(continued) Grey with pink banding, LIMESTONE, some small vugs. 2" diameter vug.		520
90								Bentonite		Increase in vugs. Open vuggy fracture from 92.2-92.4', some pyrite.		510
95	16									2-3" thick white cherty layers.		505
100												

NOTES: Geological descriptions obtained from the boring log for G45D.



Site Information: Name: Joliet/Lincoln Stone Quarry Location: Joliet, Illinois County: Will Site No.: 1978090001 AEEI No.: 2002-124		Location: Coord. System: Site Grid Northing: 58057.56 Easting: 48125.64	Boring Information: Boring No.: G45S Well No.: G45S Surf. Elev.: 600.30
		Weather: Sunny/60 deg F	Depth Information: Total: 132.48 Auger: 4.0 Core: 132.48
Drilling Contractor: Name: RD-n-P Drilling, Inc. City: Crown Point, Indiana Equipment: HQ Core		Personnel: Geologist: S. Radulovic Driller: D. Eger Helper (s):	Dates: Start: 11/2/2004 Finish: 11/4/2004

Sample Type:		☒ - Continuous Barrel ☒ - Split Spoon ☒ - Shelby Tube ☐ - Core ☐ - Blind Drill										
Depth (ft.)	Run No.	Sample			Blow Count	Q _p [q _s] (in tsf)	% Moisture	Borehole Detail	Lithology	Description/Comments	USC	Elev. (MSL)
		Type	No.	Recov.								
105	17									(continued) Grey with pink banding, LIMESTONE, some small vugs, some white cherty layers. Cherty layers becoming thicker (4"), with fossils and calcite crystals.		600
110										Pink banding ceases. Cherty layers becoming darker in color (grey). Some fossils.		495
115	18											490
120												485

NOTES: Geological descriptions obtained from the boring log for G45D.



Site Information:

Name: Joliet/Lincoln Stone Quarry
 Location: Joliet, Illinois
 County: Will
 Site No.: 1978090001
 AEEI No.: 2002-124

Location:

Coord. System: Site Grid
 Northing: 58057.56
 Easting: 48125.64

Weather:

Sunny/60 deg F

Boring Information:

Boring No.: G45S
 Well No.: G45S
 Surf. Elev.: 600.30

Depth Information:

Total: 132.48
 Auger: 4.0
 Core: 132.48

Dates:

Start: 11/2/2004
 Finish: 11/4/2004

Drilling Contractor:

Name: RD-n-P Drilling, Inc.
 City: Crown Point, Indiana
 Equipment: HQ Core

Personnel:

Geologist: S. Radulovic
 Driller: D. Eger
 Helper (s):

Sample Type:

☒ - Continuous Barrel ☒ - Split Spoon ☒ - Shelby Tube ☒ - Core ☐ - Blind Drill

Depth (ft.)	Run No.	Sample			Blow Count	q _p [q _s] (in tsf)	% Moisture	Borehole Detail	Lithology	Description/Comments	USC	Elev. (MSL)
		Type	No.	Recov.								
125	19									Grey to dark grey, DOLOMITE.		480
130	20											
135												475
												470
												465
140												

End of Boring = 132.48'

NOTES: Geological descriptions obtained from the boring log for G45D.



Site #: 1978090001

County: Will

Well #: G45S

Site Name: Joliet/Lincoln Stone Quarry

Borehole #: G45S

Coordinates: X 48125.64

Y 58057.56

(or) Latitude: ° ' " Longitude: ° ' "

Surveyed by: Andrews Environmental Engineering, Inc.

IL Registration #: _____

Drilling Contractor: RD-n-P Drilling, Inc.

Consulting Firm: AEEI

Driller: D. Eger

Geologist: S. Radulovic

Drilling Method: HQ core

Logged by: S. Radulovic

Drilling Fluids (type): water for reaming

Report Form Completed by: S. Holland

Date Well Started: 11/02/2004

Date Well Finished: 11/04/2004

Date Form Completed: 12/30/2004

ANNULAR SPACE DETAILS

Type of surface seal: Concrete

Type of annular sealant: Bentonite

Installation method: Tremi

Setting time: 24+ hours

Type of bentonite seal - Granular Chips
(circle one)

Installation method: Free drop

Setting time: 24+ hours

Type of sand pack: Quartz Sand

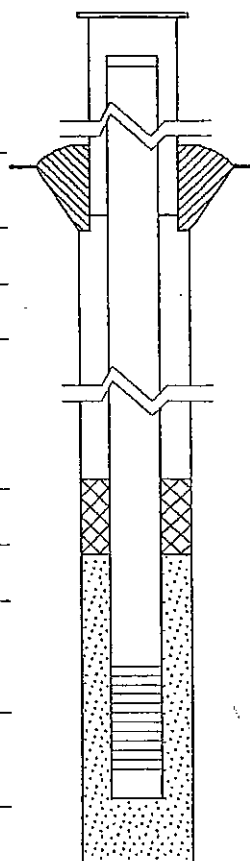
Grain size: 10/30 (sieve size)

Installation method: Free drop

Type of backfill material: na
(if applicable)

Installation method: na

Notes:



ELEVATION (MSL)*	DEPTH (BGS)*	(0.01 ft)
n/a	n/a	Top of Protective Casing
603.18	-2.88	Top of Riser Pipe
600.30	.00	Ground Surface
600.30	.00	Top of Annular Sealant
n/a	n/a	Static Water Level Measured on (after completion)
597.30	3.00	Top of Seal
478.70	121.60	Top of Sandpack
477.90	122.40	Top of Screen
468.18	132.12	Bottom of Screen
467.82	132.48	Bottom of Well
467.82	132.48	Bottom of Borehole

* Referenced to a National Geodetic Vertical Datum
 * positive (+) values below GS, negative (-) values above GS

CASING MEASUREMENTS

Diameter of Borehole (in)	3.7
ID of Riser Pipe (in)	2.0
Protective Casing Length (ft)	5.0
Riser Pipe Length (ft)	125.28
Bottom of Screen to End Cap (ft)	.36
Screen Length [1st slot to last slot] (ft)	9.72
Total Length of Casing (ft)	135.36
Screen Slot Size*	#10 (0.01")

WELL CONSTRUCTION MATERIALS
(circle one)

Protective Casing	SS304, SS316, PTFE, PVC or Other:
Riser Pipe Above W.T.	SS304, SS316, PTFE, <u>PVC</u> or Other:
Riser Pipe Below W.T.	SS304, SS316, PTFE, <u>PVC</u> or Other:
Screen	SS304, SS316, PTFE, <u>PVC</u> or Other:

(AE850315)

*Hand-slotted well screens are unacceptable.

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF G46D/S

(Page 1 of 4)

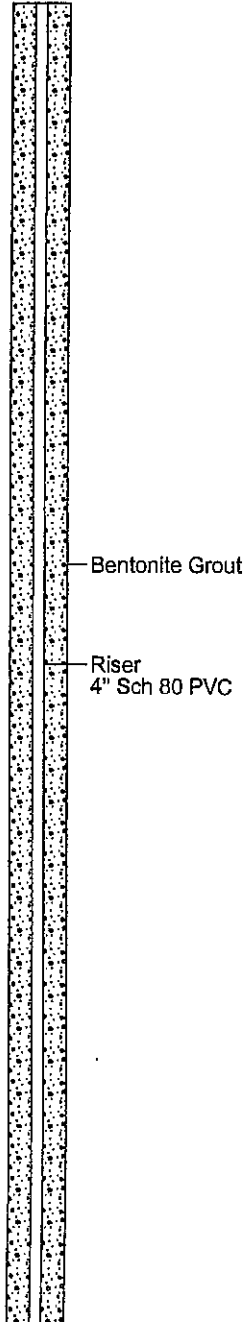
Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

Date Started : 01/30/06
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 598.290 feet above MSL
TOC Elev. : 600.870 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757410.291
Coordinate E : 1046479.383
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 598	DESCRIPTION	% RQD	% Recovery	Well Diagram: G46D
0	598	Overburden was blind drilled to 25 feet. Cuttings logged for general lithology.			
5	593	CLAY/ SILTY CLAY, brown. Dry.			
10	588				
15	583				
20	578	SAND, brown, mostly medium, some fine and coarse and silt, some gravel. Moist.			
25	573	DOLOMITE, weathered.			
		DOLOMITE, highly fractured, heavy iron staining.			
30	568	DOLOMITE, white, some very light green hues, fine grained, slightly fractured (horz), some pits, no vugs.	34		
35	563	- highly fractured 37-42, tight to extremely narrow, sediment infilling - vertical fracture, tight, pyrite and green/gray argillaceous sediment infilling - 0.15' chert, fractured, some pyrite	16.5		
40	558				
45	553	DOLOMITE, white, some light green/blue hues, fine grained, horz fractures every 0.1', tight with sediment and pyrite infilling, some white chert, some pits	100		
50	548				
55	543	- begin pink, increase occurrence of green/blue hue	71.5		
60					

K P R G ENVIRONMENTAL CONSULTATION & REMEDIATION KPRG and Associates, Inc.		GEOLOGIC LOG OF G46D/S (Page 2 of 4)		Total Boring Depth : 225.0 feet Well Bottom Depth : 225.0 feet Surface Elev. : 598.290 feet above MSL TOC Elev. : 600.870 feet above MSL Groundwater Elev. : xxx feet above MSL Riser Material : 4" Sch 80 PVC Screen Material : 4" Sch 80 PVC, 0.010 slot Coordinate N : 1757410.291 Coordinate E : 1046479.383 Logged By : P. Allenstein	
Midwest Generation, LLC Station # 9 - Lincoln Quarry Joliet, Illinois Project No. 21805		Date Started : 01/30/06 Date Well Set : 02/17/06 Coring Tools : 10" HQ conv. circ. Reaming Tools : 7.5" Tri-Cone w/ stab Drill Rig : DrillTech D40 Driller Name/Co : R. Treptow / Layne			
Depth in Feet	Surf. Elev. 598	DESCRIPTION	% RQD	% Recovery	Well Diagram: G46D 
60	538		71.5		
65	533	- 0.3' fracture zone, horz, sediment filled, extremely narrow	89		
70	528	DOLOMITE, pink, fine grained, some pits, no vugs, sediment filled fractures horz, wavy, very narrow, occ black stain, oval-shaped - 0.2' darker layer, fractured, very narrow	100		
75	523				
80	518	- highly fractured zone 80-83, tight, sediment infilling			
85	513	DOLOMITE, white with light pink hue, trace to little pits, layers with many fractures, wavy tight to very narrow, sediment infilling, trace fossils - vert frac, very narrow	84.5		
90	508	- large vug, with pyrite on bottom - fractures with trace pyrite, sediment infilling - large cross fracture, sediment infilling			
95	503	- trace pyrite near vert fracture - chert, fossil vug mod soft	75.1		
100	498	- pitted, vuggy fossiliferous layer (0.1') - highly fract, horz and vert, tight to very narrow, trace pyrite, little sediment infilling			
105	493	-begin layers of darker and lighter pink - vug, trace pyrite	92.4		
110	488				
115	483		98		
120		- fractured, horz and vert, tight - fractured, narrow			

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF G46D/S

(Page 3 of 4)

Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

Date Started : 01/30/06
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 598.290 feet above MSL
TOC Elev. : 600.870 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757410.291
Coordinate E : 1046479.383
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 598	DESCRIPTION	% RQD	% Recovery	Well Diagram: G46D
120	478	DOLOMITE, white to light gray, fine grained, pitted, some fossils, horz fracs sediment filled, tight to very narrow, some chert - white with darker centers, some laminations, little to trace pyrite	98		 Bentonite Grout Riser 4" Sch 80 PVC
125	473		74.3		
130	468	DOLOMITE, light gray with light green, fine grained, trace to no pits, horz frac wavy, sediment, tight to very narrow, fossils, chert - white to light gray with little pyrite			
135	463		100		
140	458	DOLOMITE, gray to dark gray, fine grained, some wavy bedding, trace pits and vugs, chert - light gray with some thin bedding, some fractures, tight to very narrow, sediment infilling with little pyrite			
145	453		98.2		
150	448	- pitted layer - cross fracture			
155	443		95.3		
160	438	- 0.1' fossiliferous zones, light gray (occ every 2 feet)			
165	433	- 0.12' thin bedding lamination	94.3		
170	428	- fractured, horz and cross, tight, some sediment infilling			
175	423	- cross frac, 174-175.8, very narrow - fractures continue to 185, some displacement (<0.02'), tight	100		
180		- also becoming mostly dark gray			

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF G46D/S

(Page 4 of 4)

Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

Date Started : 01/30/06
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 598.290 feet above MSL
TOC Elev. : 600.870 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757410.291
Coordinate E : 1046479.383
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 598	DESCRIPTION	% RQD	% Recovery	Well Diagram: G46D
180	418		100		
185	413	- transition zone, DOLOMITE / MUDDY DOLOMITE	100		
190	408	MUDDY DOLOMITE, dark gray, platy becoming massive, black platlets, uniform, no visible grains - becoming near black	100		
195	403	192.15-192.7 - SHALE, green, moderately soft, laminated 192.7-193.21 - DOLOMITIC SHALE, light gray, laminated gray, frac with pyrite 193.21-193.81 - transition into FOSSILIFEROUS DOLOMITE 193.81-194.05 - DOLOMITIC SHALE, gray, laminated dark, frac with pyrite	100		
200	398	FOSSILIFEROUS DOLOMITE, white, pourous, vuggy, intensely fractured, some pyrite and quartz in vugs - at 196.05, void with quartz and pyrite crystals	64.3		
205	393	- begin horz frac, narrow, sediment, some black platelets			
210	388	- large vuggy layer, some pyrite and quartz	35.7		
215	383	- begin darker to light gray - void large pyrite, some calcite			
220	378	- begin white			
225	373	End of Boring at 225 feet.			
230	368	Boring cored to 225, reamed to 225, well set at 225.			
235	363				
240					

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF G47D/S

(Page 1 of 4)

Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

Date Started : 01/24/06
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 609.454 feet above MSL
TOC Elev. : 611.902 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757455.119
Coordinate E : 1047668.224
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 609	DESCRIPTION	% RQD	% Recovery	Well Diagram: G47D
0	609	Overburden was blind drilled to 25.5 feet. Cuttings logged for general lithology.			Protective Casing Concrete Sand Bentonite Grout Riser 4" Sch 80 PVC
5	604	CLAY / SILTY CLAY, brown. Dry.			
10	599				
15	594				
20	589	DOLOMITE, weathered.			
25	584	DOLOMITE, white, trace iron staining mostly on fractures, fractured, tight, jagged, fine to medium grained, some pits	25.7		
30	579	- no iron staining			
35	574	- begin blue/green hue			
40	569	- begin trace chert - some pyrite, some large chert nodules	72.9		
45	564		73.6		
50	559				
55	554	- crescent shaped frac, narrow, pyrite, brown staining			
60		- 55.5-57.5 fractured, horz, wavy, sediment infilling with pink hue	84.8		

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

GEOLOGIC LOG OF G47D/S

(Page 2 of 4)

Date Started : 01/24/06
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 609.454 feet above MSL
TOC Elev. : 611.902 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757455.119
Coordinate E : 1047666.224
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 609	DESCRIPTION	% RQD	% Recovery	Well Diagram: G47D
60	549		84.8		 Bentonite Grout Riser 4" Sch 80 PVC
65	544	DOLOMITE, light pink, some lighter pink, fine grained, fractures, tight, horz wavy, some vert, with sediment and some pyrite infilling, trace to no pits or vugs	58.6		
70	539	- begin dark pink			
75	534		67.1		
		- some iron staining in bands			
80	529				
		- fractured zone, horz, sediment infilling			
85	524	DOLOMITE, white, fine grained, little pits, trace to no vugs or pyrite, little frac horz, tight, some sediment infilling	70.3		
		- fractured zone			
		- begin trace to no frac or pits			
90	519				
		- some pyrite			
95	514	- fractured zone	24.2		
100	509				
105	504		49.4		
110	499	- some horz frac, sediment infilling			
115	494		75.1		
		begin - vugs and fossils, calcite, no pyrite, some layers with increase pits and small vugs			
120					

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF G47D/S

(Page 3 of 4)

Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

Date Started : 01/24/06
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 609.454 feet above MSL
TOC Elev. : 611.902 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757455.119
Coordinate E : 1047666.224
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 609	DESCRIPTION	% RQD	% Recovery	Well Diagram: G47D
120	489	DOLOMITE, gray, large chert - white with dark gray and little to trace pyrite, some vugs with pyrite on bottom	75.1		 Bentonite Grout Riser 4" Sch 80 PVC
125	484	- several layers highly broken chert			
130	479	DOLOMITE, white to light gray, some light green/blue, few layers with pits, horz wavy frac, sediment infilling, little chert, some pyrite in chert	88.8		
135	474		100		
140	469	DOLOMITE, gray, fine grained, some chert, occ bedding, horz frac with black sediment infilling, occ cherty layers, trace pyrite usually in chert, little fossils, trace to no pits or vugs			
145	464		96.5		
150	459	begin - little to no chert			
155	454	- some bedding gray to light gray, dark gray sediment in horz frac	100		
160	449	- 0.1' fossiliferous layer, pits, little pyrite			
165	444		85.8		
170	439				
175	434		100		
180					

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

GEOLOGIC LOG OF G47D/S

(Page 4 of 4)

Date Started : 01/24/06
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 609.454 feet above MSL
TOC Elev. : 611.902 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757455.119
Coordinate E : 1047666.224
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 609	DESCRIPTION	% RQD	% Recovery	Well Diagram: G47D
180	429		100		
185	424	- becoming darker - 0.3' transitional layer	100		
190	419	MUDDY DOLOMITE, dark gray, thin black platelets, no frac, no chert			
195	414	193.9-194.15 - SHALE, light green, mod hard, thin bed 194.15-195.3 - DOLOMITIC SHALE, lighter, some pits with pyrite 195.3-195.5 - DOLOMITIC SHALE, dark gray, upper hard, lower soft			
200	409	FOSSILIFEROUS DOLOMITE, white, upper foot light green hues, pitted, vuggy, pyrite, calcite and quartz in vugs and voids - large crystal layer at 197, quartz and pyrite - horz frac, sediment at 200'			
205	404	begin - little vugs and pits - 0.7' horz frac, mostly pyrite	43.9		
210	399				
215	394	DOLOMITE, gray and black (peppered), thin black platelets and beds, vuggy, pitted, calcite quartz and pyrite throughout			
220	389	DOLOMITE, light gray, some pits and vugs, calcite quartz and pyrite, horz frac with green soft argillaceous sediment infilling - some black platelets	54.2		
225	384		94.0		
230	379	End of Boring at 225 feet.			
235	374				
240					

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

GEOLOGIC LOG OF G48D/S

(Page 1 of 4)

Date Started : 12/19/05
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 617.778 feet above MSL
TOC Elev. : 620.530 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757481.301
Coordinate E : 1048124.052
Logged By : P. Allenstein

Depth
in
Feet

Surf.
Elev.
617

DESCRIPTION

% RQD

% Recovery

Well Diagram: G48D

0 617

Overburden was blind drilled to 40.
Cuttings logged for general lithology.

5 612

CLAY / SILTY CLAY, brown. Dry.

10 607

15 602

20 597

25 592

30 587

SAND, brown, fine to medium, some silt and gravel.

35 582

GRAVEL, brown, fine to medium, some sand and silt.

40 577

DOLOMITE, weathered.

45 572

DOLOMITE, white to light gray, fine grained, trace pits

- greenish hue

- dark gray layer

50 567

DOLOMITE, green/gray to light gray with pink hue, colors in blending layers
few vugs, less pits, several pyrite filled frac vert and horz, tight, some horz
frac, dark gray sediment and pyrite infilling, some wavy

55 562

60

43.6

23.8

Protective
Casing

Concrete

Sand

Bentonite Grout

Riser
4" Sch 80 PVC

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

GEOLOGIC LOG OF G48D/S

(Page 2 of 4)

Date Started : 12/19/05
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 617.778 feet above MSL
TOC Elev. : 620.530 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757481.301
Coordinate E : 1048124.052
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 817	DESCRIPTION	% RQD	% Recovery	Well Diagram: G48D
60	557	- coloring becoming more distinct - pink hue is darker 62-64, vert frac, pyrite, vugs have calcite and pyrite	23.8		
65	552	- light and dark gray, trace to no pink, pitted 67-70	15.3		
70	547	- pink resumes, some chert, tight fracs			
75	542	- light pink			
80	537	DOLOMITE, light gray with green/gray, vuggy, cherty, trace pyrite - 79-80 cross frac, 1.0', some vugs with pyrite, trace to no green hue - some wavy frac	84.9		
85	532	- 0.35' vert frac, tight, no pyrite - 1.0' vert frac, tight, some pyrite	67.5		
90	527	- 88-90 - wavy horz frac zone, vug with pyrite - 89-92 - no pyrite			
95	522	begin gray, increase wavy horz frac, some vugs with calcite, little vert frac	13.4		
100	517	- 0.05 layer pitted, vuggy, fossiliferous, white - becoming lighter			
105	512		22.7		
110	507	DOLOMITE, gray with pink hue, fine grained, layers with darker shade, little pits and vugs, some with pyrite			
115	502		69.7		
120					

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

GEOLOGIC LOG OF G48D/S

(Page 3 of 4)

Date Started : 12/19/05
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 617.778 feet above MSL
TOC Elev. : 620.530 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757481.301
Coordinate E : 1048124.052
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 617	DESCRIPTION	% ROD	% Recovery	Well Diagram: G48D
120	497	DOLOMITE, white to light gray with light green, trace to no vugs or pits or pyrite, less chert, some oval shaped, trace fossils	89.7		 Bentonite Grout Riser 4" Sch 80 PVC
125	492		41.3		
130	487				
135	482	DOLOMITE, gray, layers of fine bedding, fine grained, trace pyrite, some chert, little to no fossils	61.0		
140	477	- 141.7 to 142.2 - light brown			
145	472	- 0.3' dark gray cherty layer	100		
150	467	DOLOMITE, gray, fine grained, some bedding, no vugs, little to no pits, trace pyrite in horz frac			
155	462		55.1		
160	457				
165	452	- 0.02' vug, pyrite	71.1		
170	447				
175	442	- becoming muddy and platey, uniform, no vugs or pits			
180			100		

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

Midwest Generation, LLC
Station # 9 - Lincoln Quarry
Joliet, Illinois

Project No. 21805

GEOLOGIC LOG OF G48D/S

(Page 4 of 4)

Date Started : 12/19/05
Date Well Set : 02/17/06
Coring Tools : 10' HQ conv. circ.
Reaming Tools : 7.5" Tri-Cone w/ stab
Drill Rig : DrillTech D40
Driller Name/Co : R. Treptow / Layne

Total Boring Depth : 225.0 feet
Well Bottom Depth : 225.0 feet
Surface Elev. : 617.778 feet above MSL
TOC Elev. : 620.530 feet above MSL
Groundwater Elev. : xxx feet above MSL
Riser Material : 4" Sch 80 PVC
Screen Material : 4" Sch 80 PVC, 0.010 slot
Coordinate N : 1757481.301
Coordinate E : 1048124.052
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 617	DESCRIPTION	% RQD	% Recovery	Well Diagram: G48D
180	437	MUDDY DOLOMITE, dark gray, platy	100		
185	432	186.05-187.2 - DOLOMITIC SHALE, light green/gray 187.2-189.0 - transition layer, alt upper and lower	100		
190	427	FOSSILIFEROUS DOLOMITE, white, vuggy, pitted, highly fractured, some pyrite and sediment infilling, some quartz			
195	422		31.2		
200	417	- horz and vert frac, very narrow, some sediment and pyrite infilling			
205	412	- 205 to 211 - little to trace vugs	31.7		
210	407		48.9		
215	402				
220	397	SHALE, light green/gray, platy, mod hard			
225	392	MUDDY DOLOMITE, dark gray, white sediment/crystal filled frac, tight, some wavy lamination			
230	387	End of Boring at 225 feet.			
235	382				
240					

KPRG

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF T01S

(Page 1 of 2)

Total Boring Depth : 167.0 feet
 Well Bottom Depth : 165.0 feet
 Surface Elev. : 619.00 feet above MSL
 TOC Elev. : 621.46 feet above MSL

Midwest Generation, LLC
 Lincoln Stone Quarry
 Joliet, Illinois

Project No. 11306.11

Date Started : 06/14/2010
 Date Well Set : 06/16/2010
 Coring Tools : Not cored
 Drilling Tools : 4.75 Air Hammer
 Drill Rig : Atlas Copco TH60
 Driller Name/Co : D. Jones / Layne

Riser Material : 2" Sch 80 PVC
 Screen Material : 2" Sch 80 PVC, 0.010 slot
 Coordinate N : 1757503.340
 Coordinate E : 1048268.702
 Logged By : C. Higgins

Depth
in
Feet

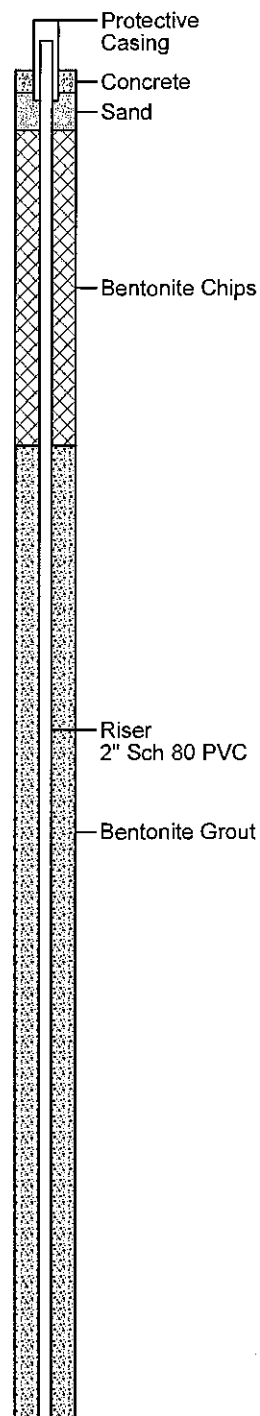
Surf.
Elev.
619.00

DESCRIPTION

% RQD

% Recovery

Well Diagram: T01S



Boring drilled through overburden to set temporary 6" casing.

Top of Bedrock at 45 feet.

Gray DOLOMITE, weathered

Gray to White DOLOMITE

Gray DOLOMITE, little, green

Gray DOLOMITE, some Tan, trace Green

Gray and Pink DOLOMITE, some Green

Pink and Green DOLOMITE, little chert

Light Brown DOLOMITE, some Pink and Green, trace chert

- trace Black SAND

Dark Gray DOLOMITE, trace Pink

- trace Green

GEOLOGIC LOG OF T01S

(Page 2 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.11

Date Started : 06/14/2010
Date Well Set : 06/16/2010
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 167.0 feet
Well Bottom Depth : 165.0 feet
Surface Elev. : 619.00 feet above MSL
TOC Elev. : 621.46 feet above MSL

Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757503.340
Coordinate E : 1048268.702
Logged By : C. Higgins

Depth
in
Feet

Surf.
Elev.
619.00

DESCRIPTION

% RQD

% Recovery

Well Diagram: T01S

90 529
95 524
100 519
105 514
110 509
115 504
120 499
125 494
130 489
135 484
140 479
145 474
150 469
155 464
160 459
165 454
170 449
175 444
180

Brown and Gray DOLOMITE, trace Green

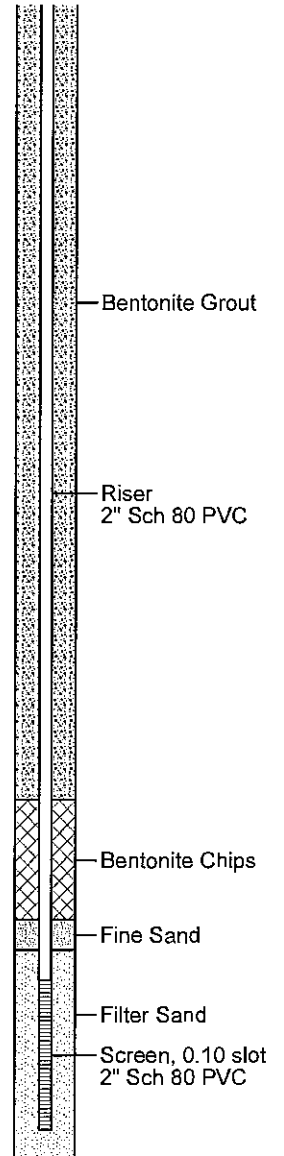
Brown and Gray DOLOMITE, some Pink and Green, trace chert
- increase chert

Light Brown to Tan DOLOMITE, trace chert
- increase chert

Light Brown and Gray DOLOMITE, cherty

Dark Gray DOLOMITE

End of Boring at 167 feet.



GEOLOGIC LOG OF T02S

(Page 1 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.11

Date Started : 04/27/2010
Date Well Set : 04/27/2010
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 171.0 feet
Well Bottom Depth : 170.0 feet
Surface Elev. : 623.79 feet above MSL
TOC Elev. : 626.15 feet above MSL

Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1756750.288
Coordinate E : 1048104.390
Logged By : P. Allenstein

Depth
in
Feet

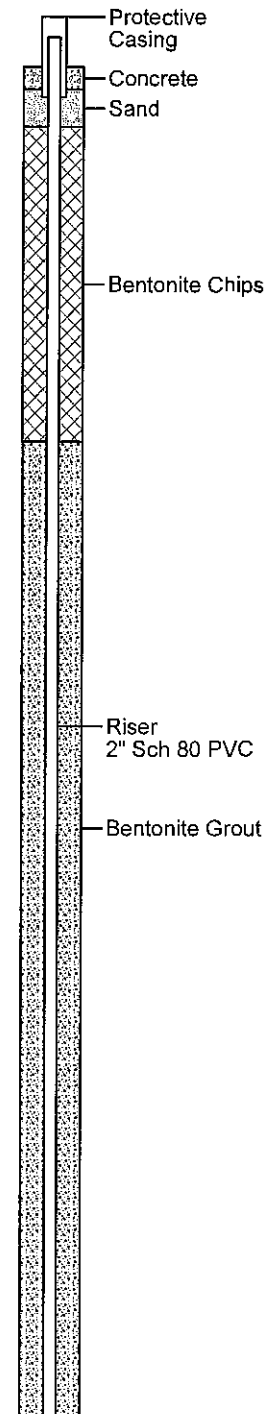
Surf.
Elev.
623.79

DESCRIPTION

% RQD

% Recovery

Well Diagram: T02S



Boring drilled through overburden to set temporary 6" casing.

Top of Bedrock at 55 feet. Boring reamed to 62 feet in order to set air hammer.

Light Brown DOLOMITE, some Rust, weathered

White to Light Gray DOLOMITE, some chert, less competent

Tan DOLOMITE, moderately competent

Light Gray with Greenish Gray DOLOMITE

GEOLOGIC LOG OF T02S

(Page 2 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.11

Date Started : 04/27/2010
Date Well Set : 04/27/2010
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 171.0 feet
Well Bottom Depth : 170.0 feet
Surface Elev. : 623.79 feet above MSL
TOC Elev. : 626.15 feet above MSL

Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1756750.288
Coordinate E : 1048104.390
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 623.79	DESCRIPTION	% RQD	% Recovery	Well Diagram: T02S
90	533	Darker Greenish Gray DOLOMITE, trace Light Pink, competent			
95	528	Greenish Gray and Pink DOLOMITE			
100	523				
105	518	White DOLOMITE, some Pink, cherty, moderately competent			
110	513	Pink DOLOMITE, trace White, moderately to less competent			
115	508	Light Brown DOLOMITE, trace Greenish Gray, moderately to less competent			
120	503				
125	498	- loss circulation, no recovery			
130	493	- some cohesive clay infilling			
135	488				
140	483	Light Brown DOLOMITE, trace to no Greenish Gray, moderately competent			
145	478	- little recovery			
150	473				
155	468	Light Brown DOLOMITE, with Chert, less competent			
160	463	- less Chert			
165	458	Fracture at 166 feet - 6" to 10"			
170	453	No recovery			
175	448	End of Boring at 171 feet.			
180					

GEOLOGIC LOG OF T03S

(Page 1 of 2)

Total Boring Depth : 172.0 feet
Well Bottom Depth : 170.0 feet
Surface Elev. : 627.22 feet above MSL
TOC Elev. : 629.65 feet above MSL

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.11

Date Started : 04/28/2010
Date Well Set : 04/29/2010
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1755962.898
Coordinate E : 1048165.667
Logged By : R. Gnat

Depth
in
Feet

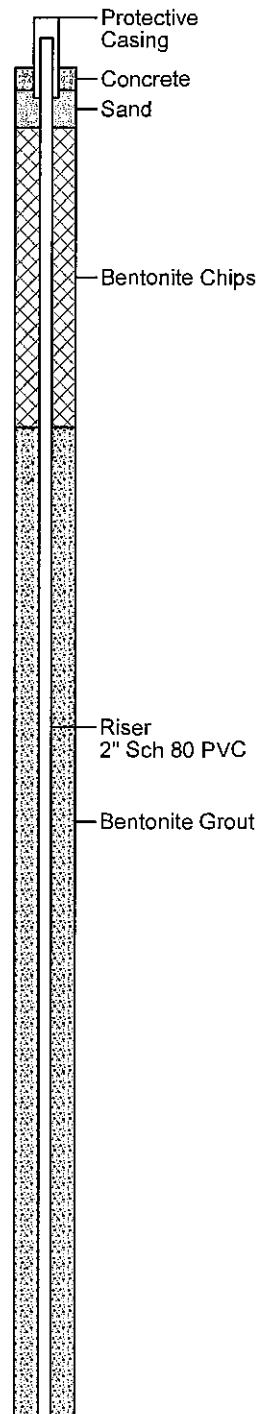
Surf.
Elev.
627.22

DESCRIPTION

% RQD

% Recovery

Well Diagram: T03S



Boring drilled through overburden to set temporary 6" casing.

Top of Bedrock at 54 feet. Boring reamed to 62 feet in order to set air hammer.

Light Gray DOLOMITE, moderately competent to weathered

Light Gray DOLOMITE, some Blue Green matrix, less competent

GEOLOGIC LOG OF T03S

(Page 2 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.11

Date Started : 04/28/2010
Date Well Set : 04/29/2010
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 172.0 feet
Well Bottom Depth : 170.0 feet
Surface Elev. : 627.22 feet above MSL
TOC Elev. : 629.65 feet above MSL

Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1755962.898
Coordinate E : 1048165.667
Logged By : R. Gnat

Depth
in
Feet

Surf.
Elev.
627.22

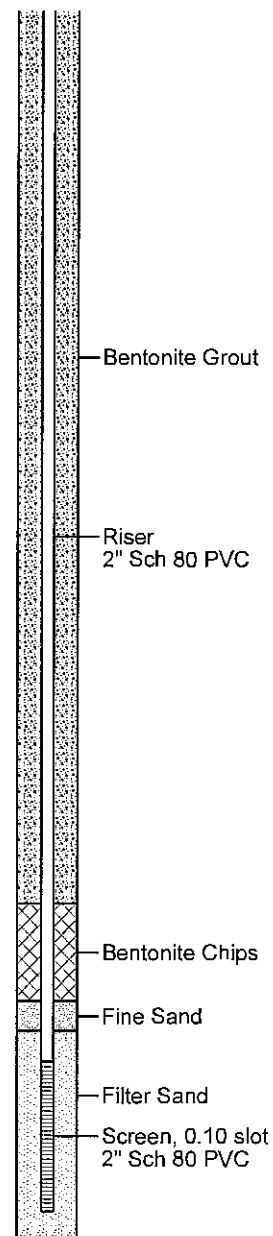
DESCRIPTION

% RQD

% Recovery

Well Diagram: T03S

90	537	Tan, Dark Gray and Light Gray DOLOMITE, moderately competent
95	532	Dark Gray to Gray DOLOMITE, no Tan, some shaley chips
100	527	Dark Gray and Tan DOLOMITE, some shaley chips
105	522	Brown and some Gray DOLOMITE
110	517	Brown and Dark Greenish Gray DOLOMITE, some gray, competent to moderately competent
115	512	
120	507	Light Gray DOLOMITE, competent
125	502	
130	497	Gray, tan and Dark Greenish Gray DOLOMITE, moderately competent
135	492	
140	487	Light Gray to Tan DOLOMITE, competent
145	482	- no Tan, Cherty
150	477	Tan DOLOMITE, some Chert, moderately competent
155	472	
160	467	White to Light Gray DOLOMITE, Cherty, moderately competent
165	462	
170	457	- fractured, Gray
175	452	End of Boring at 172 feet.



GEOLOGIC LOG OF T04S

(Page 1 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.11

Date Started : 04/20/2010
Date Well Set : 04/21/2010
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 171.5 feet
Well Bottom Depth : 170.0 feet
Surface Elev. : 628.63 feet above MSL
TOC Elev. : 631.07 feet above MSL

Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1756411.076
Coordinate E : 1048857.472
Logged By : C. Higgins

Depth
in
Feet

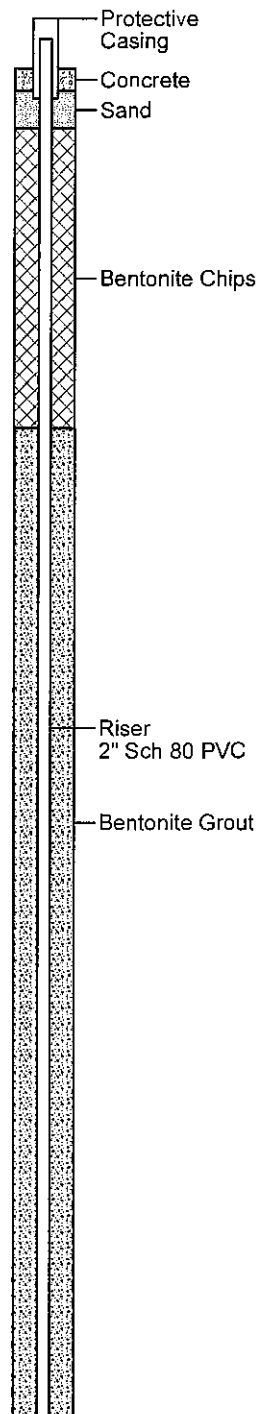
Surf.
Elev.
628.63

DESCRIPTION

% RQD

% Recovery

Well Diagram: T04S



Boring drilled through overburden to set temporary 6" casing.

Top of Bedrock at 52 feet.

Gray to Tan DOLOMITE, weathered to moderately competent, some gray clay infilling

Tan to Light Gray DOLOMITE, moderately competent
- some orange/rust

- trace to some chert

Greenish Gray DOLOMITE

- no Green

GEOLOGIC LOG OF T04S

(Page 2 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.11

Date Started : 04/20/2010
Date Well Set : 04/21/2010
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 171.5 feet
Well Bottom Depth : 170.0 feet
Surface Elev. : 628.63 feet above MSL
TOC Elev. : 631.07 feet above MSL

Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1756411.076
Coordinate E : 1048857.472
Logged By : C. Higgins

Depth
in
Feet

Surf.
Elev.
628.63

DESCRIPTION

% RQD

% Recovery

Well Diagram: T04S

90 538
95 533
100 528
105 523
110 518
115 513
120 508
125 503
130 498
135 493
140 488
145 483
150 478
155 473
160 468
165 463
170 458
175 453
180

Green and Brown DOLOMITE

Brown, Dark Brown and Greenish Gray DOLOMITE, trace Chert

Greenish Gray DOLOMITE, some Light Brown

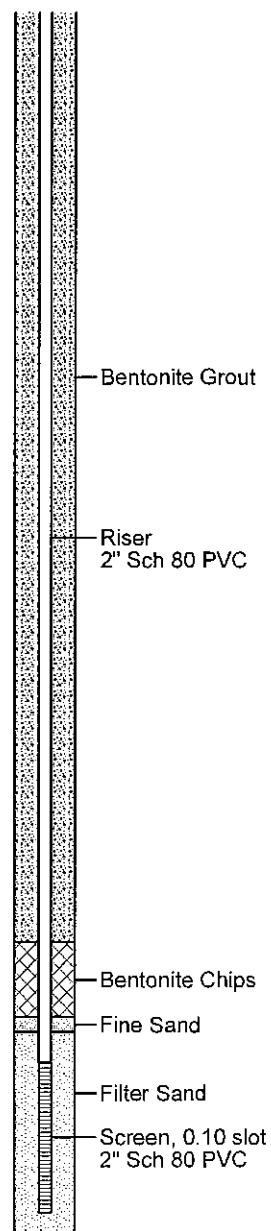
Brown DOLOMITE, trace Chert

Brown with trace Greenish Gray DOLOMITE, trace Chert

Brown DOLOMITE, trace Chert

Brown DOLOMITE, Cherty

End of Boring at 171.5 feet.



GEOLOGIC LOG OF T05S

(Page 1 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.15

Date Started : 02/08/2012
Date Well Set : 02/09/2012
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 177.0 feet
Well Bottom Depth : 175.0 feet
Surface Elev. : 620.97 feet above MSL
TOC Elev. : 623.35 feet above MSL
Groundwater Elev. : not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757056.894
Coordinate E : 1048117.832
Logged By : P. Allenstein

Depth
in
Feet

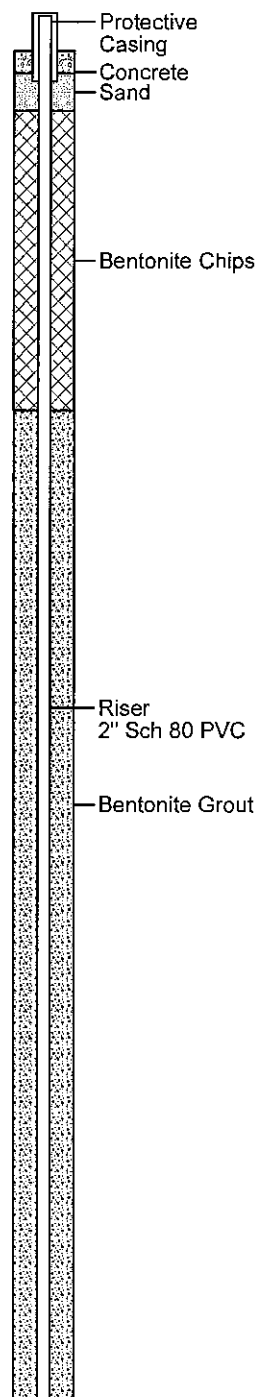
Surf.
Elev.
620.97

DESCRIPTION

% RQD

% Recovery

Well Diagram: T05S



Unconsolidated overburden blind-drilled.

Bedrock at 52 feet.

Tan DOLOMITE, trace light pink, blue/green argillaceous

Tan DOLOMITE, trace pyrite

Tan DOLOMITE, some pink, trace chert

Brown DOLOMITE, some tan with green argillaceous

White DOLOMITE, trace gray

Pink DOLOMITE, trace chert

GEOLOGIC LOG OF T05S

(Page 2 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.15

Date Started : 02/08/2012
Date Well Set : 02/09/2012
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 177.0 feet
Well Bottom Depth : 175.0 feet
Surface Elev. : 620.97 feet above MSL
TOC Elev. : 623.35 feet above MSL
Groundwater Elev. : not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757056.894
Coordinate E : 1048117.832
Logged By : P. Allenstein

Depth
in
Feet

Surf.
Elev.
620.97

DESCRIPTION

% RQD

% Recovery

Well Diagram: T05S

90 530 White DOLOMITE, light yellow hue

95 525 White DOLOMITE, light green hue

100 520

105 515 Tan DOLOMITE, trace blue/gray

110 510 Blue/gray DOLOMITE

115 505 Tan DOLOMITE, trace blue/gray

120 500

125 495

130 490 Tan DOLOMITE, cherty

135 485

140 480 Gray DOLOMITE, trace chert and quartz

145 475

150 470

155 465

160 460

165 455

170 450

175 445

180

End of boring at 177 feet.

Bentonite Grout

Riser
2" Sch 80 PVC

Bentonite Chips

Fine Sand

Filter Sand

Screen, 0.010 slot
2" Sch 80 PVC

GEOLOGIC LOG OF T06S

(Page 1 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.15

Date Started : 02/10/2012
Date Well Set : 02/13/2012
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 175.0 feet
Well Bottom Depth : 173.0 feet
Surface Elev. : 618.58 feet above MSL
TOC Elev. : 620.94 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757090.355
Coordinate E : 1047415.925
Logged By : A. Jakubowski

Depth
in
Feet

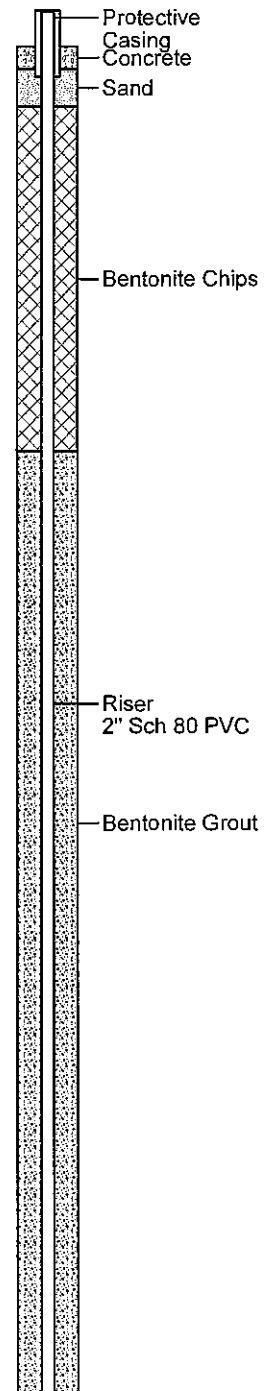
Surf.
Elev.
618.58

DESCRIPTION

% RQD

% Recovery

Well Diagram: T06S



Unconsolidated overburden blind-drilled.

Bedrock at 47 feet

Light brown DOLOMITE

Light gray/white DOLOMITE, trace light brown

Tan DOLOMITE, trace light brown

Light gray DOLOMITE, trace tan

Light blue/green DOLOMITE

Dark blue/green DOLOMITE, trace tan, quartz and pyrite

Pink and blue/green DOLOMITE

Brown with blue/green DOLOMITE, trace pink

GEOLOGIC LOG OF T06S

(Page 2 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.15

Date Started : 02/10/2012
Date Well Set : 02/13/2012
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 175.0 feet
Well Bottom Depth : 173.0 feet
Surface Elev. : 618.58 feet above MSL
TOC Elev. : 620.94 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757090.355
Coordinate E : 1047415.925
Logged By : A. Jakubowski

Depth
in
Feet

Surf.
Elev.
618.58

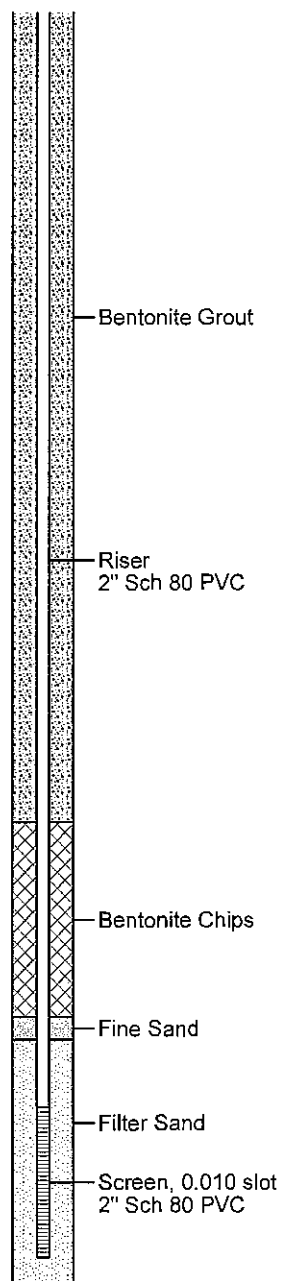
DESCRIPTION

% RQD

% Recovery

Well Diagram: T06S

90	528	Pink with white/light gray DOLOMITE
95	523	Blue/green DOLOMITE, some pink, trace tan/brown
100	518	Blue/green DOLOMITE, trace tan
105	513	Blue/green DOLOMITE, some pink, trace tan
110	508	Light pink DOLOMITE, some tan, trace chert and blue/green
115	503	Light tan DOLOMITE, trace blue/green
120	498	Tan DOLOMITE, some blue/green
125	493	
130	488	- less blue/green
135	483	
140	478	Light tan DOLOMITE, cherty, trace pyrite
145	473	
150	468	Green/blue DOLOMITE, some tan
155	463	Green/blue DOLOMITE, trace tan and chert
160	458	- no chert
165	453	Dark gray DOLOMITE
170	448	Dark gray DOLOMITE, trace pyrite
175	443	End of boring at 175 feet.



GEOLOGIC LOG OF T07S

(Page 1 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.15

Date Started : 02/14/2012
Date Well Set : 02/16/2012
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 180.0 feet
Well Bottom Depth : 178.0 feet
Surface Elev. : 623.98 feet above MSL
TOC Elev. : 626.20 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1756776.672
Coordinate E : 1047262.579
Logged By : A. Jakubowski

Depth
in
Feet

Surf.
Elev.
623.98

DESCRIPTION

% RQD

% Recovery

Well Diagram: T07S

0 623
5 618
10 613
15 608
20 603
25 598
30 593
35 588
40 583
45 578
50 573
55 568
60 563
65 558
70 553
75 548
80 543
85 538
90 533
95

Unconsolidated overburden blind-drilled.

Bedrock at 55 feet

Light tan DOLOMITE, trace brown

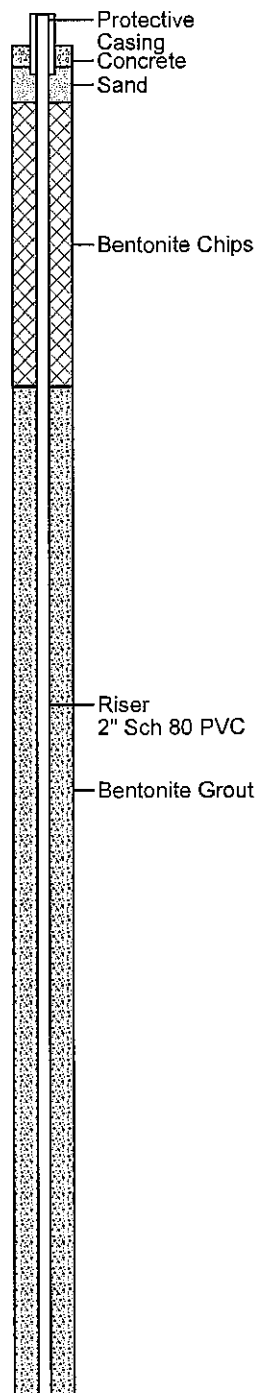
Light tan and white DOLOMITE

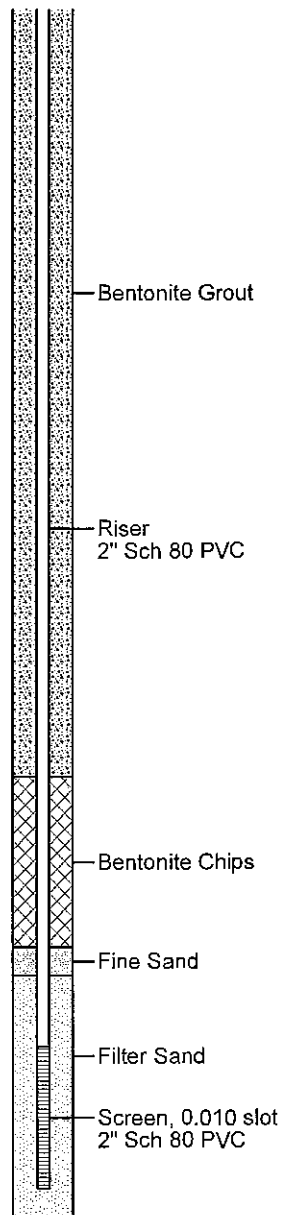
Tan DOLOMITE, trace pyrite

- increase pyrite

Blue/green DOLOMITE, some light tan

Pink and tan DOLOMITE, some blue/green, trace white



 ENVIRONMENTAL CONSULTATION & REMEDIATION K&P&G and Associates, Inc.		GEOLOGIC LOG OF T07S (Page 2 of 2)		Total Boring Depth : 180.0 feet Well Bottom Depth : 178.0 feet Surface Elev. : 623.98 feet above MSL TOC Elev. : 626.20 feet above MSL Groundwater Elev. : Not measured Riser Material : 2" Sch 80 PVC Screen Material : 2" Sch 80 PVC, 0.010 slot Coordinate N : 1756776.672 Coordinate E : 1047262.579 Logged By : A. Jakubowski	
Midwest Generation, LLC Lincoln Stone Quarry Joliet, Illinois Project No. 11306.15		Date Started : 02/14/2012 Date Well Set : 02/16/2012 Coring Tools : Not cored Drilling Tools : 4.75 Air Hammer Drill Rig : Atlas Copco TH60 Driller Name/Co : D. Jones / Layne			
Depth in Feet	Surf. Elev. 623.98	DESCRIPTION	% RQD	% Recovery	Well Diagram: T07S
95	528	Light tan and blue/green DOLOMITE, trace pink and white			
100	523	Pink DOLOMITE, trace tan and blue/green			
105	518	Light tan DOLOMITE, some brown, trace blue/green			
110	513	Tan DOLOMITE, trace blue/green			
115	508				
120	503	Gray DOLOMITE, some blue/green			
125	498	Tan DOLOMITE, trace blue/green			
130	493				
135	488	- trace chert			
140	483	- no chert			
145	478	Tan DOLOMITE, cherty			
150	473	Brown and tan DOLOMITE, some chert, trace pyrite			
155	468	- no pyrite			
160	463	Dark and medium gray DOLOMITE			
165	458	- some chert, trace pyrite			
170	453	Dark gray DOLOMITE			
175	448	- trace pyrite			
180	443	End of boring at 180 feet			
185	438				
190					

GEOLOGIC LOG OF T08S

(Page 1 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.15

Date Started : 02/01/2012
Date Well Set : 02/06/2012
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 181.0 feet
Well Bottom Depth : 180.0 feet
Surface Elev. : 625.00 feet above MSL
TOC Elev. : 627.38 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1756815.956
Coordinate E : 1047687.785
Logged By : K. VanAllen

Depth
in
Feet

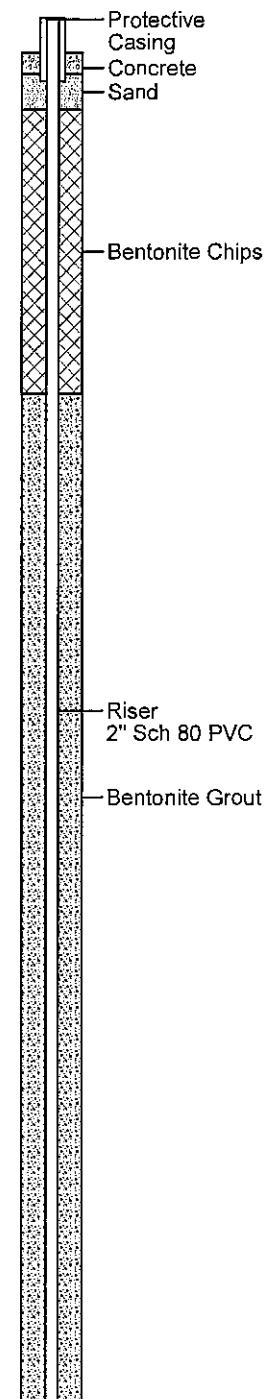
Surf.
Elev.
625.00

DESCRIPTION

% RQD

% Recovery

Well Diagram: T08S



Unconsolidated overburden blind-drilled.

Bedrock at 56.5 feet.

Tan and light gray DOLOMITE, trace brown

Light gray DOLOMITE

- trace medium gray dolomite

Blue/green, pink, and light gray DOLOMITE

GEOLOGIC LOG OF T08S

(Page 2 of 2)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 11306.15

Date Started : 02/01/2012
Date Well Set : 02/06/2012
Coring Tools : Not cored
Drilling Tools : 4.75 Air Hammer
Drill Rig : Atlas Copco TH60
Driller Name/Co : D. Jones / Layne

Total Boring Depth : 181.0 feet
Well Bottom Depth : 180.0 feet
Surface Elev. : 625.00 feet above MSL
TOC Elev. : 627.38 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1756815.956
Coordinate E : 1047687.785
Logged By : K. VanAllen

Depth
in
Feet

Surf.
Elev.
625.00

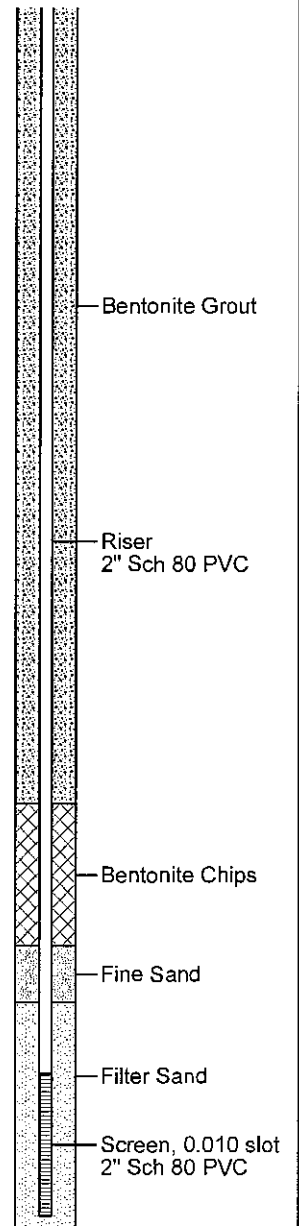
DESCRIPTION

% RQD

% Recovery

Well Diagram: T08S

95	530	Reddish brown DOLOMITE, trace green/gray
100	525	Dark pink/gray DOLOMITE, trace blue/gray
105	520	
110	515	Blue/green DOLOMITE, trace dark pink/gray
115	510	Light gray/pink DOLOMITE
120	505	
125	500	Light pink/gray-tan DOLOMITE, trace green/gray
130	495	Blue/green DOLOMITE, trace light pink/gray
135	490	Light pink/gray-tan DOLOMITE
140	485	- occasional white chert
145	480	Tan DOLOMITE, some chert
150	475	- trace white chert
155	470	Tan and gray/green DOLOMITE, some chert
160	465	- no chert
165	460	Light gray DOLOMITE
170	455	Medium gray and white DOLOMITE
175	450	Light blue/green and white DOLOMITE
180	445	- less white dolomite
		End of boring at 181 feet



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KPRG and Associates, Inc.

GEOLOGIC LOG OF T09S

(Page 1 of 4)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/18/2013
Date Well Set : 10/24/2013
Coring Tools : NQ Double Wall 10' Barrel
Drilling Tools : 6" Air Hammer
Drill Rig : Mobile B61/Gus Pech
Driller Name/Co : D. Mahurin/D. Jones/ Layne

Total Boring Depth : 158.0 feet
Well Bottom Depth : 155.7 feet
Surface Elev. : 600.70 feet above MSL
TOC Elev. : 603.39 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757070.03
Coordinate E : 1046676.53
Logged By : C. Higgins

Depth in Feet	Surf. Elev. 600.7	DESCRIPTION	% RQD	% Recovery	Well Diagram: T09S TOC Elev: 603.39
0	601	Brown SILTY SAND, fine grained, dense, dry, few rootlets, trace clay	NA	47	Protective Casing Concrete Sand
5	596	Brown and gray, fine GRAVEL with trace silt and clay, loose, dry, Dark brown SANDY SILT, light brown mottling, fine grained, trace clay, dry - 6-8 mottling, iron stain	NA	100	
10	591	- 9.5 brown silt seam, dry Brown SILTY CLAY, some fine to coarse sand, slightly moist	NA	100	Bentonite Chips
15	586	Gray SILTY CLAY, trace fine sand, moist Gray CLAY, trace silt and fine sand, slightly moist, very stiff	NA	70	
20	581	Brown SILTY CLAY, trace fine sand, moderately dense, slightly moist Brown CLAYEY SAND, fine grained, dense, moist Light brown fine SAND, slightly moist, dense Brown fine SAND, well sorted, moist, loose Brown SANDY SILT, fine to coarse, dolomite gravel and cobbles, very moist	NA	100	Riser 2" Sch 80 PVC
25	576	Brown CLAY with fine to coarse sand, fine gravel, wet, very soft White DOLOMITE, tan hue, pits, chert nodules - 27-28 vert frac	NA	42	
30	571	White DOLOMITE, tan hue, pits (decrease downwards) - Iron stain in horiz frac	NA	86	Bentonite Grout
35	566	White DOLOMITE, tan hue, few pits			
40	561	- 40-45 blue/gray hue, few white chert nodules - 41-45 iron stain - gray/blue clay infill in horiz frac, trace vugs	97	100	
45					

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF T09S

(Page 2 of 4)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/18/2013
 Date Well Set : 10/22/2013
 Coring Tools : NQ Double Wall 10' Barrel
 Drilling Tools : 6" Air Hammer
 Drill Rig : Mobile B81/Gus Pech
 Driller Name/Co : D. Mahurin/D. Jones/ Layne

Total Boring Depth : 158.0 feet
 Well Bottom Depth : 155.7 feet
 Surface Elev. : 600.70 feet above MSL
 TOC Elev. : 603.39 feet above MSL
 Groundwater Elev. : Not measured
 Riser Material : 2" Sch 80 PVC
 Screen Material : 2" Sch 80 PVC, 0.010 slot
 Coordinate N : 1757070.03
 Coordinate E : 1046678.53
 Logged By : C. Higgins

Depth in Feet	Surf. Elev. 600.7	DESCRIPTION	% RQD	% Recovery	Well Diagram: T09S TOC Elev: 603.39
45	556	White DOLOMITE, light blue hue - 45-47 iron stain, vert frac, pits - 47-50 cherty - trace clay infill in frac			
50	551		95	99	
55	546	Tan DOLOMITE, faint pink and green/blue mottling, trace pits, trace black chert			
60	541	Tan DOLOMITE, pink/green hue, trace vugs - 61-65 gray clay in frac	92	100	
65	536	Tan DOLOMITE, green hue, trace pits, gray clay in horiz frac			
70	531	- 74-75 pyrite in vert frac	81	100	
75	526	White DOLOMITE, tan/green hue, clay and fine sand in horiz frac, few pits			
80	521	- 82-85 pyrite in horiz frac	93	100	
85	516	Tan DOLOMITE, vuggy, light gray clay in horiz frac Tan DOLOMITE, trace purple vugs	93	100	
90					

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF T09S

(Page 3 of 4)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/18/2013
Date Well Set : 10/22/2013
Coring Tools : NQ Double Wall 10' Barrel
Drilling Tools : 6" Air Hammer
Drill Rig : Mobile B61/Gus Pech
Driller Name/Co : D. Mahurin/D. Jones/ Layne

Total Boring Depth : 158.0 feet
Well Bottom Depth : 155.7 feet
Surface Elev. : 600.70 feet above MSL
TOC Elev. : 603.39 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757070.03
Coordinate E : 1046676.53
Logged By : C. Higgins

Depth in Feet	Surf. Elev. 600.7	DESCRIPTION	% RQD	% Recovery	Well Diagram: T09S TOC Elev: 603.39
90	511	Tan DOLOMITE, trace purple vugs - vert frac infill with clay and silt	93	100	
95	506	Tan/green DOLOMITE, vuggy - 95-97 bands of vugs/solution cavity - green clay infill of horiz frac			
100	501		94	97	
105	496	Tan DOLOMITE, green hue, vuggy - 105-106 gray/white clay and silt infill in horiz frac			
110	491	- 110-112 1" vuggy bands	97	99	
115	486	Tan DOLOMITE, green hue - 117 vugs with remineralization			
120	481	- 120-122 few chert nodules throughout wavy, horiz frac	96	100	
125	476	Tan/gray DOLOMITE, with blue/green, vuggy, chert nodules, pyrite in vugs			
130	471	- 133.5 iron stain in frac	98	98	
135					

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ENVIRONMENTAL CONSULTATION & REMEDIATION

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GEOLOGIC LOG OF T09S

(Page 4 of 4)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/18/2013
Date Well Set : 10/22/2013
Coring Tools : NQ Double Wall 10' Barrel
Drilling Tools : 6" Air Hammer
Drill Rig : Mobile B61/Gus Pech
Driller Name/Co : D. Mahurin/D. Jones/ Layne

Total Boring Depth : 158.0 feet
Well Bottom Depth : 155.7 feet
Surface Elev. : 600.70 feet above MSL
TOC Elev. : 603.39 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757070.03
Coordinate E : 1046676.53
Logged By : C. Higgins

Depth in Feet	Surf. Elev. 600.7	DESCRIPTION	% RQD	% Recovery	Well Diagram: T09S TOC Elev: 603.39
135	466	Tan DOLOMITE, green mottling, white chert nodules - clay and silt infill in horiz frac			
140	461	- 138.5-141 vert frac, tight, filled with green clay and silt - 141-145 few fossils (endocrinus, et. al)	97	100	
145	456	Tan/green DOLOMITE, few purple vugs, some fossil layers			
150	451	Gray DOLOMITE, some dark gray, few purple vugs, fossil layers -150 dark gray clay and fine white sand fill in horiz frac, white chert nodules	95	97	
155	446	Tan DOLOMITE, gray hue and dark gray banding, chert nodules, few purple vugs, trace fossils	100	100	
160	441	End of boring at 158 feet			
165	436				
170	431				
175	426				
180					

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GEOLOGIC LOG OF T10S

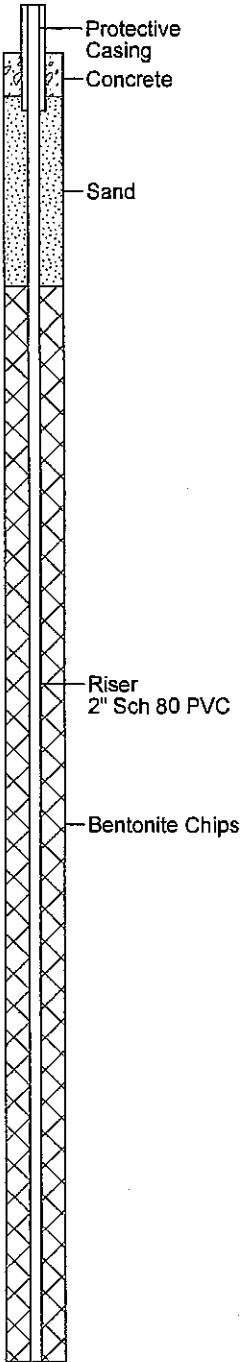
(Page 1 of 4)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/21/2013
Date Well Set : 10/29/2013
Coring Tools : NQ Double Wall 10' Barrel
Drilling Tools : 6" Air Hammer
Drill Rig : Mobile B61/Gus Pech
Driller Name/Co : D. Mahurin/D. Jones/Layne

Total Boring Depth : 170.0 feet
Well Bottom Depth : 189.0 feet
Surface Elev. : 614.61 feet above MSL
TOC Elev. : 617.10 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1755962.63
Coordinate E : 1047391.39
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 614.61	DESCRIPTION	% RQD	% Recovery	Well Diagram: T10S TOC Elev: 617.10 
0	615	Brown SILTY CLAY, sand and gravel, moist, concrete pieces		20	
5	610	Black SILTY CLAY, soft, organic odor, slightly moist		60	
10	605	Green/gray SILTY CLAY, soft, organic odor, slightly moist - brown and gray mottling - 9.5-10.5 gravel/cobble - organics, rust stain		100	
15	600	Brown SILTY CLAY, moist, wet silt seams		100	
		Dark green SILTY CLAY, moist, wet silt seams			
		Green SILTY CLAY, moist, wet silt seams			
20	595	Green/brown SILTY CLAY, moist, wet silt seams		80	
		Gray CLAY, trace medium sand - some mottling, rust			
		Brown SAND, fine to medium silty sand, beach, slightly moist			
25	590	Brown/gray SILT, layered and cross-bedded, slightly moist		70	
		Brown, fine to medium SILTY SAND, slightly moist			
		- coarser sand			
30	585	- coarse sand - gray at 34'		60	
35	580	Dark gray CLAYEY SILT, very coarse gravel, moist		60	
		Dark gray clayey silt and light gray silt banded and cross-bedded			
		Light gray SILT, moist			
40	575	Gray SILT, moist - occasional band of clay			
45					

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF T10S

(Page 2 of 4)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/21/2013
Date Well Set : 10/29/2013
Coring Tools : NQ Double Wall 10' Barrel
Drilling Tools : 6" Air Hammer
Drill Rig : Mobile B61/Gus Pech
Driller Name/Co : D. Mahurin/D. Jones/Layne

Total Boring Depth : 170.0 feet
Well Bottom Depth : 169.0 feet
Surface Elev. : 614.61 feet above MSL
TOC Elev. : 617.10 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1755962.63
Coordinate E : 1047391.39
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 614.61	DESCRIPTION	% RQD	% Recovery	Well Diagram: T10S TOC Elev: 617.10
45	570	Gray SILT - sandy seam, wet - gravel			
50	565	Light gray/green SILT, sand and gravel, some very coarse gravel, wet Tan/light brown DOLOMITE, tight horiz and vert frac, many pits & sm vugs	58		
55	580	White DOLOMITE, many pits, no frac, trace large chert			
60	555	- chert, horiz frac, rust stain	99	100	
65	550	- many horiz frac, very narrow, green filled frac, with pyrite			
70	545	- vert frac, very narrow, pyrite	97	100	
75	540	White DOLOMITE, green hue, trace pink, pits, wavy horiz with green fill, some pits - 60 degree frac, 0.05' wide, clay and dolomite bits infill - 45 deg frac with pyrite - 45 deg frac, 0.02', gree/gray clay filled - 45 deg frac, tight	93	100	
80	535	Greenish gray DOLOMITE, some tan, some pyrite swirl with stain cloud, trace pits White DOLOMITE, green and pink hue, pyrite cloud, trace wavy, horiz frac, trace pits	93	100	
85	530	Pink DOLOMITE, horiz frac, green clay and pyrite			
90		White DOLOMITE, pink and green hue, long vert frac, tight, pits, trace vugs	100	100	

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF T10S

(Page 3 of 4)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/21/2013
Date Well Set : 10/29/2013
Coring Tools : NQ Double Wall 10' Barrel
Drilling Tools : 6" Air Hammer
Drill Rig : Mobile B61/Gus Pech
Driller Name/Co : D. Mahurin/D. Jones/Layne

Total Boring Depth : 170.0 feet
Well Bottom Depth : 169.0 feet
Surface Elev. : 614.61 feet above MSL
TOC Elev. : 617.10 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1755982.63
Coordinate E : 1047391.39
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 614.61	DESCRIPTION	% RQD	% Recovery	Well Diagram: T10S TOC Elev: 617.10
90	525	Pink DOLOMITE, green hue, wavy horiz frac, narrow to tight, trace pits			
95	520	White DOLOMITE, light pink hue, pitted, some vugs, some horiz frac with green clay fill, 1.5' long vert frac, tight, pyrite	100	100	
100	515	White DOLOMITE, very light occasional pink hue, pits with small vugs in layers with trace pyrite, wavy horiz frac, tight to narrow with green clay fill			
105	510		93	100	
110	505	Gray DOLOMITE, light pink hue, wavy horiz frac, tight to narrow with green clay fill, pitted layers, trace occasional vugs, pyrite			
115	500	- gray fill in fractures - 3" horiz frac, gray clay filled	94	100	
120	495	- large vug, 2", little pyrite - 2" horiz frac, gray clay filled			
125	490		99	100	
130	485	- 126-128 no pits			
135			99	100	

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ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

GEOLOGIC LOG OF T10S

(Page 4 of 4)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/21/2013
Date Well Set : 10/29/2013
Coring Tools : NQ Double Wall 10' Barrel
Drilling Tools : 6" Air Hammer
Drill Rig : Mobile B61/Gus Pech
Driller Name/Co : D. Mahurin/D. Jones/Layne

Total Boring Depth : 170.0 feet
Well Bottom Depth : 169.0 feet
Surface Elev. : 614.61 feet above MSL
TOC Elev. : 617.10 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1755962.63
Coordinate E : 1047391.39
Logged By : P. Allenstein

Depth in Feet	Surf. Elev. 614.61	DESCRIPTION	% RQD	% Recovery	Well Diagram: T10S TOC Elev: 617.10
135	480	Gray DOLOMITE, cherty, fossils, trace green hue, pitted, some vugs, wavy horiz frac, tight to narrow with green clay fill, layers of pits/vugs	99	100	
140	475	- 0.1 vug whole core width - horiz frac with calcite and pyrite crystals			Bentonite Grout
145	470		95	98	
150	465				Bentonite Chips
155	460	Gray DOLOMITE, some horiz frac, tight to narrow, dark gray clay filled	95	100	
160	455	- vert frac, narrow, pyrite White DOLOMITE, trace green hue, pitted layers, small vugs Dark gray DOLOMITE, dark gray filled, tight to narrow horiz frac, pits, trace large chert			Riser 2" Sch 80 PVC
165	450	- pitted and vuggy layer with fossils - trace pits, trace vugs	99	99	
170	445	End of boring at 170 feet			Fine Sand
175	440				
180					Filter Sand
					Screen, 0.010 slot 2" Sch 80 PVC

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KPRG and Associates, Inc.

GEOLOGIC LOG OF T11S

(Page 1 of 3)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/17/2013
Date Well Set : 10/30/2013
Coring Tools : NQ Double Wall 10' Barrel
Drilling Tools : 6" Air Hammer
Drill Rig : Mobile B81/Gus Pech
Driller Name/Co : D. Mahurin/D. Jones/Layne

Total Boring Depth : 115.0 feet
Well Bottom Depth : 111.0 feet
Surface Elev. : 556.60 feet above MSL
TOC Elev. : 559.36 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757727.76
Coordinate E : 1048697.50
Logged By : C. Higgins

Depth in Feet	Surf. Elev. 556.60	DESCRIPTION	% RQD	% Recovery	Well Diagram: T11S TOC Elev: 559.36
0	557	Brown SILTY CLAY, trace fine to coarse sand, wet Tan DOLOMITE, vuggy, weathered, fractured			
5	552	Tan DOLOMITE, trace vugs, green hue, iron stain in horiz frac	0	67	Protective Casing Concrete Sand
10	547	Tan DOLOMITE, trace green hue, trace pits - vert and horiz frac with clay and fine sand fill			
15	542	- 18.5-19.75 green and red banding - 19.75-20 dark gray laminated shale with clay fill	31	100	Bentonite Chips
20	537	Tan DOLOMITE, green hue/banding, trace chert nodules, few vugs - green clay and fine to medum sand infill of horiz frac			
25	532	- 22-28 vert frac with little displacement, trace fine sand infill, some pits	43	100	Riser 2" Sch 80 PVC
30	527	Tan DOLOMITE, green hue, trace pits, trace micro fossil layers, some iron stain in vugs and fractures			
35	522	- 33.67-40 horiz frac, green and gray clay and fine sand infill	55	100	Bentonite Grout
40	517	Tan DOLOMITE, green hue, green clay in horiz frac - 40-41.5 vert frac	76	100	
45					

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GEOLOGIC LOG OF T11S

(Page 2 of 3)

Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/17/2013
Date Well Set : 10/24/2013
Coring Tools : NQ Double Wall 10' Barrel
Drilling Tools : 6" Air Hammer
Drill Rig : Mobile B61/Gus Pech
Driller Name/Co : D. Mahurin/D. Jones/Layne

Total Boring Depth : 115.0 feet
Well Bottom Depth : 111.0 feet
Surface Elev. : 556.60 feet above MSL
TOC Elev. : 559.36 feet above MSL
Groundwater Elev. : Not measured
Riser Material : 2" Sch 80 PVC
Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757727.76
Coordinate E : 1048697.50
Logged By : C. Higgins

Depth in Feet	Surf. Elev. 556.60	DESCRIPTION	% RQD	% Recovery	Well Diagram: T11S TOC Elev: 559.36
45	512	Tan DOLOMITE, green hue, green clay in horiz frac	76	100	
		- 48-50 few calcite nodules, chert			
50	507	Gray DOLOMITE, green hues, trace micro fossils, green clay and fine sand infill in layers			
55	502		66	100	
60	497	- 57-60 green clay and fine sand infill in layers, vuggy Tan DOLOMITE, green hue, trace to few pits, gray clay in horiz frac			
		- 63 pyrite in vugs			
65	492		82	100	
70	487	Gray DOLOMITE, trace green hue, white calcite layers, gray clay and fine sand in horiz frac and vert frac			
75	482	- 75-77 iron stain, fossils	50	100	
80	477	Tan DOLOMITE, green hue, iron stain, pits, chert nodules, wavy horiz frac, vert frac, filled with green clay and fine sand			
85	472		88	100	
90					

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KPRG and Associates, Inc.

GEOLOGIC LOG OF T11S

(Page 3 of 3)

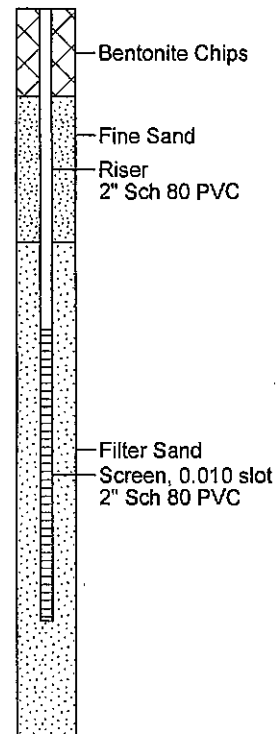
Midwest Generation, LLC
Lincoln Stone Quarry
Joliet, Illinois

Project No. 18713

Date Started : 10/17/2013
Date Well Set : 10/24/2013
Coring Tools : NQ Double Wall 10' Barrel
Drilling Tools : 6" Air Hammer
Drill Rig : Mobile B81/Gus Pech
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Total Boring Depth : 115.0 feet
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Screen Material : 2" Sch 80 PVC, 0.010 slot
Coordinate N : 1757727.76
Coordinate E : 1048697.50
Logged By : C. Higgins

Depth in Feet	Surf. Elev. 556.60	DESCRIPTION	% RQD	% Recovery	Well Diagram: T11S TOC Elev: 559.36
90	467	Gray DOLOMITE, green hue, tan/white chert nodules, few vugs - 92-93 iron stain layers	95	100	
95	462				
100	457	Gray DOLOMITE, tan and green hue, white chert, marbling, few small vugs, green clay and fine sand in horiz frac	97	100	
105	452				
110	447	Gray DOLOMITE, tan and green hue, chert, marbling, few small vugs with trace calcite and pyrite crystals	88	100	
115	442	End of boring at 115 feet			
120	437				
125	432				
130	427				
135					

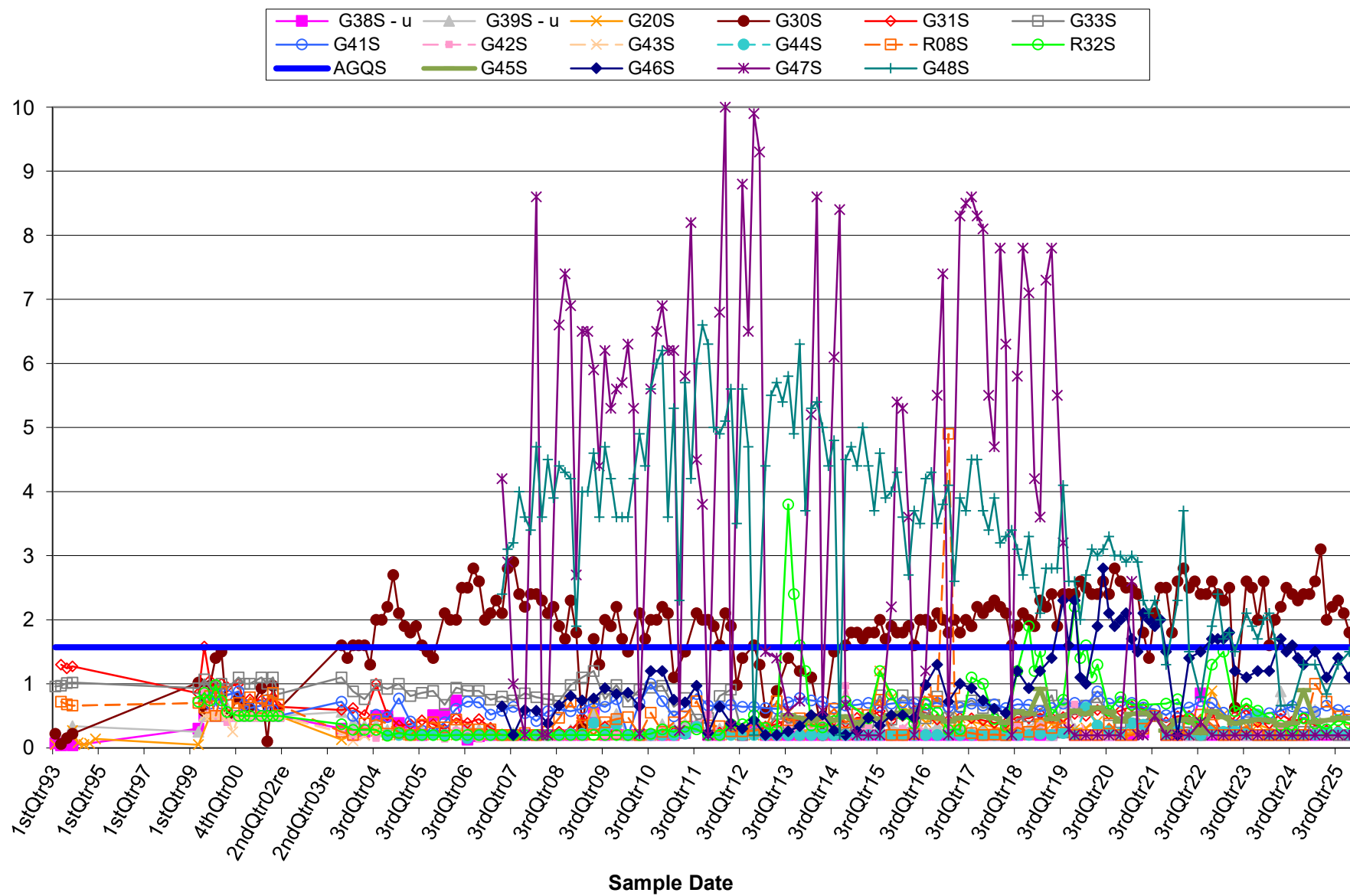


ATTACHMENT 9-2

Time vs Concentration Curves

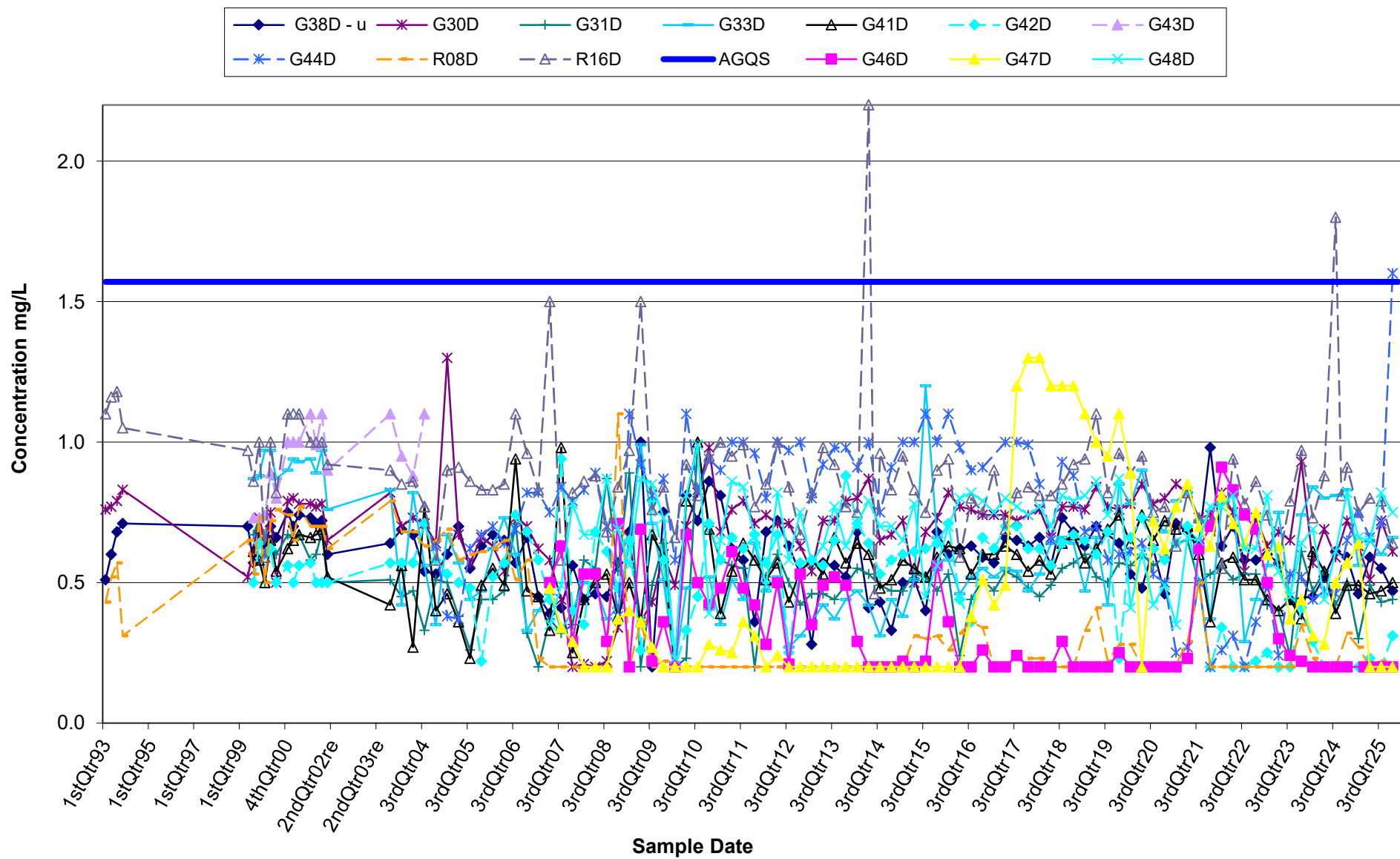
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Dissolved Ammonia vs. Time--Shallow Wells



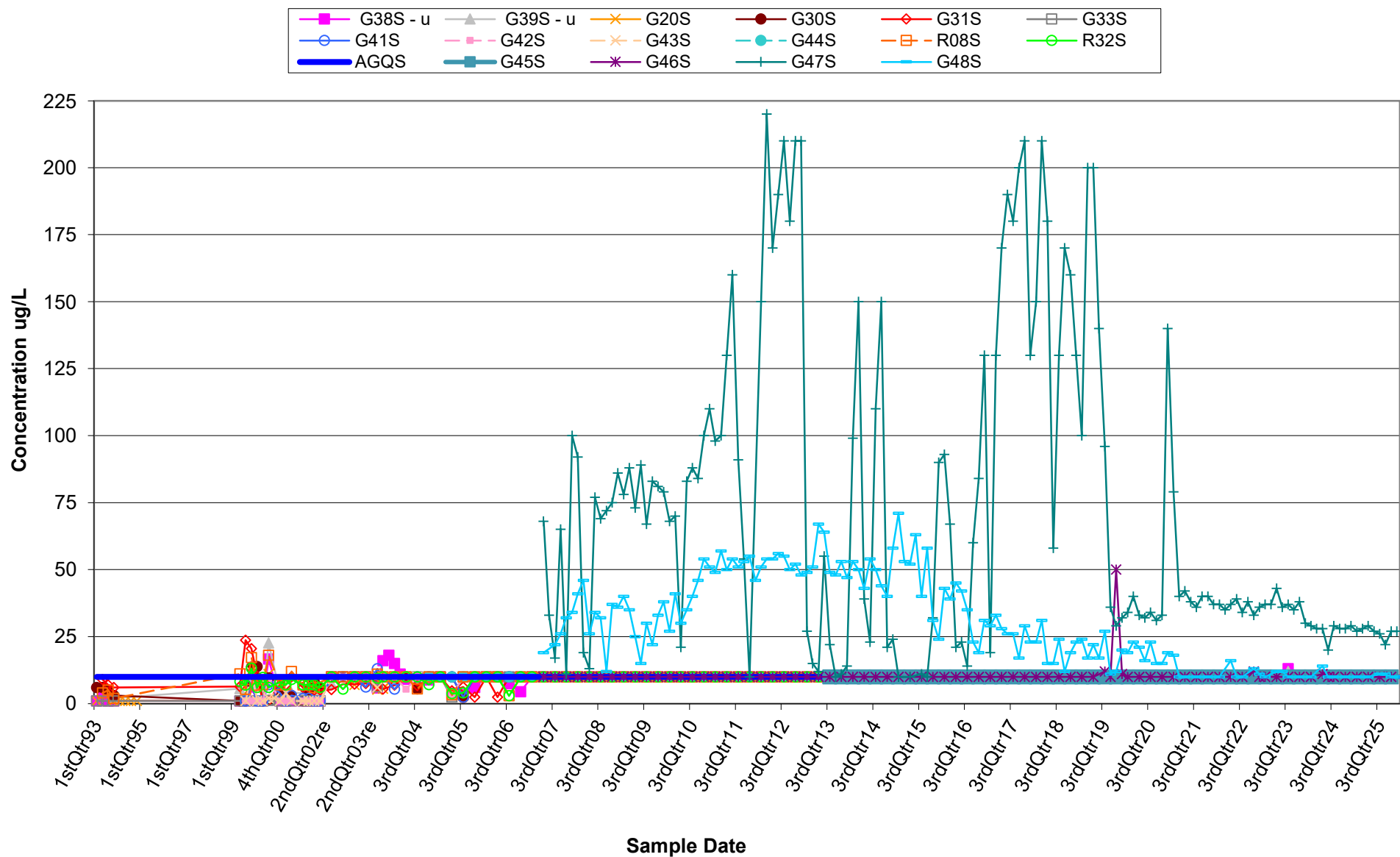
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Dissolved Ammonia vs. Time--Deep Wells



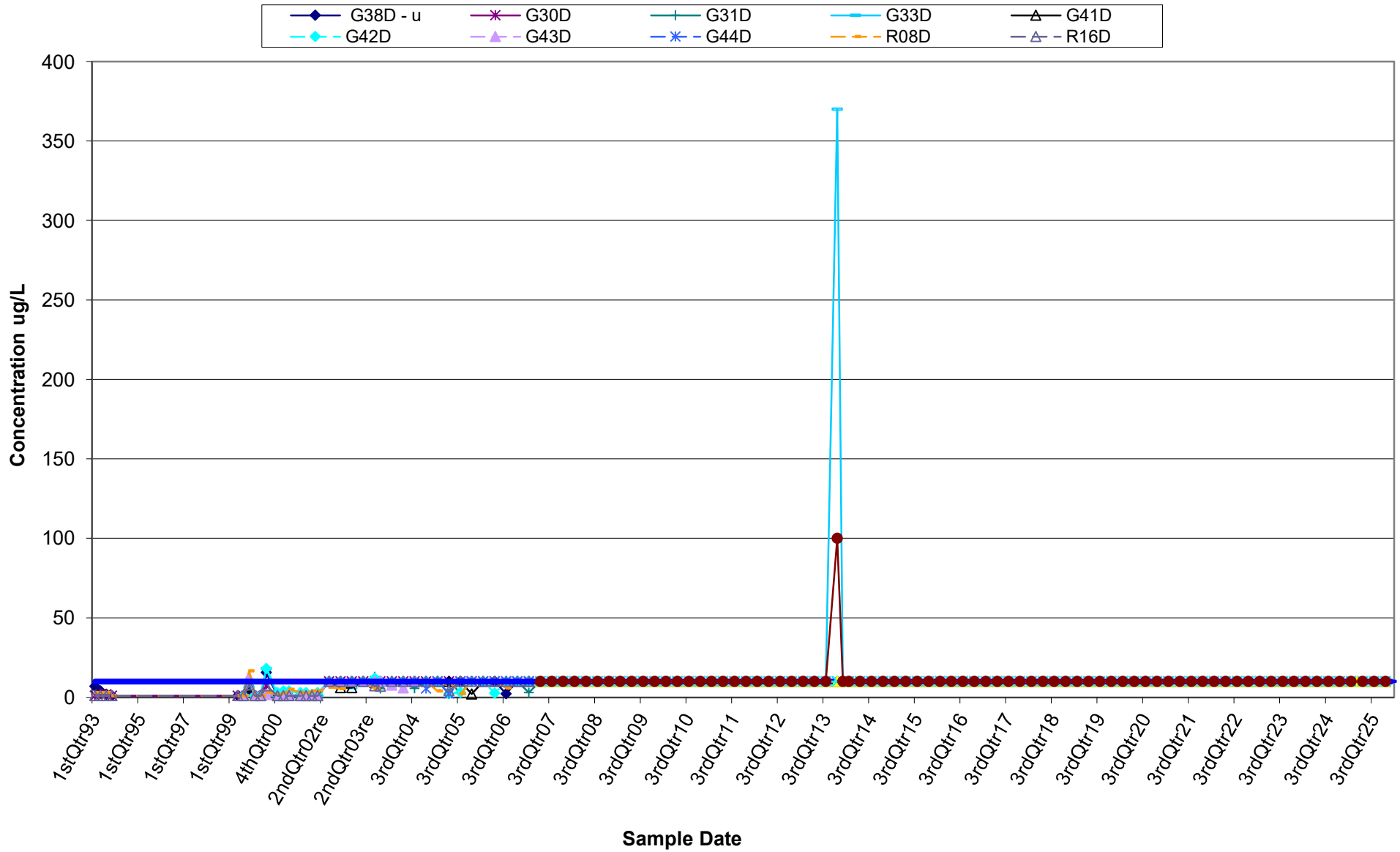
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Dissolved Arsenic vs. Time--Shallow Wells



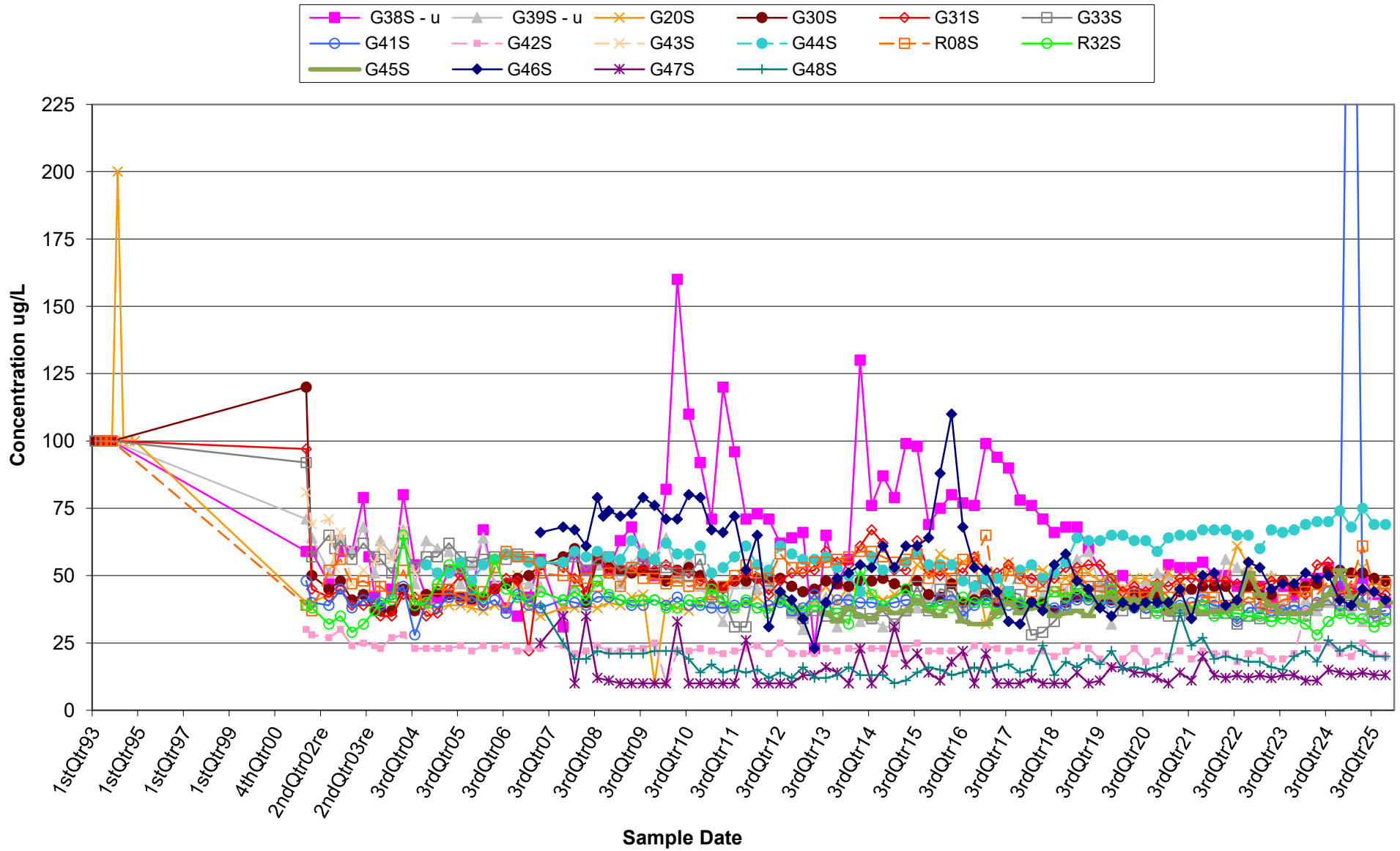
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Dissolved Arsenic vs. Time--Deep Wells



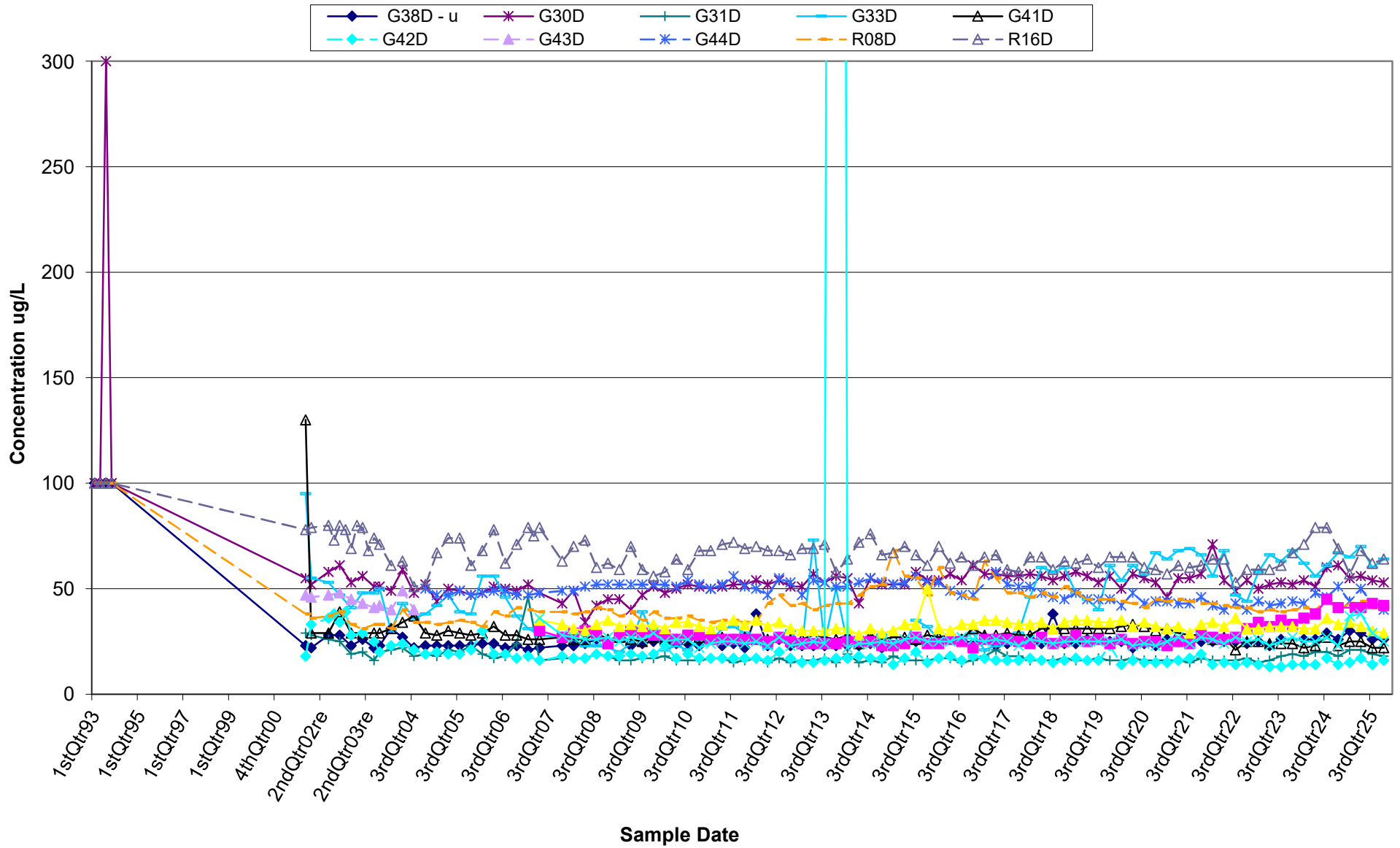
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Dissolved Barium vs. Time--Shallow Wells



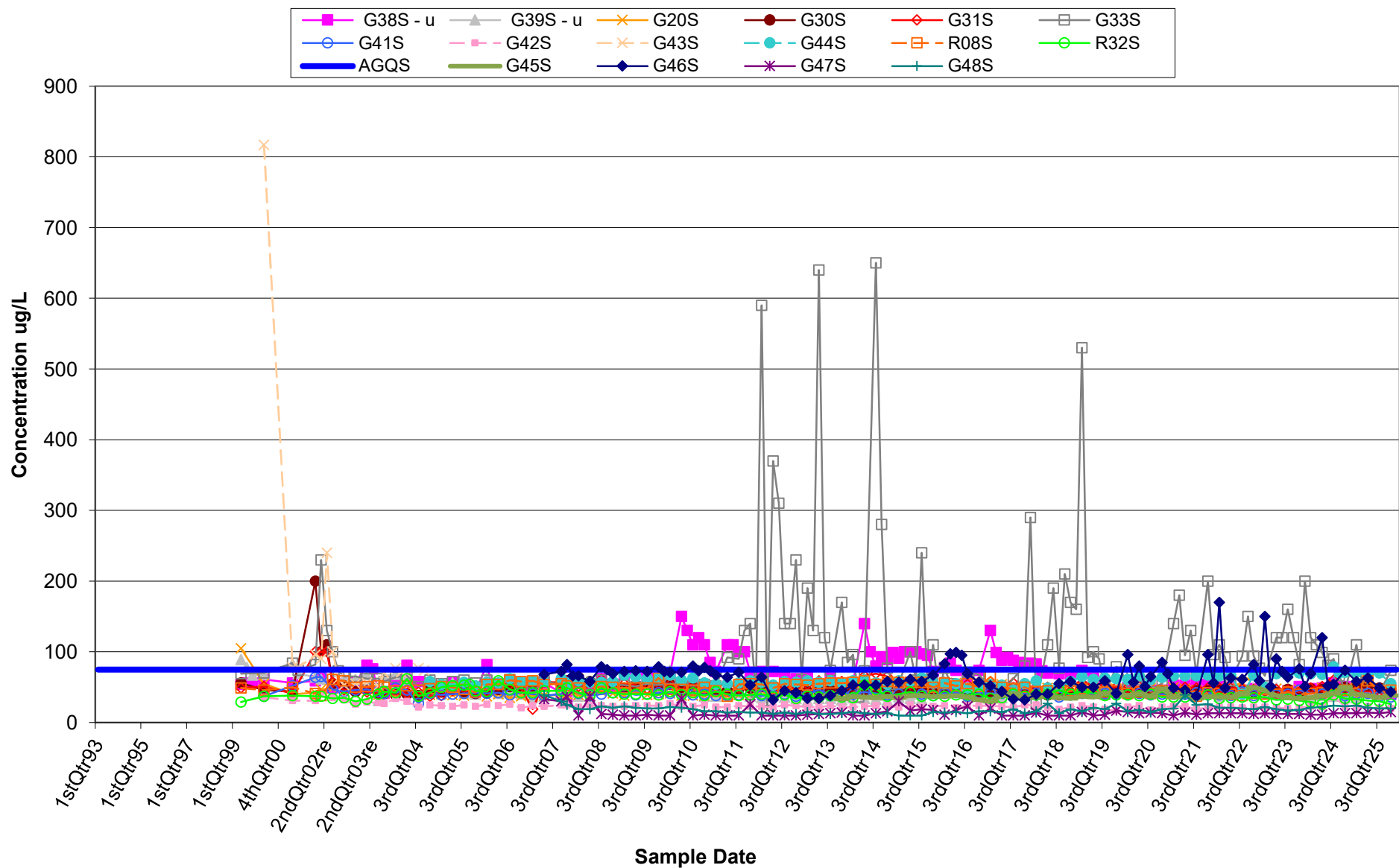
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Dissolved Barium vs. Time--Deep Wells



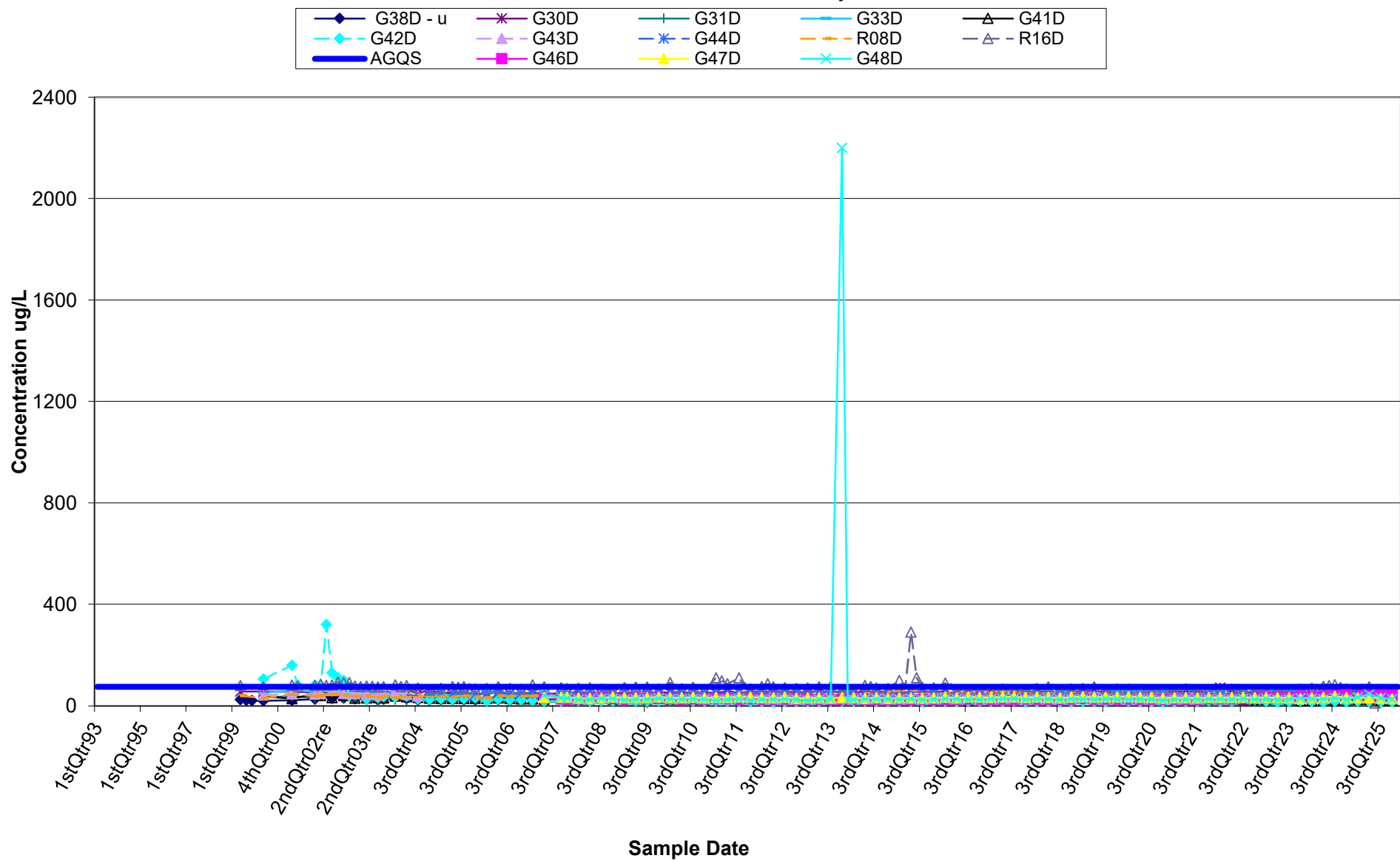
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Total Barium vs. Time--Shallow Wells



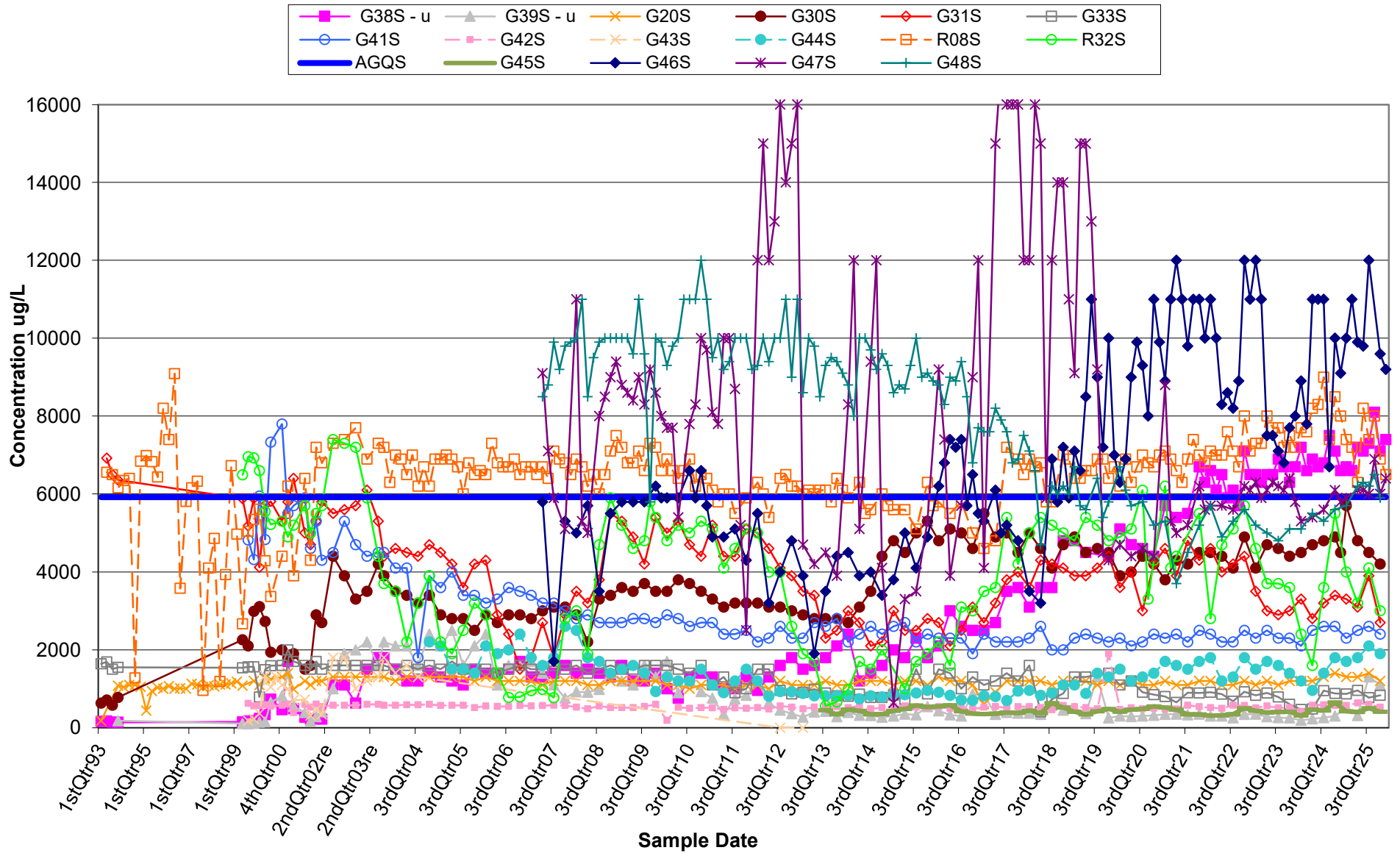
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Total Barium vs. Time--Deep Wells



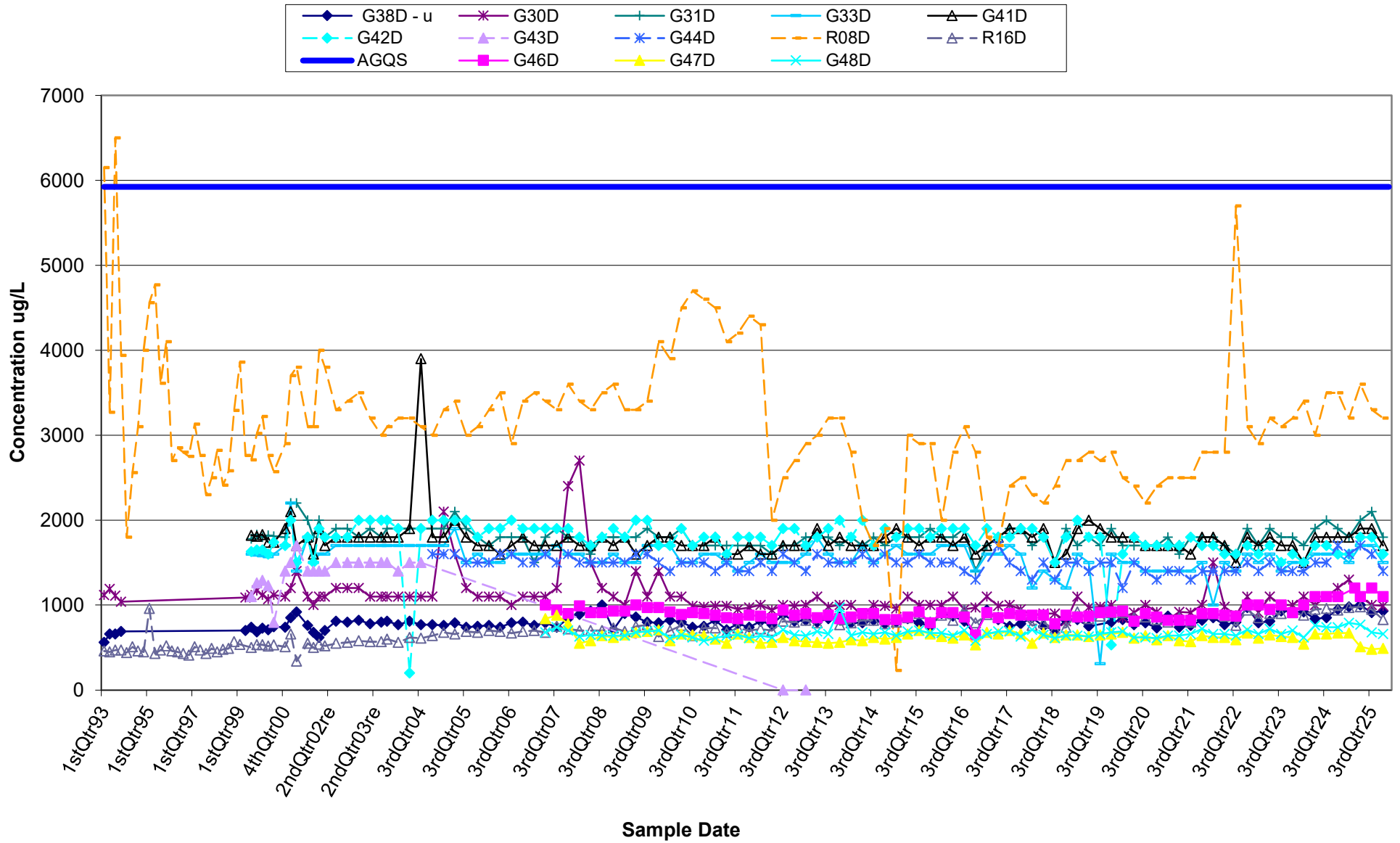
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Dissolved Boron vs. Time--Shallow Wells



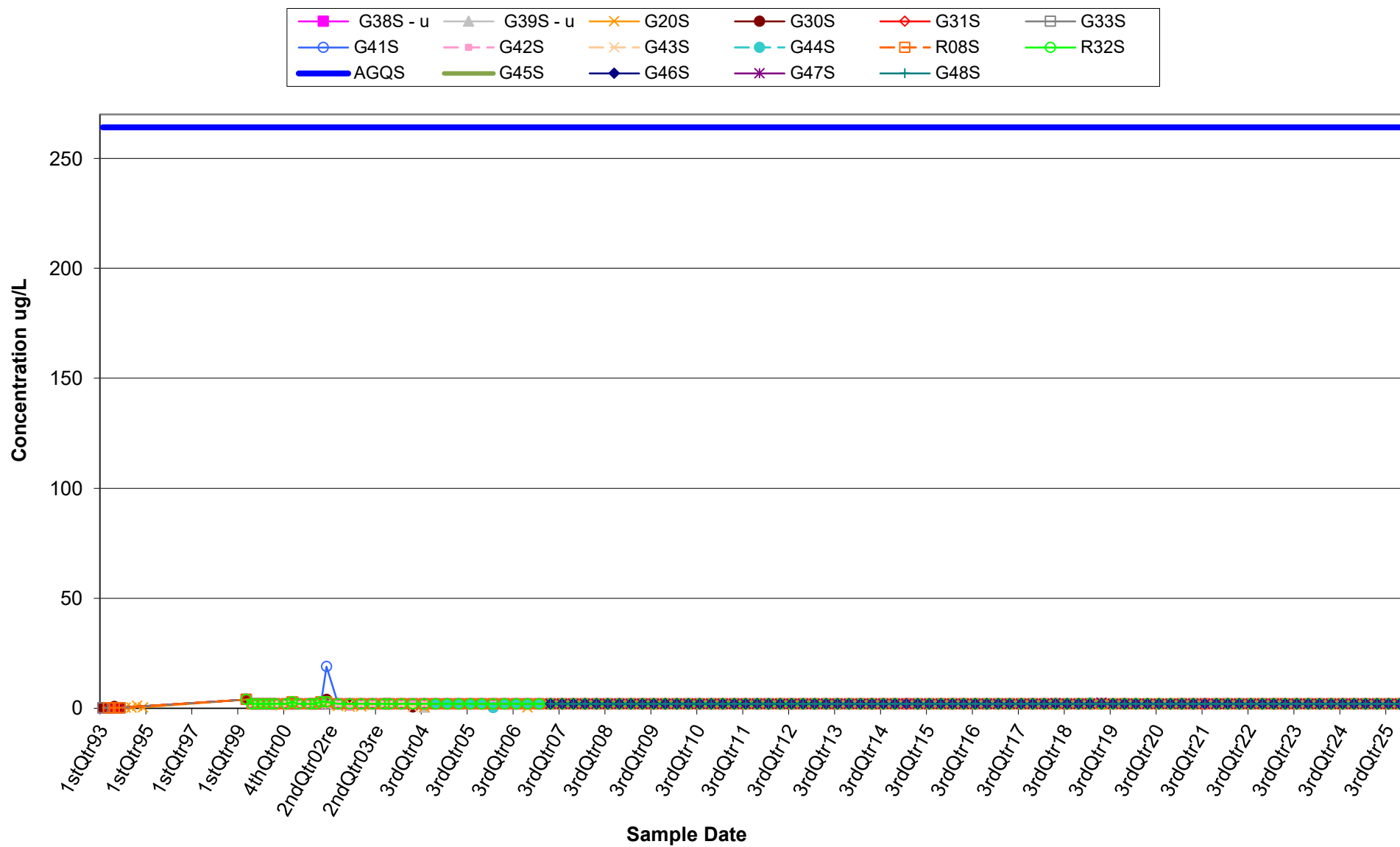
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Dissolved Boron vs. Time--Deep Wells



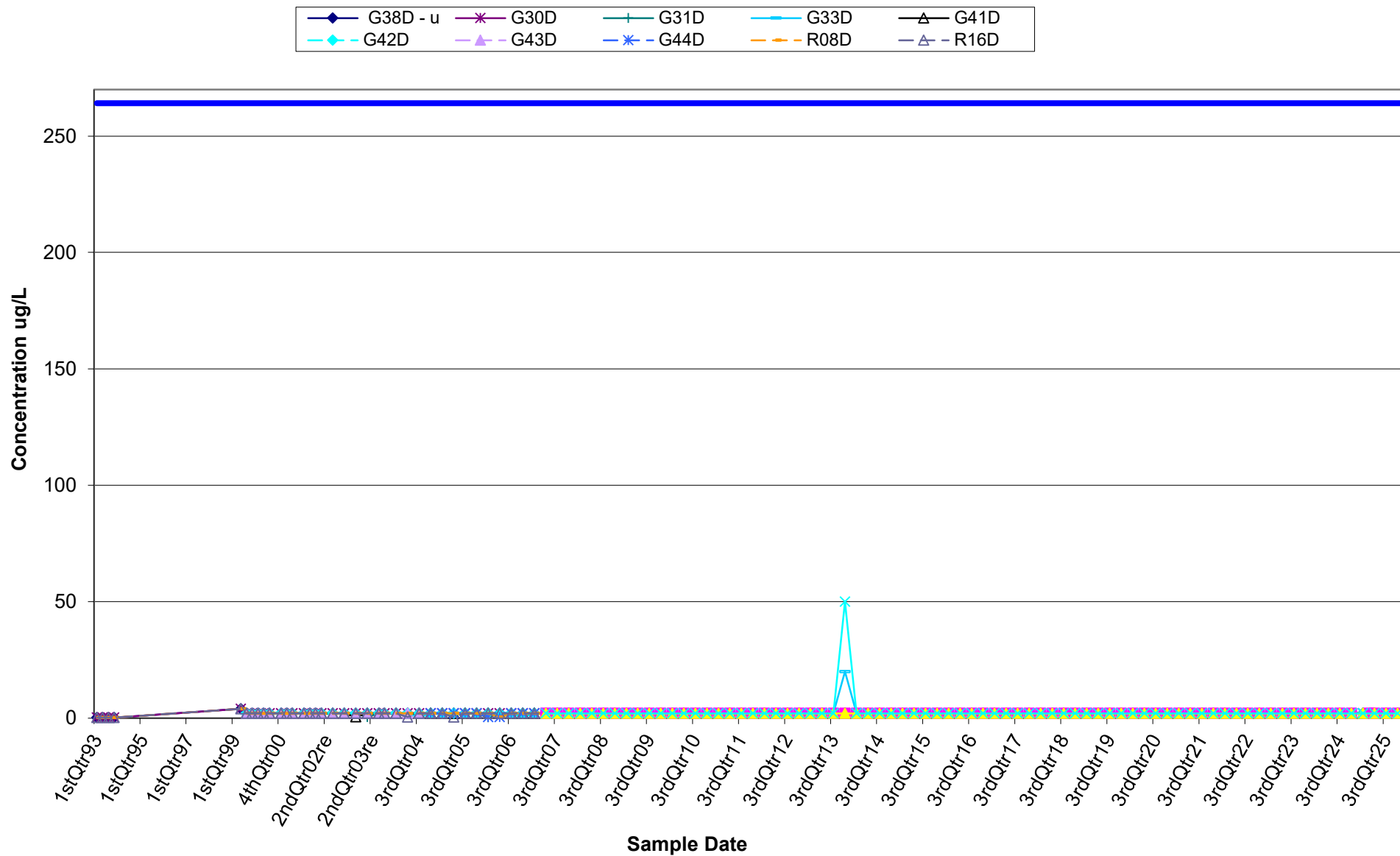
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Dissolved Cadmium vs. Time--Shallow Wells



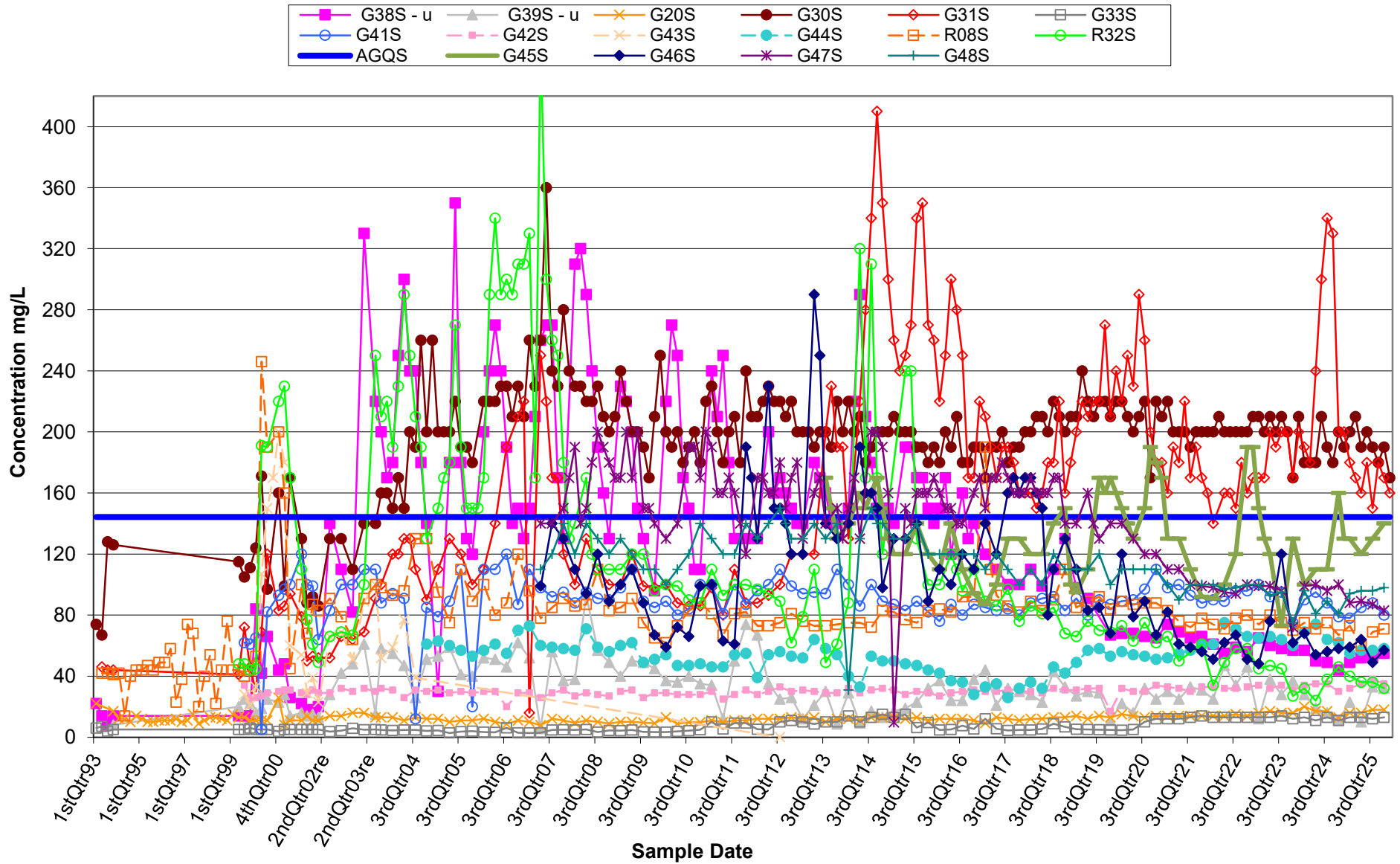
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Dissolved Cadmium vs. Time--Deep Wells



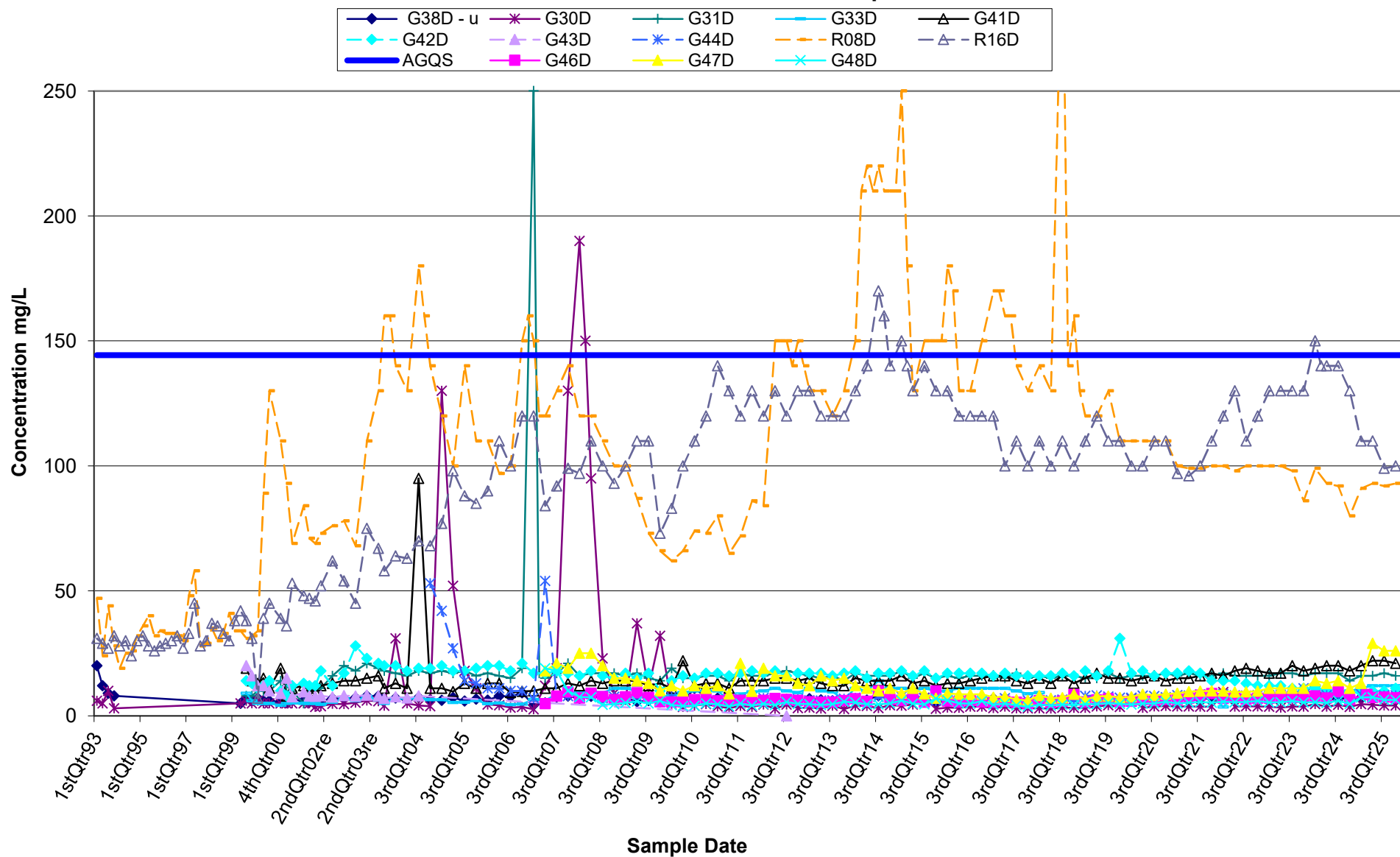
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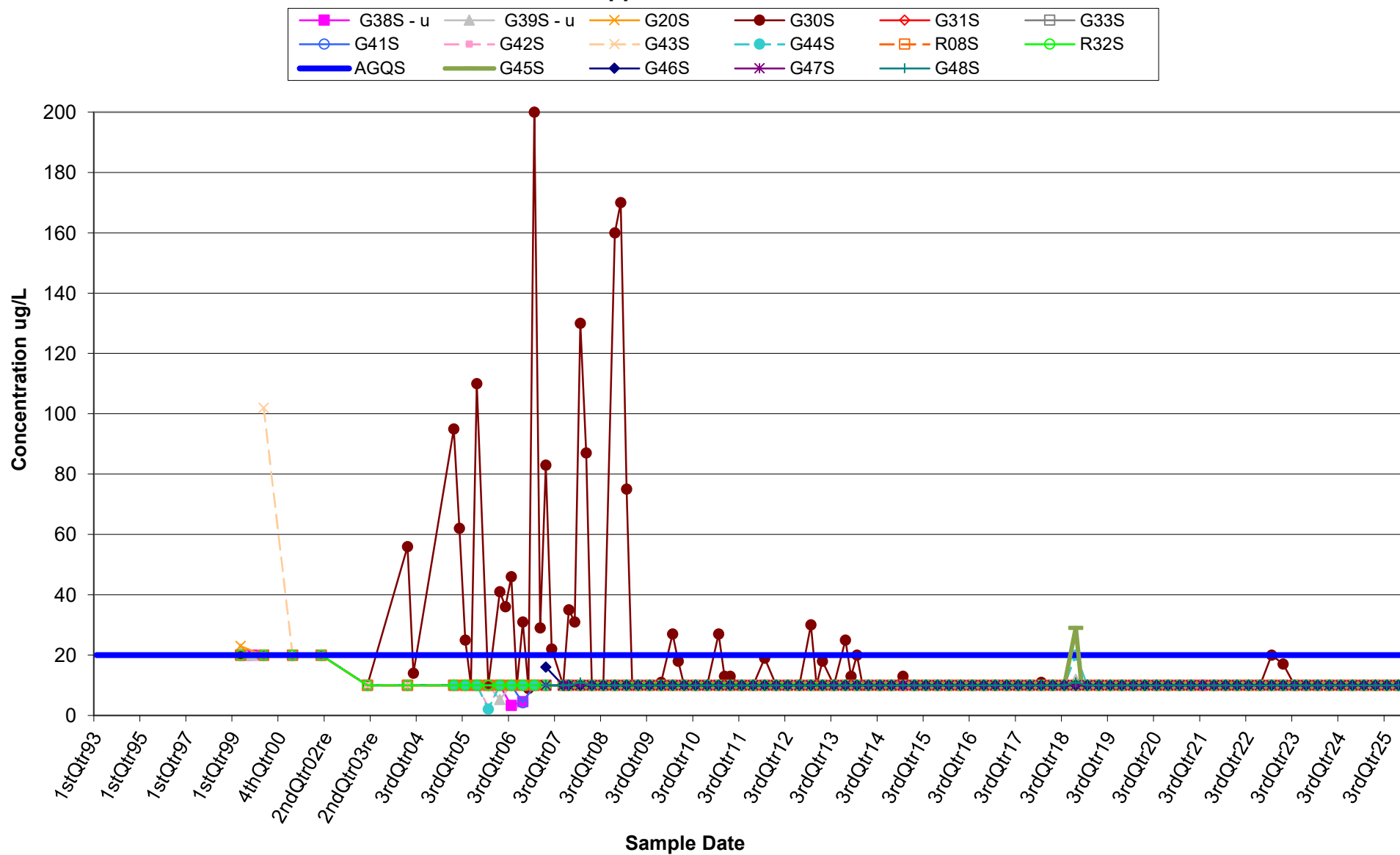
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Dissolved Chloride vs. Time--Deep Wells



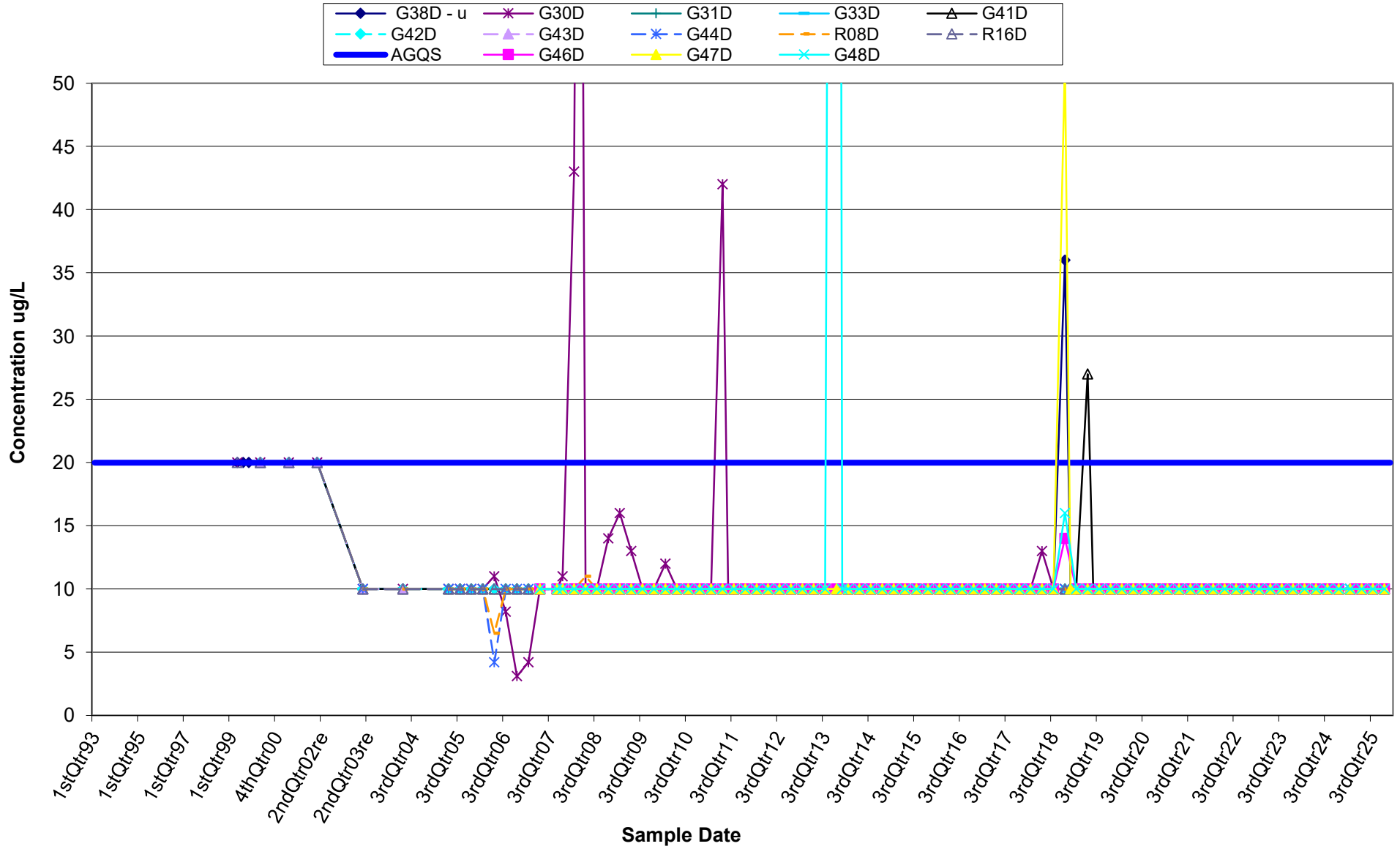
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Total Copper vs. Time--Shallow Wells



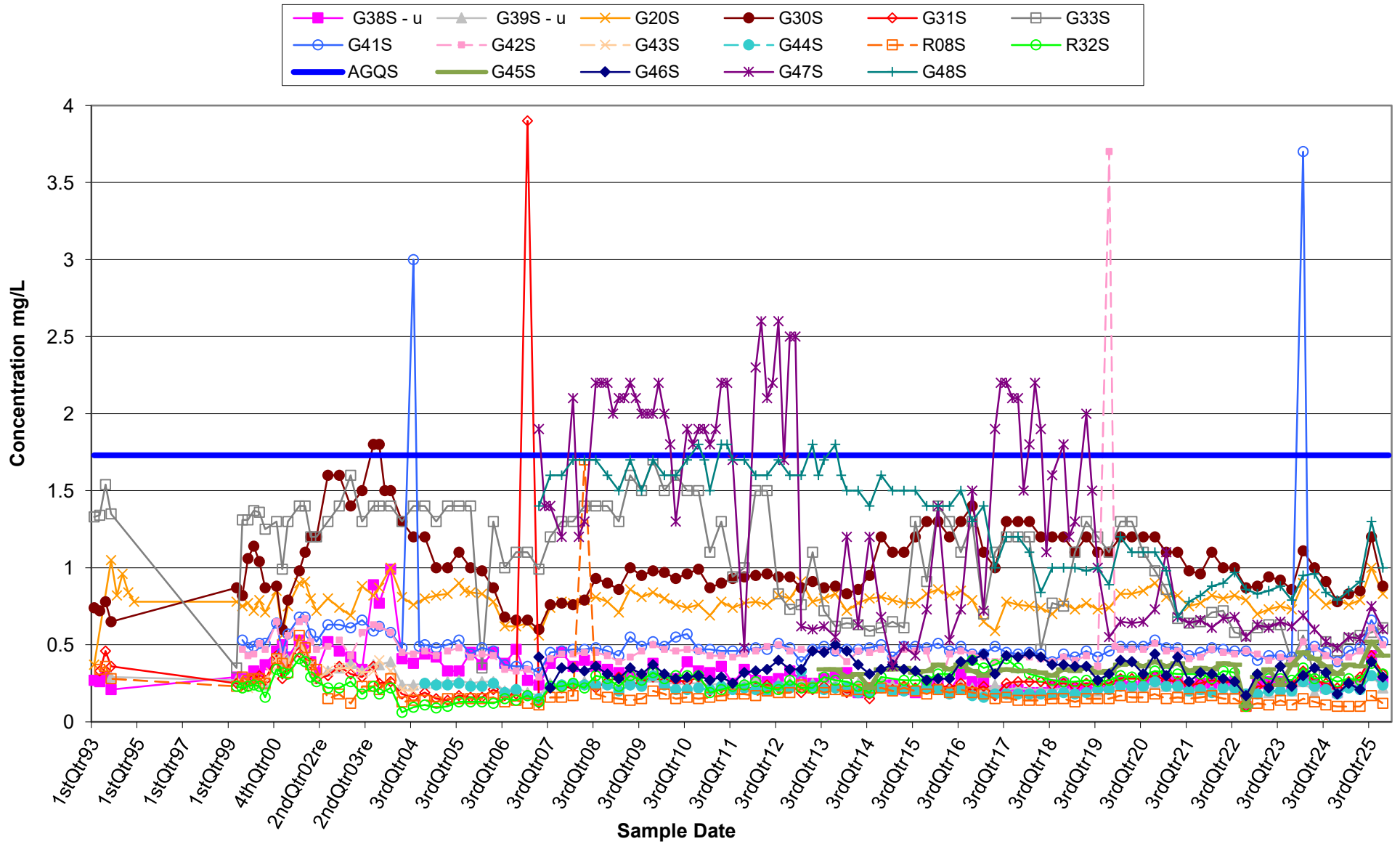
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Total Copper vs. Time--Deep Wells

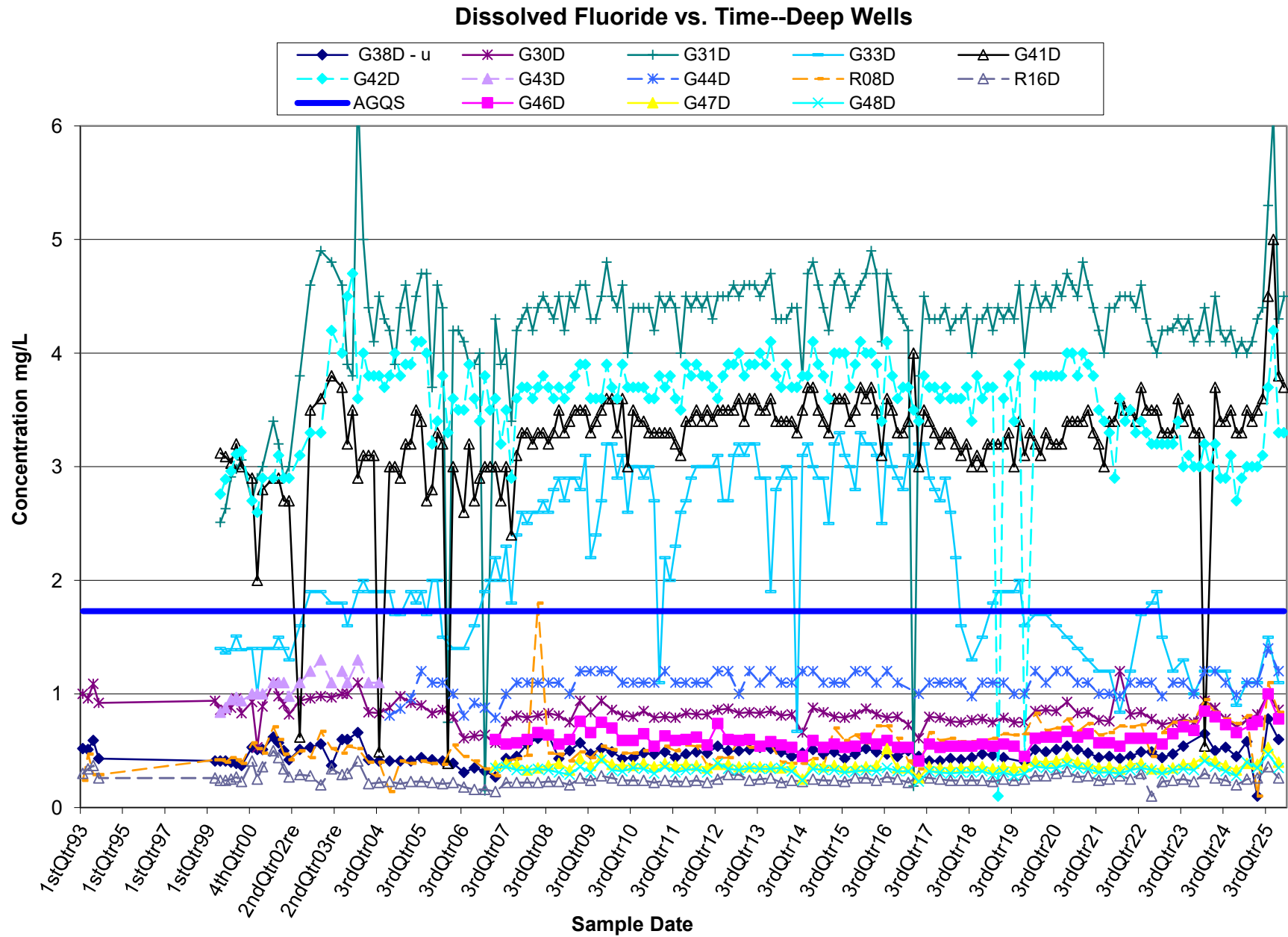


Joliet/Lincoln Stone Quarry

Dissolved Fluoride vs. Time--Shallow Wells

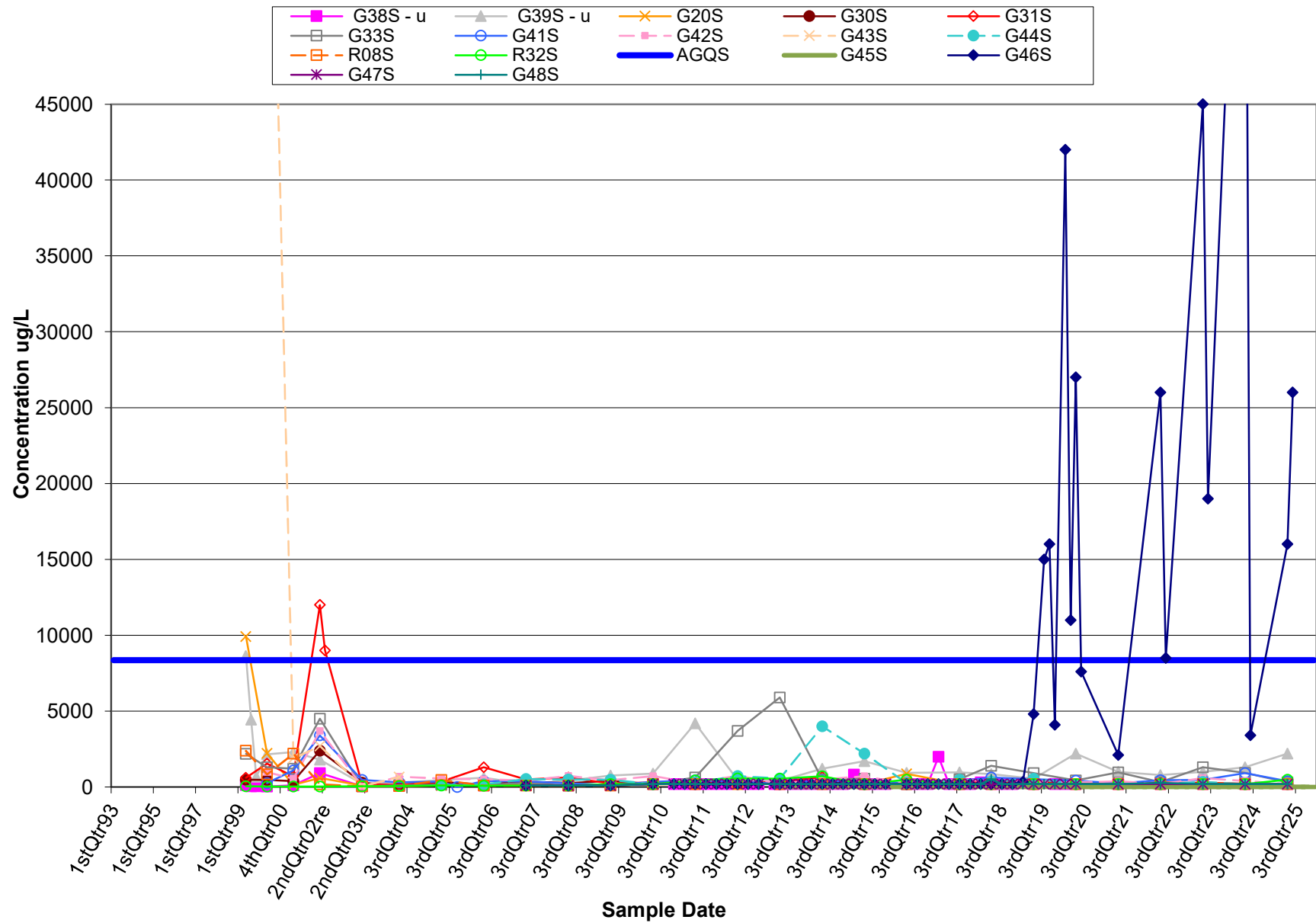


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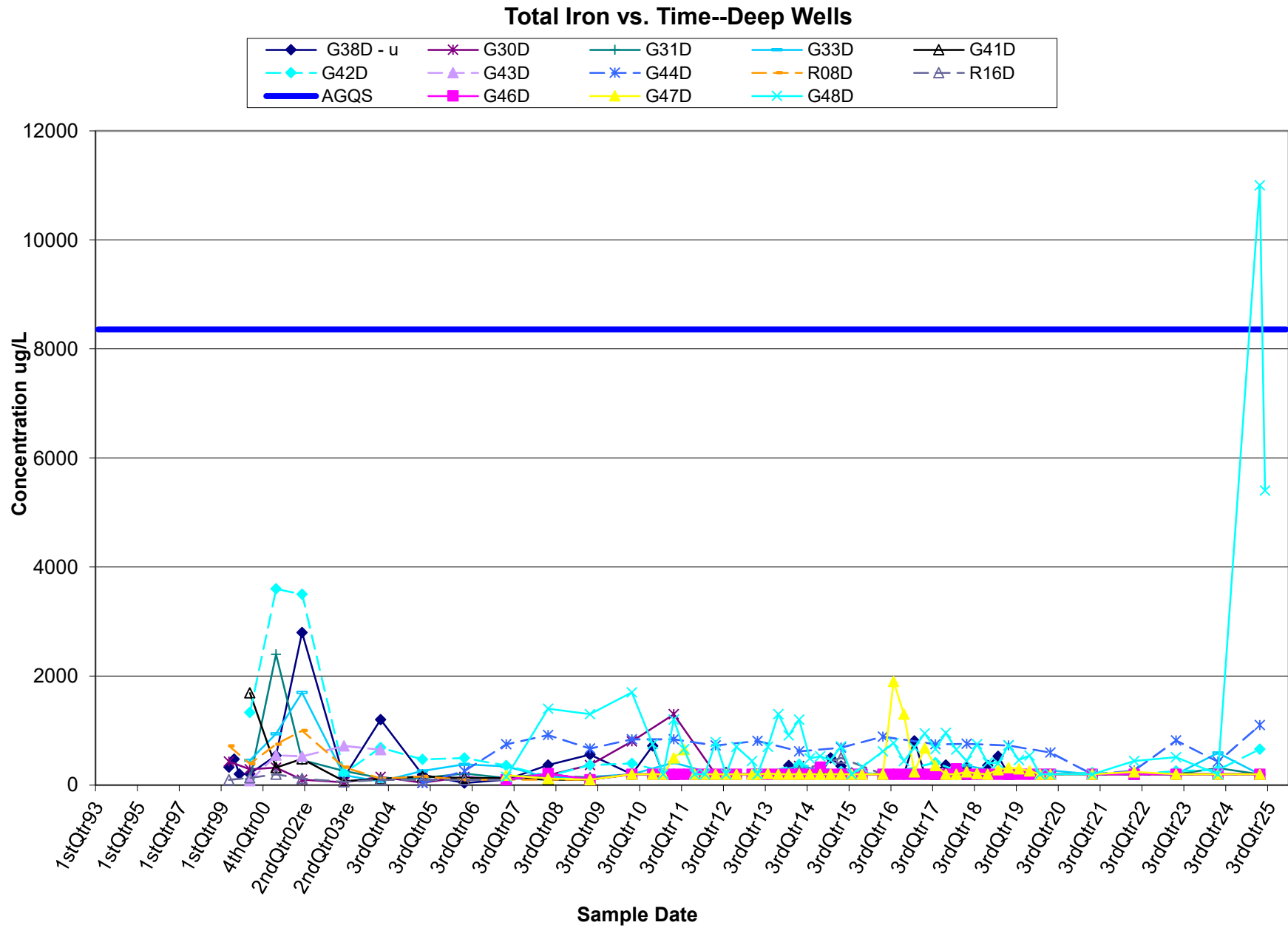


Joliet/Lincoln Stone Quarry

Total Iron vs. Time--Shallow Wells

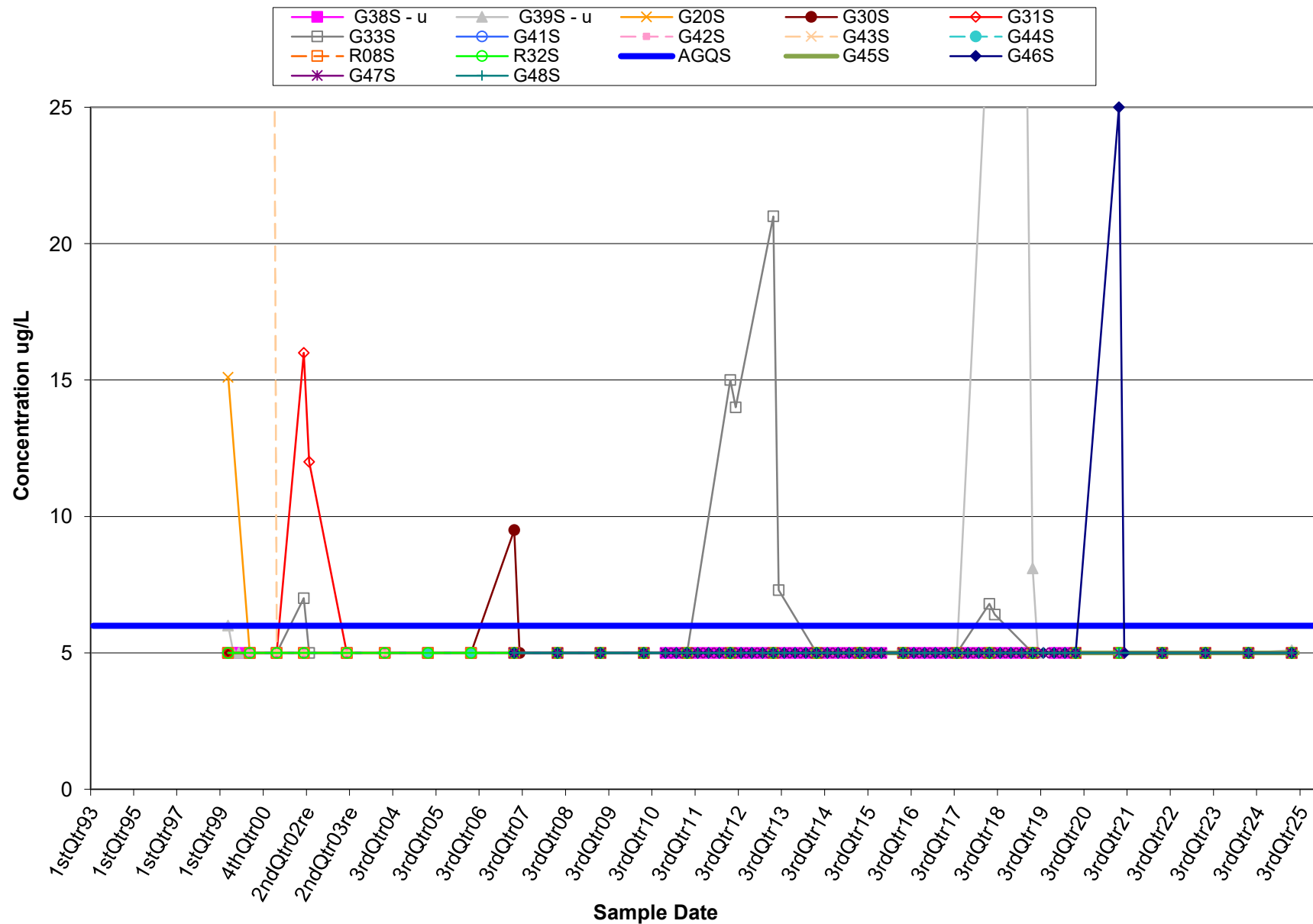


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Joliet/Lincoln Stone Quarry

Total Lead vs. Time--Shallow Wells

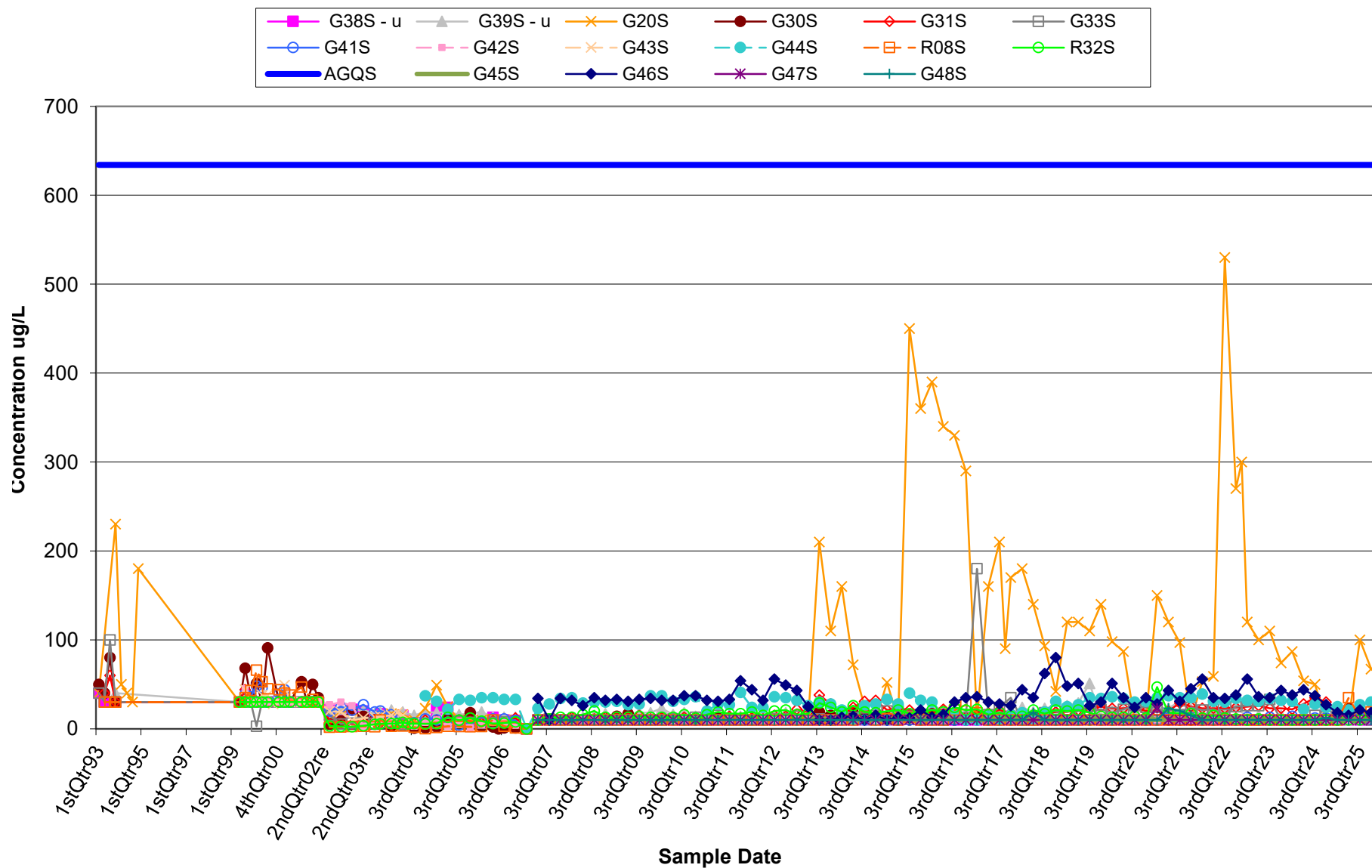


Total Lead vs. Time--Deep Wells



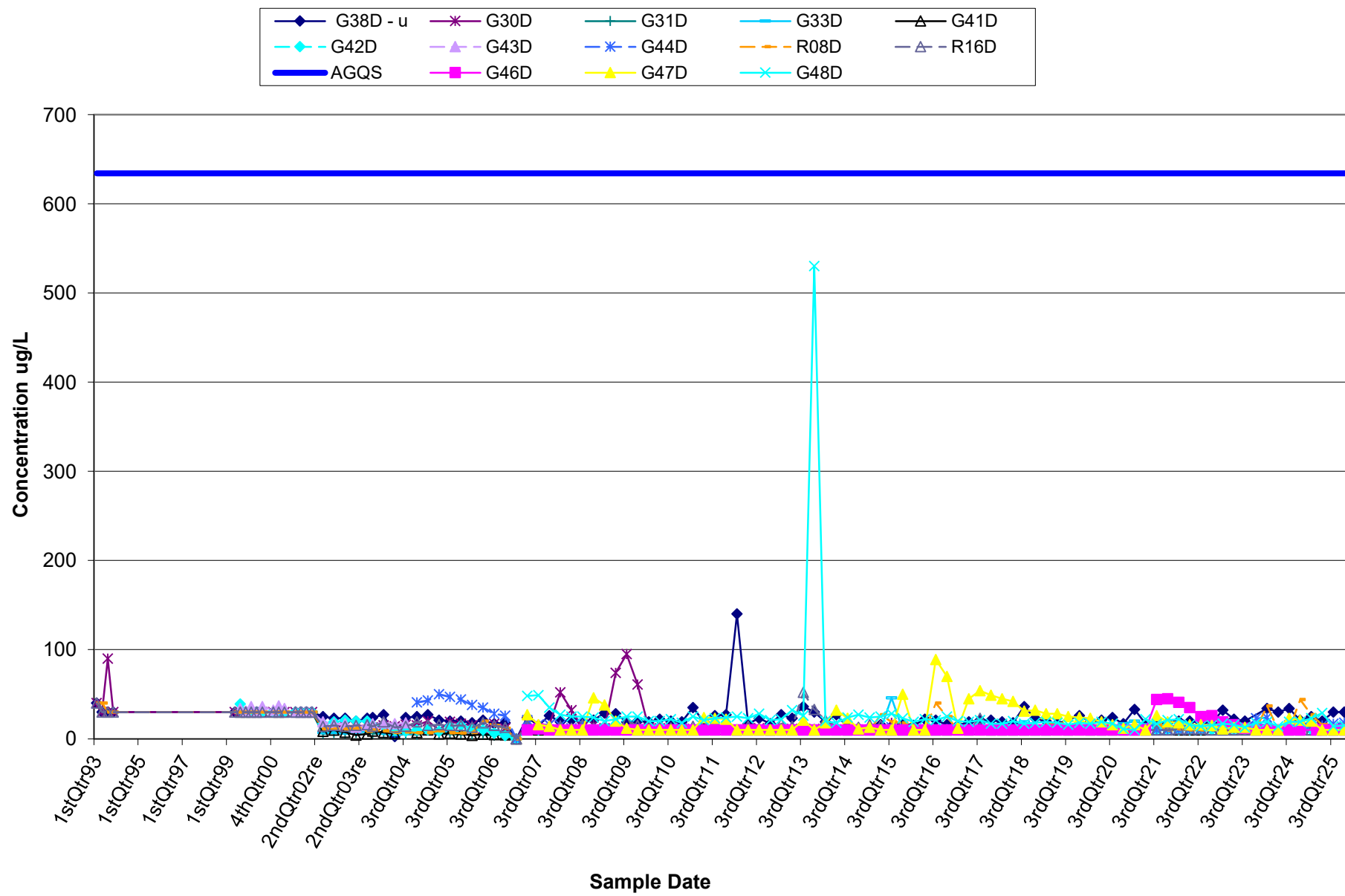
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Dissolved Manganese vs. Time--Shallow Wells



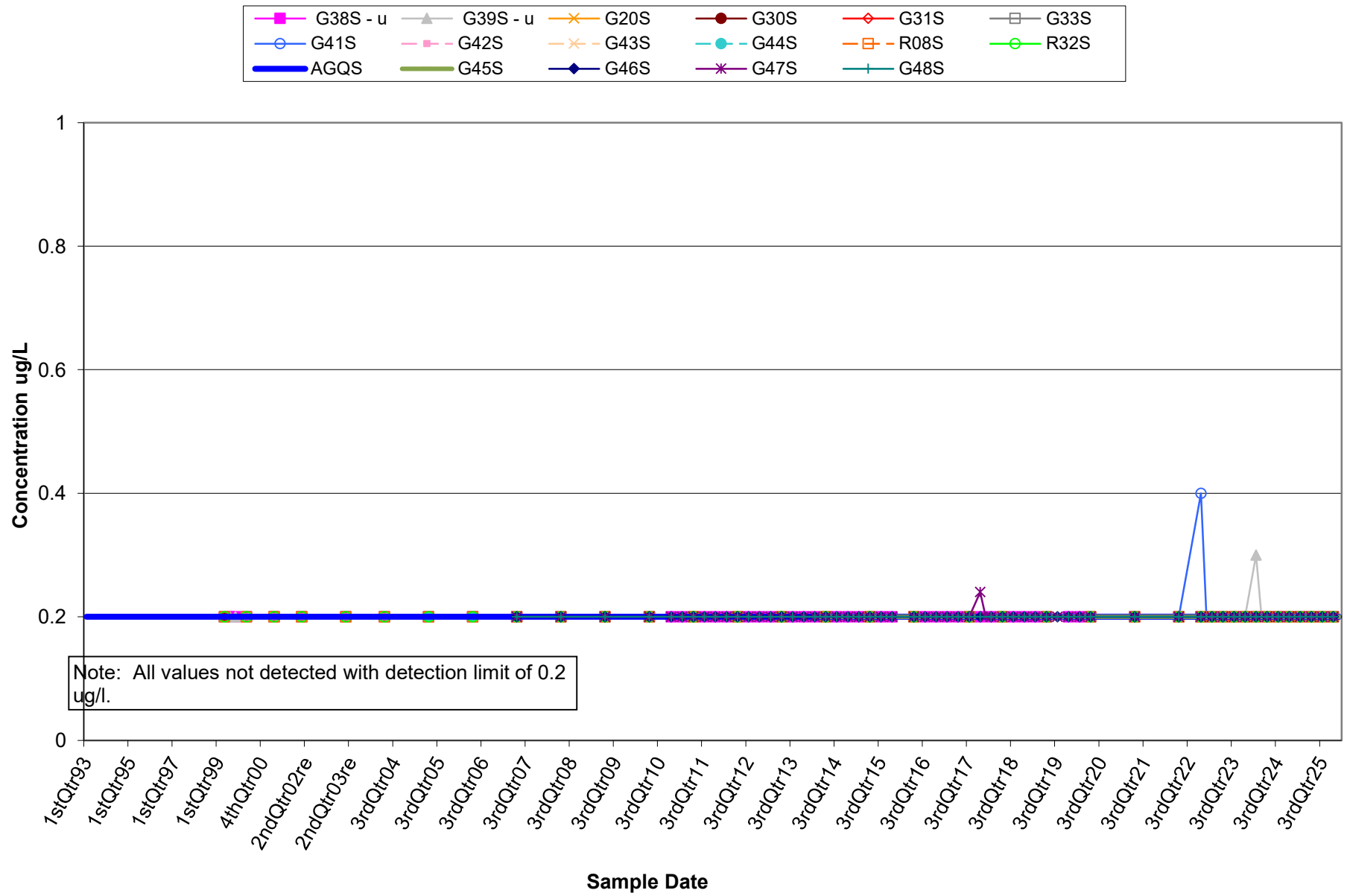
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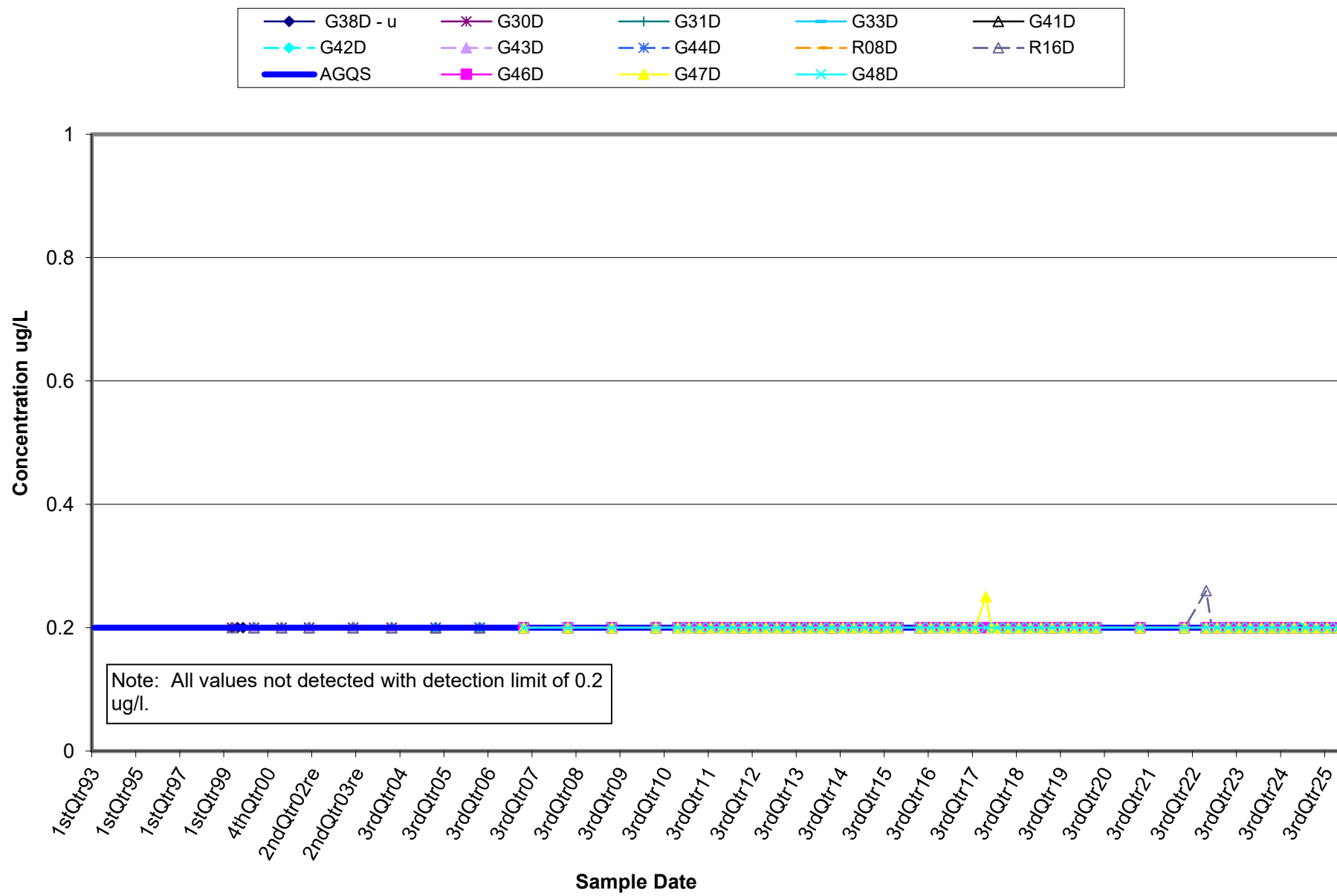
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Total Mercury vs. Time--Shallow Wells



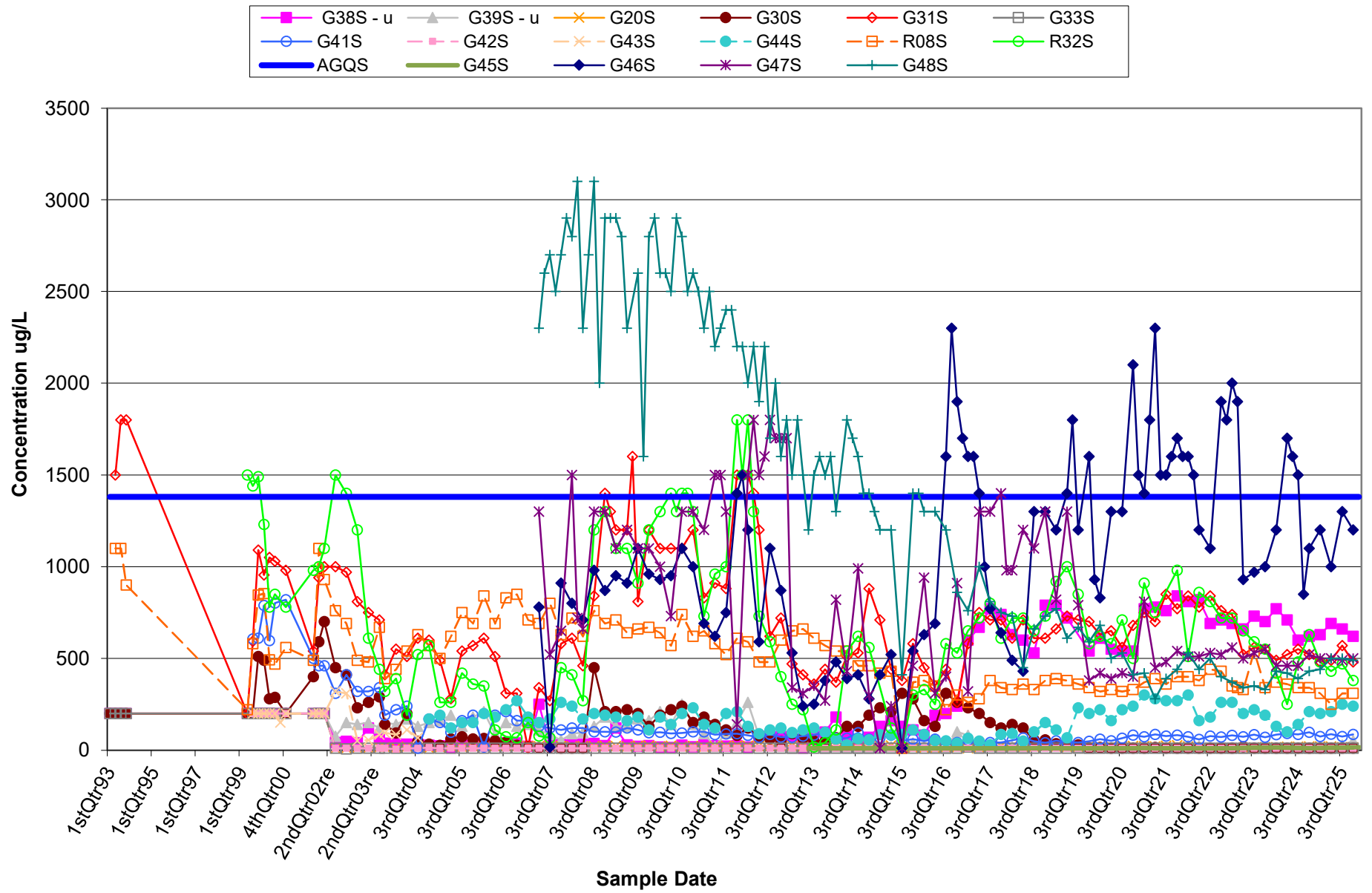
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Total Mercury vs. Time--Deep Wells



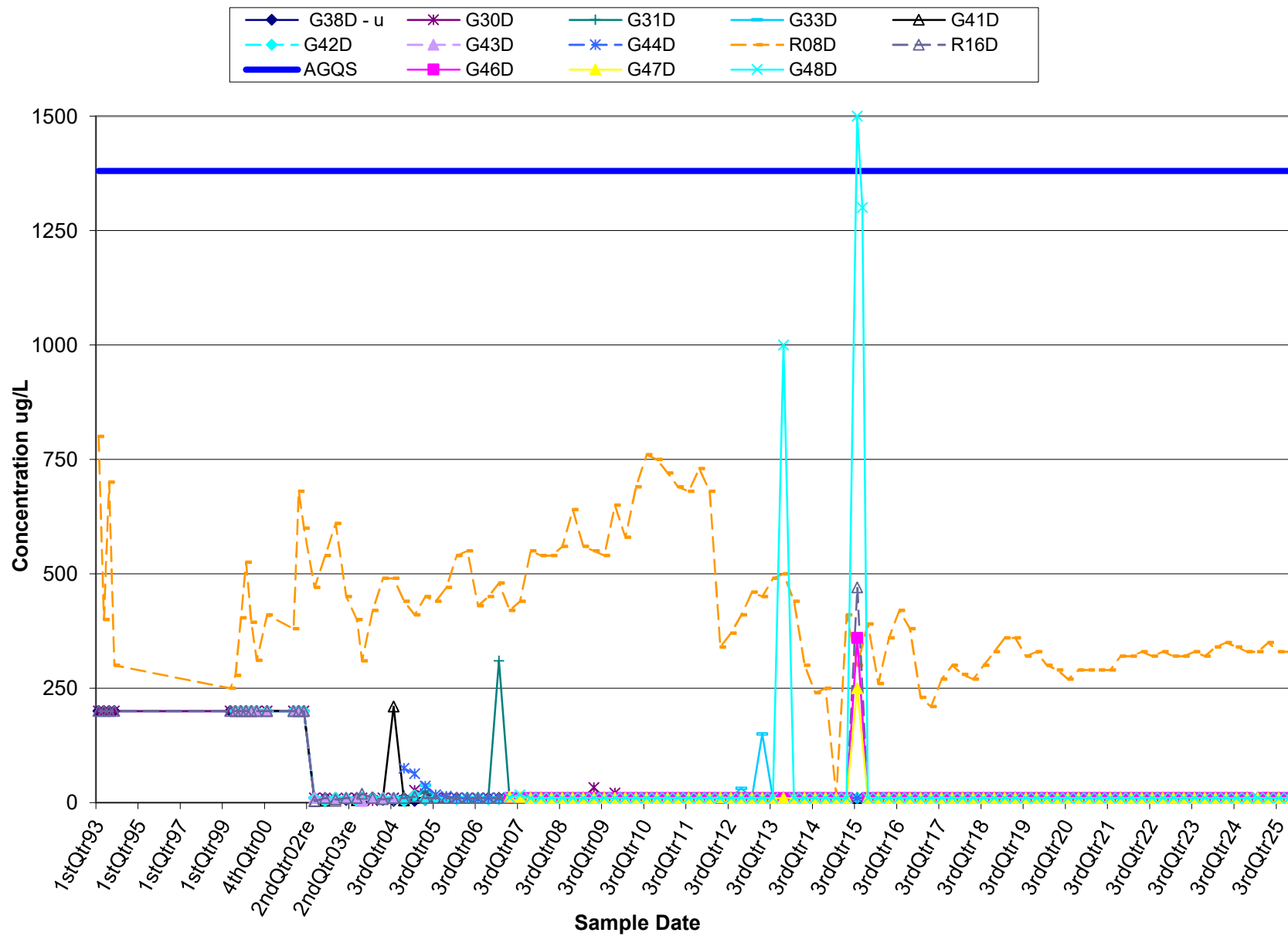
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Dissolved Molybdenum vs. Time--Shallow Wells



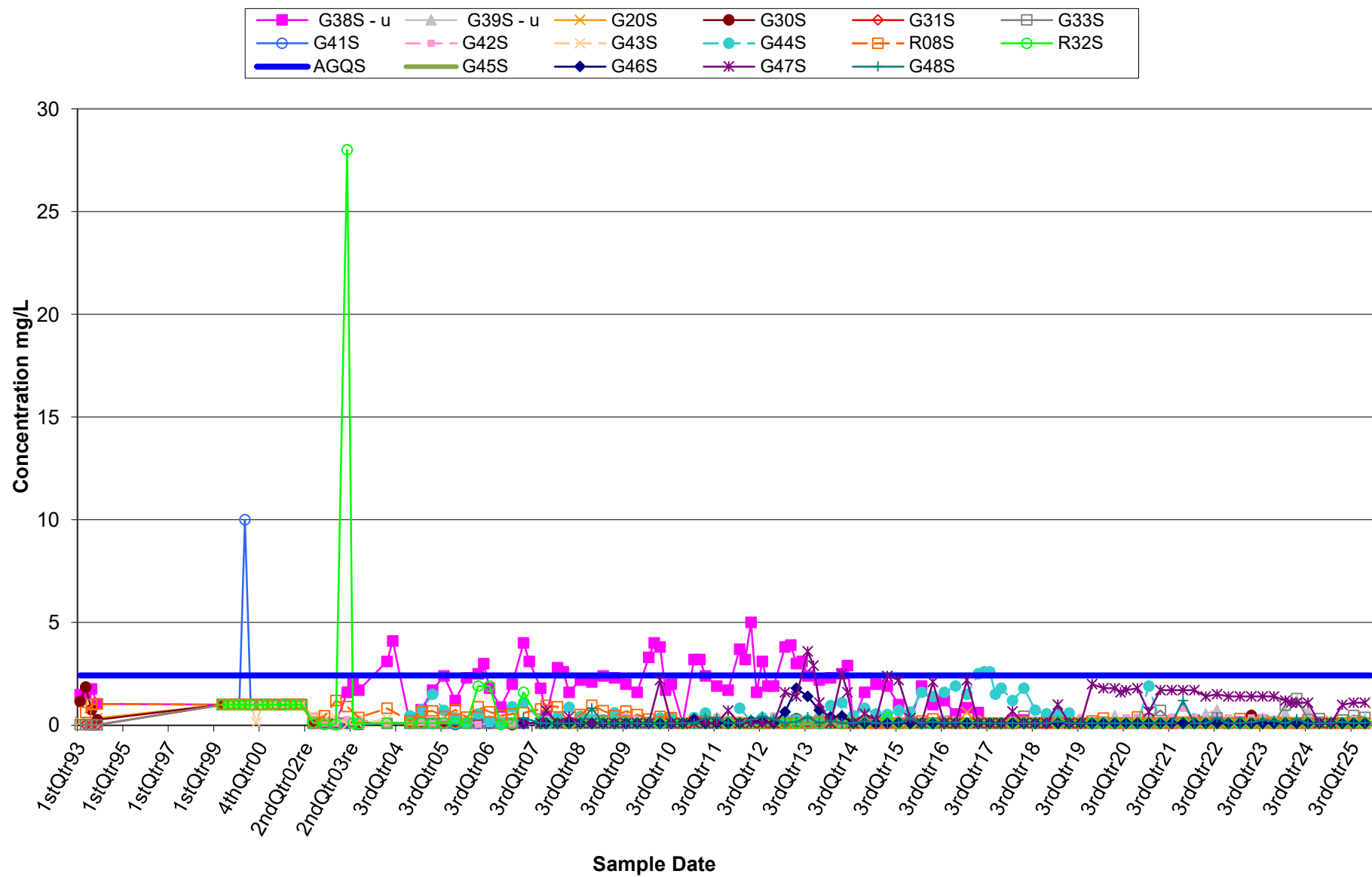
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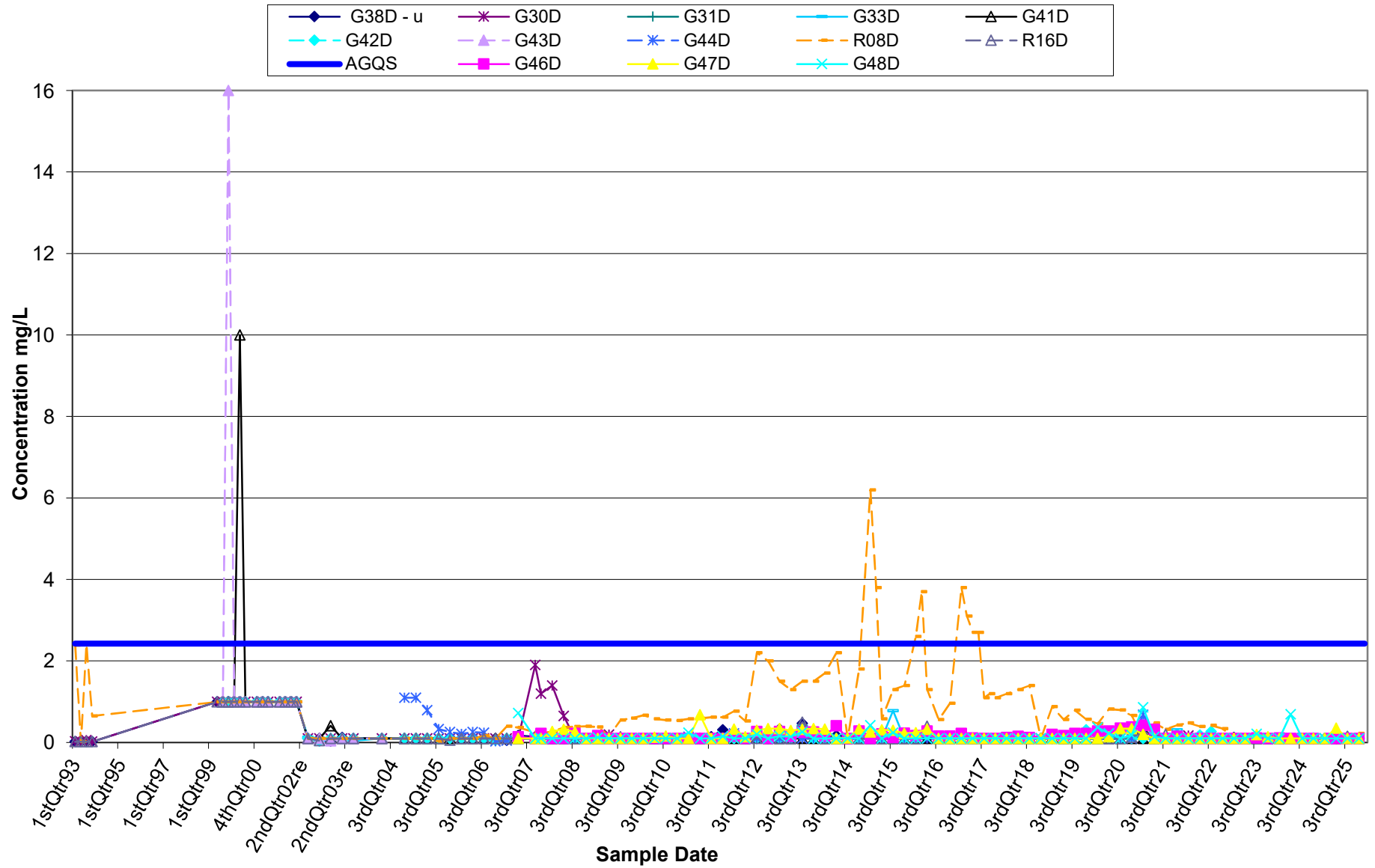
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Dissolved Nitrate vs. Time--Shallow Wells



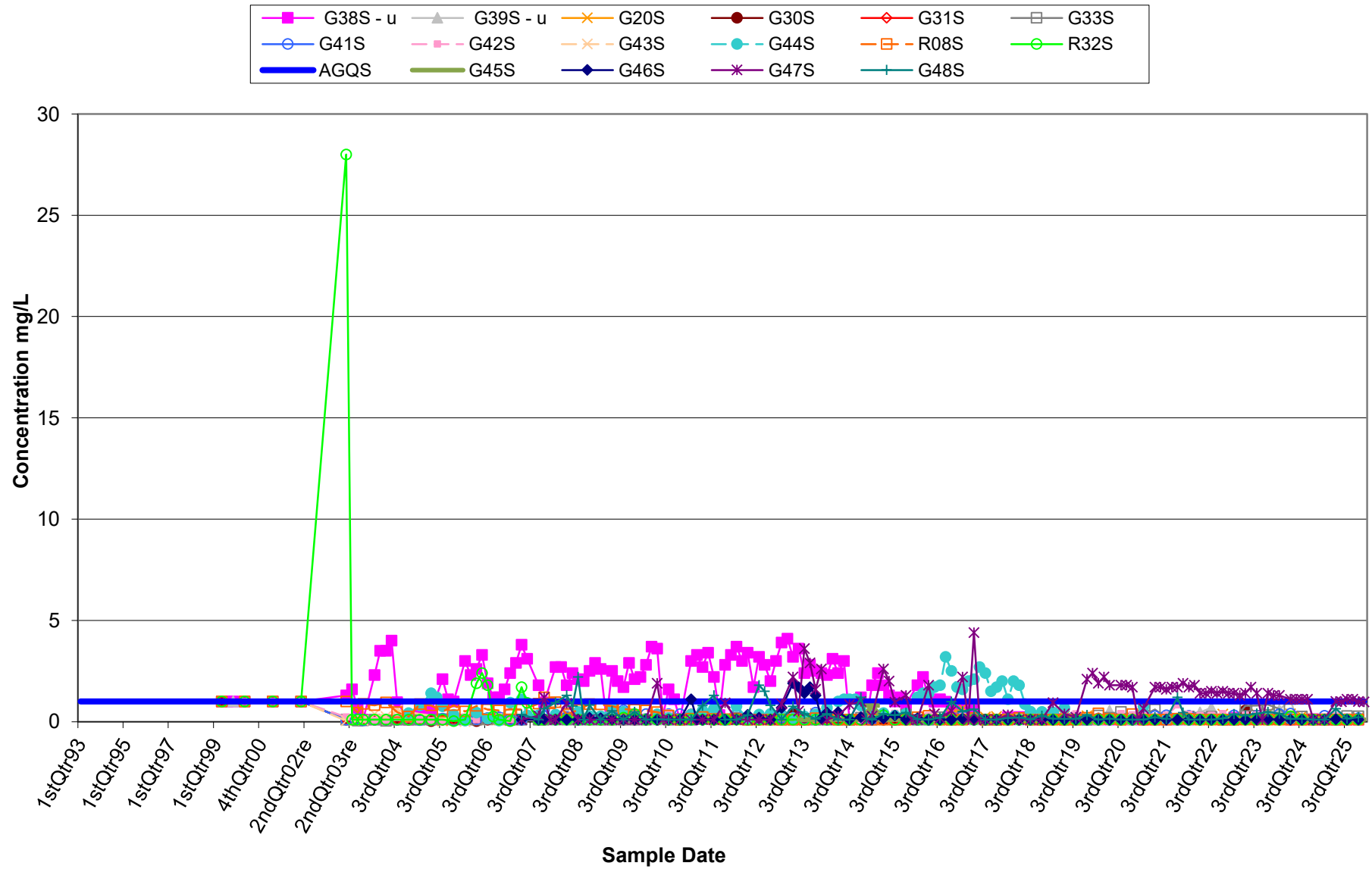
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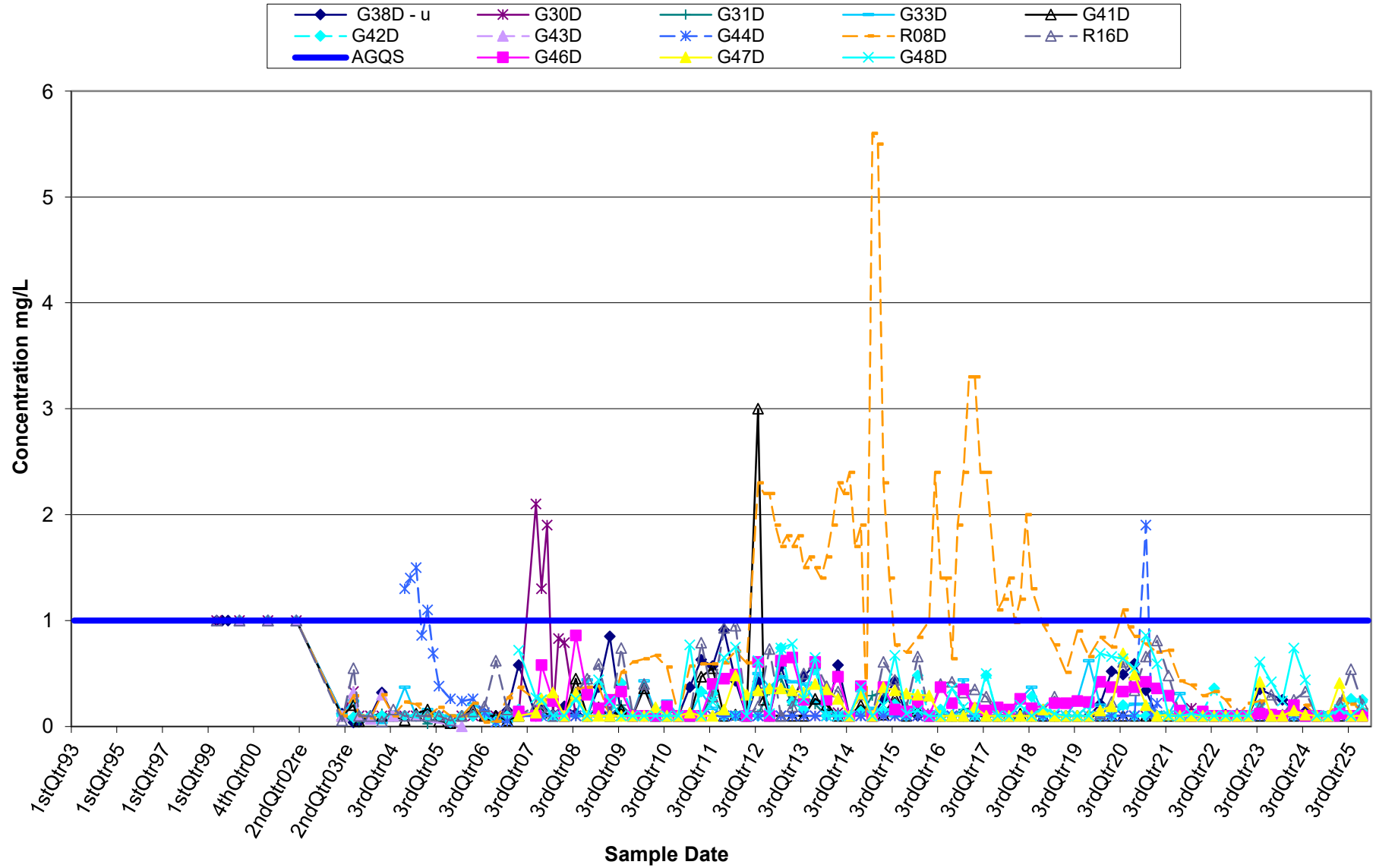
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Total Nitrate vs. Time--Shallow Wells



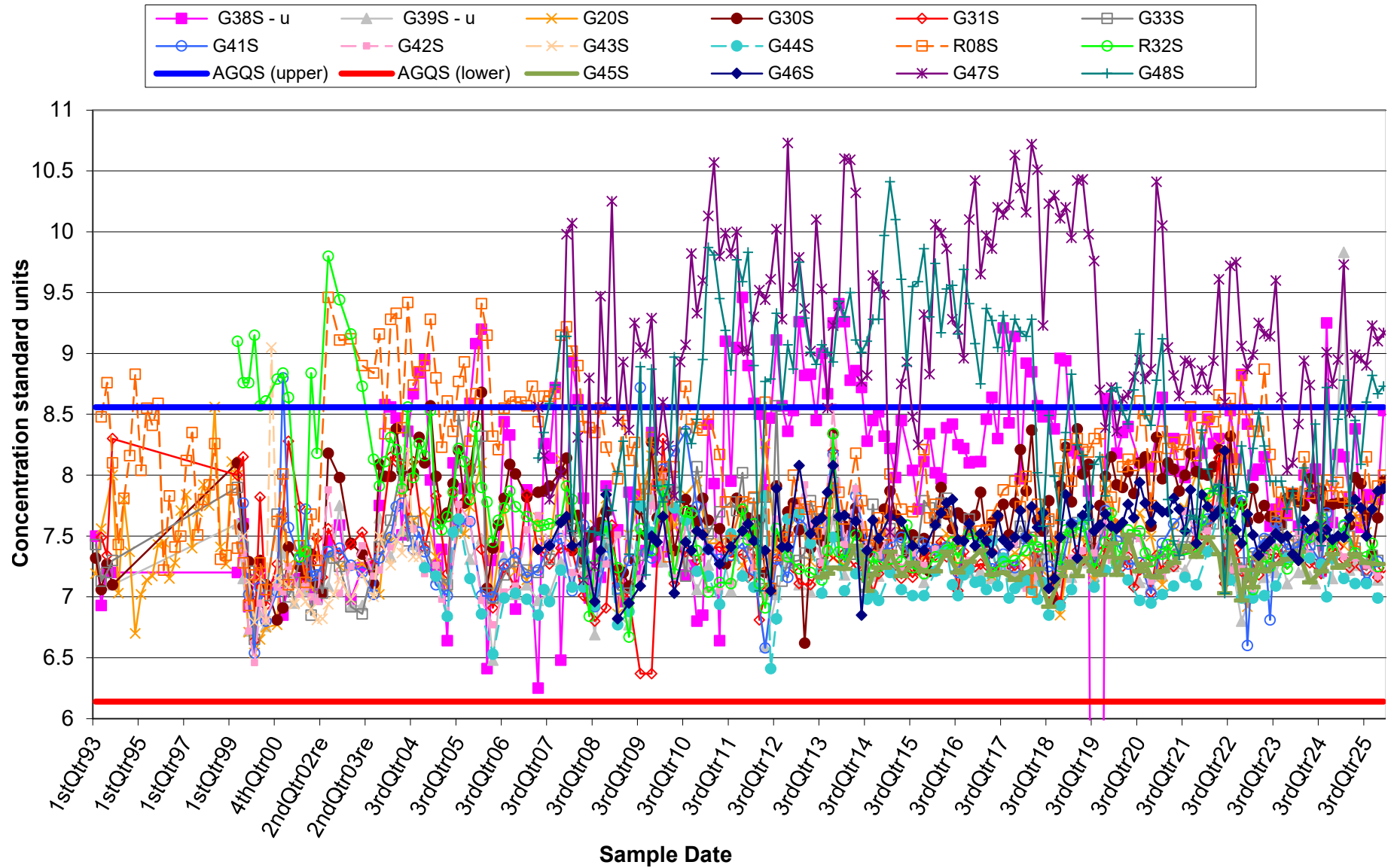
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Total Nitrate vs. Time--Deep Wells



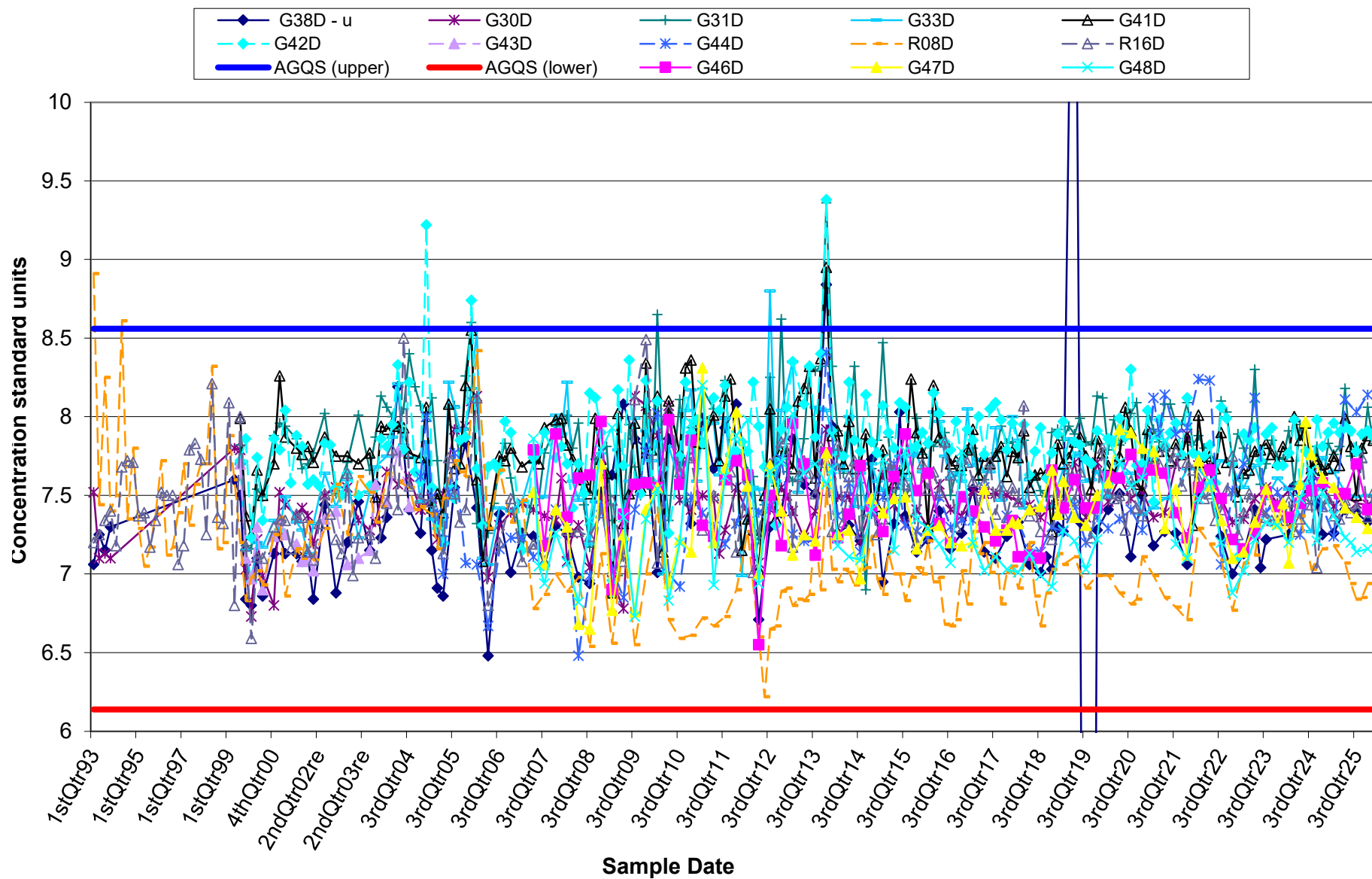
Joliet/Lincoln Stone Quarry

pH vs. Time--Shallow Wells



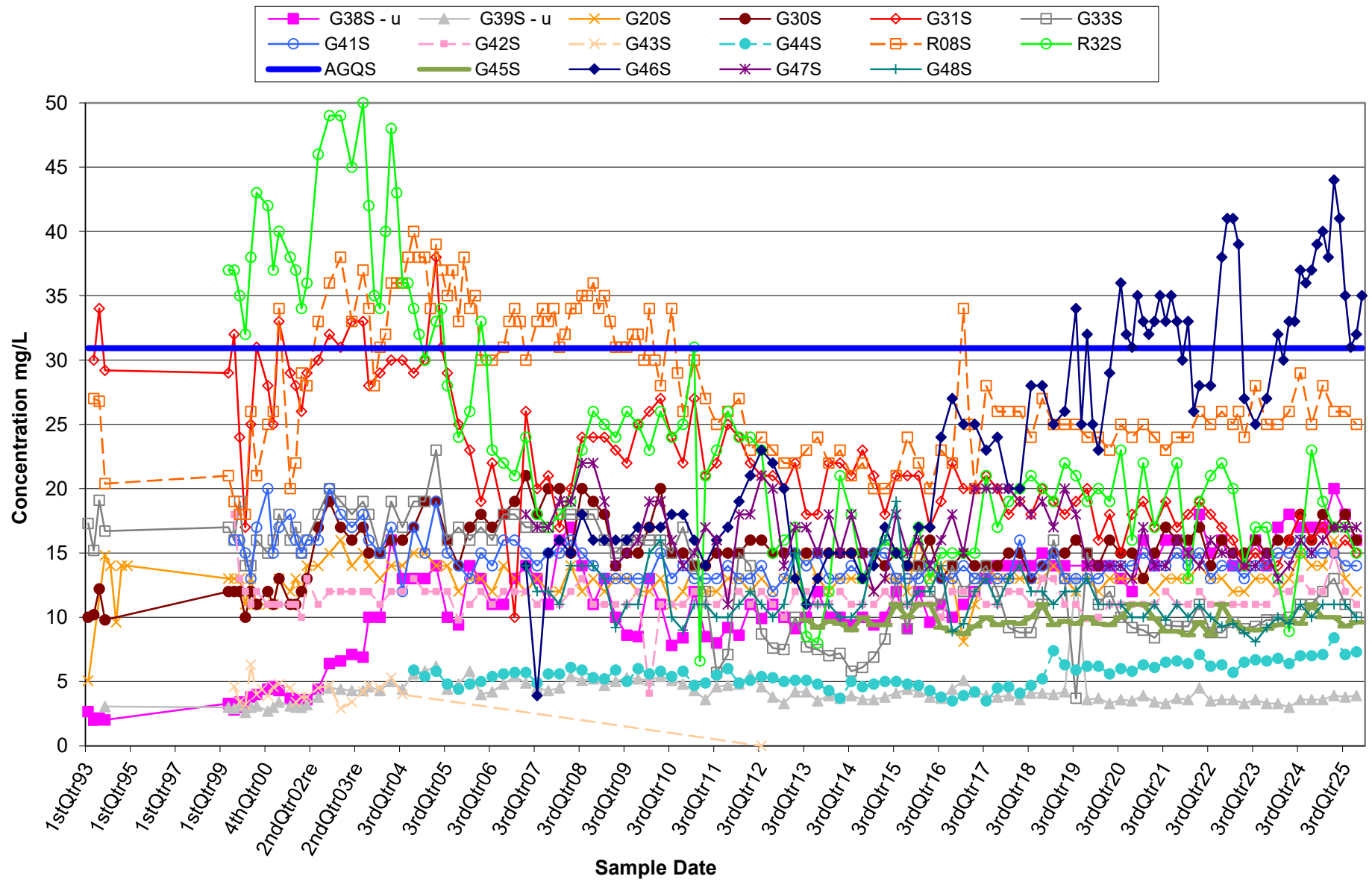
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pH vs. Time--Deep Wells



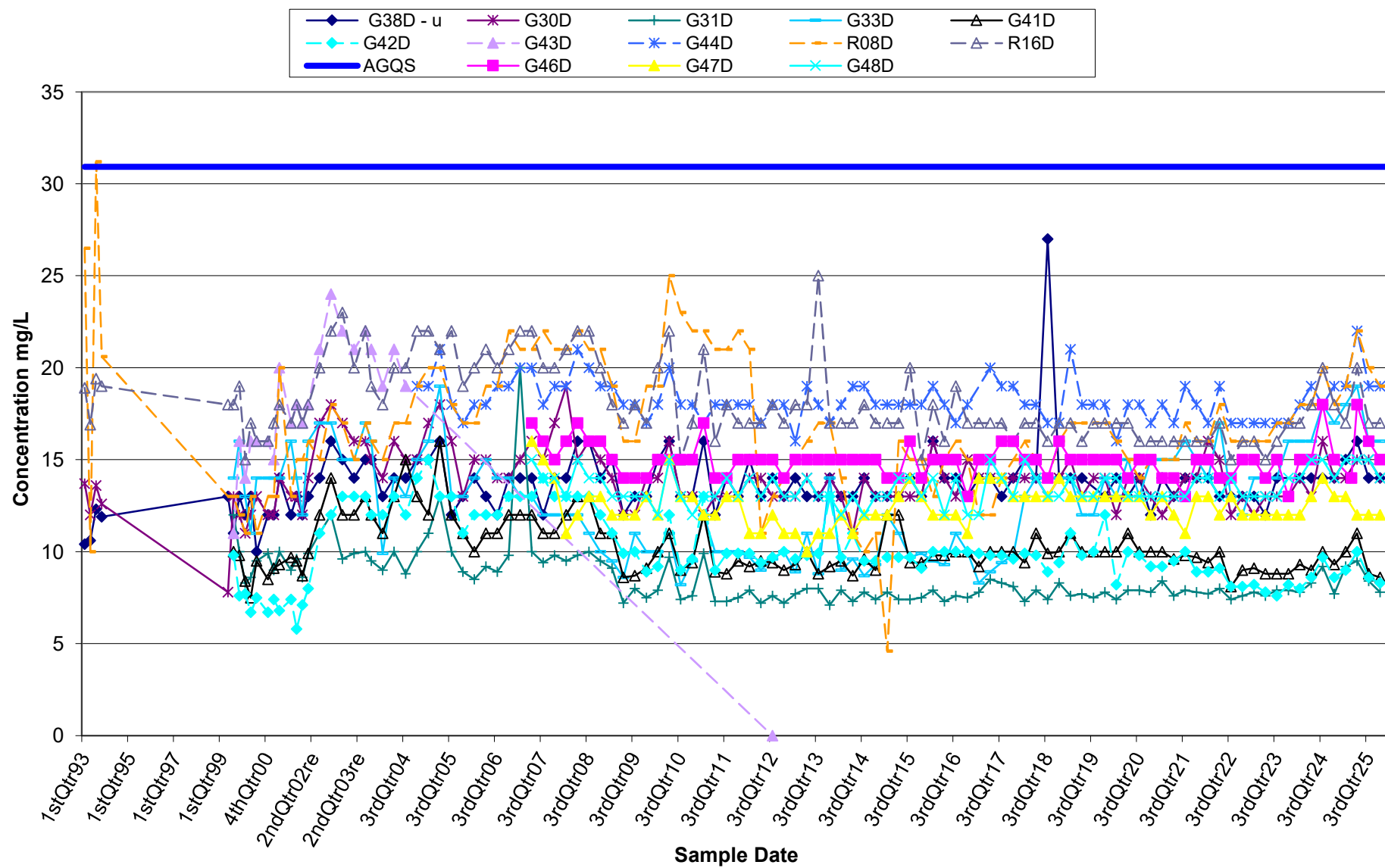
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Dissolved Potassium vs. Time--Shallow Wells



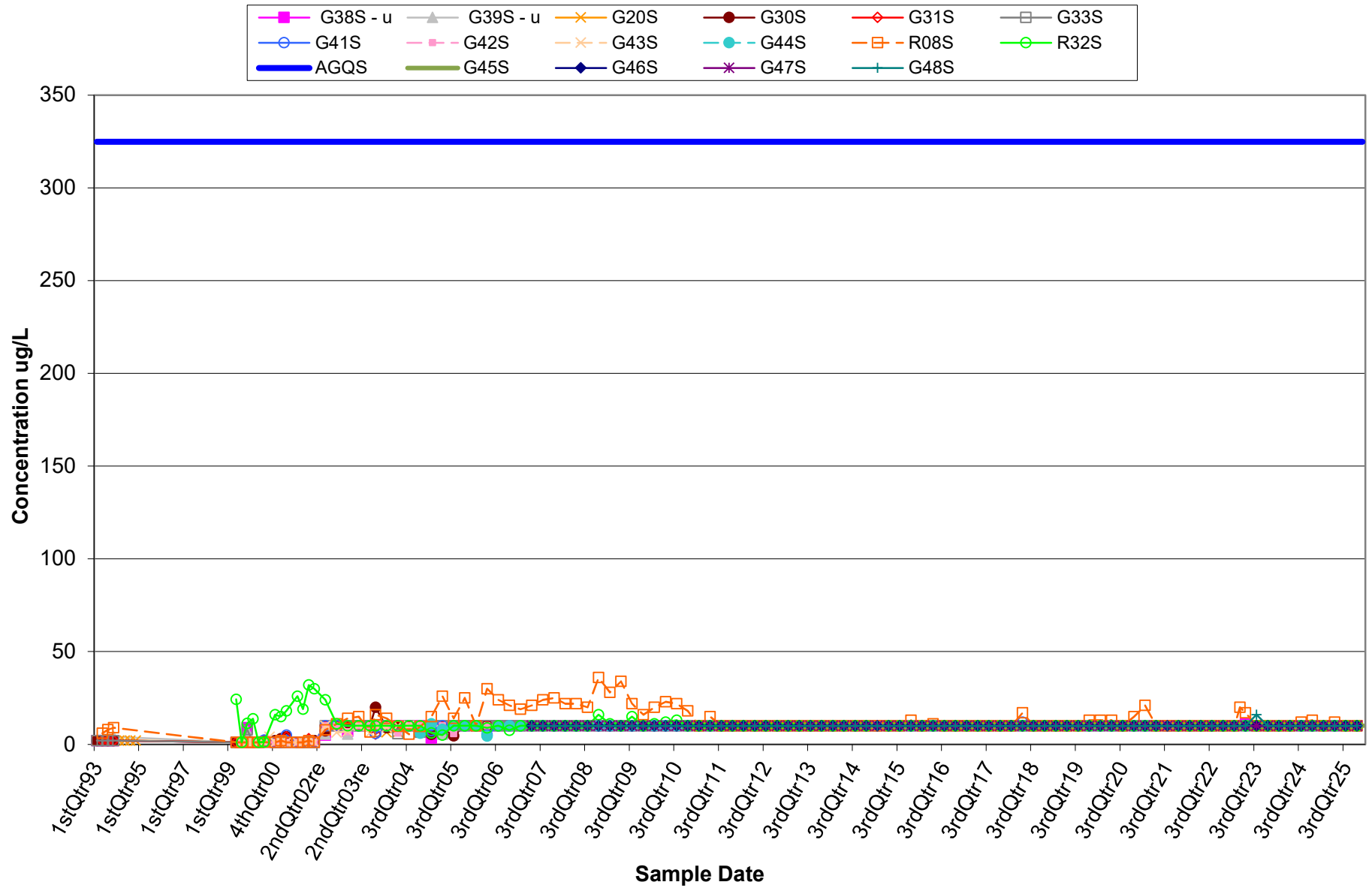
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Dissolved Potassium vs. Time--Deep Wells



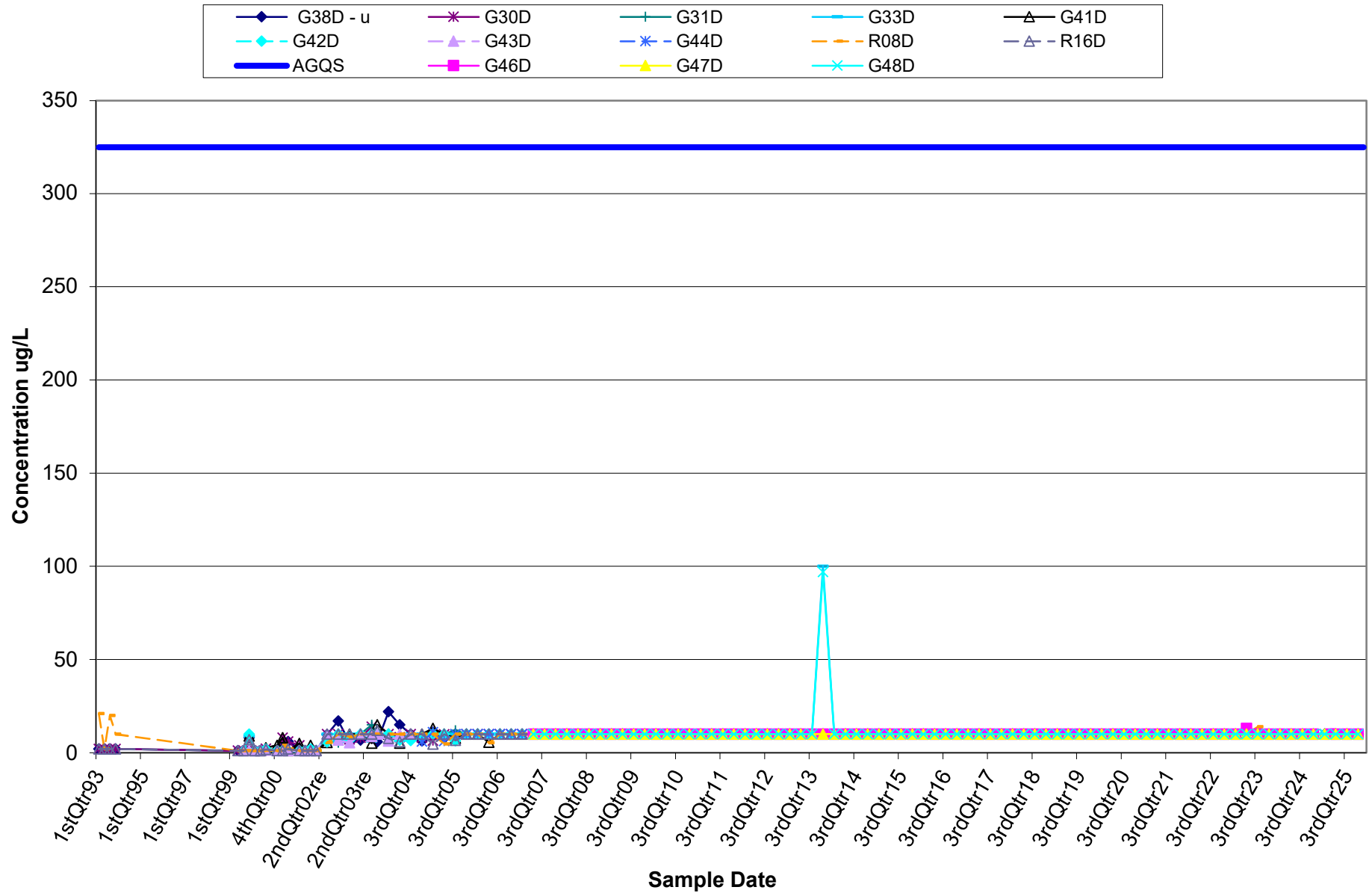
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Dissolved Selenium vs. Time--Shallow Wells



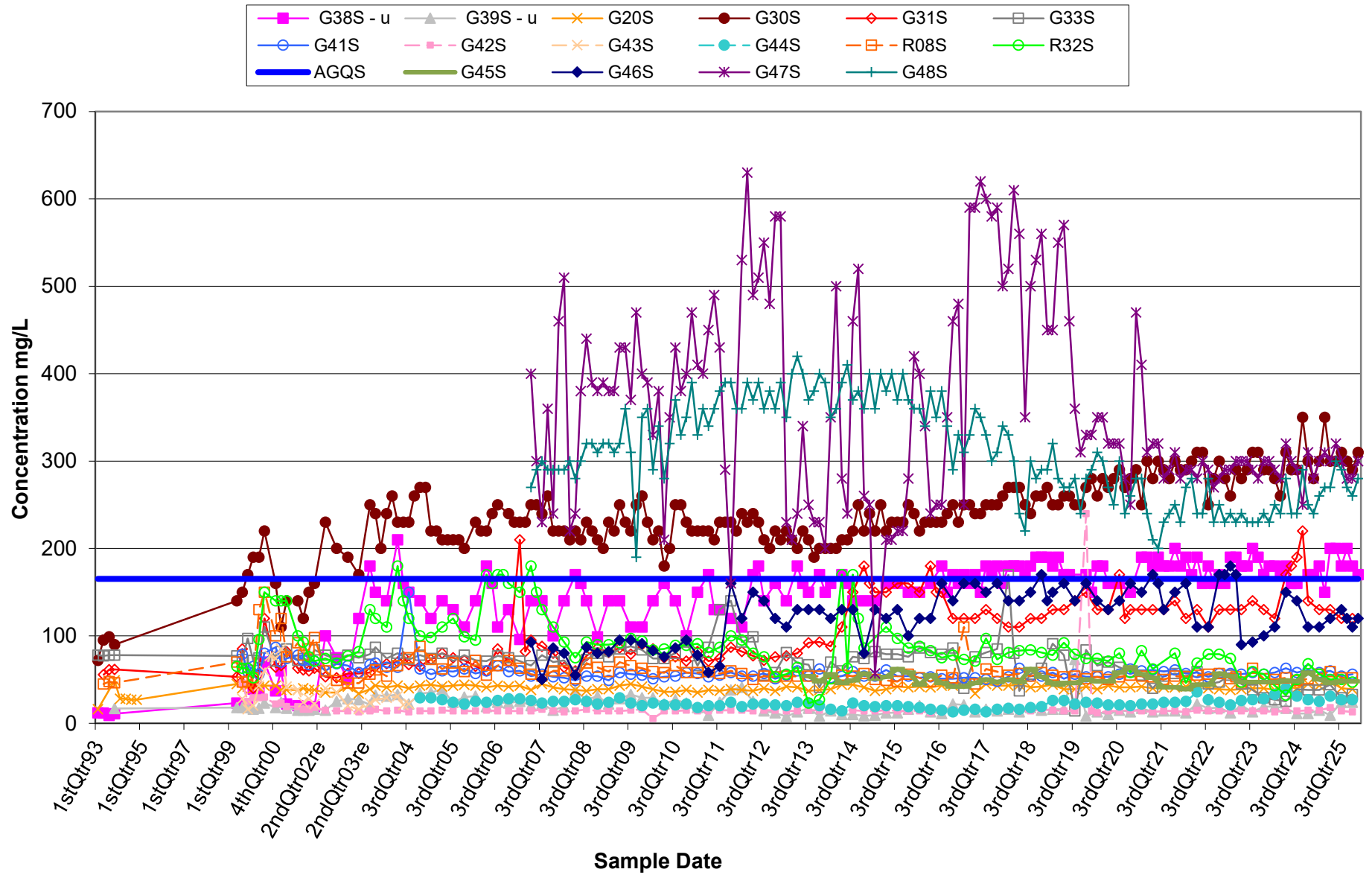
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Dissolved Selenium vs. Time--Deep Wells



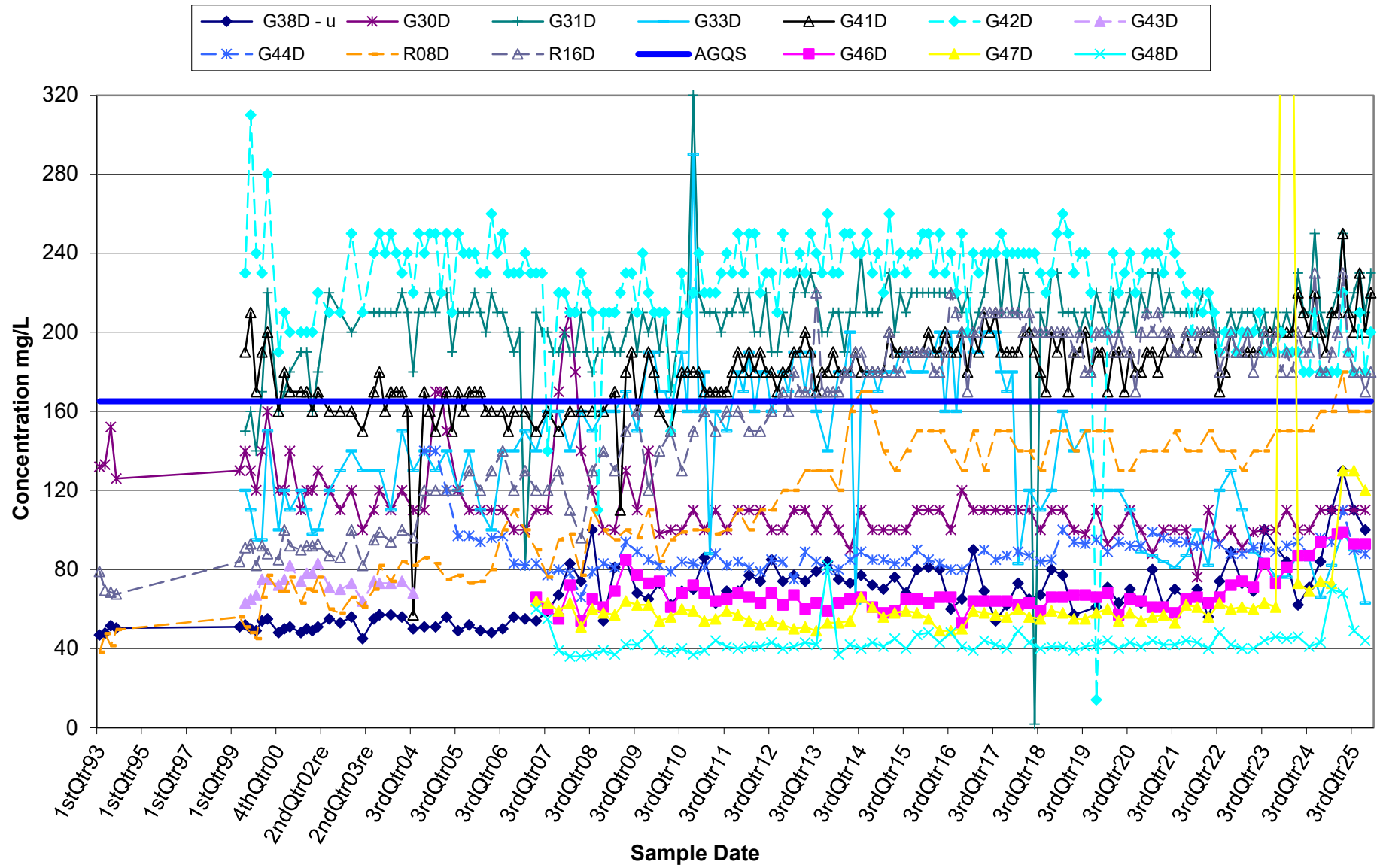
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Dissolved Sodium vs. Time--Shallow Wells



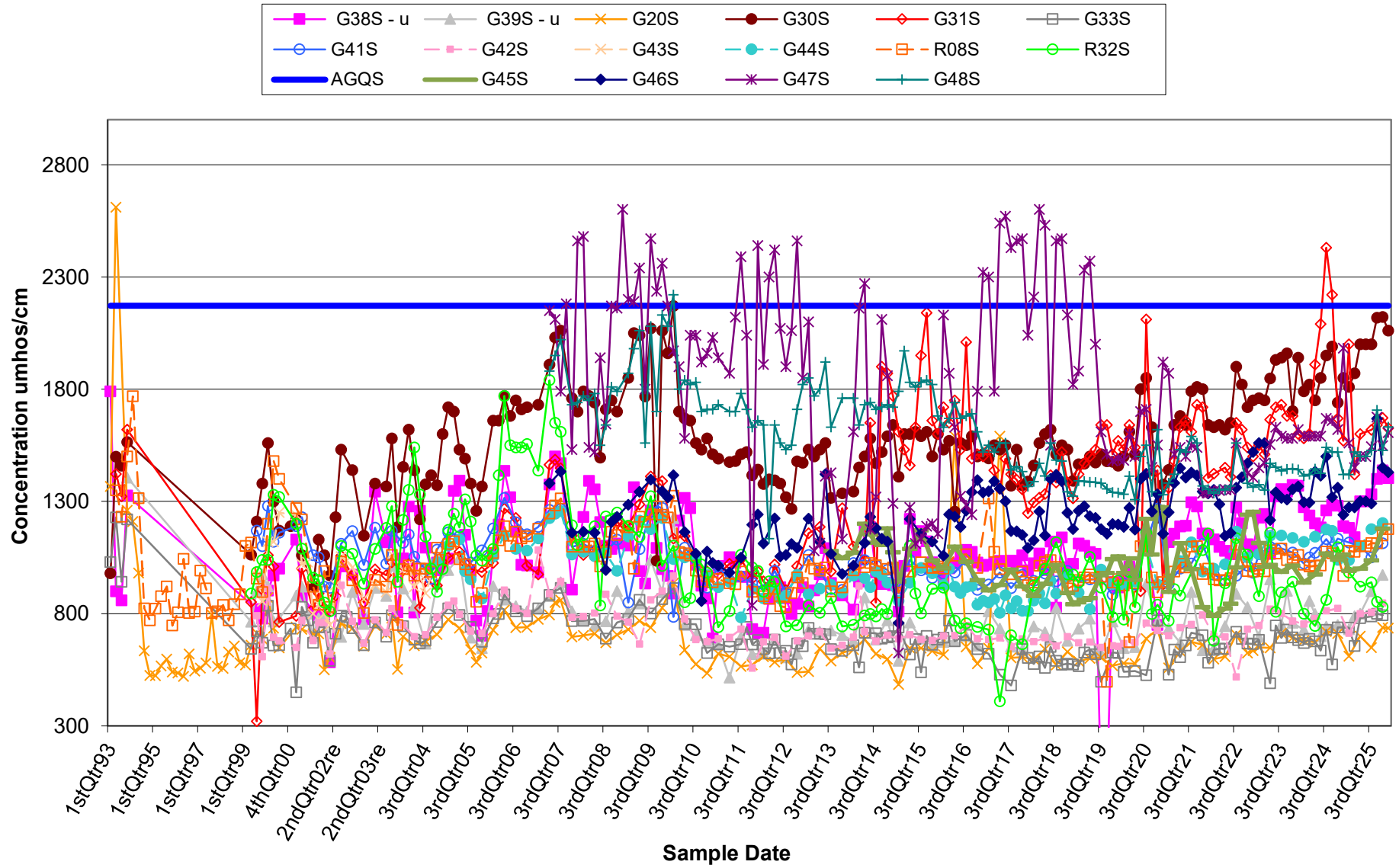
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Dissolved Sodium vs. Time--Deep Wells



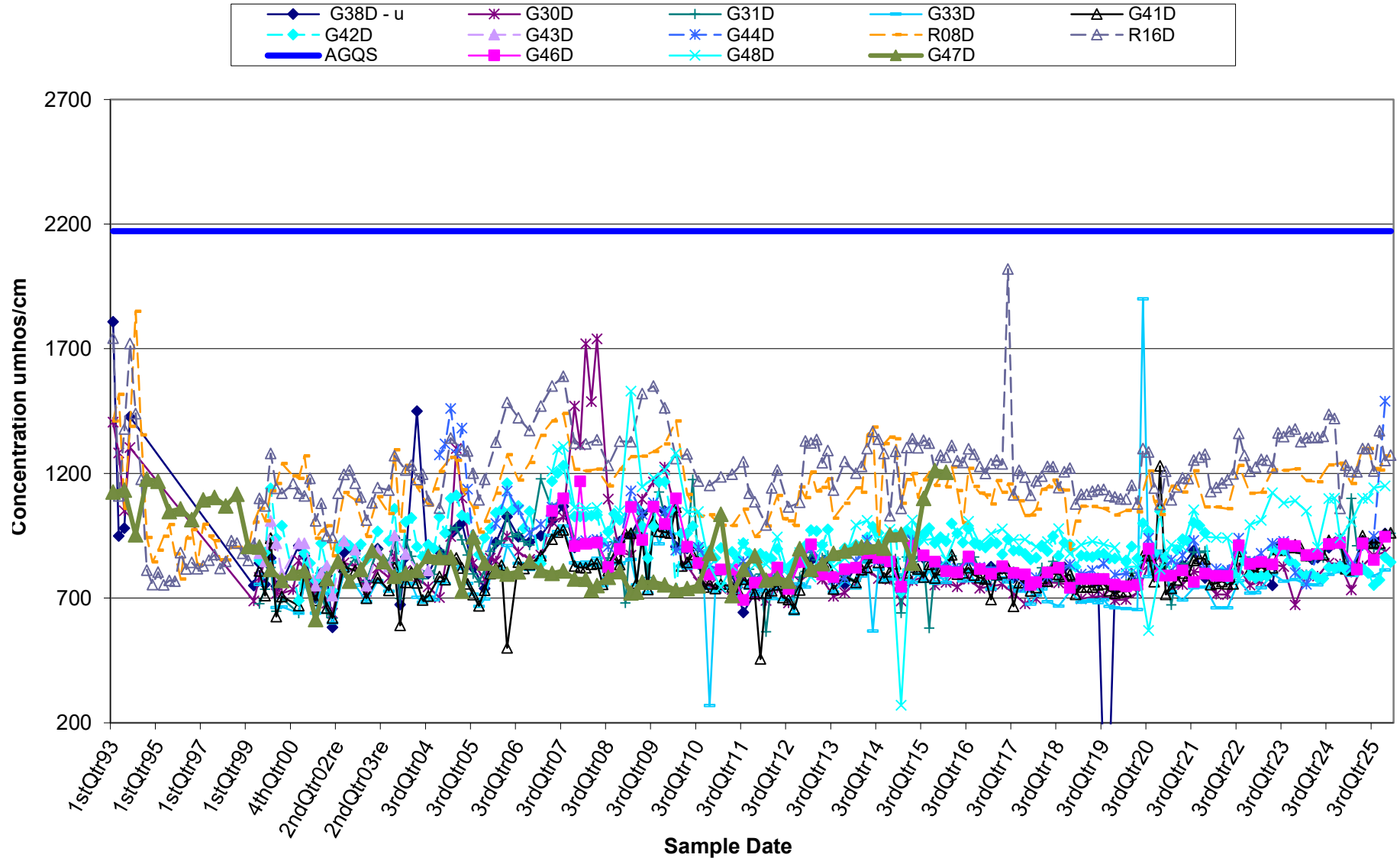
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Specific Conductance vs. Time--Shallow Wells



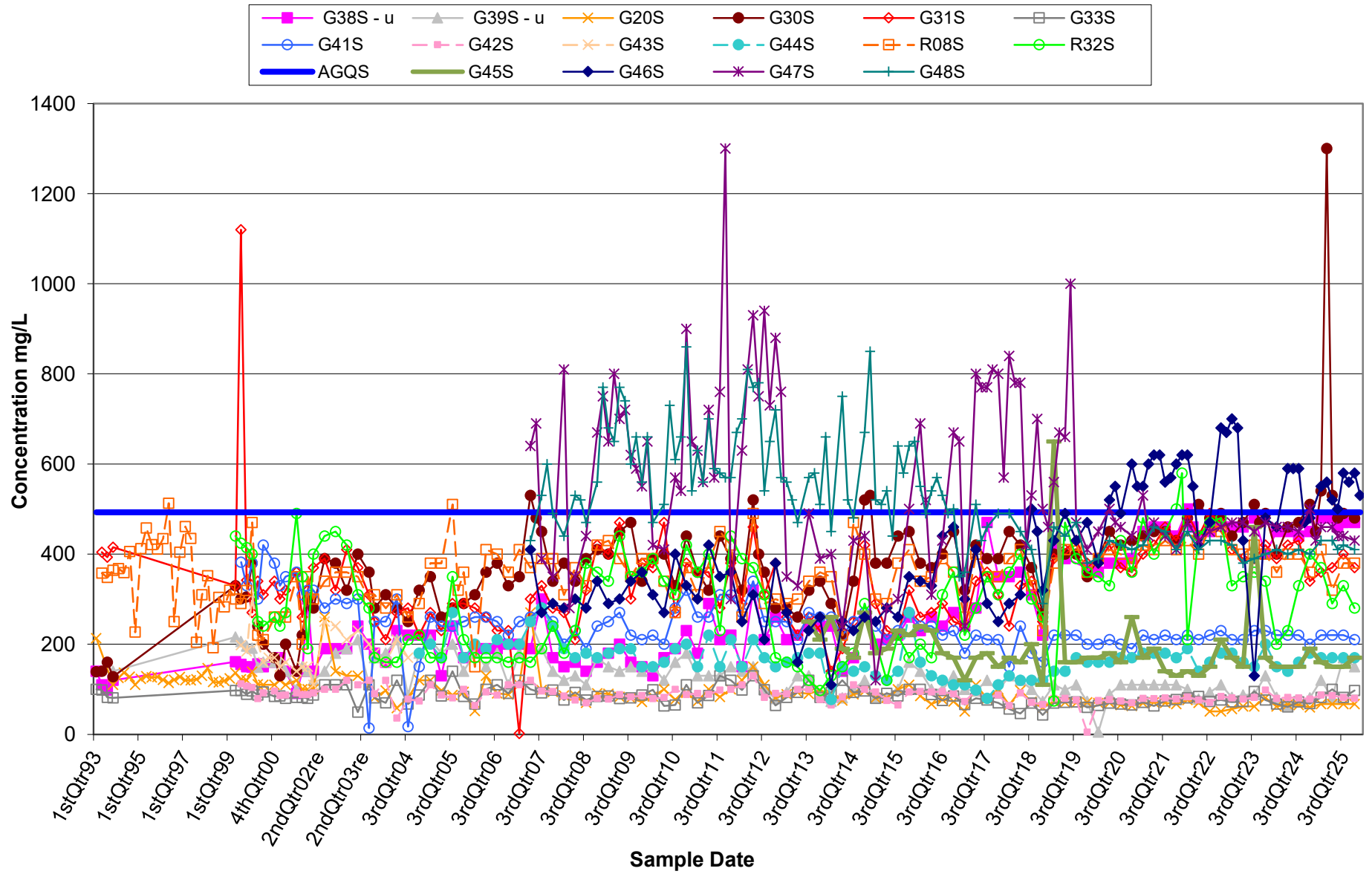
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Specific Conductance vs. Time--Deep Wells



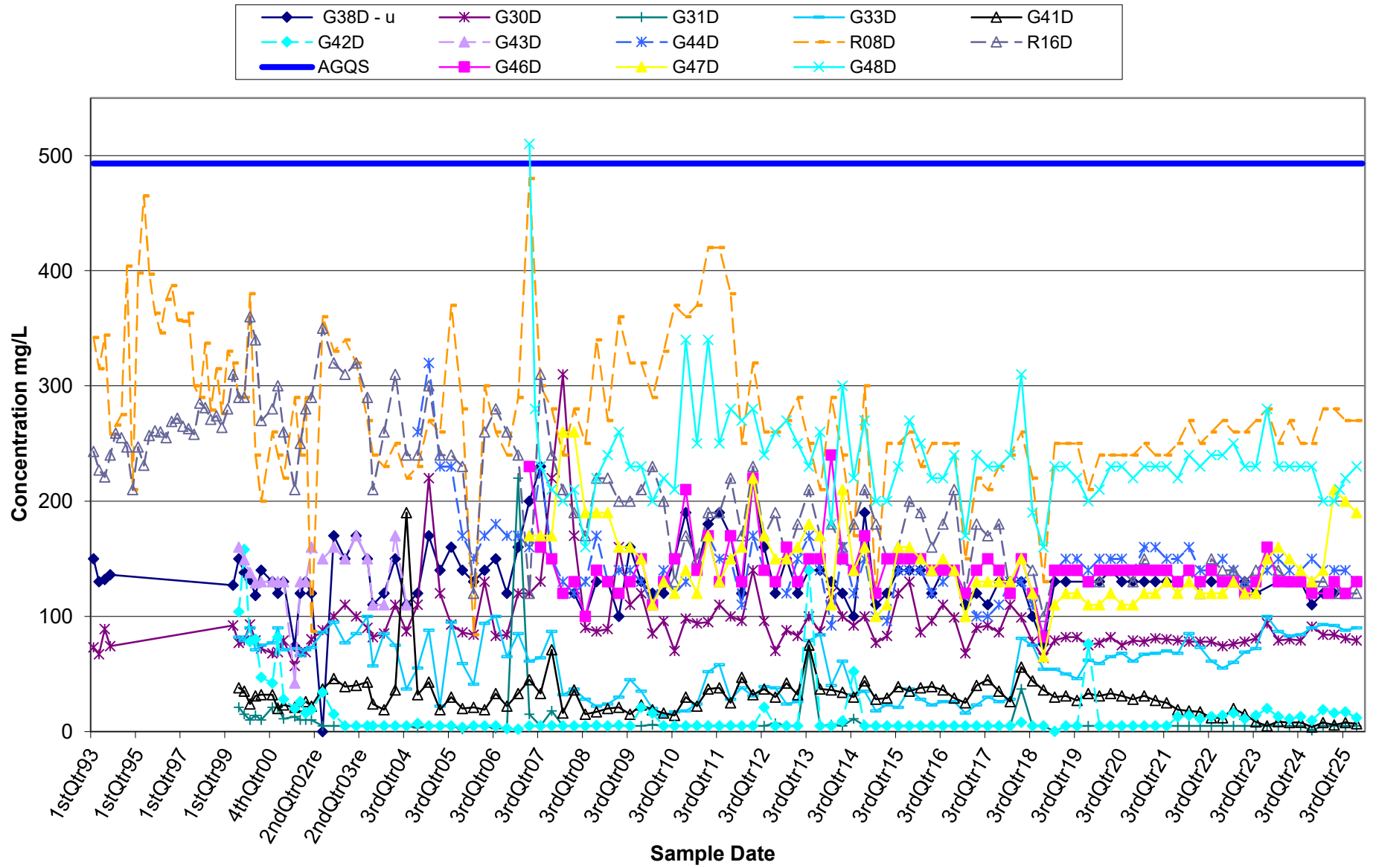
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Dissolved Sulfate vs. Time--Shallow Wells



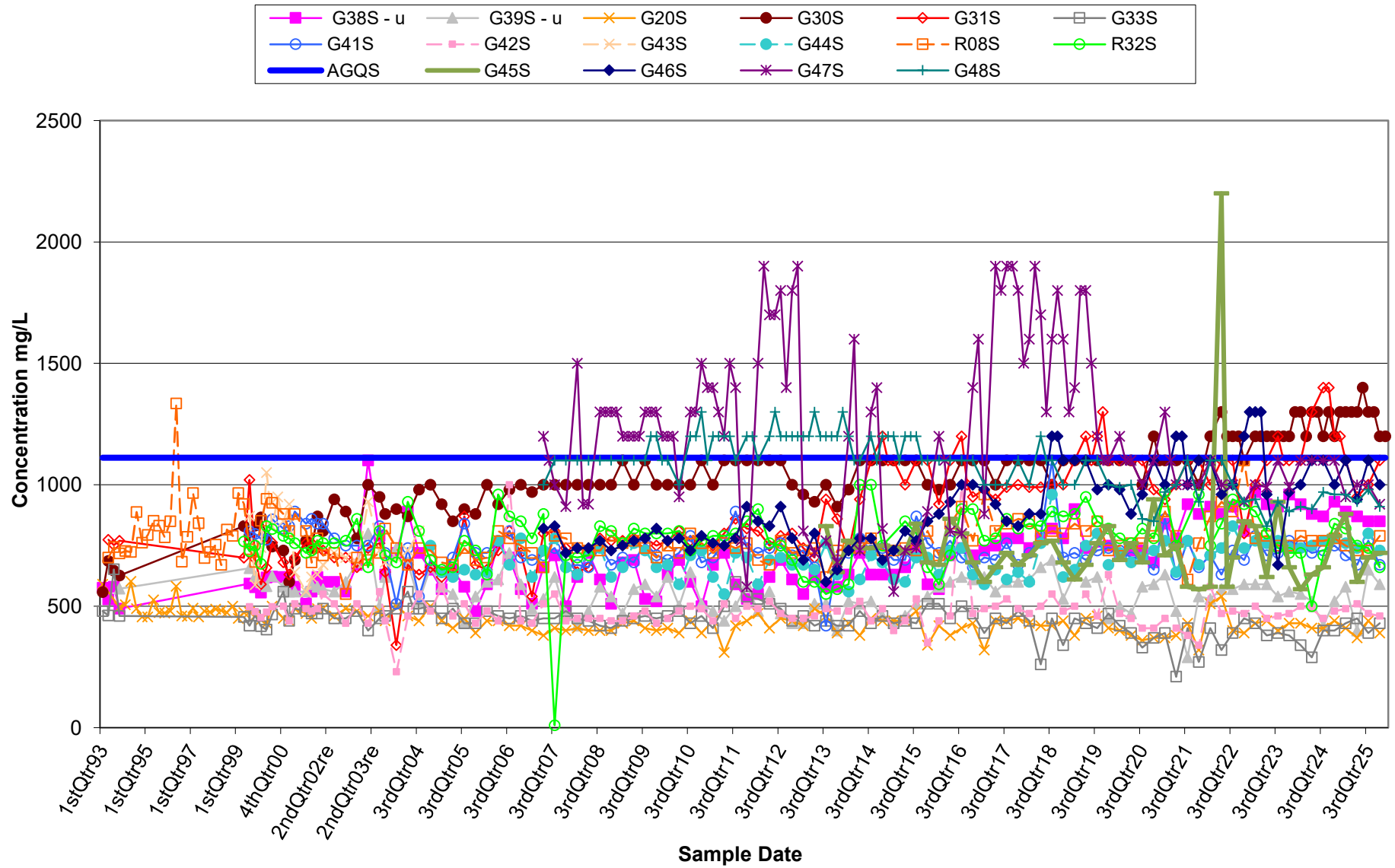
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Dissolved Sulfate vs. Time--Deep Wells



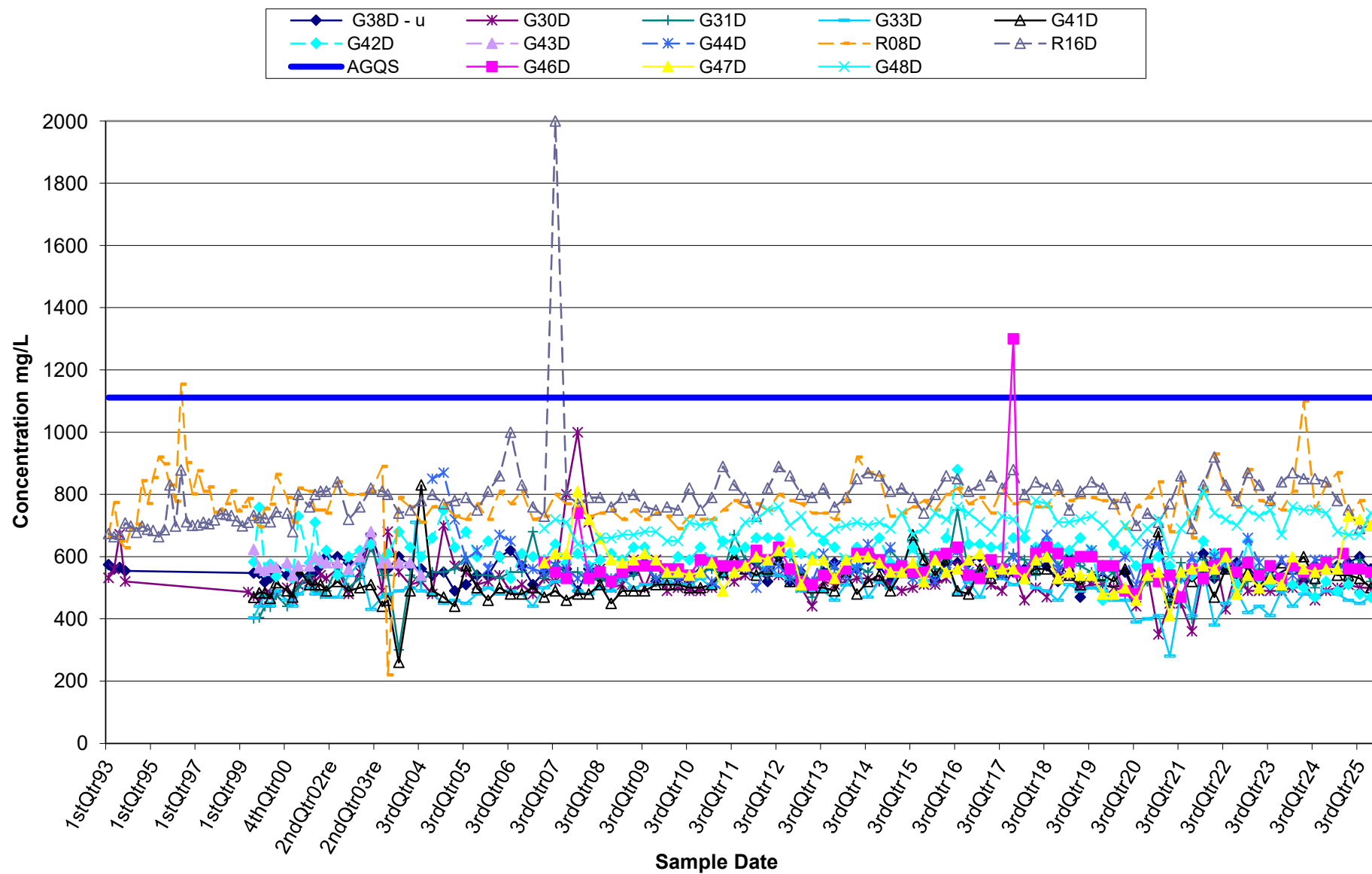
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Total Dissolved Solids vs. Time--Shallow Wells



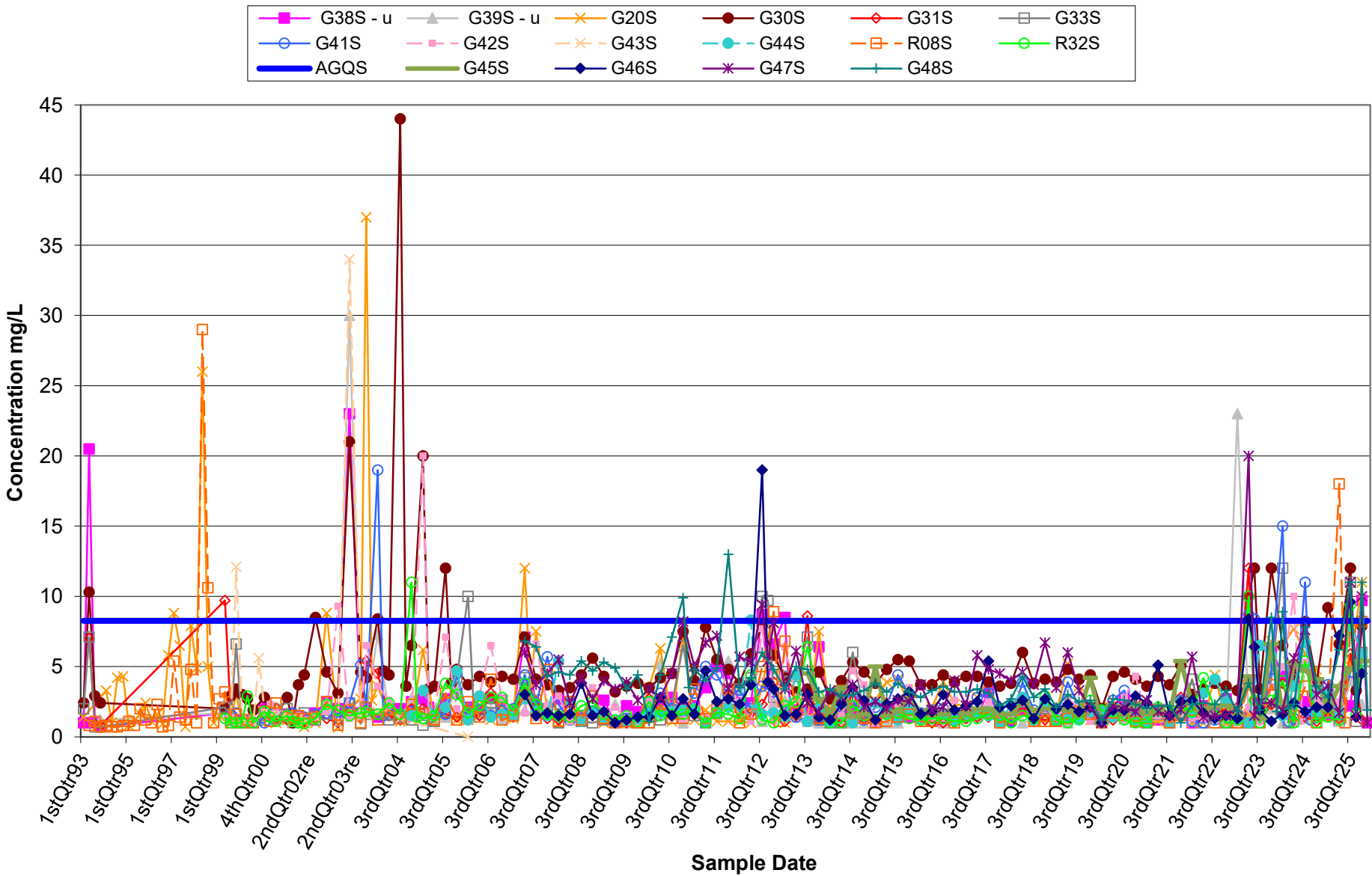
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Total Dissolved Solids vs. Time--Deep Wells



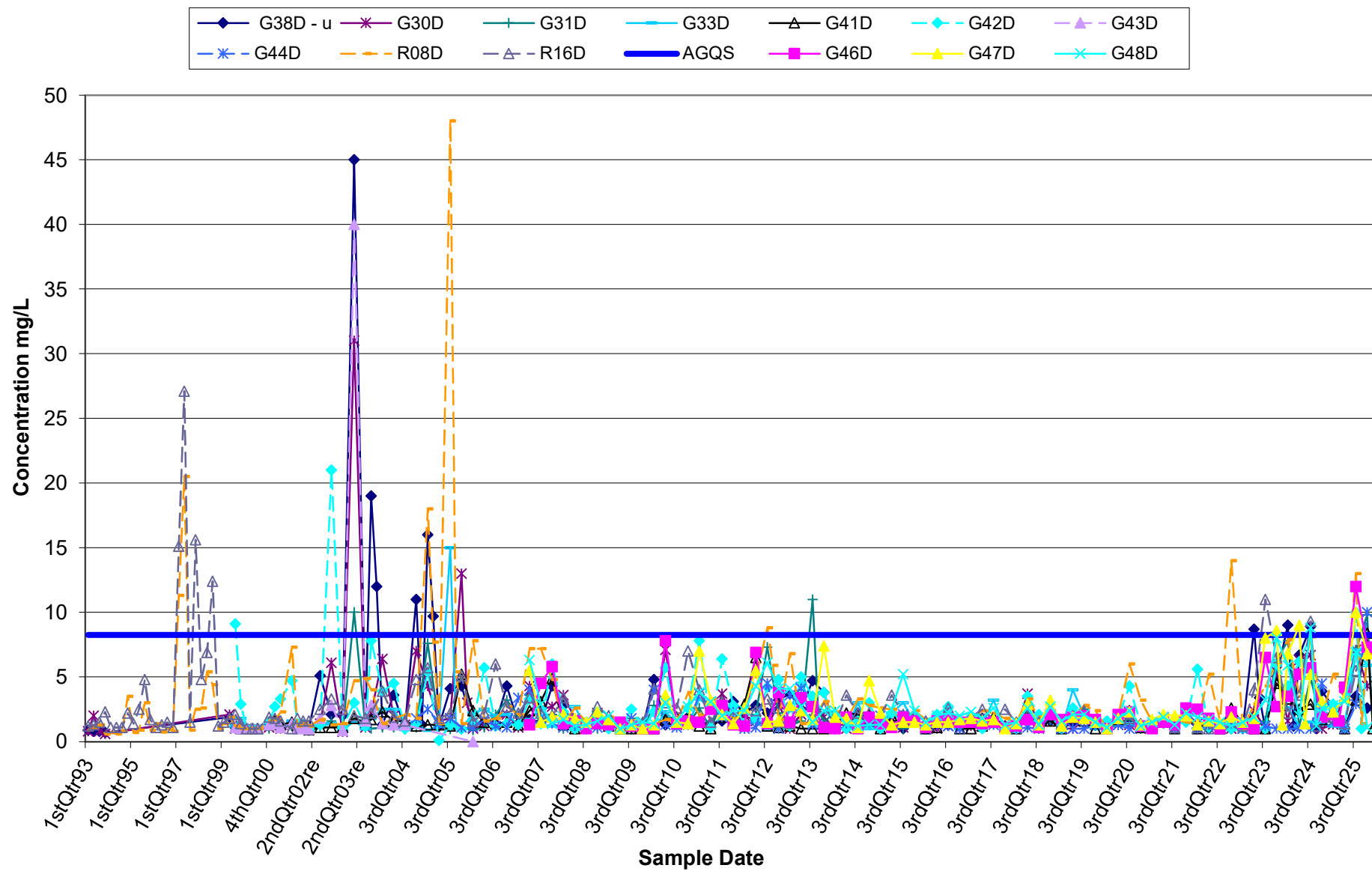
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Total Organic Carbon vs. Time--Shallow Wells



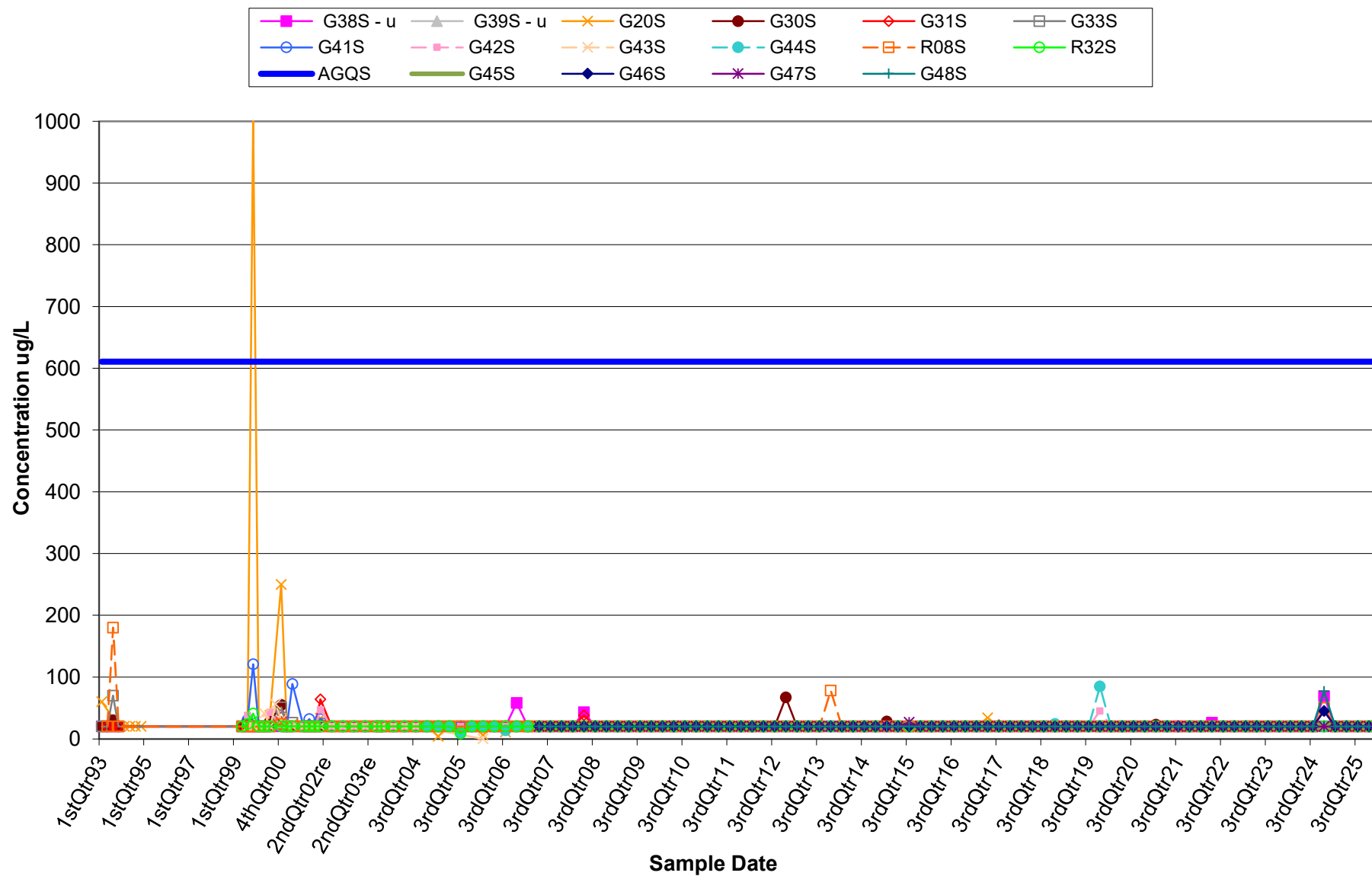
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Total Organic Carbon vs. Time--Deep Wells



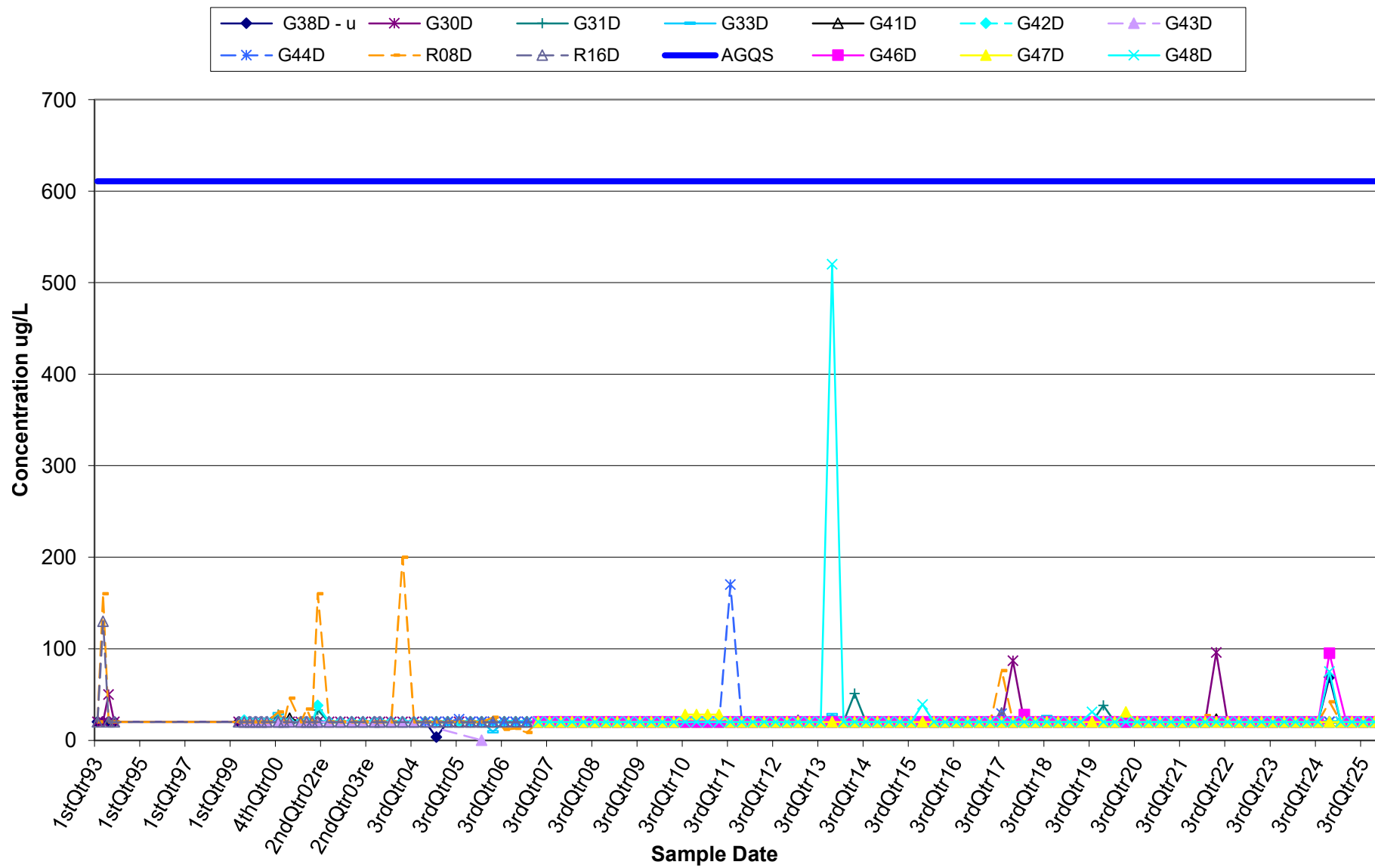
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Dissolved Zinc vs. Time--Shallow Wells



Joliet/Lincoln Stone Quarry

Dissolved Zinc vs. Time--Deep Wells



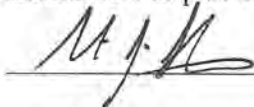
ATTACHMENT 9-3

IL PE Stamp

CERTIFICATION
35 Ill. Adm. Code 845.630

In accordance with Section 35 Ill. Adm. Code 845.630(g), I hereby certify based on review of the information contained within the Revised Application for Initial Operating Permit Application for Joliet #9 Station dated July 1, 2026 the groundwater monitoring system has been designed and constructed to satisfy the requirements of 35 Ill. Adm. Code 845.630. For this site the minimum number of wells required is deemed sufficient based on the following: 1) The number of wells, placement and screened intervals are based on a hydrogeologic assessment performed for the site; 2) hydrogeologic considerations included aquifer characteristics affecting flow velocity and physical transport processes; 3) available historical groundwater flow data indicate consistent flow conditions over time; 4) Illinois Environmental Protection Agency (IEPA) approved the overall hydrogeologic assessment as part of a larger study.

Certified by:

_____

Date:

7/1/26_____

Timothy J. Stohner, P.E.

Professional Engineer Registration No.: 062-057635

Roux Associates, Inc.



ATTACHMENT 9-4

Revised CCR Compliance Statistical Approach



ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

**ILLINOIS STATE CCR RULE COMPLIANCE
REVISED STATISTICAL APPROACH FOR GROUNDWATER
DATA EVALUATION**

**Midwest Generation, LLC
Joliet #9 Generating Station
Lincoln Stone Quarry
Patterson Rd.
Joliet, Illinois 60436**

PREPARED BY:

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

April 28, 2026

TABLE OF CONTENTS

SECTION/DESCRIPTION	PAGE
1.0 INTRODUCTION.....	1
2.0 STATISTICAL METHOD SELECTION and BACKGROUND DATA EVALUATION	2
2.1 Outlier Testing.....	2
2.2 Spatial Variability	3
2.3 Temporal Variability.....	3
2.4 Trend Testing	3
2.5 Test of Normality	3
2.6 Non-Detects.....	4
2.7 Prediction Limit Calculation for Normally Distributed Data.....	4
2.8 Prediction Limit Calculation for Non-Normally Distributed Data	5
3.0 GROUNDWATER MONITORING	6
4.0 CERTIFICATION	8

FIGURE

Figure 1 – Monitoring Well Location Map

TABLE

Table 1 – Section 845.600 Parameters

1.0 INTRODUCTION

On April 21, 2021, the Illinois Pollution Control Board (IPCB) and Illinois Environmental Protection Agency (Illinois EPA) enacted a final rule regulating coal combustion residuals (CCR) as part of Ill. Adm. Code Title 35, Part 845: Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments (State CCR Rule). The State CCR Rule specifically requires that the owner or operator of a CCR unit must develop an Operating Permit that will specify a sampling and analysis program that includes procedures and techniques for sample collection, sample preservation and shipment, analytical procedures, chain of custody (COC) control, and quality assurance and quality control. As a result, each regulated facility must develop a program that meets the State CCR Rule. At the Joliet #9 generating station, the Lincoln Stone Quarry (LSQ) requires monitoring under the State CCR Rule. As discussed in Sections 9.2 and 9.4 of the Revised Application for Initial Operating Permit – Joliet #9 Generating Station (Application), three groundwater zones will be monitored as follows:

- WT-zone – Wells G45WT (background), G46WT, G47WT, G48WT, R16WT, R08WT, G30WT and G44WT. It is noted that water table wells G30WT and G44WT will be new monitoring wells and are in the process of being scheduled for installation.
- S-zone – Wells G45S (background), G46S, G47S, G48S, G44S, G20S, G30S, R32S and R08S.
- D-zone – Wells G45D (background), G46D, G47D, G48D, G44D, R16D, G30D and R08D.

Section 845.640(f) of the State CCR Rule requires the development of the statistical approach that will be used for assessing the data and determining whether a statistically significant increase over background concentrations in groundwater has occurred at identified downgradient monitoring points. Potential statistical methods that can be applied to the data are listed in Section 845.640(f) and performance standards are provided in 845.640(g).

This narrative of the statistical approach that will be used for the LSQ groundwater monitoring data is intended to fulfill certification requirements under Section 845.640(f)(2). The professional engineer's certification of this statistical approach is provided in Section 4.0 of this document.

2.0 STATISTICAL METHOD SELECTION and BACKGROUND DATA EVALUATION

Section 845.640(f)(1) identifies five statistical data evaluation methods that can be used for assessing site groundwater data. Relative to the subject site, the prediction interval procedure identified in 845.640(f)(1)(C) will be used. This approach is robust and conforms to varying data distributions and facilitates various non-detect frequencies. U.S. EPA identifies this method as preferred over establishment of tolerance intervals (Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance, March 2009 [Unified Guidance]).

Total recoverable metals groundwater data has been collected for this site since 2015 as part of Federal CCR Rule requirements. To date, the groundwater monitoring under both the Federal CCR Rule and the State CCR rule has been focused on the S-zone as defined and discussed in Section 9.0 of the Application. Based on discussion held with Illinois EPA on April 15 and 21, 2026, the S-zone background statistical evaluation is to use the most recent 12 rounds of groundwater monitoring data (i.e., for the years 2023 through 2025) to recalculate the prediction limits using data from background well G45S. The prediction limits will then be compared against the Section 845.600(a)(1) standards (see Table 1) to establish the S-zone specific Groundwater Protection Standards (GWPSs) in accordance with Section 845.600(a)(2).

It is noted that additional background development will also be required individually for the WT-zone and D-zone. These zones were not part of the initial groundwater monitoring network under the initial Application submittal dated October 29, 2021. Therefore, background sampling for these two zones has not yet been completed. Once eight rounds of background sampling is completed for these wells under this Revised Application, statistical evaluations and prediction limits will be developed individually for each zone. Based on those calculations, zone-specific GWPSs will be established in accordance with Section 845.600(a)(2).

Statistical evaluations will be performed with the assistance of the SanitasTM software package.

2.1 Outlier Testing

The background dataset will be first checked for potential outliers for each constituent. Potential causes of outliers can be, but are not limited to:

- Changes in sampling technique;
- Changes in analytical methods;
- Data transcription errors;
- Unnatural localized event such as a spill; or
- Natural but extreme variations in constituent concentration.

The Unified Guidance does not recommend removing outlier, however, it is noted that professional judgement may be used if needed. For the purpose of these evaluations under the state CCR Rule, an outlier will only be removed if it can be traced back to a field sampling issue or analytical laboratory issue. Otherwise, the outlier will not be removed, however, this information may be important in associated data evaluations.

2.2 Spatial Variability

If more than one background well is being used for the monitored unit, an evaluation of spatial variability will be performed to determine whether the mean concentration of a constituent varies statistically between the background points. This is generally accomplished by performing an Analysis of Variance (ANOVA). If statistically significant spatial variation is determined to be present, the background points will not be combined between the wells. If the spatial variability is determined to be natural, an intrawell data evaluation approach may be considered for both upgradient and downgradient wells. It is noted that for this site, only one background well will be used for background evaluations for each monitoring zone, therefore, special variability will not be a consideration.

2.3 Temporal Variability

Temporal variability in groundwater data from a specific monitoring point occurs when a consistent fluctuation of constituent concentrations occurs over time. The most common example is seasonal variation. If such a variation is noted in the data, the dataset should be corrected to account for the trend; however, any such corrections must be applied judiciously and would be completed in accordance with the Unified Guidance recommended procedures.

2.4 Trend Testing

The background dataset for each upgradient well, for each constituent listed in Table 1, will undergo trend analysis to determine if there may be a potential statistically significant trend in the data. Linear regression will be the primary trend analysis tool, however, other methods such as Sen's Slope Estimator may also be used. If a statistically significant trend is identified in the background dataset for a specific constituent, the dataset for that constituent may be expanded or contracted (but to no less than eight rounds of data) to see if the noted trend continues to be documented. If a slightly smaller or larger dataset addresses the issue, that dataset will be used relative to that constituent for subsequent calculations. If the noted trend continues to be identified, then it will be noted as such, the above noted 12 rounds of the most recent sampling will be used, and the information will be used to assist with subsequent data interpretations.

2.5 Test of Normality

The main underlying assumption in parametric data evaluations, such as establishing prediction limits, is that the underlying data distribution is normal. A quick approximation can be made by calculating the Coefficient of Variance (CV) which is the quotient of the standard deviation divided by the sample mean. In general, if this quotient is greater than 1, the underlying data distribution is probably not normal. The new Unified Guidance is more conservative and suggests that if this quotient is greater than 0.5, the dataset may not be normal and a more robust distribution evaluation should be performed. Therefore, for any CV value greater than 0.5 for a specific dataset, normality will be evaluated using the Shapiro-Wilk Test with an alpha (α) value of 0.05 (or 95%).

If the dataset does not pass this initial test, the data will undergo a log transformation and the test will be repeated for the natural log values of the dataset. If it is determined that this dataset is

log-normal, statistical evaluations will be completed on those values and the result converted back to the standard value. If the underlying distribution is also determined not to be log-normal, the Unified Guidance provides for a number of other data transformations that can be performed to evaluate whether those underlying distributions may be normal at which point the entire dataset would be transformed for subsequent calculations.

If a normal underlying distribution can not be determined, non-parametric statistical evaluations will need to be considered which do not rely on a specific underlying distribution.

2.6 Non-Detects

It is not uncommon in environmental datasets to have parameters being detected at low concentrations during one sampling event and being not detected in other sampling events. Having a consistent approach to the handling of non-detect values is an important part of the statistical evaluation process. The handling of non-detect values will be accomplished as follows:

- 100 Percent Non-Detects – Assumed that the constituent is not present and no statistical evaluations will be performed. The upper prediction limit will be set at the Reporting Limit (RL) established by the analytical laboratory.
- 50 Percent or Greater Non-Detects – A non-parametric evaluation will be performed where the confidence interval will be constructed using the highest detected concentration as the upper prediction limit.
- 15 to 50 Percent Non-Detects – Aitchison's Adjustment will be used with subsequent parametric or non-parametric evaluations, as appropriate, based on underlying distributions.
- 0 to 15 Percent Non-Detects - The non-detect values will be replaced with RL/2 and the dataset will be evaluated for distribution normality with subsequent parametric or non-parametric evaluations, as appropriate, based on underlying distributions.

2.7 Prediction Limit Calculation for Normally Distributed Data

For datasets where the distribution or underlying transformed distribution is normal, a parametric statistical approach will be used for establishing the prediction limit at the required 95% statistical confidence. In accordance with Unified Guidance, the following equation will be used:

$$95\% \text{ Prediction Limit} = \bar{x} + t_{1-0.05/m,n-1} s \sqrt{1 + \frac{1}{n}}$$

Where:

$\bar{x}$ = the sample mean of the detected or adjusted results

s = sample standard deviation of the detected or adjusted results

$t_{1-0.05/m, n-1}$ = the students t-coefficient for degrees of freedom (n-1) and confidence level (1-0.05/m)

n = the number of samples

m = the number of future samples

The number of future sampling events (m) will be set at 2 which will account for one sampling event and a confirmation resampling. This will assist in limiting the potential number of false positives. An acceptable site-wide false positive (SWFP) rate of 10% or less is acceptable under the Unified Guidance.

2.8 Prediction Limit Calculation for Non-Normally Distributed Data

If the dataset distribution or underlying distribution is determined not to be normal, a non-parametric approach will need to be used for the establishment of the prediction limit. The non-parametric evaluation will use the highest detected concentration as the upper prediction limit for the specific constituent.

3.0 GROUNDWATER MONITORING

The State CCR Rule does not distinguish between detection monitoring or assessment monitoring as was defined under the Federal CCR Rule. To meet the requirements set forth in Section 845.650(b), a minimum of eight rounds of groundwater data need to be collected for establishing background. As noted above, more than eight rounds of data are currently available for the S-zone so a larger dataset can be evaluated to determine whether the background dataset can be expanded to provide a more robust statistical assessment. At that point, statistical evaluation of the background dataset will be performed to establish the upper prediction limits for each Section 845.600(a) constituent. It is noted that in the case of pH, a lower prediction limit will also be established since this parameter has an established upper and lower value range for compliance. Initial background sampling for the WT-zone and D-zone is in the process of being developed and statistical calculations will be completed after eight rounds of samples have been collected.

Site specific Groundwater Protection Standards (GWPSs) will be developed in accordance with Section 845.600(a)(2) as follows:

- If the constituent has an established State standard listed in Section 845.600(a)(1) and the standard is greater than the calculated background upper prediction limit, then the standard will serve as the GWPS. If the background upper prediction limit is greater than the standard, the upper prediction limit will serve as the GWPS.
- If the constituent does not have an established standard (i.e., calcium) then the calculated upper prediction limit will serve as the GWPS.

Once the proposed GWPSs are determined and approved by Illinois EPA, subsequent downgradient well concentrations will be compared against the upper prediction limit (and lower prediction limit in the case of pH), and the GWPSs. If an exceedance of the GWPS is identified during a quarterly sampling event, an immediate resampling of the specific well(s) will be completed for those specific parameters. If the exceedance is confirmed by the resampling, the Illinois EPA will be notified of the exceedance(s) and the notification will be placed in the facilities operating record in accordance with 845.800(d)(16). It is noted that there are some constituents that historically may have had no detections (i.e., 100% non-detects). In this case, in accordance with the Unified Guidance, if there is a detection of such a constituent, then the Double Quantification Rule will be applied. Under this rule, a confirmed exceedance is registered if any well-constituent pair in the 100% non-detect group exhibits quantified measurements (i.e., at or above the Reporting Limit in two consecutive sample and resample events).

If an exceedance of the GWPS is recorded and reported to Illinois EPA, an Alternate Source Demonstration (ASD) may be completed within 60-days of the confirmed exceedance in accordance with Section 845.650(e) and submitted to the Illinois EPA as well as placing the ASD on the facility's publically accessible CCR website. Illinois EPA will review and approve or disapprove the ASD.

If it is decided not to complete an ASD or if Illinois EPA does not concur with and approve the ASD, a characterization of the nature and extent of the potential release must be completed in accordance with Section 845.650(d)(1) as well as meeting the requirements of Sections 845.660, 845.670 and 845.680.

4.0 CERTIFICATION

In accordance with Section 845.640(f)(2) of the State CCR Rule, I hereby certify based on a review of the information contained within this Illinois State CCR Rule Compliance Statistical Approach for Groundwater Data Evaluation dated April 28, 2026, the statistical procedures developed and selected for evaluation of groundwater data associated with the Midwest Generation Joliet #9 Station/Lincoln Stone Quarry CCR Units are adequate and appropriate for evaluating the groundwater data.

Certified by:



Date:

4/28/26

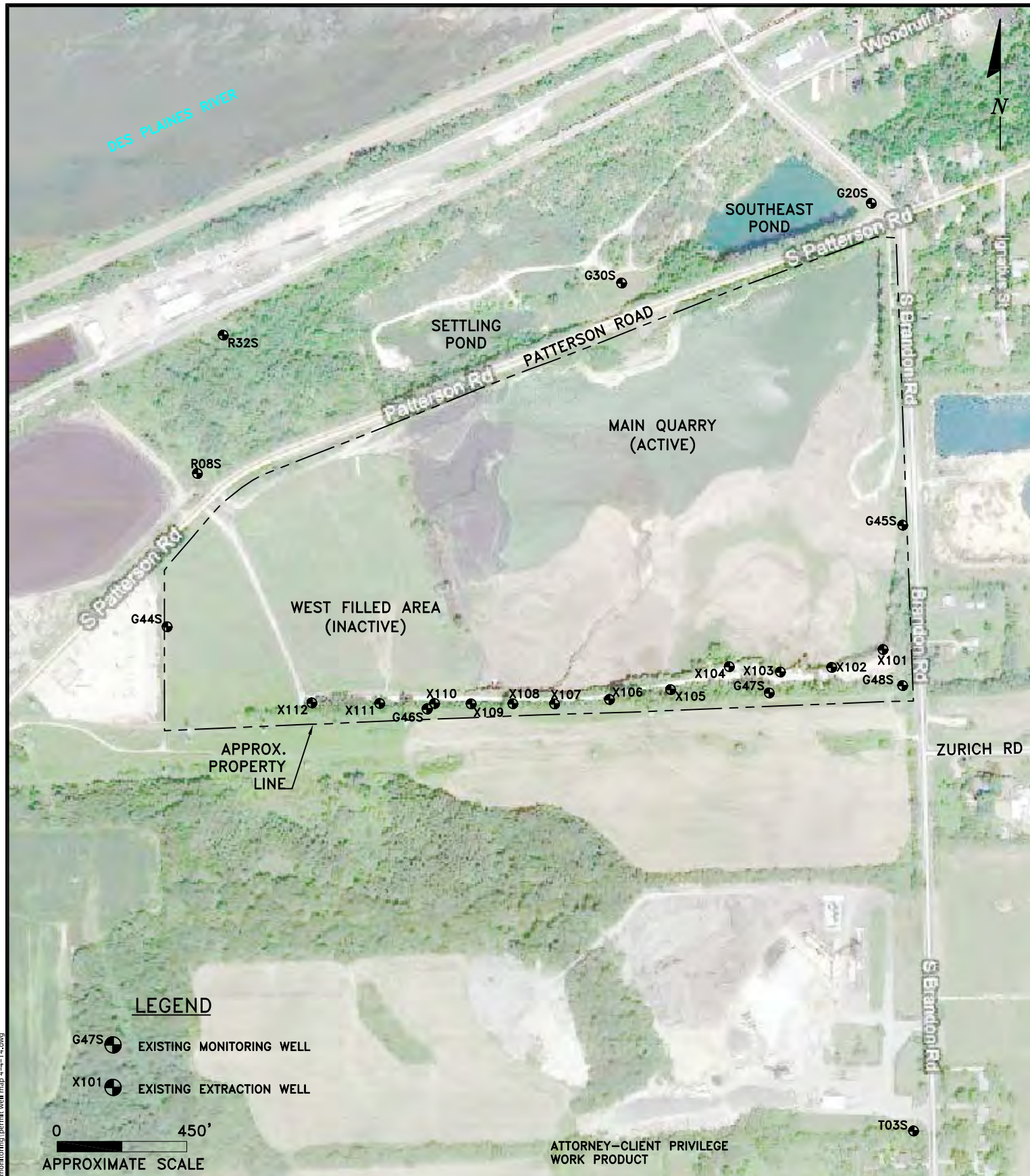
Timothy Stohner, P.E.

Professional Engineer Registration No. 062.057635

KPRG and Associates, Inc.



FIGURE



ENVIRONMENTAL CONSULTATION & REMEDIATION

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CCR MONITORING WELL SITE MAP

LINCOLN STONE QUARRY
JOLIET, ILLINOIS

Scale: 1" = 450'

Date: February 11, 2016

KPRG Project No. 12313

FIGURE 1

TABLE

Table 1. Section 845.600 Groundwater Monitoring Parameter List

Parameter	Section 845.600 Standards
Antimony	0.006
Arsenic	0.01
Barium	2
Beryllium	0.004
Boron	2.0
Cadmium	0.005
Chloride	200
Chromium	0.1
Cobalt	0.006
Combined Radium 226 + 228 (pCi/L)	5.0
Fluoride	4.0
Lead	0.0075
Lithium	0.04
Mercury	0.002
Molybdenum	0.10
pH (standard units)	6.5-9.0
Selenium	0.05
Sulfate	400
Thallium	0.002
Total Dissolved Solids	1200
Calcium	NE
Turbidity	NE

All vaues in mg/l unless otherwise specified.
NE- Not Established

ATTACHMENT 9-5

Statistical Evaluation Summary

ATTACHMENT 9-5
BACKGROUND STATISTICAL EVALUATION
SUMMARY
STATE RULE CCR GROUNDWATER
MONITORING
JOLIET #9 GENERATING STATION

The Ill. Adm. Code Title 35, Part 845: Standards for the Disposal of Coal Combustion Residual in Surface Impoundments (State CCR Rule) requires the development of proposed Groundwater Protection Standards (GWPSs) for inclusion within the Operating Permit for the regulated surface impoundments at the facility. Upon Illinois Environmental Protection Agency (IEPA) review, concurrence, and approval of these site-specific proposed GWPSs, subsequent quarterly downgradient groundwater monitoring data will be compared against these standards to determine whether standard quarterly monitoring is to continue or whether additional evaluations need to occur in accordance with Section 845.650(d), 845.650(e), 845.660, and 845.670. The overall statistical approach to be used for the development of the proposed GWPSs is provided in Attachment 9-4 of this revised Operating Permit. This statistical evaluation is revised from the original which was submitted with the first Operating Permit application on October 31, 2021.

The proposed site-specific GWPSs for the Joliet #9 Generating Station are summarized in Table 9-6 of this revised Operating Permit. The background Prediction Limit values presented in the table were developed using G45S as the sole background monitoring point at the direction of the Illinois EPA.

Twelve complete rounds of State CCR Rule groundwater samples were collected from March 2023 to March 2026 for upgradient well G45S and downgradient wells R08S, G20S, G30S, R32S, G44S, G46S, G47S, and G48S for all parameters listed in Section 845.600(a)(1) and calcium and turbidity, as required by Section 845.600(c). It is noted that groundwater sampling for the state CCR rule began in 2021, and federal CCR groundwater sampling has been conducted since 2015, however, the IEPA requested to use only the most recent 12 quarters of monitoring for the purposes of the statistical background evaluation. As evaluations were initiated, the background dataset considered was either reduced to the last eight quarters or expanded to the last 16 quarters for the following parameters:

- Last 8 Rounds (1st quarter 2024 to 4th quarter 2025): fluoride
- Last 16 Rounds (1st quarter 2022 to 4th quarter 2026): arsenic, chloride, and sulfate.

More detail for why these datasets were chosen are given in the discussions below. Complete datasets are included in Table 9-4.

The statistical evaluations for calculation of PLs were performed with the assistance of the Sanitas[®] statistical software package and are discussed below. The backup for the statistical runs is provided at the end of this document.

Test of Normality

The Shapiro-Wilk Normality Test with an alpha (α) value of 0.05 (or 95%) was used to evaluate the distribution of the background data sets for each CCR parameter. A Test of Ladders was also run to evaluate other potential underlying transformational distributions in the case that the non-transformed data was found not to be normally distributed. The results of the normality testing are summarized in the table below:

Table. Summary of Normality Testing Results

Parameter	G45S
Antimony	No
Arsenic	Yes
Barium	Yes
Beryllium	No
Boron	Yes
Calcium	Yes
Cadmium	No
Chloride	Yes**
Chromium	No
Cobalt	No
Fluoride	Yes*
Lead	No
Lithium	Yes
Mercury	No
Molybdenum	Yes
pH	Yes
Selenium	No
Sulfate	Yes**
Thallium	No
Total Dissolved Solids	No
Turbidity	Yes
Combined Radium 226+228	Yes

Yes – Either non-transformed or transformed distribution(s) found to be normal.

No – Neither non-transformed nor transformed distribution(s) found to be normal.

* - Last 8 rounds dataset.

** - Last 16 rounds dataset.

The last 12 rounds of data were found to be normally distributed for boron, calcium, pH, total dissolved solids (TDS), barium, lithium, molybdenum, combined radium 226/228, and turbidity. While the last 12 rounds of arsenic and fluoride data did have normal distributions, there were significant trends as discussed in the Trend Testing section of this discussion. Therefore, the last 12 rounds datasets were not used. The arsenic dataset was expanded to include the last 16 rounds of

data and was found to have a normal distribution and no significant trends.

Different sizes of datasets were tested for fluoride: the last 16, 20, 24, 28, 32, and 36 (all data to date) round datasets were tested. All expanded datasets were found to be not normally distributed with detections for most, if not all, sampling events. Using a normal distribution when possible is recommended by the Unified Guidance (update date here), and so the expanded datasets were not used. The last 8 rounds of fluoride data were tested were found to be normally distributed with no significant trends, and the last 8 rounds dataset was chosen for fluoride.

Similarly, the chloride and sulfate last 12 round datasets were found to be not normal and had detections for most if not all sampling events. The datasets were expanded to include the last 16 rounds for chloride and sulfate, which were both found to have normal distributions and were chosen for analysis.

The antimony, beryllium, cadmium, chromium, cobalt, lead, mercury, selenium, and thallium data sets were all found to be not normal since either all, or predominantly all (greater than or equal to 50%) of the background measurements were non-detects. These parameters were evaluated using non-parametric methods as described in Attachment 9-4 of this Revised Operating Permit

Outlier Testing

The presence of potential outliers was evaluated for upgradient well G45S for each CCR constituent. Noted statistically significant outliers were detected for arsenic (3/16/2022), calcium (9/14/2023), chloride (3/16/2022 and 12/21/2022), fluoride (8/29/2024). The arsenic, calcium, chloride (3/16/2022), and fluoride outliers are low-end outliers. The chloride outlier for 12/17/2022 was a high-end outlier. Since the outliers cannot be attributed to either lab error, transcription error, or field sampling error, the outlier values were not removed from the datasets at this time but may be considered during subsequent data evaluations based on professional judgment. There were no other outliers detected for other parameters at G45S.

Trend Testing

The last 12 rounds background dataset was tested to check if there were statistically significant trends over time for each CCR parameter, save for chloride and sulfate which were tested using the last 16 rounds datasets for reasons detailed in the Test of Normality section of this discussion. The results of the linear regression and Sen's Slope test indicated no significant trends over time for any parameters at G45S except for arsenic, which had a significant decreasing trend using linear regression, and fluoride, which showed a significant increasing trend using Sen's Slope. To avoid using a dataset with significant trends, the datasets for arsenic and fluoride were expanded (arsenic, to use the last 16 rounds) or reduced (fluoride, to use the last 8 rounds) in order to use normally distributed datasets as per the Unified Guidance. No significant trends were found using either linear regression or Sen's Slope test for either parameter using those datasets. A full breakdown of the trend tests is at the end of this document.

Temporal Variability Testing

Temporal variability testing was performed to determine whether there may be a seasonal effect on the background datasets. No significant temporal variability was found for any CCR parameter. A statistical run summary is provided at the end of this discussion.

Prediction Limits

Based on the upgradient well G45S data found in Table 9-4, varying from last 8, 12, and 16 rounds as detailed in the previous sections, interwell PLs were calculated for comparison to the downgradient monitoring well data from the most recent round of CCR groundwater monitoring data. The resulting PLs are found in Table 9-6. In accordance with Section 845.600(a)(2), the applicable GWPS for each constituent was either taken to be the concentrations listed in Section 845.600(a)(1) or the calculated PL, whichever was the higher concentration. The chosen GWPSs defaulted to the concentrations listed in Section 845.600(a)(1), except for arsenic, calcium, and turbidity. A back up of the prediction limit statistical run summary is provided at the end of this document.

Continued State CCR Monitoring Compliance

It is noted that under the federal CCR program, the site has moved to a nature and extent evaluation and corrective action. It is expected that, upon the approval of the IEPA and issuance of the operating permit, no alternate source demonstrations (ASDs) would be conducted and the site would go directly into a nature and extent evaluation and corrective action.

It is also noted that, as per discussions with the IEPA during a technical meeting on April 15th, 2026, that establishing CCR network data for the water table (WT) and deep (D) zones will be required. As part of this, upgradient wells G45WT and G45D will have 8 rounds of CCR sampling initiated. Upon the completion of this sampling, a statistical evaluation will be conducted to determine GWPSs for those individual zones and submitted to the IEPA for approval.

Statistical Run Documentation

Test of Normality

Shapiro-Wilk Normality Test

Constituent: Antimony Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.327	0.859	No
	square root	0.327	0.859	No
	square	0.327	0.859	No
	cube root	0.327	0.859	No
	cube	0.327	0.859	No
	natural log	0.327	0.859	No
	x^4	0.327	0.859	No
	x^5	0.327	0.859	No
	x^6	0.327	0.859	No

Shapiro-Wilk Normality Test

Constituent: Barium Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Well	Transformation	Calculated	Critical	Normal
G45S (bg) (n = 12, alpha = 0.05)	no	0.937	0.859	Yes
	square root	0.9432	0.859	Yes
	square	0.9202	0.859	Yes
	cube root	0.945	0.859	Yes
	cube	0.8981	0.859	Yes
	natural log	0.948	0.859	Yes
	x^4	0.8713	0.859	Yes
	x^5	0.8409	0.859	No
	x^6	0.8079	0.859	No

Shapiro-Wilk Normality Test

Constituent: Beryllium Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	-1	0.859	No
	square root	-1	0.859	No
	square	-1	0.859	No
	cube root	0	0.859	No
	cube	-1	0.859	No
	natural log	0	0.859	No
	x^4	-1	0.859	No
	x^5	-1	0.859	No
	x^6	-1	0.859	No

Shapiro-Wilk Normality Test

Constituent: Boron Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Well	Transformation	Calculated	Critical	Normal
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.9214	0.859	Yes
	square root	0.9003	0.859	Yes
	square	0.9499	0.859	Yes
	cube root	0.8923	0.859	Yes
	cube	0.9605	0.859	Yes
	natural log	0.875	0.859	Yes
	x^4	0.9557	0.859	Yes
	x^5	0.939	0.859	Yes
	x^6	0.9143	0.859	Yes

Shapiro-Wilk Normality Test

Constituent: Cadmium Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.327	0.859	No
	square root	0.327	0.859	No
	square	0.327	0.859	No
	cube root	0.327	0.859	No
	cube	0.327	0.859	No
	natural log	0.327	0.859	No
	x^4	0.327	0.859	No
	x^5	0.327	0.859	No
	x^6	-1	0.859	No

Shapiro-Wilk Normality Test

Constituent: Calcium Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Well	Transformation	Calculated	Critical	Normal
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.9505	0.859	Yes
	square root	0.9434	0.859	Yes
	square	0.9503	0.859	Yes
	cube root	0.9399	0.859	Yes
	cube	0.9324	0.859	Yes
	natural log	0.9315	0.859	Yes
	x^4	0.9001	0.859	Yes
	x^5	0.8579	0.859	No
	x^6	0.8103	0.859	No

Shapiro-Wilk Normality Test

Constituent: Chromium Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	-1	0.859	No
	square root	0	0.859	No
	square	-1	0.859	No
	cube root	0	0.859	No
	cube	-1	0.859	No
	natural log	0	0.859	No
	x^4	-1	0.859	No
	x^5	-1	0.859	No
	x^6	-1	0.859	No

Shapiro-Wilk Normality Test

Constituent: Cobalt Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.327	0.859	No
	square root	0.327	0.859	No
	square	0.327	0.859	No
	cube root	0.327	0.859	No
	cube	0.327	0.859	No
	natural log	0.327	0.859	No
	x^4	0.327	0.859	No
	x^5	0.327	0.859	No
	x^6	0.327	0.859	No

Shapiro-Wilk Normality Test

Constituent: Combined Radium 226 + 228 Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.9912	0.859	Yes
	square root	0.9852	0.859	Yes
	square	0.9906	0.859	Yes
	cube root	0.9822	0.859	Yes
	cube	0.9749	0.859	Yes
	natural log	0.9749	0.859	Yes
	x^4	0.9473	0.859	Yes
	x^5	0.9116	0.859	Yes
	x^6	0.8711	0.859	Yes

Shapiro-Wilk Normality Test

Constituent: Field pH Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.9153	0.859	Yes
	square root	0.9164	0.859	Yes
	square	0.9131	0.859	Yes
	cube root	0.9168	0.859	Yes
	cube	0.9108	0.859	Yes
	natural log	0.9175	0.859	Yes
	x^4	0.9085	0.859	Yes
	x^5	0.9062	0.859	Yes
	x^6	0.9038	0.859	Yes

Shapiro-Wilk Normality Test

Constituent: Lead Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	-1	0.859	No
	square root	0	0.859	No
	square	-1	0.859	No
	cube root	0	0.859	No
	cube	-1	0.859	No
	natural log	-1	0.859	No
	x^4	-1	0.859	No
	x^5	-1	0.859	No
	x^6	-1	0.859	No

Shapiro-Wilk Normality Test

Constituent: Lithium Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Well	Transformation	Calculated	Critical	Normal
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.8732	0.859	Yes
	square root	0.8773	0.859	Yes
	square	0.8639	0.859	Yes
	cube root	0.8786	0.859	Yes
	cube	0.8533	0.859	No
	natural log	0.8811	0.859	Yes
	x^4	0.8414	0.859	No
	x^5	0.8284	0.859	No
	x^6	0.8145	0.859	No

Shapiro-Wilk Normality Test

Constituent: Mercury Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	-1	0.859	No
	square root	0	0.859	No
	square	-1	0.859	No
	cube root	0	0.859	No
	cube	-1	0.859	No
	natural log	-1	0.859	No
	x^4	-1	0.859	No
	x^5	-1	0.859	No
	x^6	-1	0.859	No

Shapiro-Wilk Normality Test

Constituent: Molybdenum Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.8461	0.859	No
	square root	0.832	0.859	No
	square	0.8682	0.859	Yes
	cube root	0.8268	0.859	No
	cube	0.8824	0.859	Yes
	natural log	0.8159	0.859	No
	x^4	0.8892	0.859	Yes
	x^5	0.8898	0.859	Yes
	x^6	0.8856	0.859	Yes

Shapiro-Wilk Normality Test

Constituent: Selenium Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.327	0.859	No
	square root	0.327	0.859	No
	square	0.327	0.859	No
	cube root	0.327	0.859	No
	cube	0.327	0.859	No
	natural log	0.327	0.859	No
	x^4	0.327	0.859	No
	x^5	0.327	0.859	No
	x^6	0.327	0.859	No

Shapiro-Wilk Normality Test

Constituent: Thallium Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.327	0.859	No
	square root	0.327	0.859	No
	square	0.327	0.859	No
	cube root	0.327	0.859	No
	cube	0.327	0.859	No
	natural log	0.327	0.859	No
	x^4	0.327	0.859	No
	x^5	0.327	0.859	No
	x^6	0.327	0.859	No

Shapiro-Wilk Normality Test

Constituent: Total Dissolved Solids Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Well	Transformation	Calculated	Critical	Normal
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.921	0.859	Yes
	square root	0.9327	0.859	Yes
	square	0.8916	0.859	Yes
	cube root	0.9362	0.859	Yes
	cube	0.8555	0.859	No
	natural log	0.9423	0.859	Yes
	x^4	0.8143	0.859	No
	x^5	0.7704	0.859	No
	x^6	0.7255	0.859	No

Shapiro-Wilk Normality Test

Constituent: Turbidity Analysis Run 5/18/2026 12:37 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

<u>Well</u>	<u>Transformation</u>	<u>Calculated</u>	<u>Critical</u>	<u>Normal</u>
G45S (bg) (n = 12, alpha = 0.05)				
	no	0.8374	0.859	No
	square root	0.9426	0.859	Yes
	square	0.6218	0.859	No
	cube root	0.9635	0.859	Yes
	cube	0.4879	0.859	No
	natural log	0.9648	0.859	Yes
	x^4	0.4147	0.859	No
	x^5	0.3752	0.859	No
	x^6	0.3537	0.859	No

Shapiro-Wilk Normality Test

Constituent: Fluoride Analysis Run 5/18/2026 3:16 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Well	Transformation	Calculated	Critical	Normal
G45S (bg) (n = 8, alpha = 0.05)				
	no	0.9183	0.818	Yes
	square root	0.9085	0.818	Yes
	square	0.9343	0.818	Yes
	cube root	0.905	0.818	Yes
	cube	0.9452	0.818	Yes
	natural log	0.8975	0.818	Yes
	x^4	0.951	0.818	Yes
	x^5	0.9519	0.818	Yes
	x^6	0.9486	0.818	Yes

Shapiro-Wilk Normality Test

Constituent: Arsenic Analysis Run 5/18/2026 1:18 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Well	Transformation	Calculated	Critical	Normal
G45S (bg) (n = 16, alpha = 0.05)	no	0.5845	0.887	No
	square root	0.5004	0.887	No
	square	0.7546	0.887	No
	cube root	0.4748	0.887	No
	cube	0.8787	0.887	No
	natural log	0.4285	0.887	No
	x^4	0.9446	0.887	Yes
	x^5	0.9694	0.887	Yes
	x^6	0.9711	0.887	Yes

Shapiro-Wilk Normality Test

Constituent: Chloride Analysis Run 5/18/2026 1:18 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Well	Transformation	Calculated	Critical	Normal
G45S (bg) (n = 16, alpha = 0.05)				
	no	0.8568	0.887	No
	square root	0.8866	0.887	No
	square	0.7744	0.887	No
	cube root	0.8942	0.887	Yes
	cube	0.6795	0.887	No
	natural log	0.9055	0.887	Yes
	x^4	0.5897	0.887	No
	x^5	0.5141	0.887	No
	x^6	0.4543	0.887	No

Shapiro-Wilk Normality Test

Constituent: Sulfate Analysis Run 5/18/2026 1:18 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Well	Transformation	Calculated	Critical	Normal
G45S (bg) (n = 16, alpha = 0.05)				
	no	0.9108	0.887	Yes
	square root	0.911	0.887	Yes
	square	0.9032	0.887	Yes
	cube root	0.9105	0.887	Yes
	cube	0.8866	0.887	No
	natural log	0.9086	0.887	Yes
	x^4	0.8627	0.887	No
	x^5	0.8331	0.887	No
	x^6	0.8	0.887	No

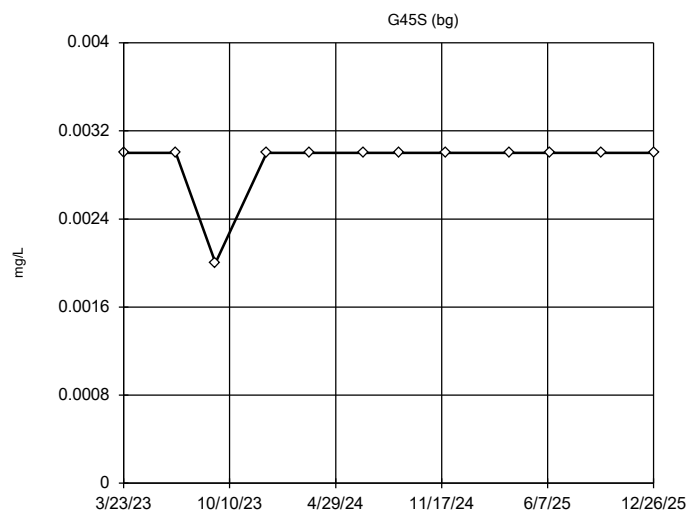
Outlier Testing

Outlier Analysis - G45S BG Last 12 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 12:44 PM

<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>Value(s)</u>	<u>Date(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Distribution</u>	<u>Normality Test</u>
Antimony (mg/L)	G45S (bg)	n/a	n/a	n/a	NP (nrm)	NaN	12	0.0029170	0.002887	unknown	ShapiroWilk
Barium (mg/L)	G45S (bg)	No	n/a	n/a	EPA 1989	0.05	12	0.03758	0.003397	normal	ShapiroWilk
Beryllium (mg/L)	G45S (bg)	No	n/a	n/a	NP (nrm)	NaN	12	0.001	0	unknown	ShapiroWilk
Boron (mg/L)	G45S (bg)	No	n/a	n/a	Dixon`s	0.05	12	0.4308	0.06112	normal	ShapiroWilk
Cadmium (mg/L)	G45S (bg)	n/a	n/a	n/a	NP (nrm)	NaN	12	0.0004750	0.000866	unknown	ShapiroWilk
Calcium (mg/L)	G45S (bg)	Yes	67	9/14/2023	Dixon`s	0.05	12	89.33	10.4	normal	ShapiroWilk
Chromium (mg/L)	G45S (bg)	No	n/a	n/a	NP (nrm)	NaN	12	0.005	0	unknown	ShapiroWilk
Cobalt (mg/L)	G45S (bg)	n/a	n/a	n/a	NP (nrm)	NaN	12	0.000...	0.0001443	unknown	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	G45S (bg)	No	n/a	n/a	EPA 1989	0.05	12	2.058	0.3498	normal	ShapiroWilk
Field pH (SU)	G45S (bg)	No	n/a	n/a	EPA 1989	0.05	12	7.343	0.08103	normal	ShapiroWilk
Lead (mg/L)	G45S (bg)	No	n/a	n/a	NP (nrm)	NaN	12	0.0005	0	unknown	ShapiroWilk
Lithium (mg/L)	G45S (bg)	No	n/a	n/a	NP (nrm)	NaN	12	0.02775	0.001545	unknown	ShapiroWilk
Mercury (mg/L)	G45S (bg)	No	n/a	n/a	NP (nrm)	NaN	12	0.0002	0	unknown	ShapiroWilk
Molybdenum (mg/L)	G45S (bg)	No	n/a	n/a	NP (nrm)	NaN	12	0.0117	0.00141	unknown	ShapiroWilk
Selenium (mg/L)	G45S (bg)	n/a	n/a	n/a	NP (nrm)	NaN	12	0.0027080	0.007217	unknown	ShapiroWilk
Thallium (mg/L)	G45S (bg)	n/a	n/a	n/a	NP (nrm)	NaN	12	0.0019170	0.002887	unknown	ShapiroWilk
Total Dissolved Solids (mg/L)	G45S (bg)	No	n/a	n/a	EPA 1989	0.05	12	692.5	65.94	normal	ShapiroWilk
Turbidity (NTU)	G45S (bg)	No	n/a	n/a	EPA 1989	0.05	12	1.053	0.8022	ln(x)	ShapiroWilk

Tukey's Outlier Screening



n = 12

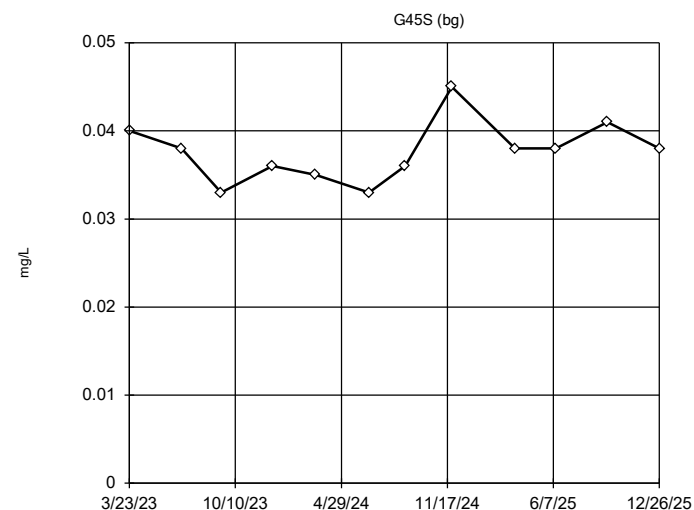
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

Data were x*4 transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Antimony Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

EPA Screening (suspected outliers for Dixon's Test)



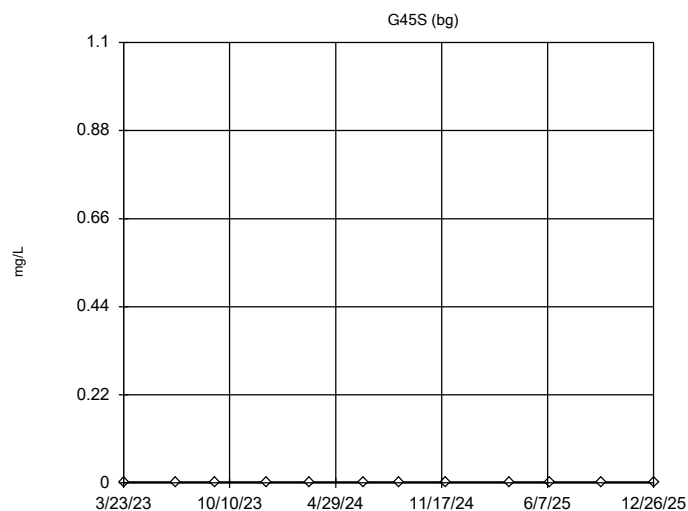
n = 12

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Mean 0.03758, std. dev. 0.003397, critical Tn 2.285

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.937
Critical = 0.883
The distribution was found to be normally distributed.

Constituent: Barium Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Tukey's Outlier Screening



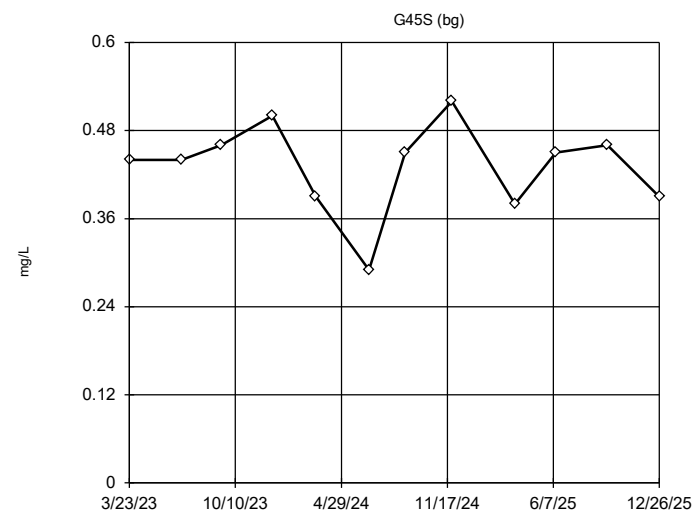
n = 12

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

All values are the same.

Constituent: Beryllium Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Dixon's Outlier Test



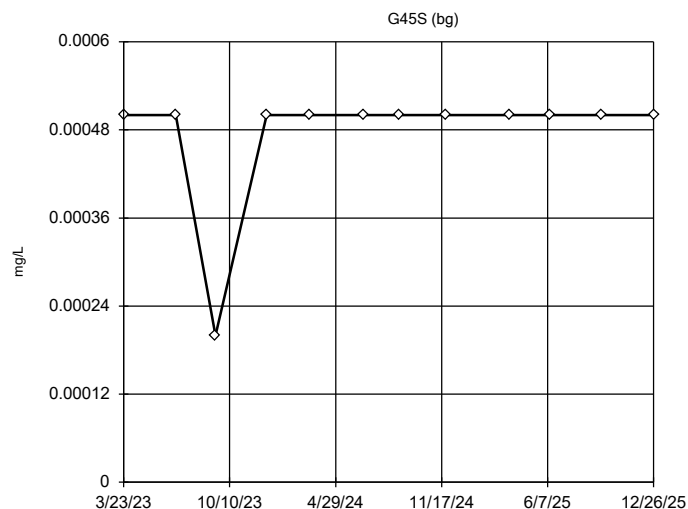
n = 12

No statistical outliers.
Testing for 1 low outlier.
Mean = 0.4308.
Std. Dev. = 0.06112.
0.29: c = 0.4762
tab1 = 0.546.
Alpha = 0.05.

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9264
Critical = 0.876
The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Tukey's Outlier Screening



n = 12

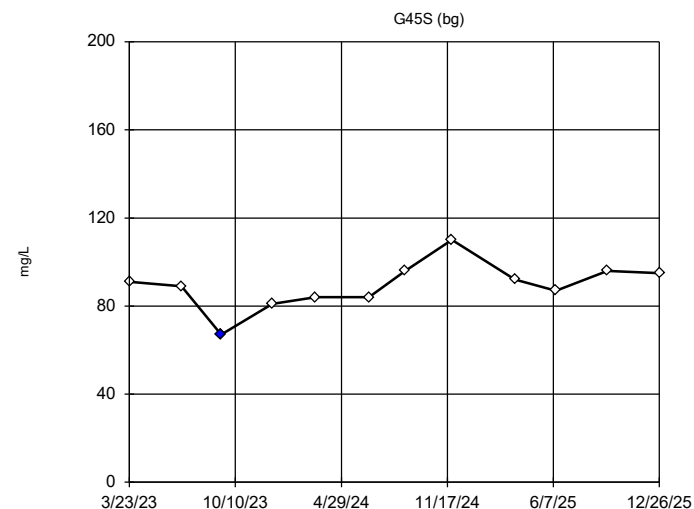
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

Data were x*4 transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Cadmium Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Dixon's Outlier Test



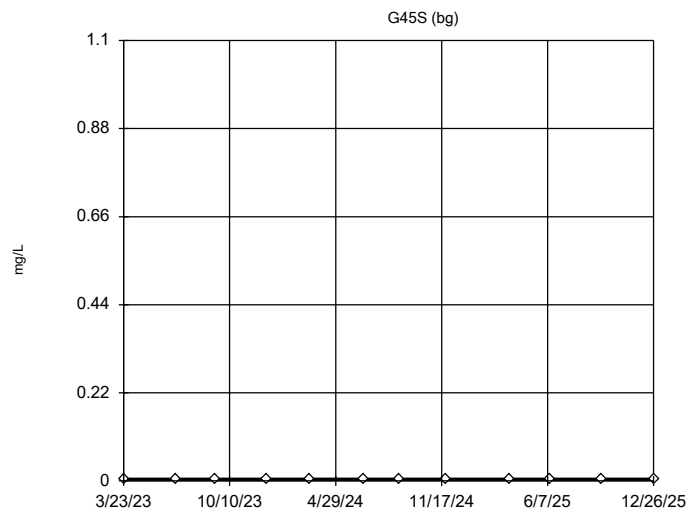
n = 12

Statistical outlier is drawn as solid.
Testing for 1 low outlier.
Mean = 89.33.
Std. Dev = 10.4.
67: c = 0.5862
tab1 = 0.546.
Alpha = 0.05.

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.915
Critical = 0.876
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Calcium Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Tukey's Outlier Screening



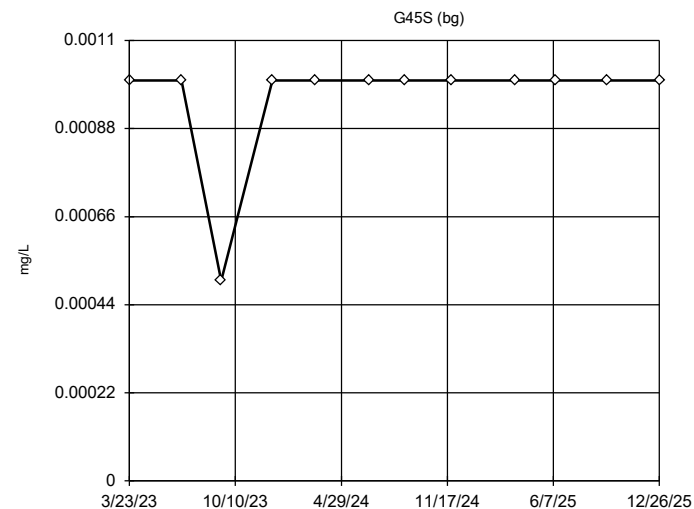
n = 12

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

All values are the same.

Constituent: Chromium Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Tukey's Outlier Screening



n = 12

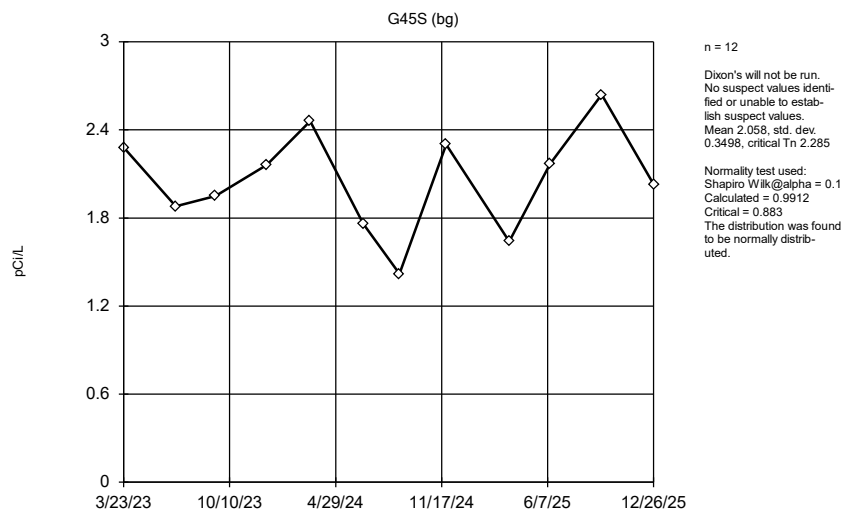
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

Ladder of Powers transformations did not improve normality; analysis run on raw data.

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Cobalt Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

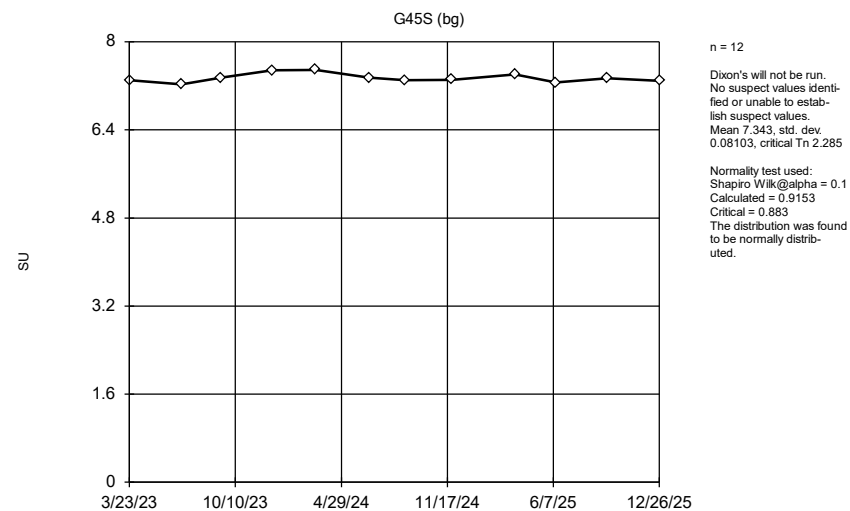
EPA Screening (suspected outliers for Dixon's Test)



Constituent: Combined Radium 226 + 228 Analysis Run 5/18/2026 12:43 PM

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

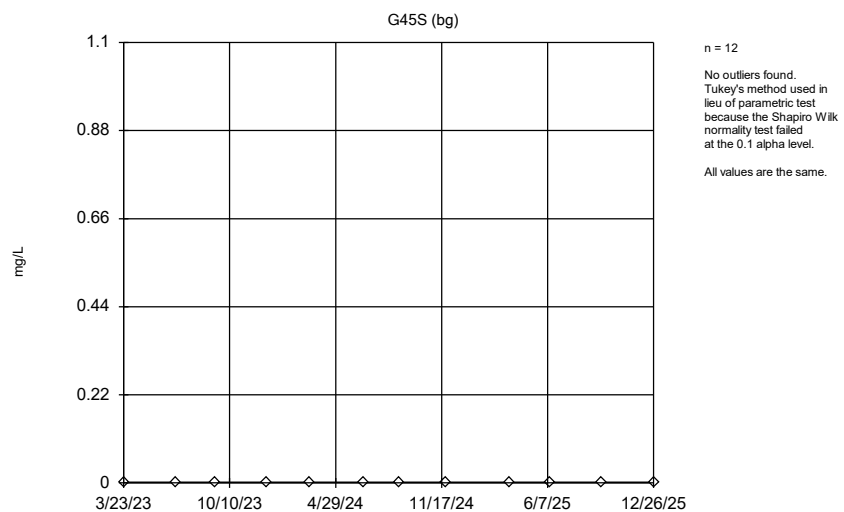
EPA Screening (suspected outliers for Dixon's Test)



Constituent: Field pH Analysis Run 5/18/2026 12:43 PM

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

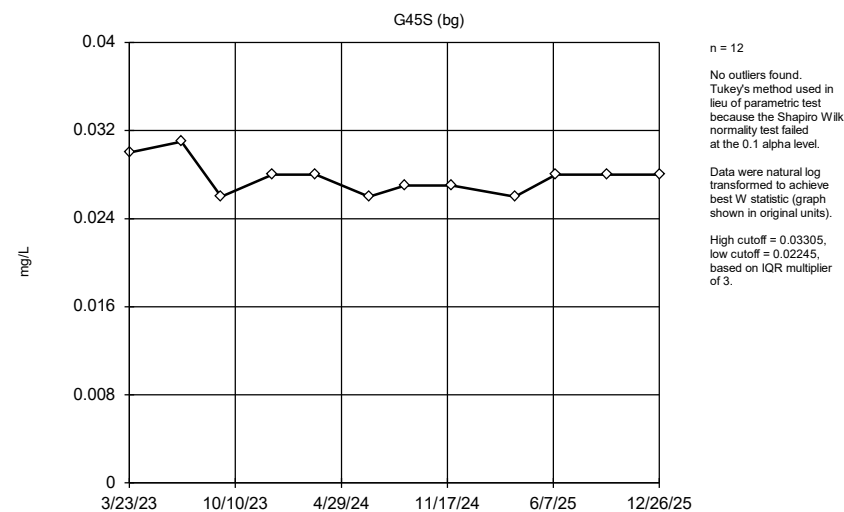
Tukey's Outlier Screening



Constituent: Lead Analysis Run 5/18/2026 12:43 PM

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Tukey's Outlier Screening

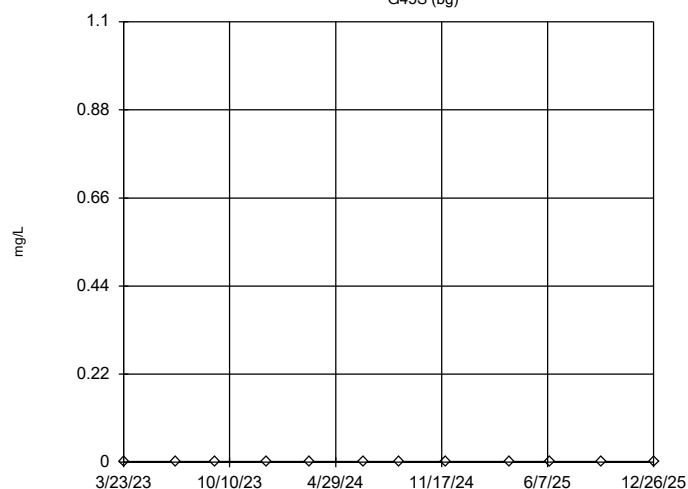


Constituent: Lithium Analysis Run 5/18/2026 12:43 PM

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Tukey's Outlier Screening

G45S (bg)



n = 12

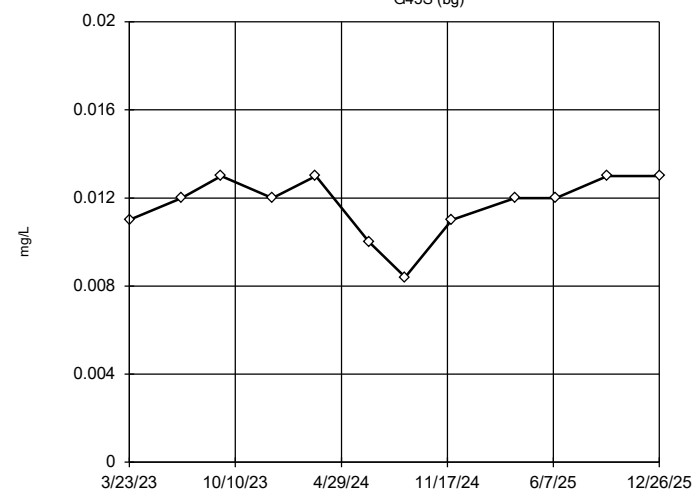
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

All values are the same.

Constituent: Mercury Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Tukey's Outlier Screening

G45S (bg)



n = 12

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

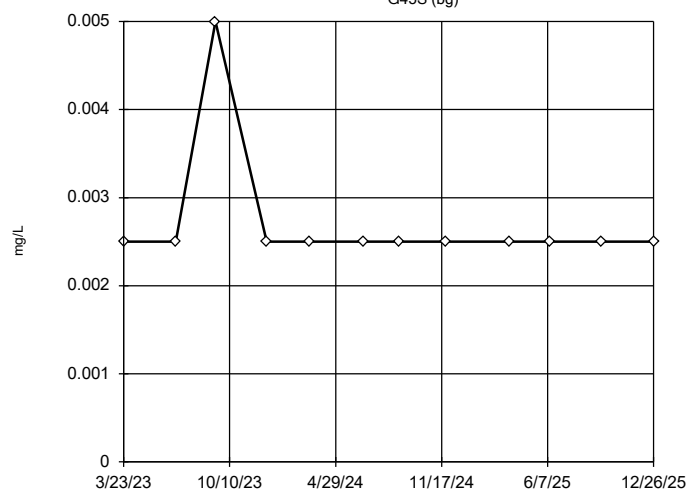
Data were x*5 transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.01586,
low cutoff = -0.01363,
based on IQR multiplier of 3.

Constituent: Molybdenum Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Tukey's Outlier Screening

G45S (bg)



n = 12

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

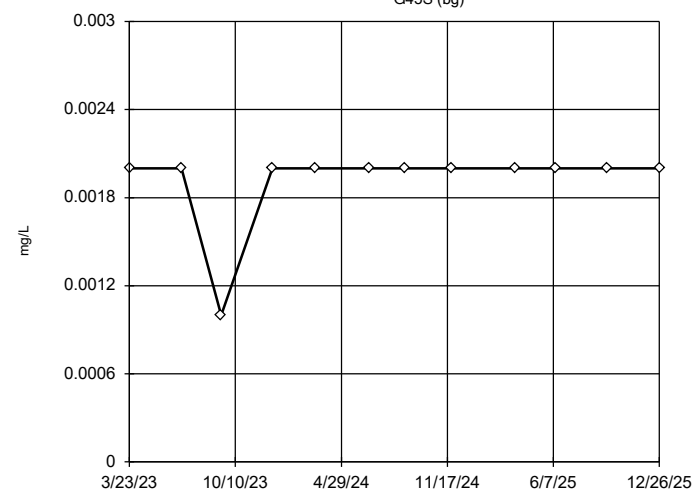
Data were square transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Selenium Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Tukey's Outlier Screening

G45S (bg)



n = 12

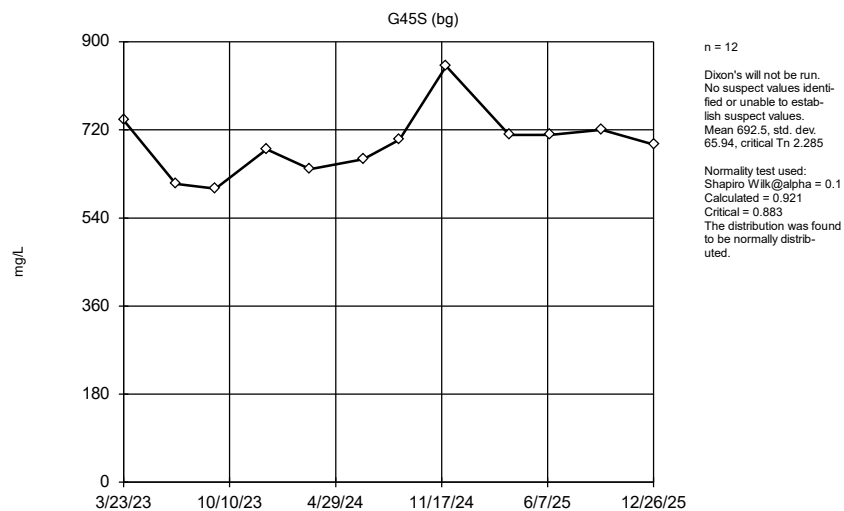
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

Ladder of Powers transformations did not improve normality; analysis run on raw data.

The results were invalidated, because the lower and upper quartiles are equal.

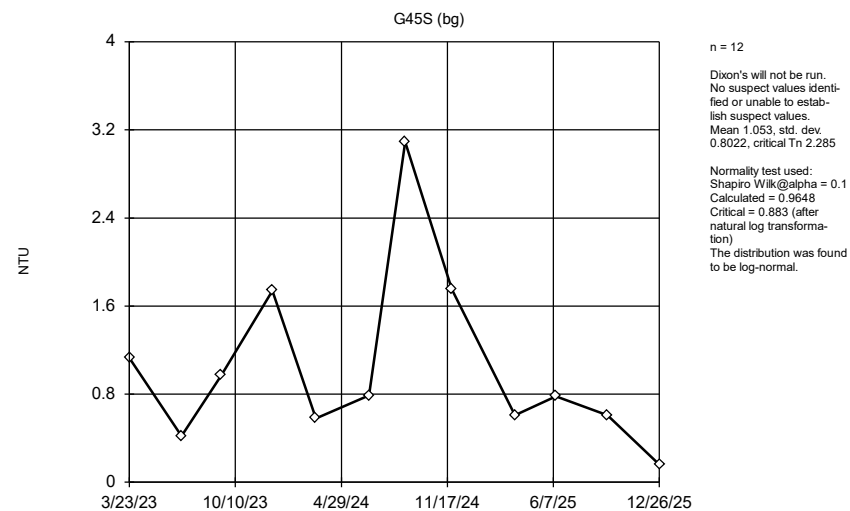
Constituent: Thallium Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

EPA Screening (suspected outliers for Dixon's Test)



Constituent: Total Dissolved Solids Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

EPA Screening (suspected outliers for Dixon's Test)

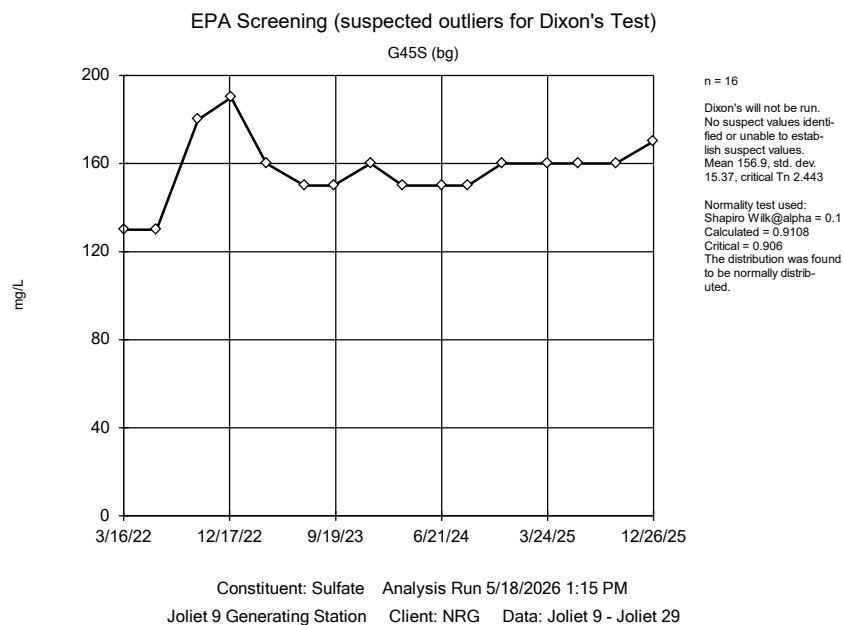
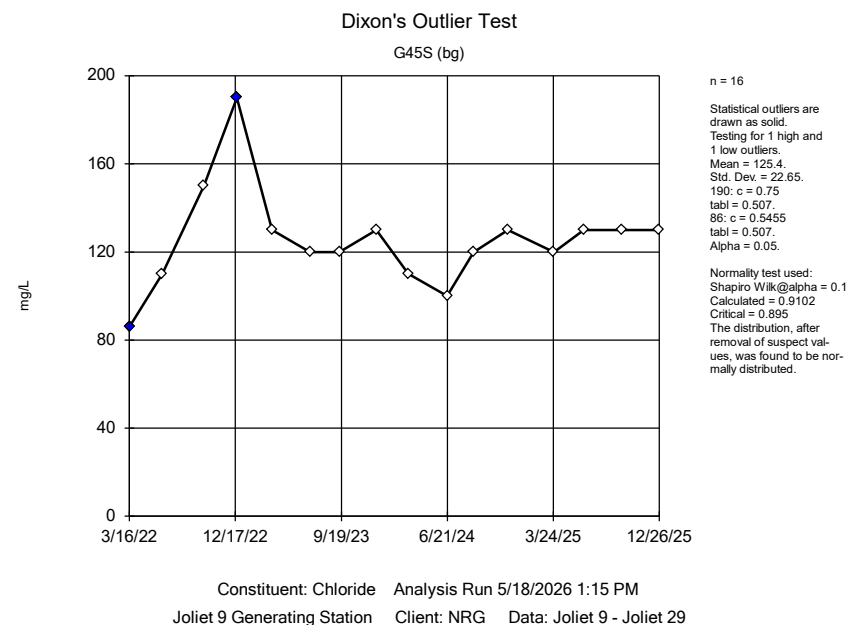
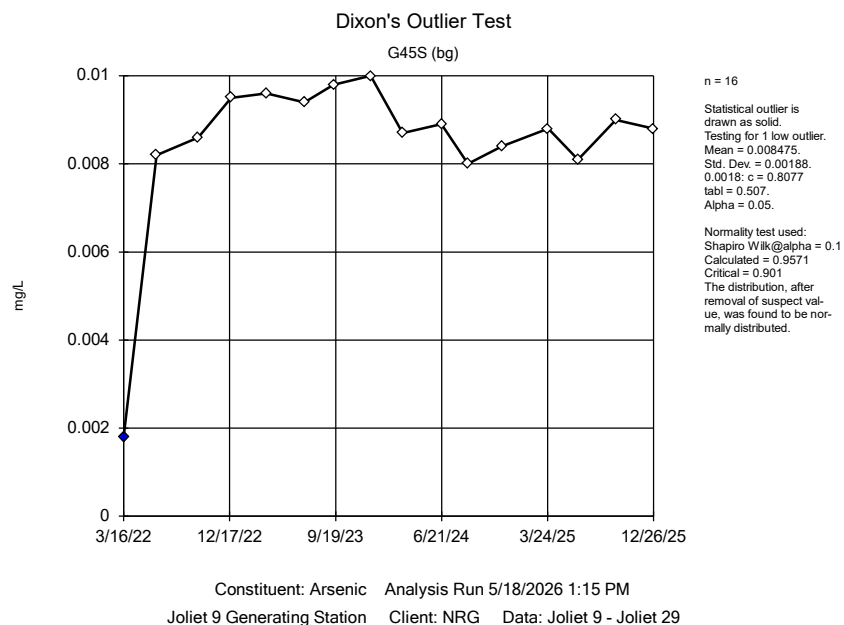


Constituent: Turbidity Analysis Run 5/18/2026 12:43 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Outlier Analysis - G45S BG Last 16 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 1:17 PM

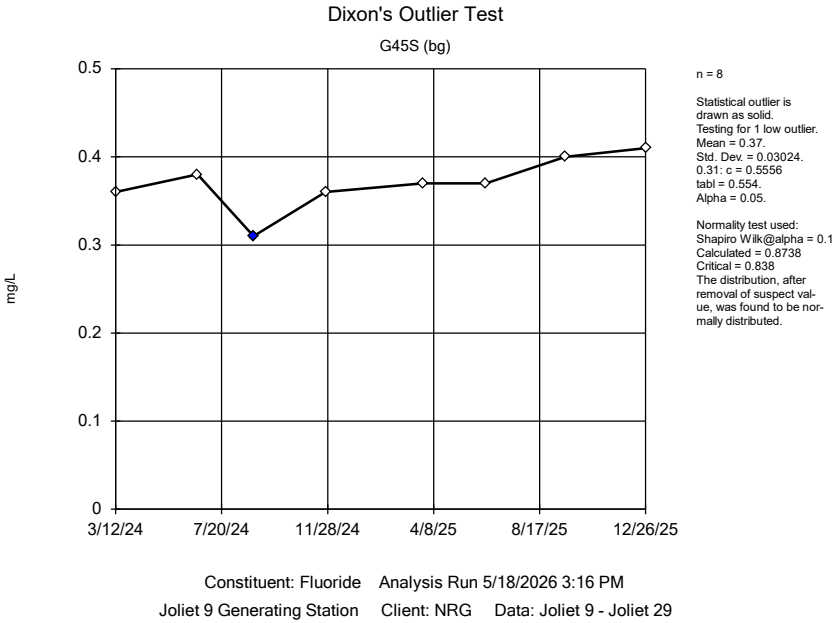
<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>Value(s)</u>	<u>Date(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Distribution</u>	<u>Normality Test</u>
Arsenic (mg/L)	G45S (bg)	Yes	0.0018	3/16/2022	Dixon's	0.05	16	0.0084750	0.00188	normal	ShapiroWilk
Chloride (mg/L)	G45S (bg)	Yes	190,86	12/21/2022,3/16/2022	Dixon's	0.05	16	125.4	22.65	normal	ShapiroWilk
Sulfate (mg/L)	G45S (bg)	No	n/a	n/a	EPA 1989	0.05	16	156.9	15.37	normal	ShapiroWilk



Outlier Analysis - G45S BG Last 8 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 3:17 PM

<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>Value(s)</u>	<u>Date(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Distribution</u>	<u>Normality Test</u>
Fluoride (mg/L)	G45S (bg)	Yes	0.31	8/29/2024	Dixon's	0.05	8	0.37	0.03024	normal	ShapiroWilk

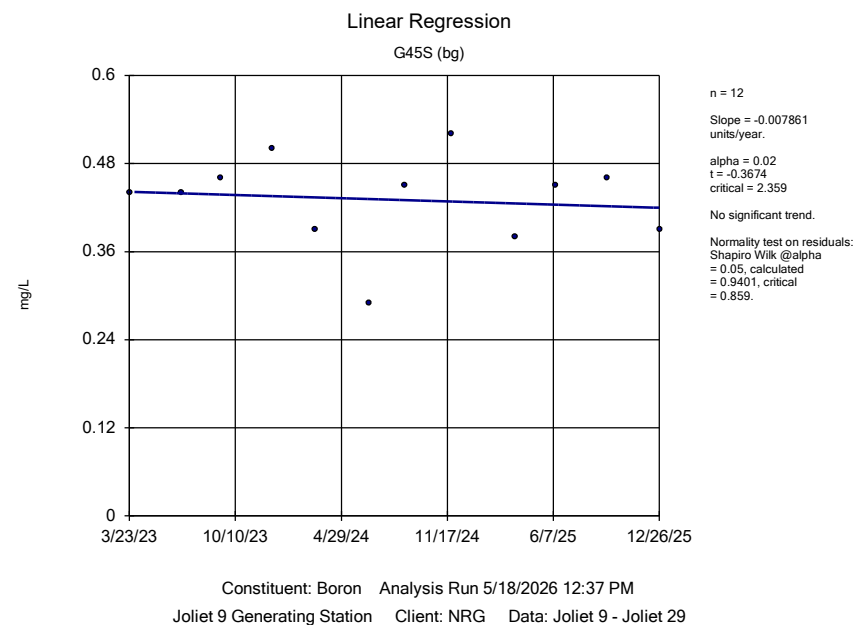
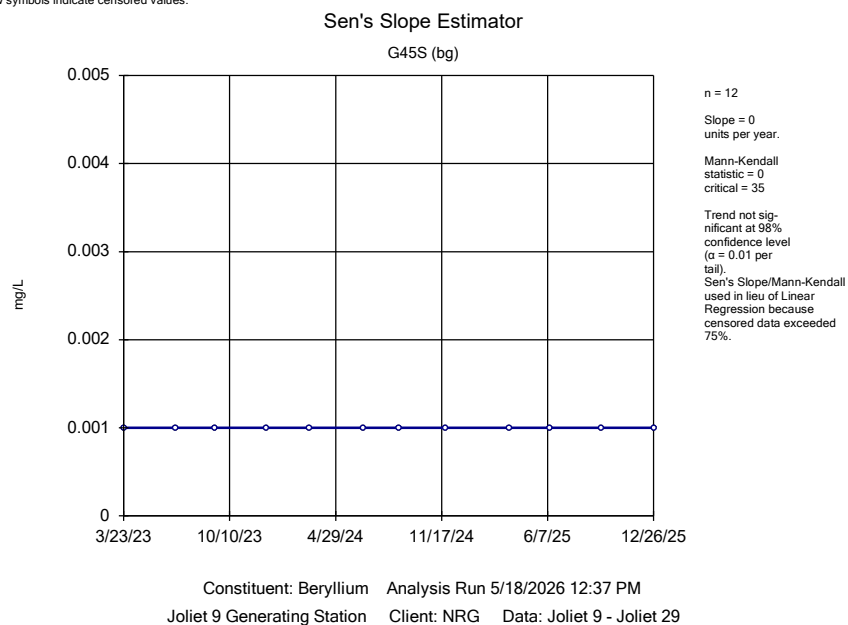
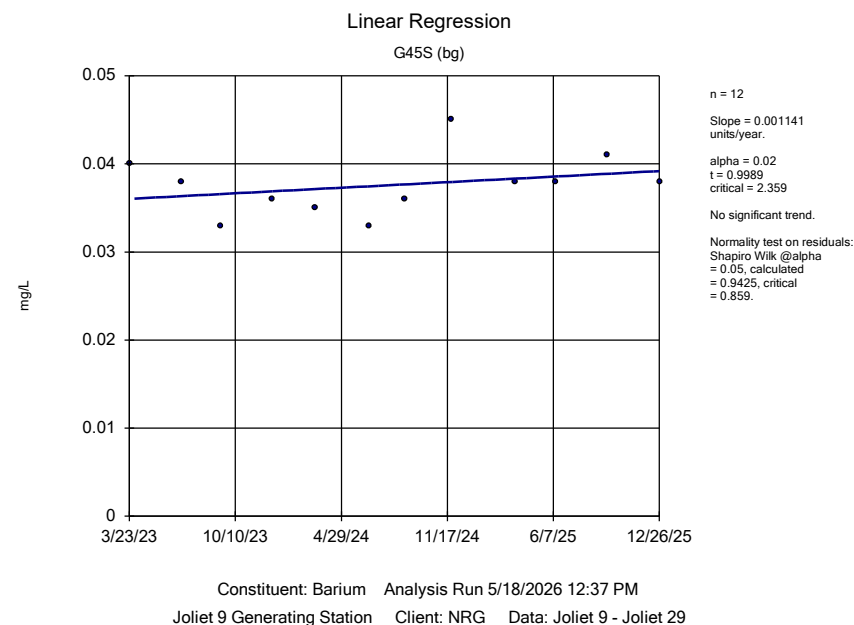
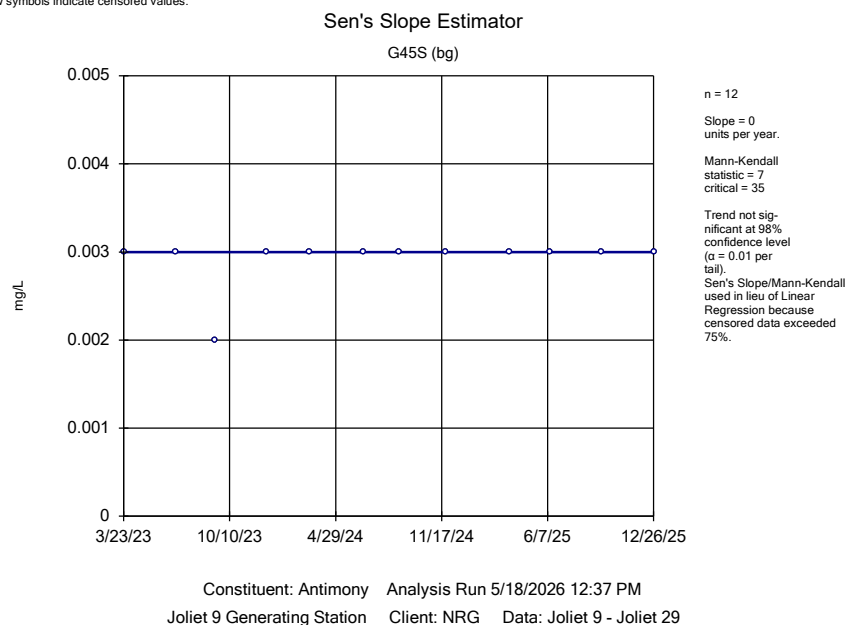


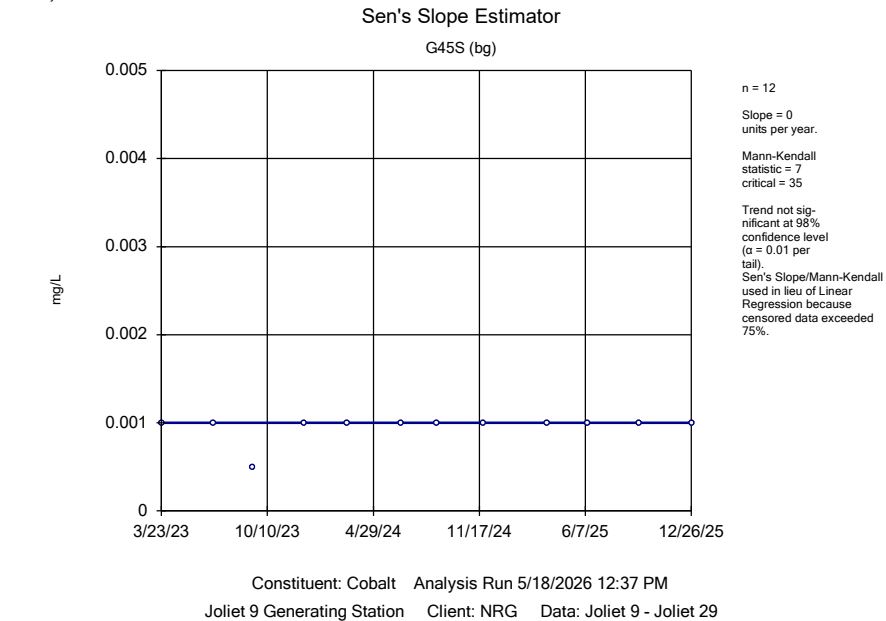
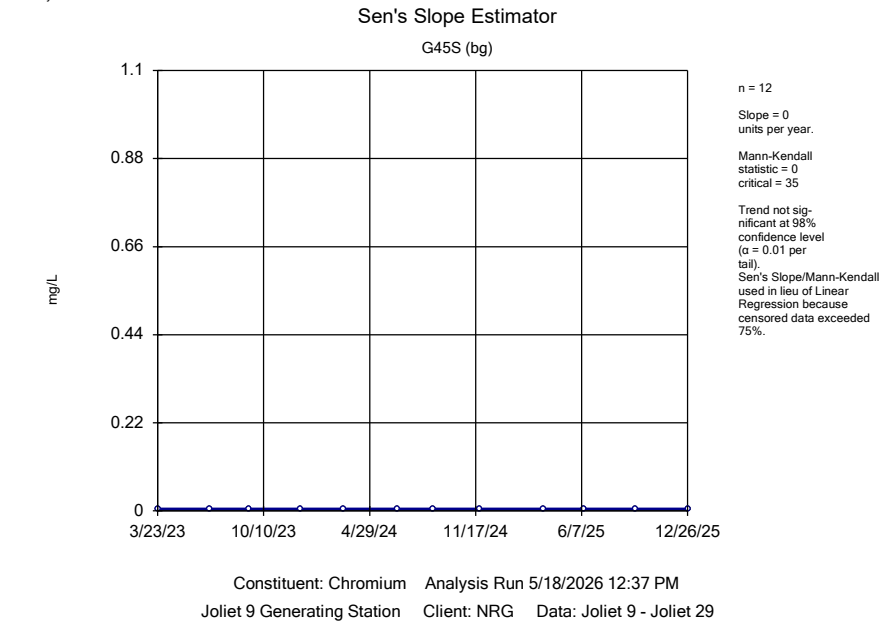
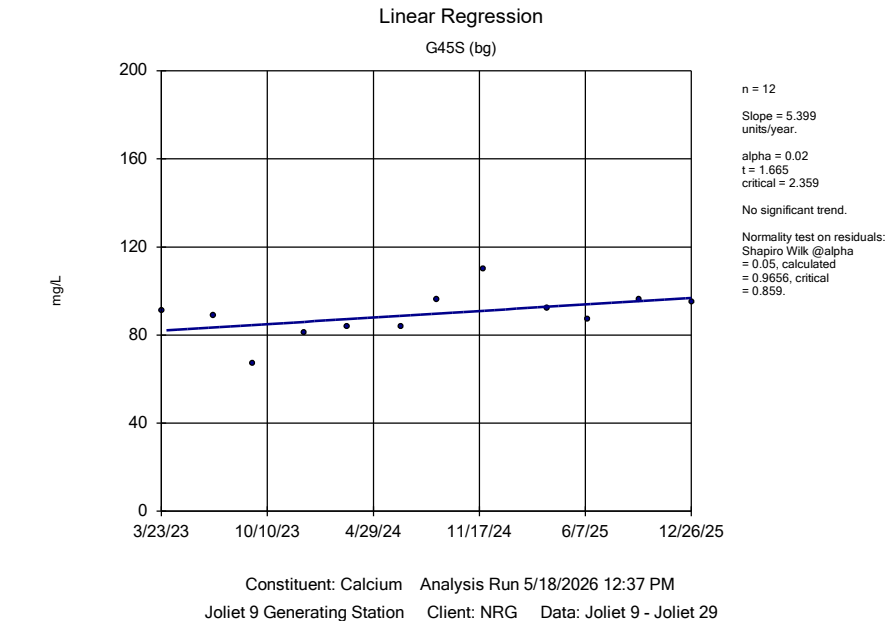
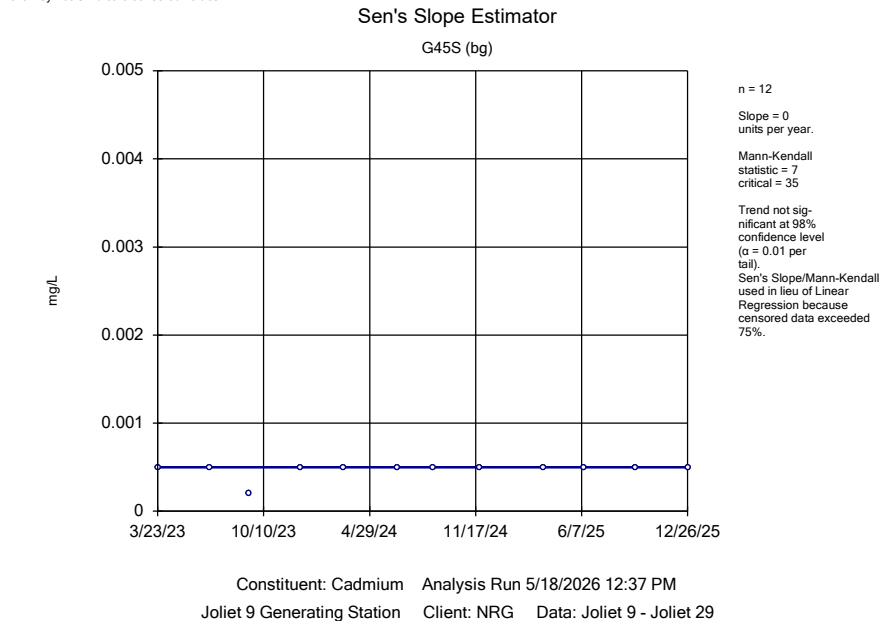
Trend Testing

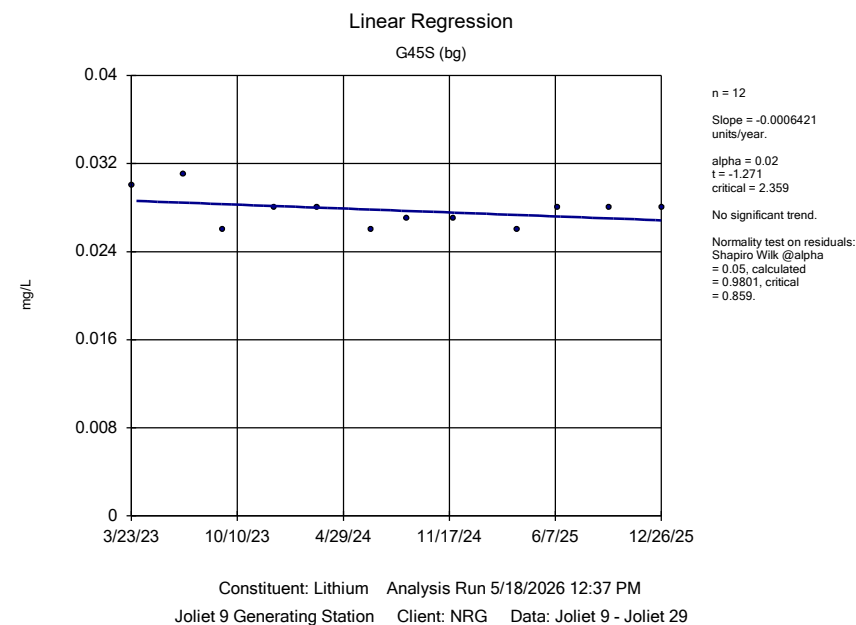
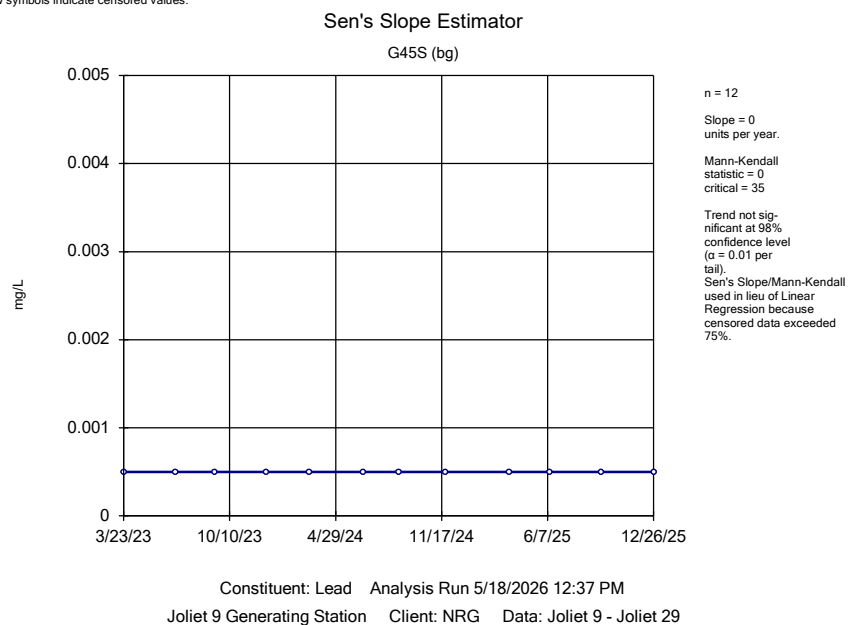
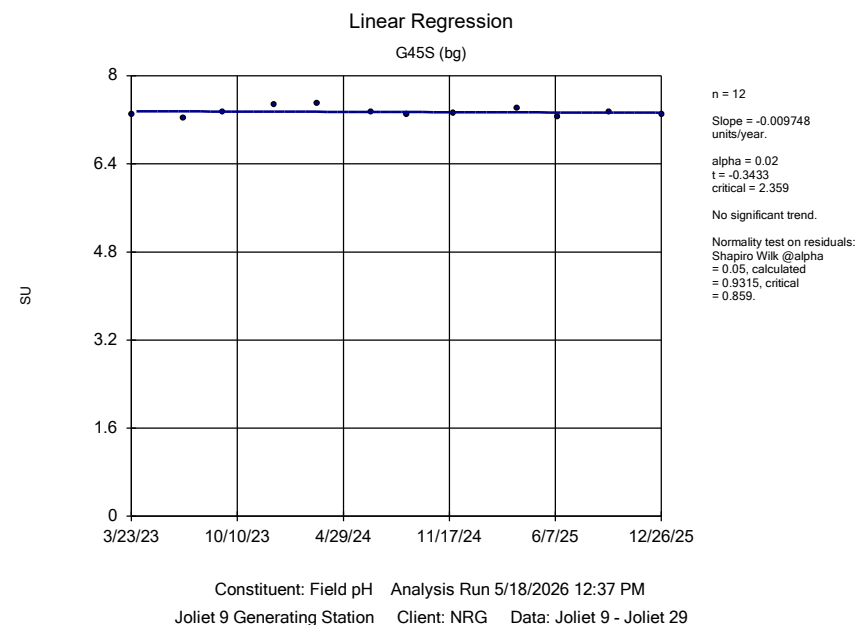
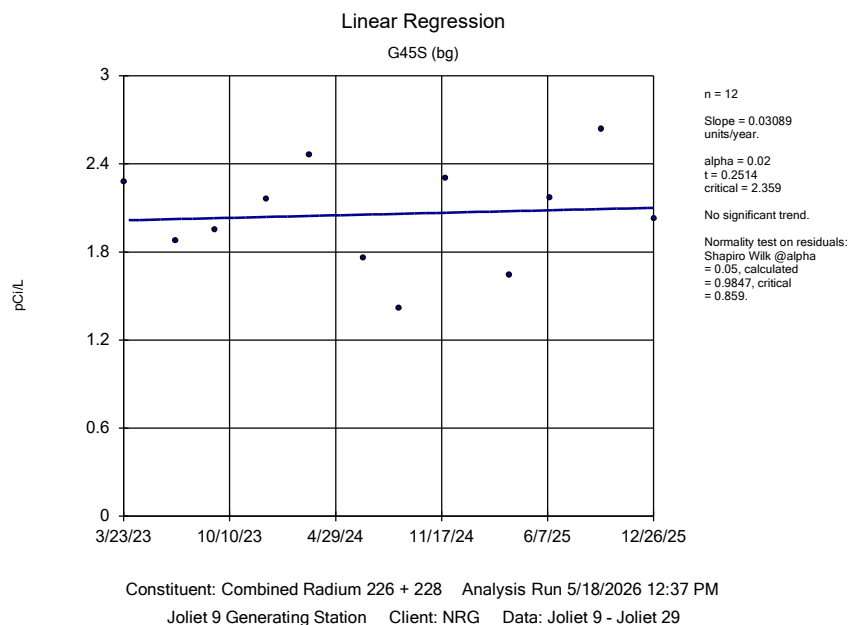
Trend Test - (Linear Regression) - G45S BG Last 12 Rounds

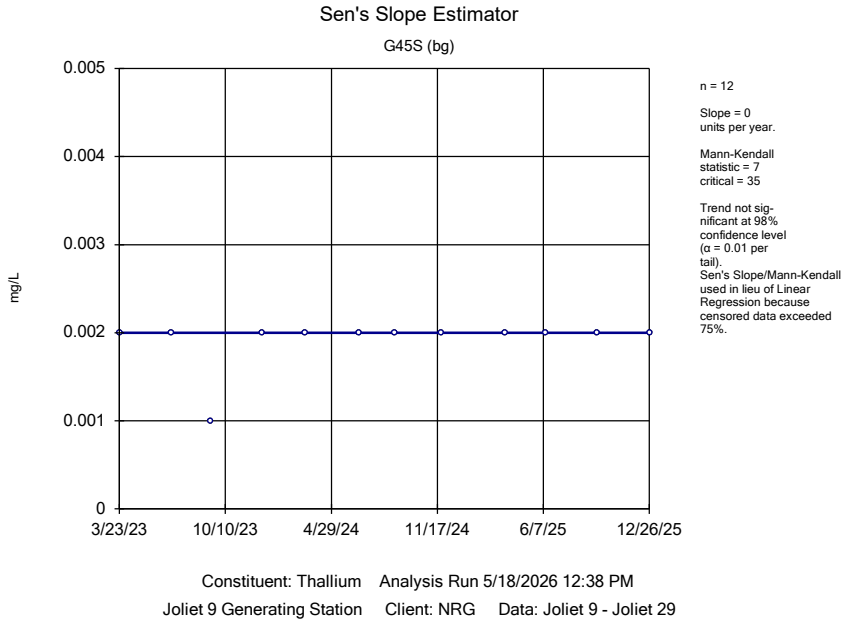
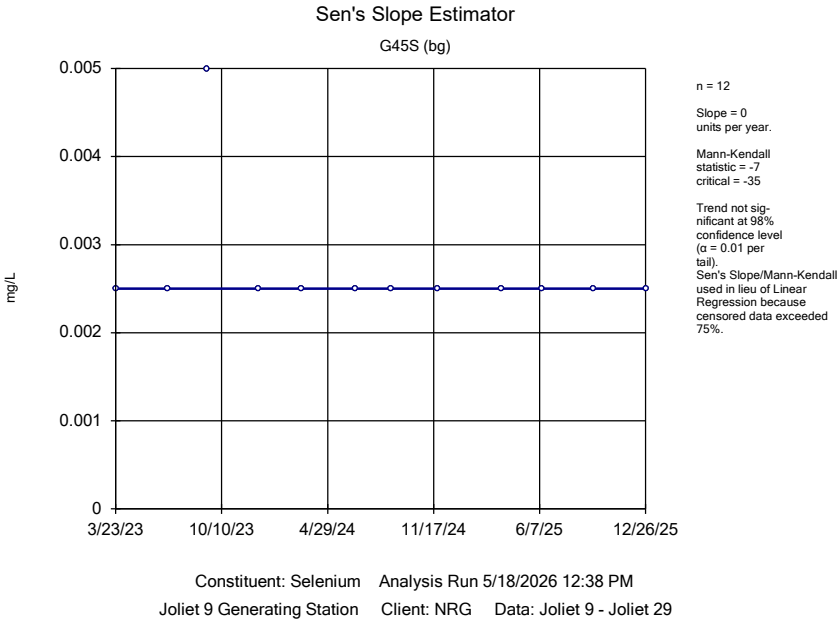
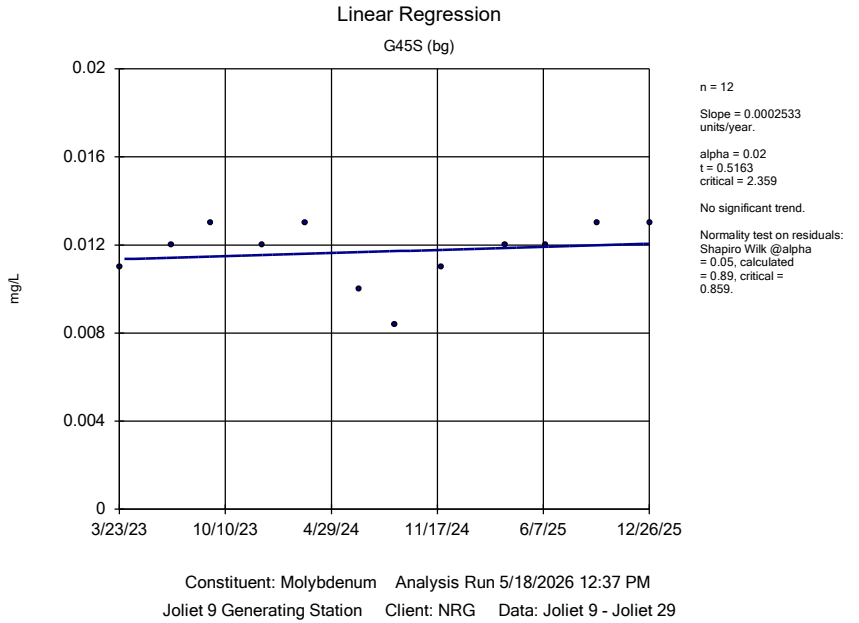
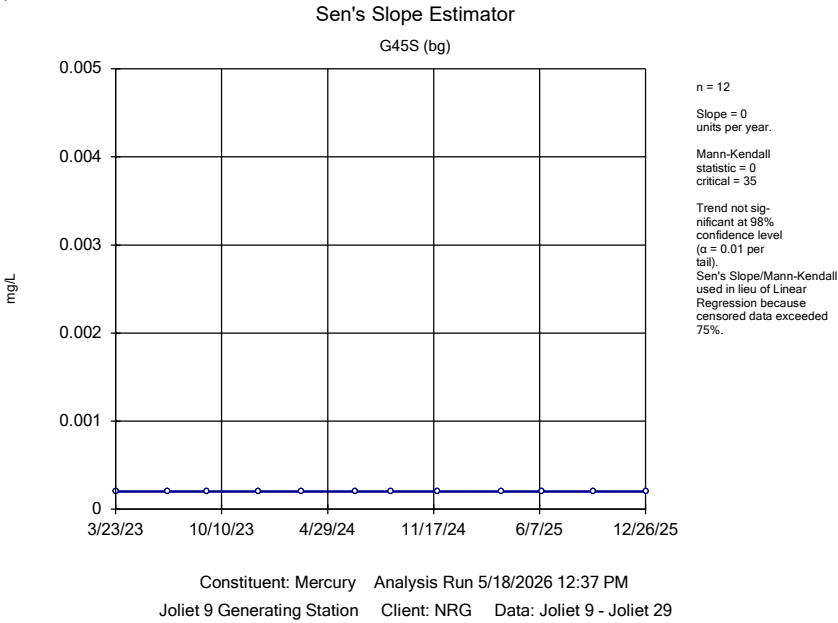
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 12:39 PM

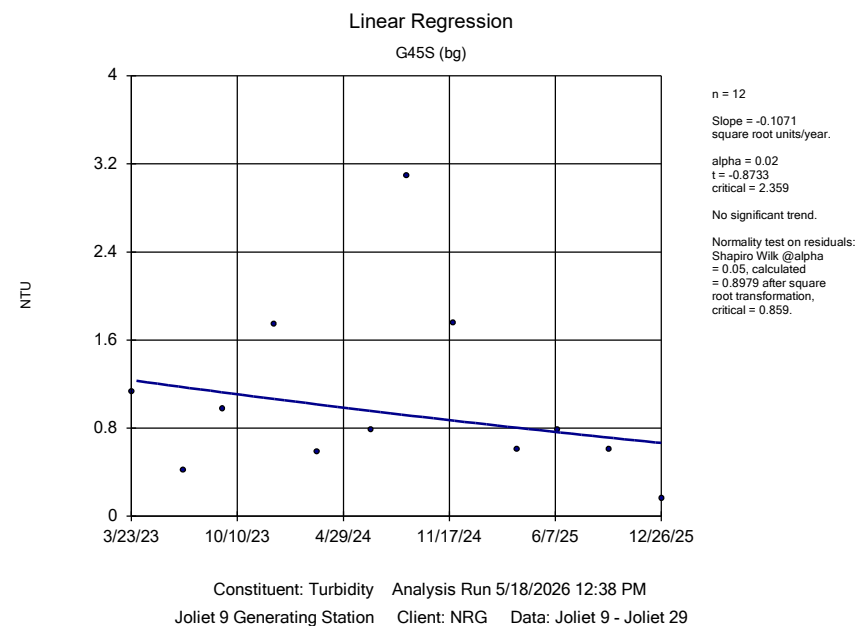
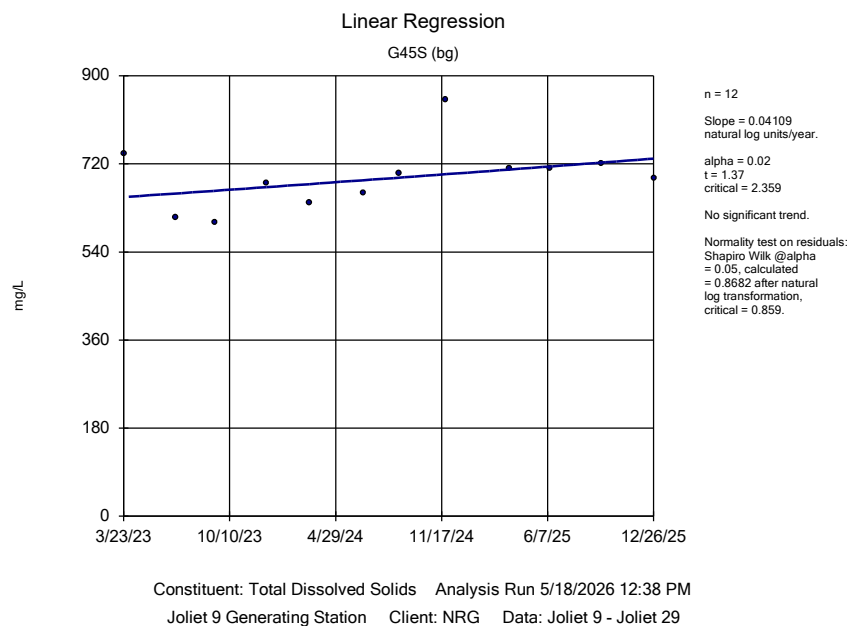
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	G45S (bg)	0	7	35	No	12	100	n/a	n/a	0.02	NP (NDs)
Barium (mg/L)	G45S (bg)	0.001141	0.9989	2.359	No	12	0	Yes	no	0.02	Param.
Beryllium (mg/L)	G45S (bg)	0	0	35	No	12	100	n/a	n/a	0.02	NP (NDs)
Boron (mg/L)	G45S (bg)	-0.00...	-0.3674	2.359	No	12	0	Yes	no	0.02	Param.
Cadmium (mg/L)	G45S (bg)	0	7	35	No	12	100	n/a	n/a	0.02	NP (NDs)
Calcium (mg/L)	G45S (bg)	5.399	1.665	2.359	No	12	0	Yes	no	0.02	Param.
Chromium (mg/L)	G45S (bg)	0	0	35	No	12	100	n/a	n/a	0.02	NP (NDs)
Cobalt (mg/L)	G45S (bg)	0	7	35	No	12	100	n/a	n/a	0.02	NP (NDs)
Combined Radium 226 + 228 (pCi/L)	G45S (bg)	0.03089	0.2514	2.359	No	12	0	Yes	no	0.02	Param.
Field pH (SU)	G45S (bg)	-0.00...	-0.3433	2.359	No	12	0	Yes	no	0.02	Param.
Lead (mg/L)	G45S (bg)	0	0	35	No	12	100	n/a	n/a	0.02	NP (NDs)
Lithium (mg/L)	G45S (bg)	-0.00...	-1.271	2.359	No	12	0	Yes	no	0.02	Param.
Mercury (mg/L)	G45S (bg)	0	0	35	No	12	100	n/a	n/a	0.02	NP (NDs)
Molybdenum (mg/L)	G45S (bg)	0.000...	0.5163	2.359	No	12	0	Yes	no	0.02	Param.
Selenium (mg/L)	G45S (bg)	0	-7	-35	No	12	100	n/a	n/a	0.02	NP (NDs)
Thallium (mg/L)	G45S (bg)	0	7	35	No	12	100	n/a	n/a	0.02	NP (NDs)
Total Dissolved Solids (mg/L)	G45S (bg)	0.04109	1.37	2.359	No	12	0	Yes	natura...	0.02	Param.
Turbidity (NTU)	G45S (bg)	-0.1071	-0.8733	2.359	No	12	0	Yes	square...	0.02	Param.







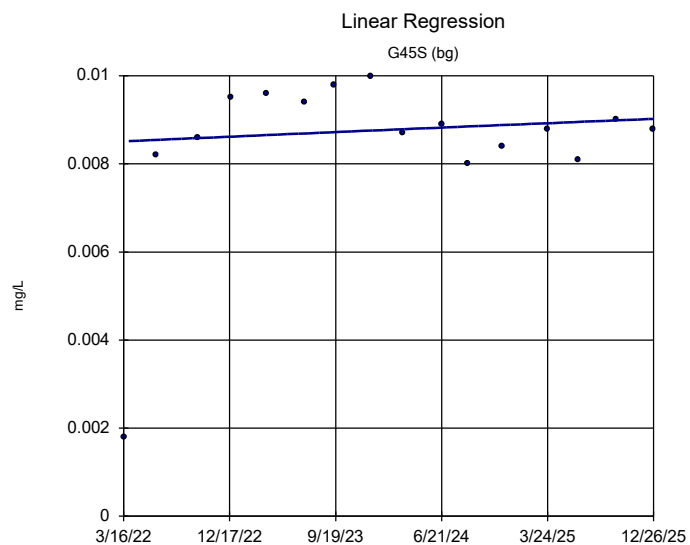




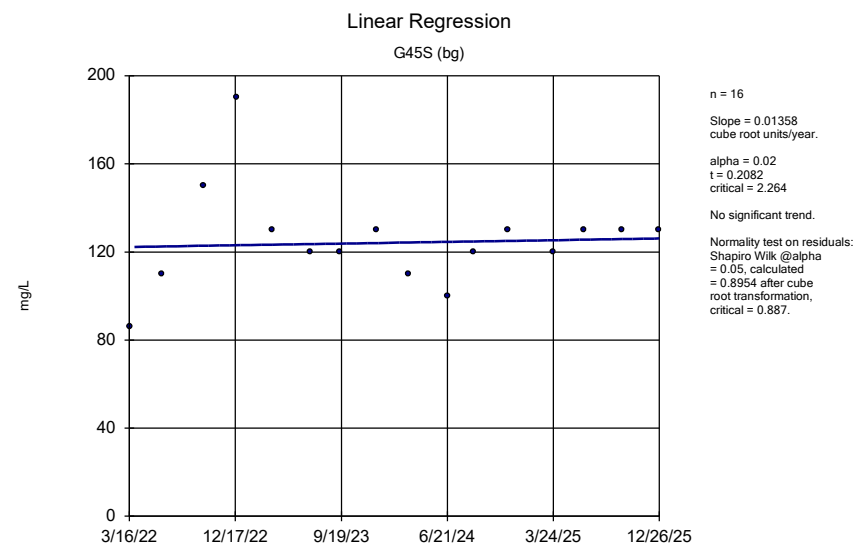
Trend Test - (Linear Regression) - G45S BG Last 16 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 1:20 PM

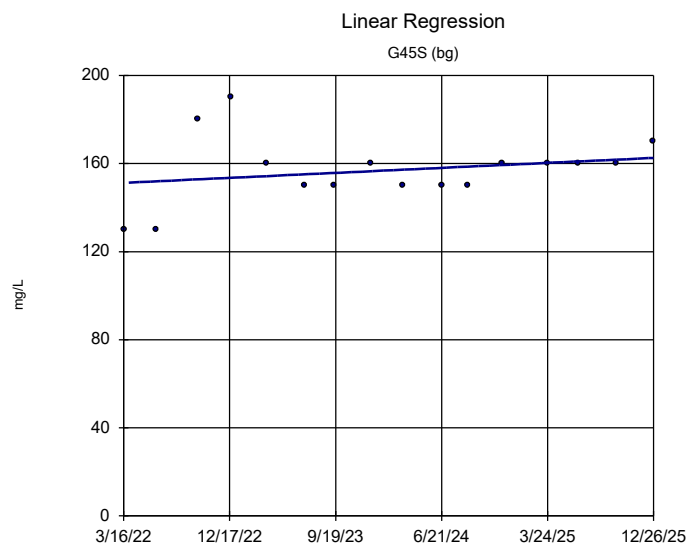
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	G45S (bg)	3.1e-8	0.6066	2.264	No	16	0	Yes	cube	0.02	Param.
Chloride (mg/L)	G45S (bg)	0.01358	0.2082	2.264	No	16	0	Yes	cube root	0.02	Param.
Sulfate (mg/L)	G45S (bg)	2.994	0.8889	2.264	No	16	0	Yes	no	0.02	Param.



Constituent: Arsenic Analysis Run 5/18/2026 1:19 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



Constituent: Chloride Analysis Run 5/18/2026 1:19 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

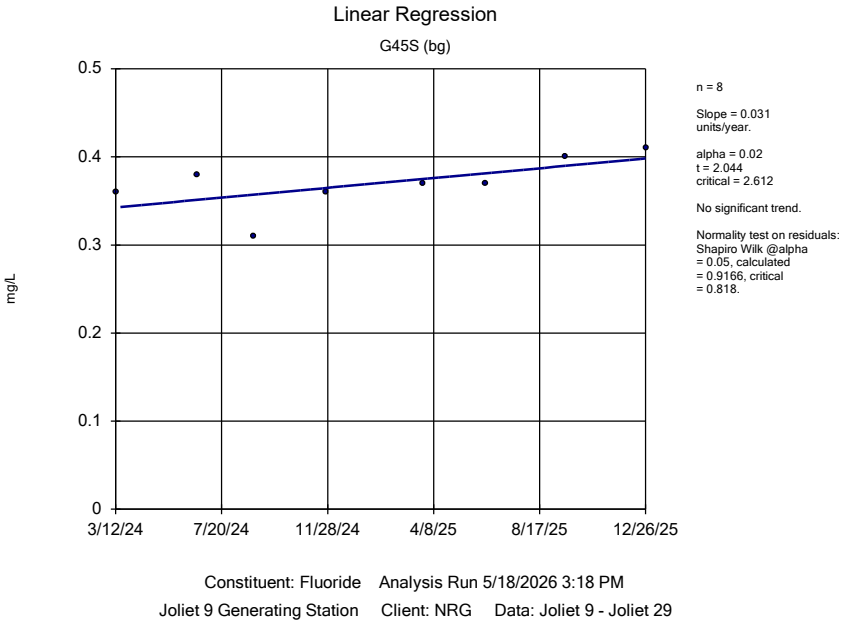


Constituent: Sulfate Analysis Run 5/18/2026 1:19 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Trend Test (Linear Regression) G45S BG Last 8 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 3:19 PM

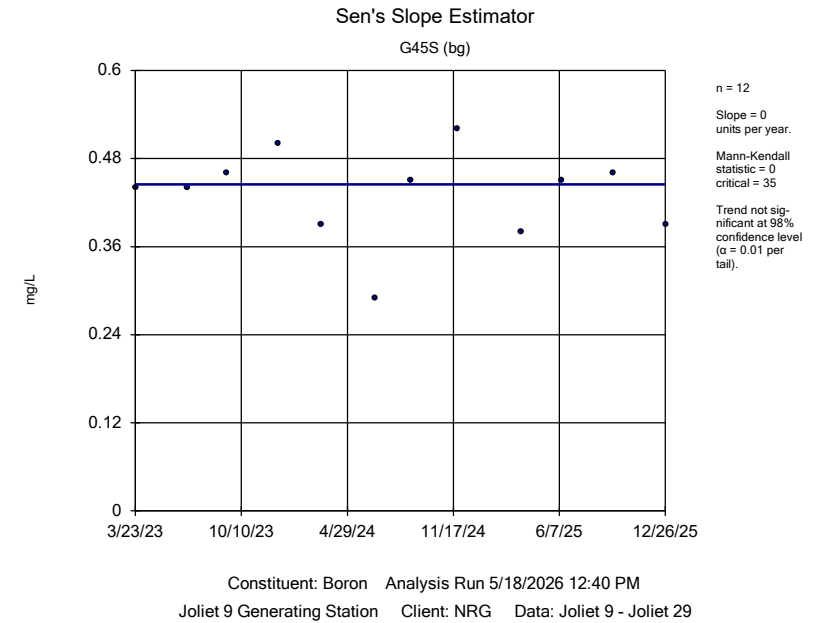
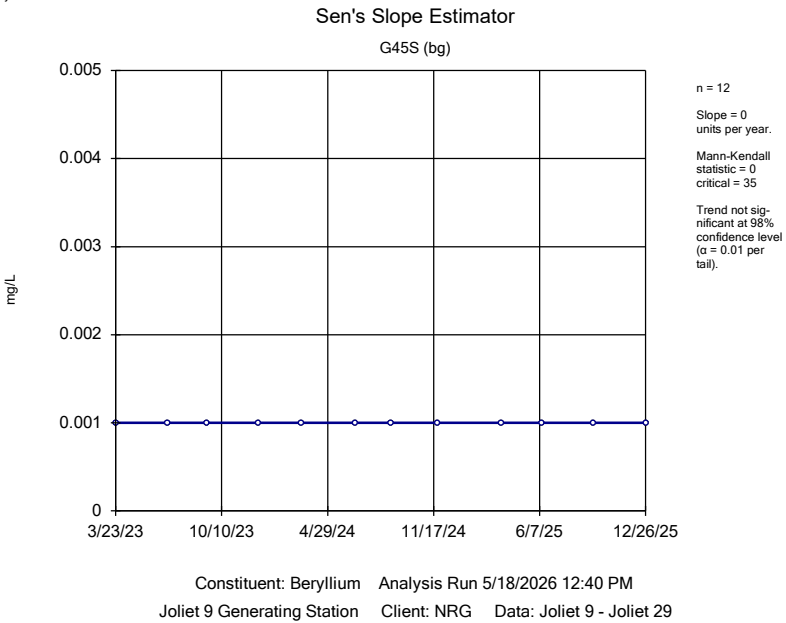
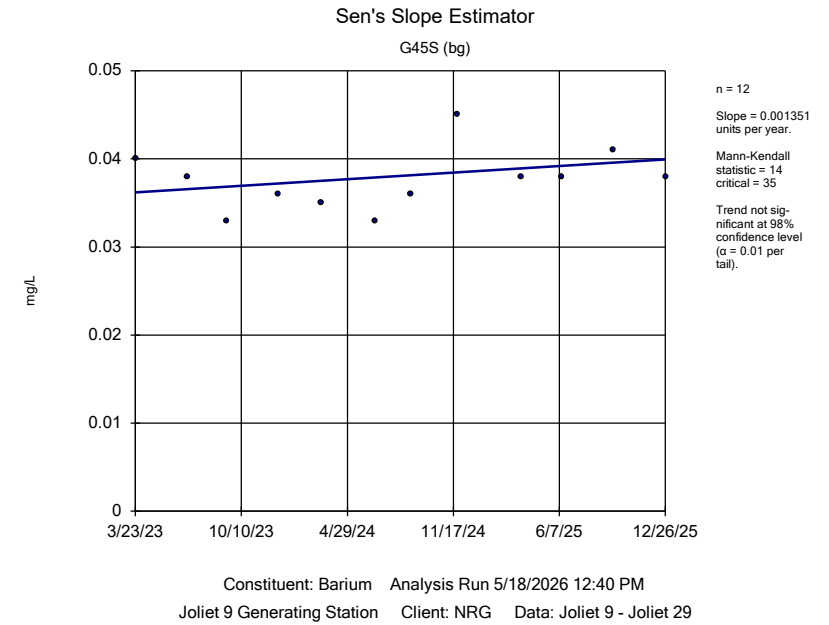
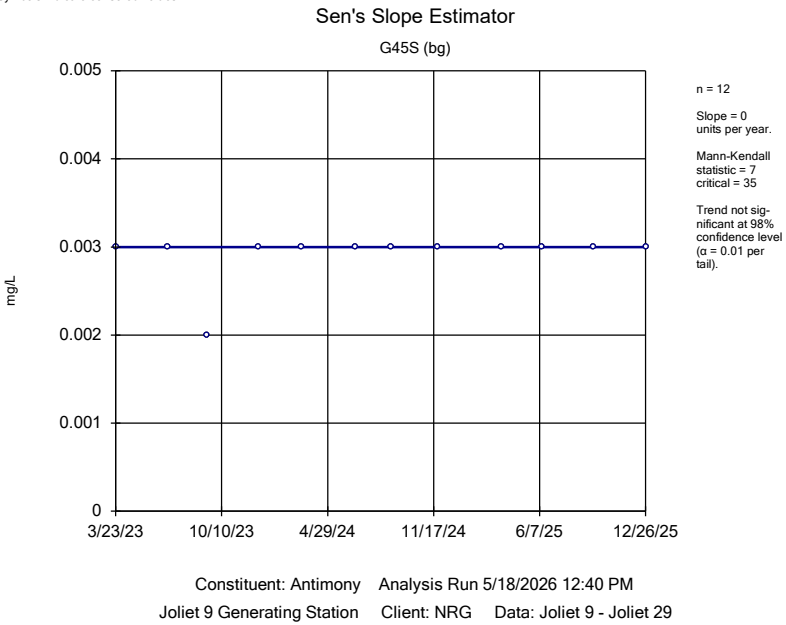
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Fluoride (mg/L)	G45S (bg)	0.031	2.044	2.612	No	8	0	Yes	no	0.02	Param.

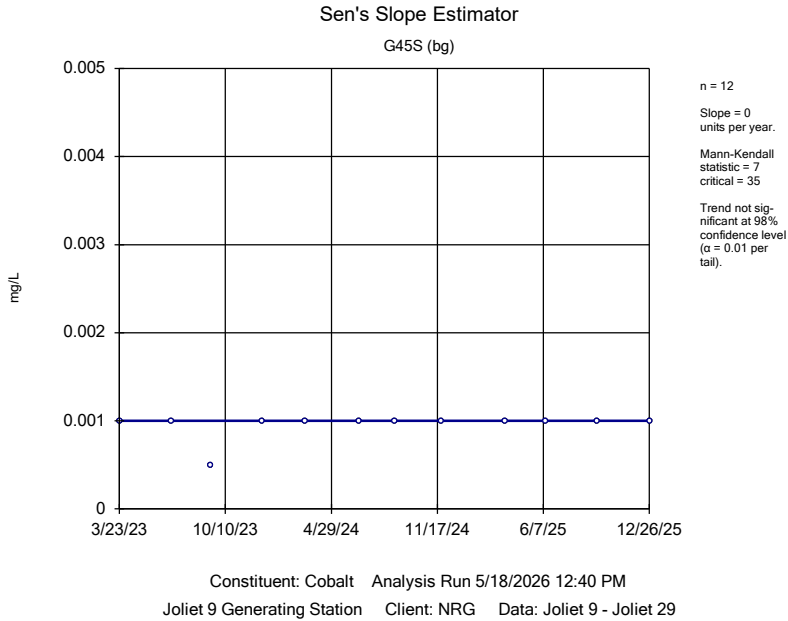
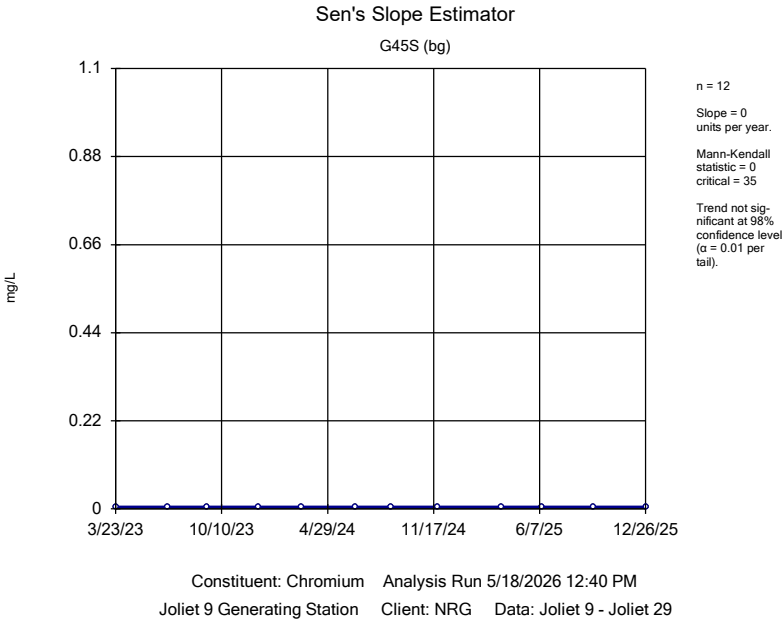
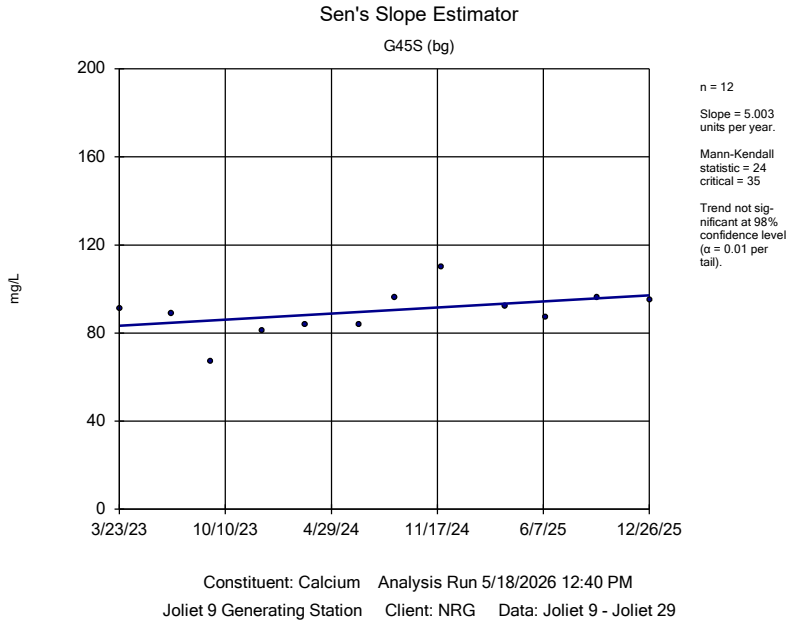
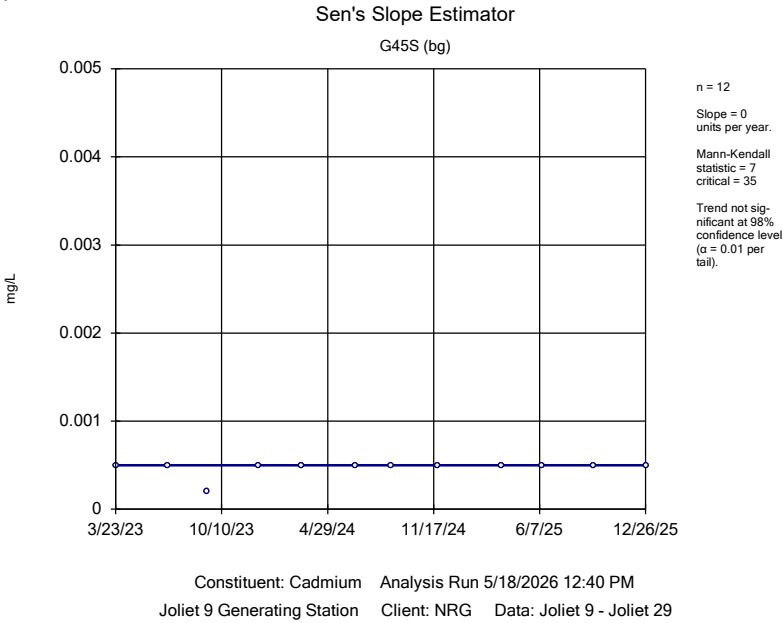


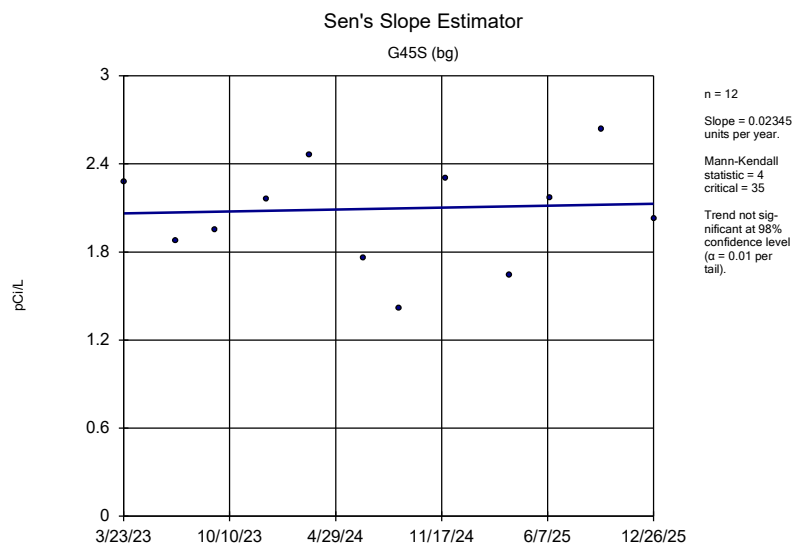
Trend Test - (Sen's Slope) - G45S BG Last 12 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 12:41 PM

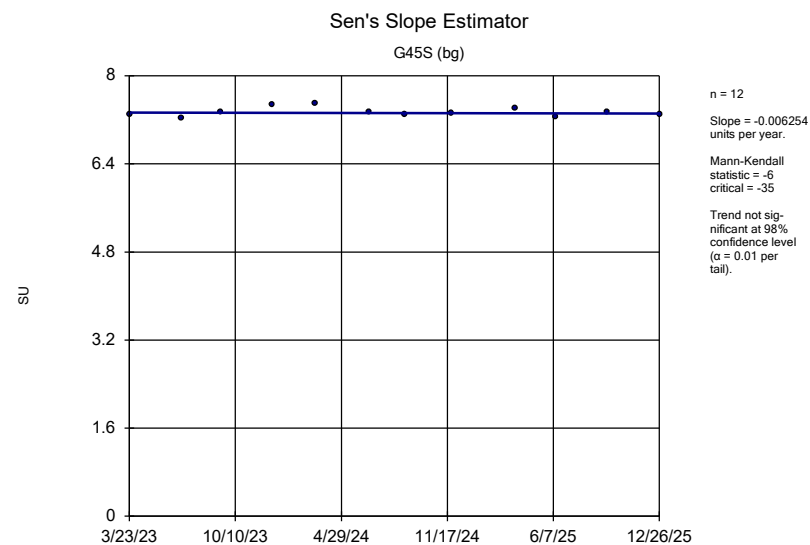
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	G45S (bg)	0	7	35	No	12	100	n/a	n/a	0.02	NP
Barium (mg/L)	G45S (bg)	0.001351	14	35	No	12	0	n/a	n/a	0.02	NP
Beryllium (mg/L)	G45S (bg)	0	0	35	No	12	100	n/a	n/a	0.02	NP
Boron (mg/L)	G45S (bg)	0	0	35	No	12	0	n/a	n/a	0.02	NP
Cadmium (mg/L)	G45S (bg)	0	7	35	No	12	100	n/a	n/a	0.02	NP
Calcium (mg/L)	G45S (bg)	5.003	24	35	No	12	0	n/a	n/a	0.02	NP
Chromium (mg/L)	G45S (bg)	0	0	35	No	12	100	n/a	n/a	0.02	NP
Cobalt (mg/L)	G45S (bg)	0	7	35	No	12	100	n/a	n/a	0.02	NP
Combined Radium 226 + 228 (pCi/L)	G45S (bg)	0.02345	4	35	No	12	0	n/a	n/a	0.02	NP
Field pH (SU)	G45S (bg)	-0.00...	-6	-35	No	12	0	n/a	n/a	0.02	NP
Lead (mg/L)	G45S (bg)	0	0	35	No	12	100	n/a	n/a	0.02	NP
Lithium (mg/L)	G45S (bg)	0	-8	-35	No	12	0	n/a	n/a	0.02	NP
Mercury (mg/L)	G45S (bg)	0	0	35	No	12	100	n/a	n/a	0.02	NP
Molybdenum (mg/L)	G45S (bg)	0.000...	13	35	No	12	0	n/a	n/a	0.02	NP
Selenium (mg/L)	G45S (bg)	0	-7	-35	No	12	100	n/a	n/a	0.02	NP
Thallium (mg/L)	G45S (bg)	0	7	35	No	12	100	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	G45S (bg)	30.47	23	35	No	12	0	n/a	n/a	0.02	NP
Turbidity (NTU)	G45S (bg)	-0.1937	-13	-35	No	12	0	n/a	n/a	0.02	NP



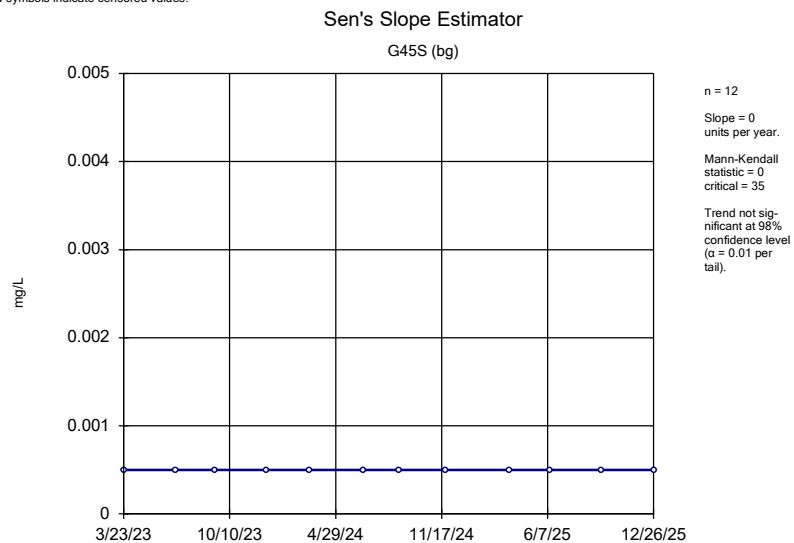




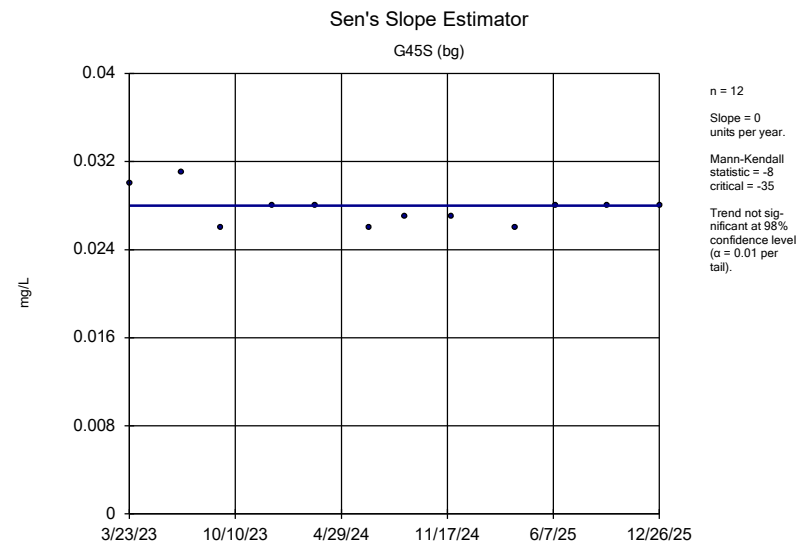
Constituent: Combined Radium 226 + 228 Analysis Run 5/18/2026 12:40 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



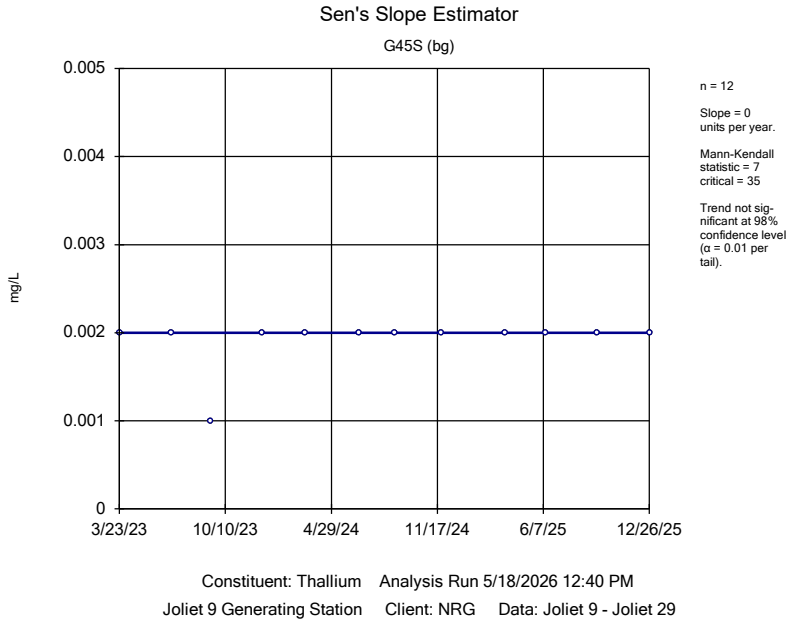
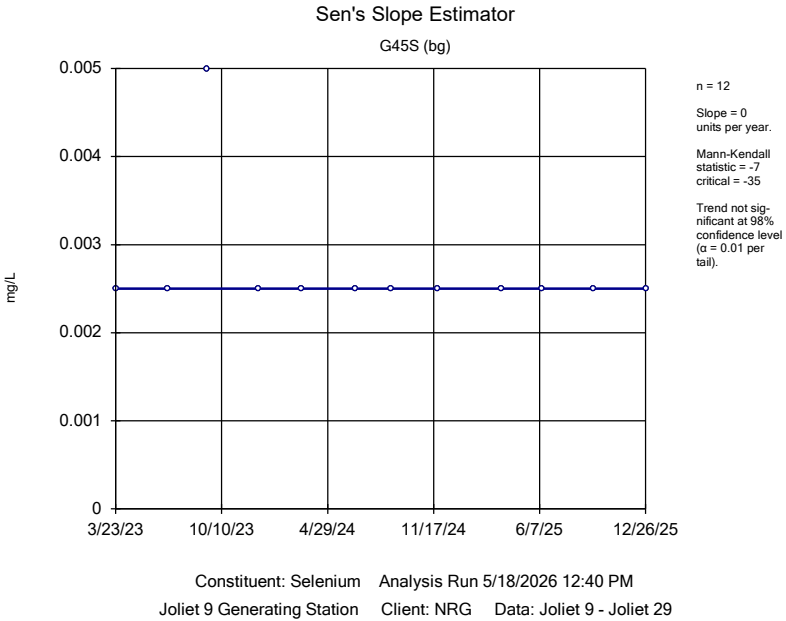
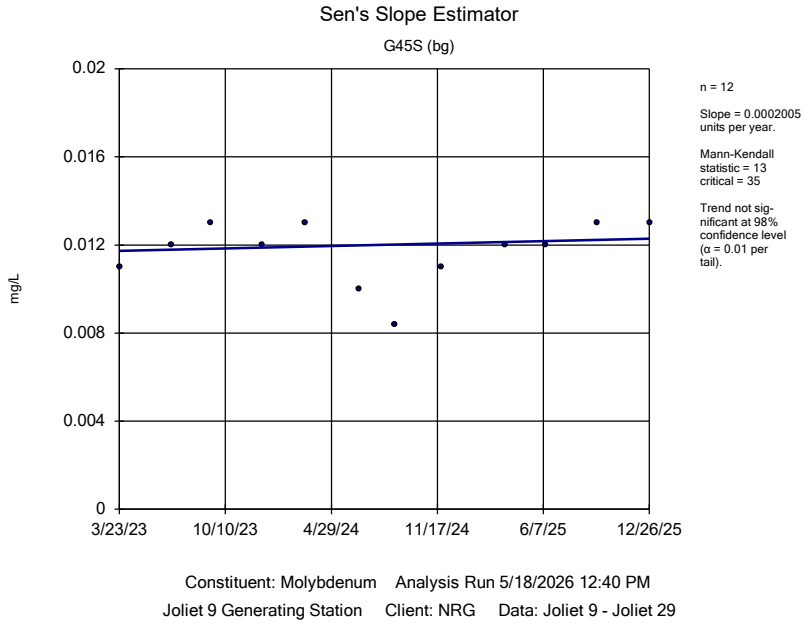
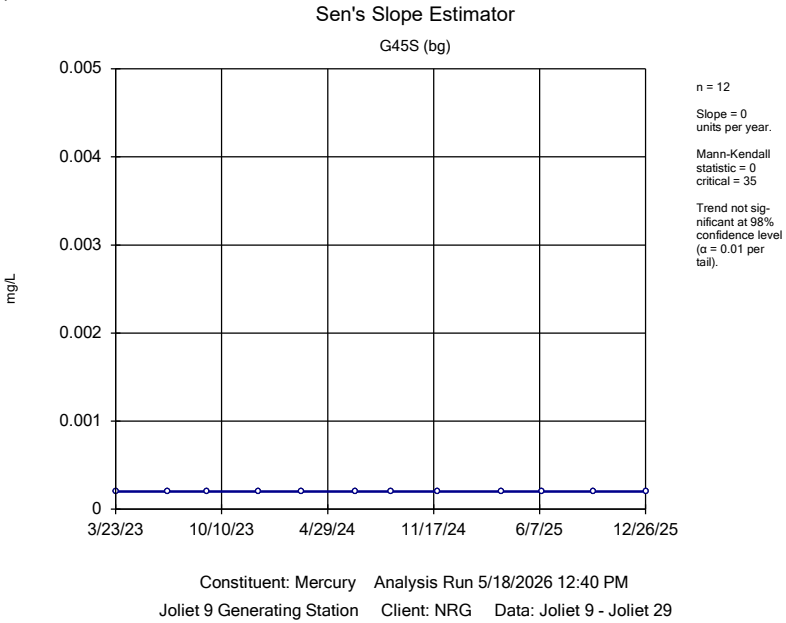
Constituent: Field pH Analysis Run 5/18/2026 12:40 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

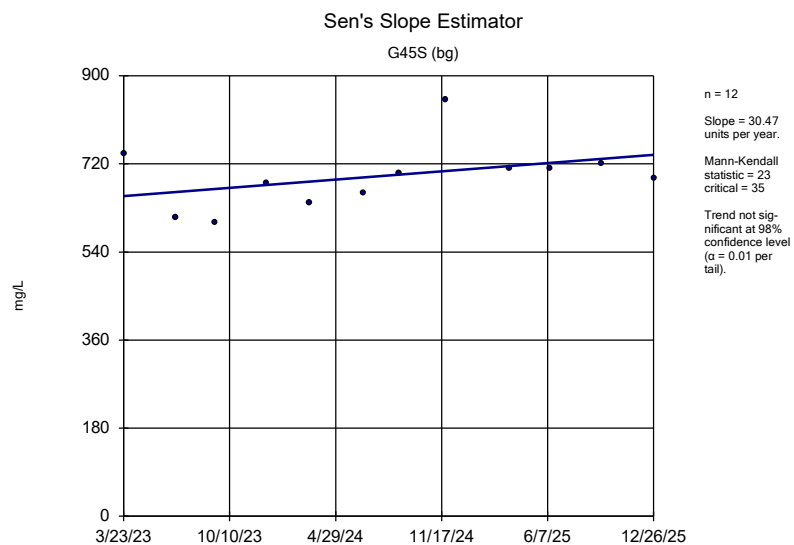


Constituent: Lead Analysis Run 5/18/2026 12:40 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

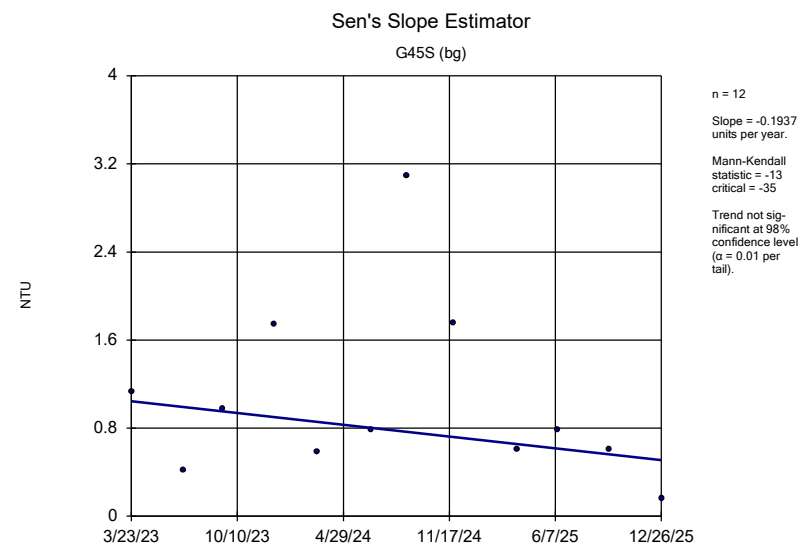


Constituent: Lithium Analysis Run 5/18/2026 12:40 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29





Constituent: Total Dissolved Solids Analysis Run 5/18/2026 12:40 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

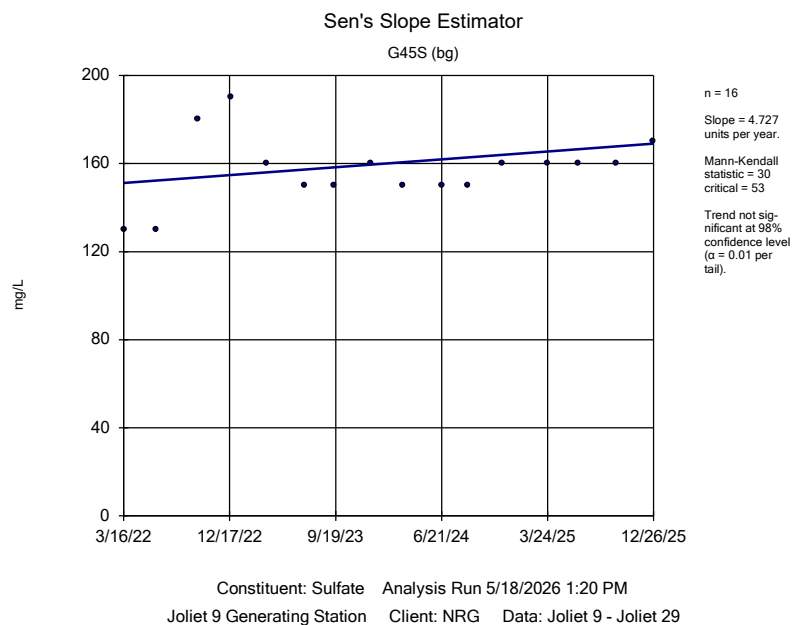
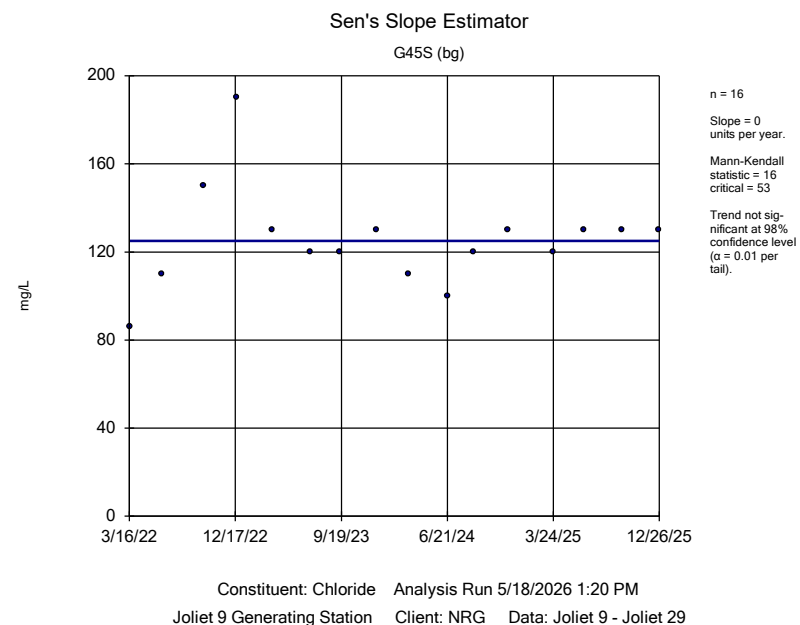
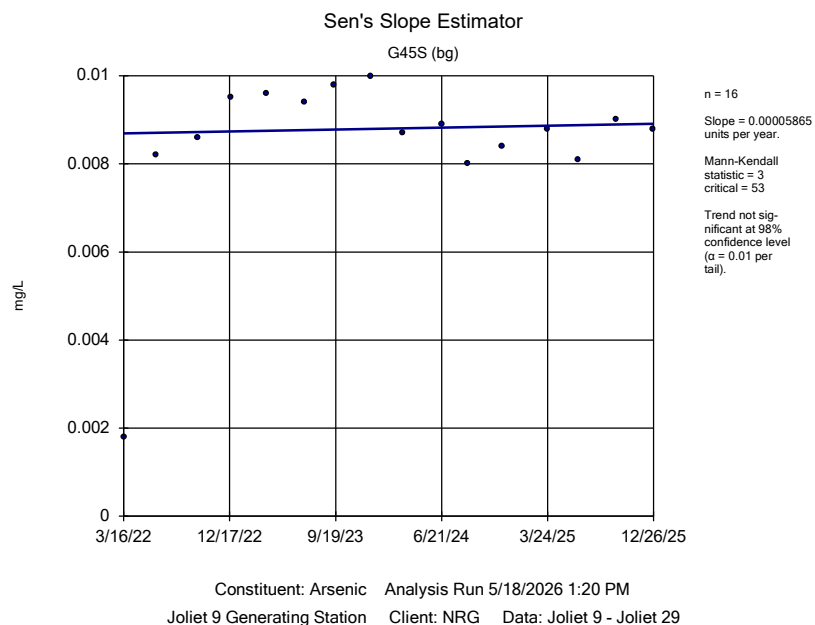


Constituent: Turbidity Analysis Run 5/18/2026 12:40 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Trend Test - (Sen's Slope) - G45S BG Last 16 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 1:20 PM

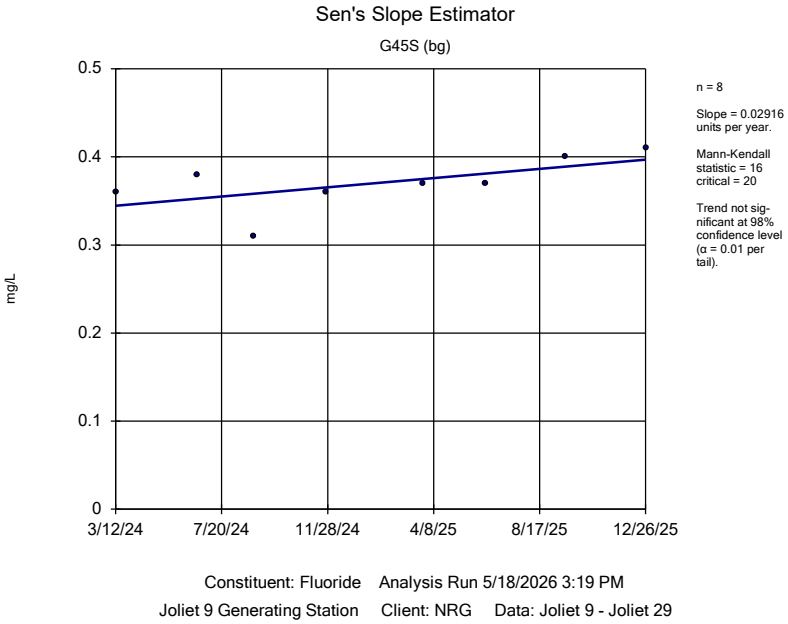
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	G45S (bg)	0.000...	3	53	No	16	0	n/a	n/a	0.02	NP
Chloride (mg/L)	G45S (bg)	0	16	53	No	16	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	G45S (bg)	4.727	30	53	No	16	0	n/a	n/a	0.02	NP



Trend Test (Sen's Slope) G45S BG Last 8 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 3:20 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Fluoride (mg/L)	G45S (bg)	0.02916	16	20	No	8	0	n/a	n/a	0.02	NP



Temporal Variability Testing

Seasonality - G45S BG Last 12 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 12:42 PM

<u>Constituent</u>	<u>Well</u>	<u>Sig.</u>	<u>K.-W.</u>	<u>Chi-Sq.</u>	<u>df</u>	<u>N</u>	<u>Alpha</u>
Antimony (mg/L)	G45S (bg)	No	3	7.815	3	12	0.05
Barium (mg/L)	G45S (bg)	No	0.9769	7.815	3	12	0.05
Beryllium (mg/L)	G45S (bg)	No	0	0	3	12	0.05
Boron (mg/L)	G45S (bg)	No	5.214	7.815	3	12	0.05
Cadmium (mg/L)	G45S (bg)	No	3	7.815	3	12	0.05
Calcium (mg/L)	G45S (bg)	No	1.149	7.815	3	12	0.05
Chromium (mg/L)	G45S (bg)	No	0	0	3	12	0.05
Cobalt (mg/L)	G45S (bg)	No	3	7.815	3	12	0.05
Combined Radium 226 + 228 (pCi/L)	G45S (bg)	No	1.051	7.815	3	12	0.05
Field pH (SU)	G45S (bg)	No	2.931	7.815	3	12	0.05
Lead (mg/L)	G45S (bg)	No	0	0	3	12	0.05
Lithium (mg/L)	G45S (bg)	No	0.9693	7.815	3	12	0.05
Mercury (mg/L)	G45S (bg)	No	0	0	3	12	0.05
Molybdenum (mg/L)	G45S (bg)	No	0.7887	7.815	3	12	0.05
Selenium (mg/L)	G45S (bg)	No	3	7.815	3	12	0.05
Thallium (mg/L)	G45S (bg)	No	3	7.815	3	12	0.05
Total Dissolved Solids (mg/L)	G45S (bg)	No	1.248	7.815	3	12	0.05
Turbidity (NTU)	G45S (bg)	No	1.557	7.815	3	12	0.05

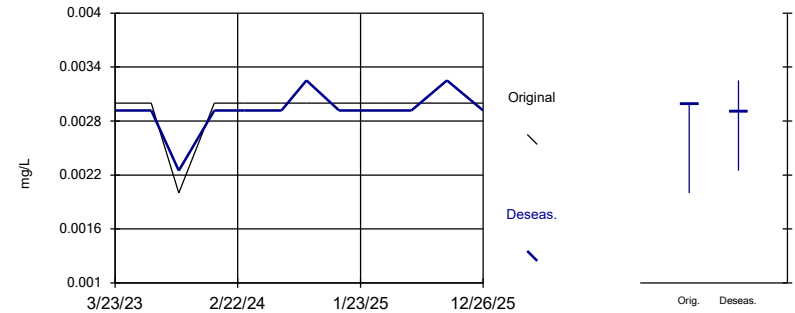
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 3
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 1 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 0.6923
Adjusted Kruskal-Wallis statistic (H') = 3



Constituent: Antimony Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

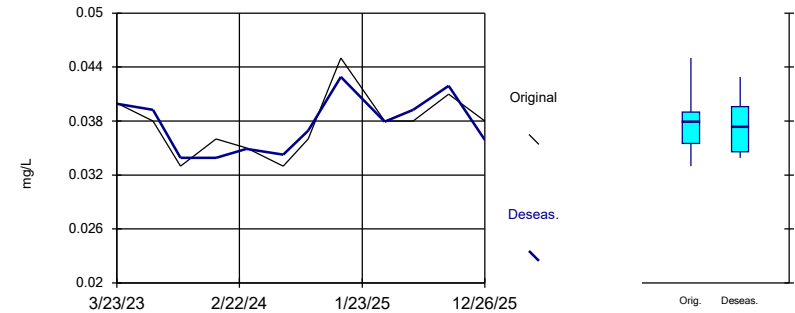
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 0.9769
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 3 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 0.9359
Adjusted Kruskal-Wallis statistic (H') = 0.9769



Constituent: Barium Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

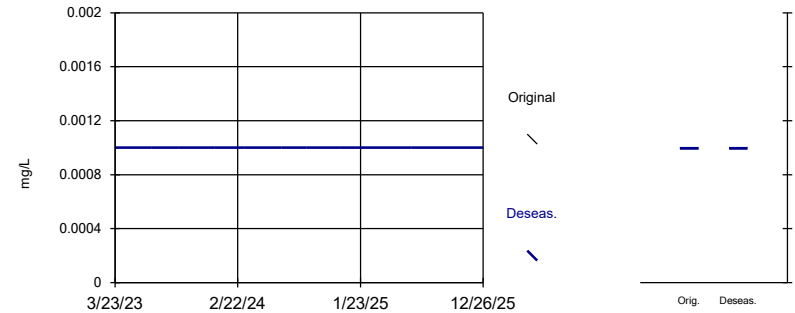
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 0
Tabulated Chi-Squared value = 0 with 3 degrees of freedom at the 5% significance level.

There were 3 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 0
Adjusted Kruskal-Wallis statistic (H') = 0



Constituent: Beryllium Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

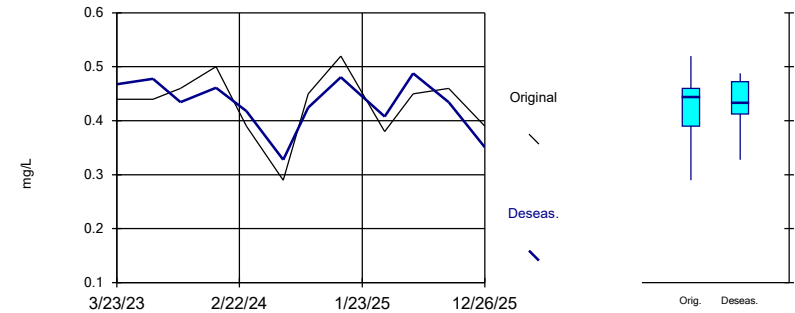
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 5.214
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 4 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 5.141
Adjusted Kruskal-Wallis statistic (H') = 5.214



Constituent: Boron Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

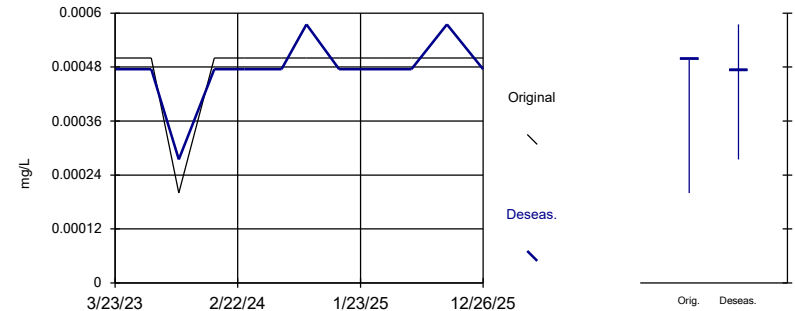
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 3
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 1 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 0.6923
Adjusted Kruskal-Wallis statistic (H') = 3



Constituent: Cadmium Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

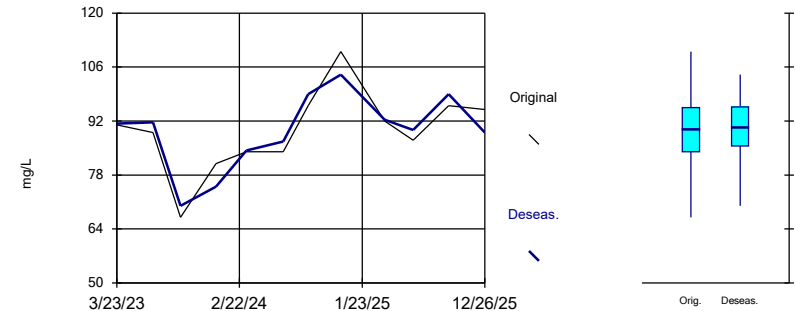
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 1.149
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 2 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 1.141
Adjusted Kruskal-Wallis statistic (H') = 1.149



Constituent: Calcium Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

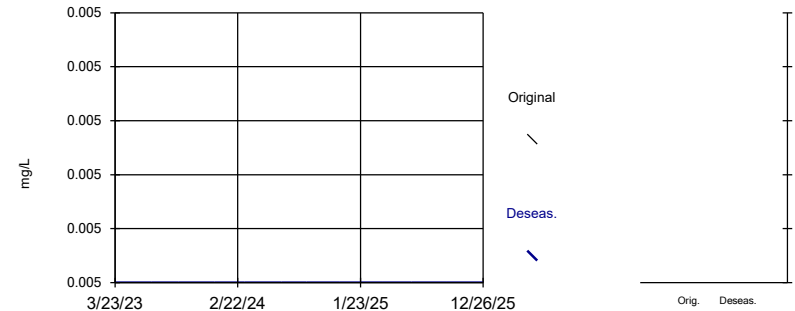
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 0
Tabulated Chi-Squared value = 0 with 3 degrees of freedom at the 5% significance level.

There were 2 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 0
Adjusted Kruskal-Wallis statistic (H') = 0



Constituent: Chromium Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

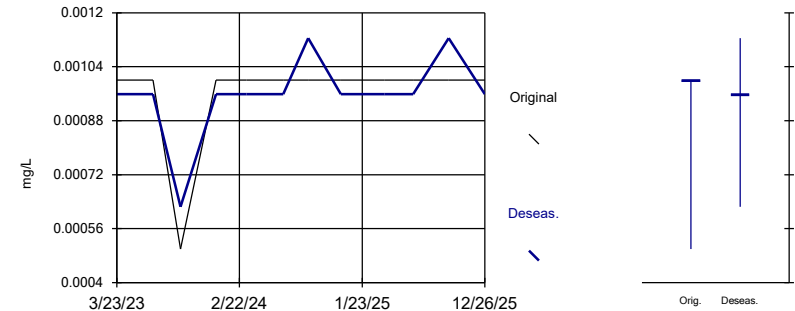
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 3
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 1 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 0.6923
Adjusted Kruskal-Wallis statistic (H') = 3

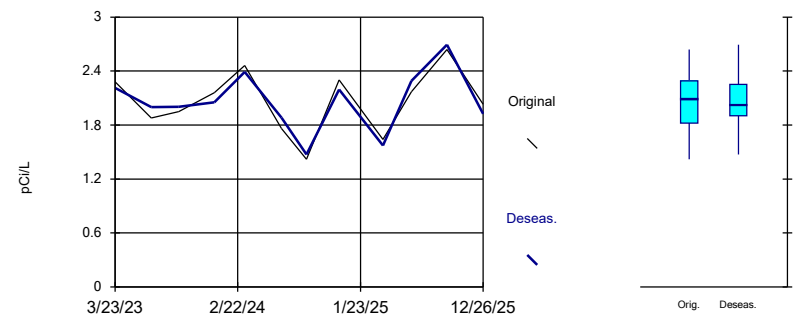


Constituent: Cobalt Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 1.051
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.
There were 0 groups of ties in the data, so no adjustment to the Kruskal-Wallis statistic (H) was necessary.

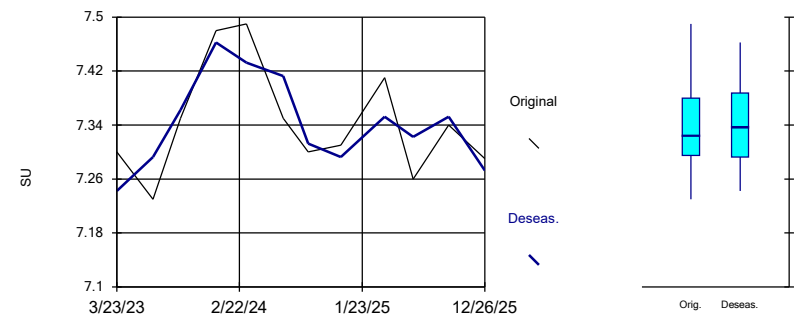


Constituent: Combined Radium 226 + 228 Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 2.931
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.
There were 2 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 2.91
Adjusted Kruskal-Wallis statistic (H') = 2.931

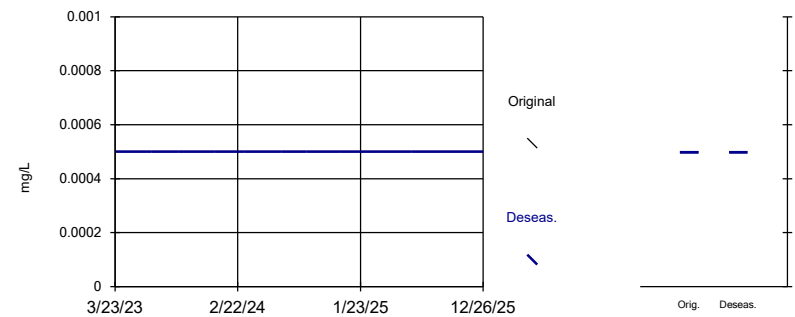


Constituent: Field pH Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 0
Tabulated Chi-Squared value = 0 with 3 degrees of freedom at the 5% significance level.
There were 2 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 0
Adjusted Kruskal-Wallis statistic (H') = 0

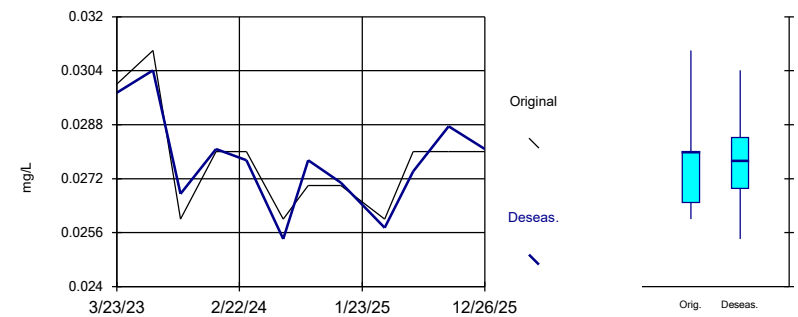


Constituent: Lead Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 0.9693
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.
There were 3 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 0.8846
Adjusted Kruskal-Wallis statistic (H') = 0.9693



Constituent: Lithium Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

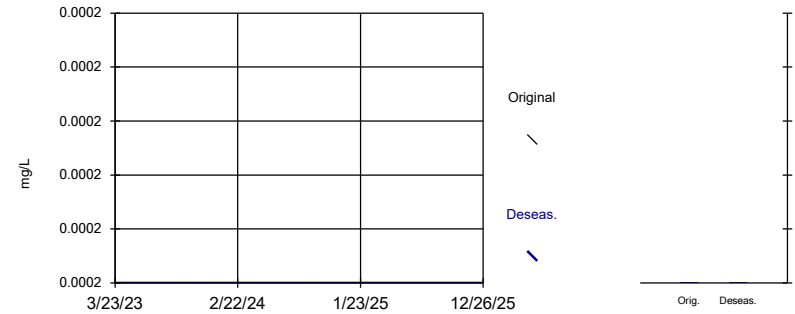
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 0
Tabulated Chi-Squared value = 0 with 3 degrees of freedom at the 5% significance level.

There were 3 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 0
Adjusted Kruskal-Wallis statistic (H') = 0



Constituent: Mercury Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

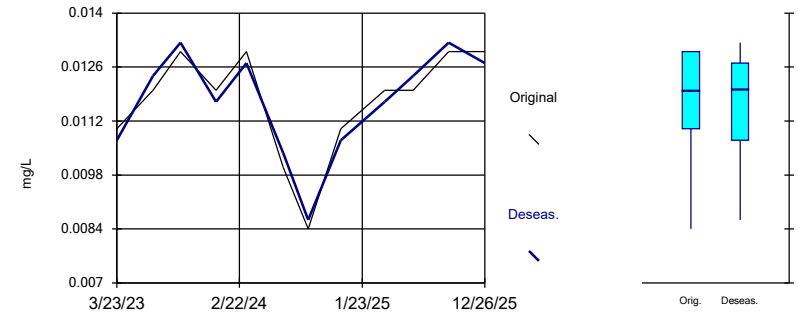
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 0.7887
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 3 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 0.7308
Adjusted Kruskal-Wallis statistic (H') = 0.7887



Constituent: Molybdenum Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

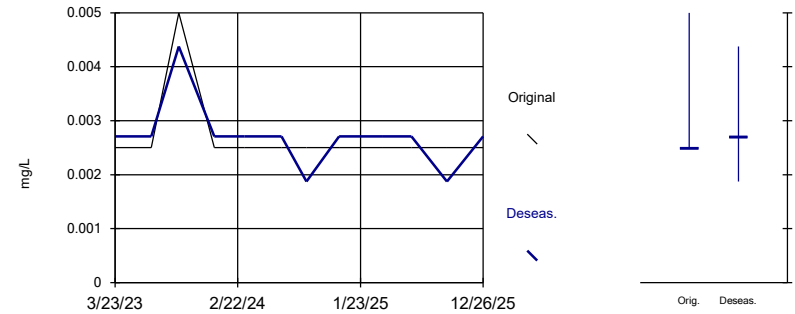
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 3
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 1 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 0.6923
Adjusted Kruskal-Wallis statistic (H') = 3



Constituent: Selenium Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

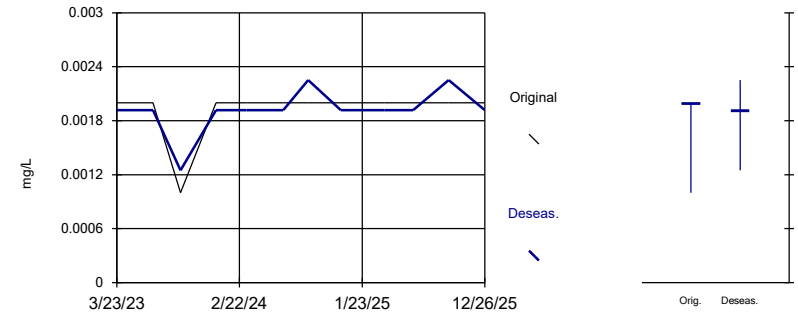
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 3
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 1 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 0.6923
Adjusted Kruskal-Wallis statistic (H') = 3



Constituent: Thallium Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

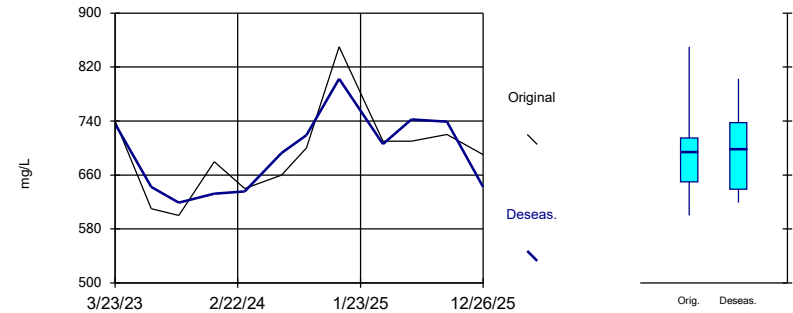
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 1.248
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 1 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 1.244
Adjusted Kruskal-Wallis statistic (H') = 1.248



Constituent: Total Dissolved Solids Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

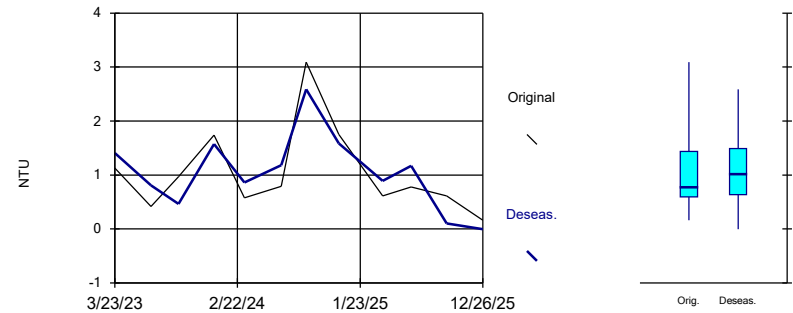
Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 1.557
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.

There were 1 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.

Kruskal-Wallis statistic (H) = 1.551
Adjusted Kruskal-Wallis statistic (H') = 1.557



Constituent: Turbidity Analysis Run 5/18/2026 12:41 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Seasonality - G45S BG Last 16 Rounds

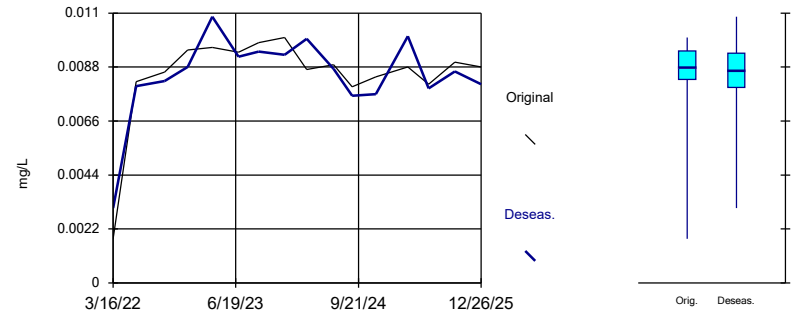
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 1:18 PM

<u>Constituent</u>	<u>Well</u>	<u>Sig.</u>	<u>K.-W.</u>	<u>Chi-Sq.</u>	<u>df</u>	<u>N</u>	<u>Alpha</u>
Arsenic (mg/L)	G45S (bg)	No	1.209	7.815	3	16	0.05
Chloride (mg/L)	G45S (bg)	No	6.447	7.815	3	16	0.05
Sulfate (mg/L)	G45S (bg)	No	5.739	7.815	3	16	0.05

Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 1.209
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.
There were 1 group of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 1.208
Adjusted Kruskal-Wallis statistic (H') = 1.209

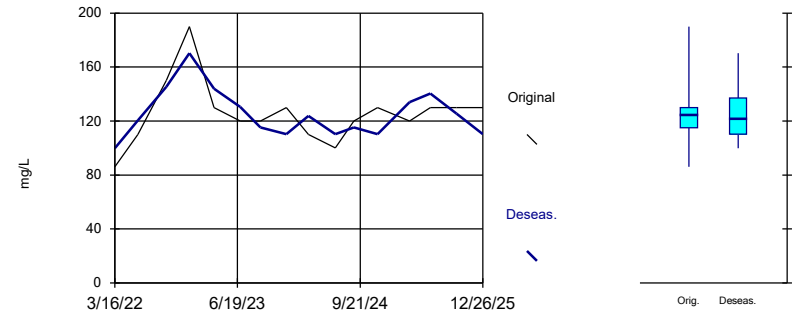


Constituent: Arsenic Analysis Run 5/18/2026 1:18 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 6.447
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.
There were 3 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 6.011
Adjusted Kruskal-Wallis statistic (H') = 6.447

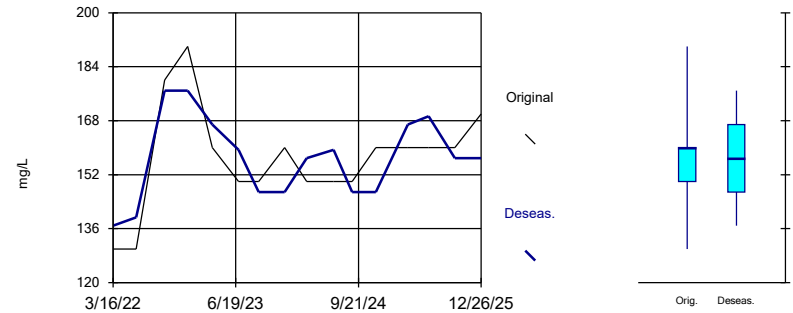


Constituent: Chloride Analysis Run 5/18/2026 1:18 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Seasonality: G45S (bg)

For the selected data, the Kruskal-Wallis test indicates NO SEASONALITY at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no season has a significantly different median concentration of this constituent than any other season.

Calculated Kruskal-Wallis statistic = 5.739
Tabulated Chi-Squared value = 7.815 with 3 degrees of freedom at the 5% significance level.
There were 3 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 5.267
Adjusted Kruskal-Wallis statistic (H') = 5.739



Constituent: Sulfate Analysis Run 5/18/2026 1:18 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

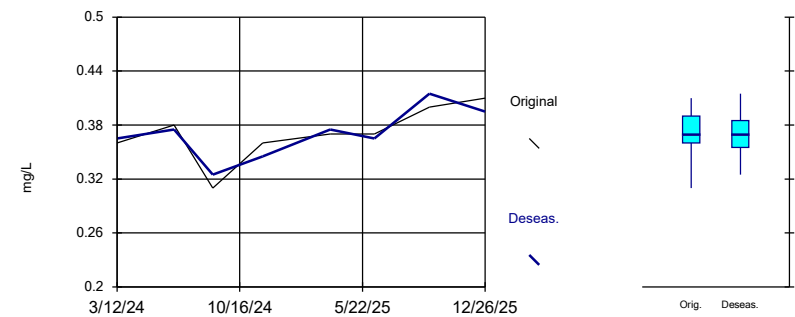
Seasonality - G45S BG Last 8 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 3:18 PM

<u>Constituent</u>	<u>Well</u>	<u>Sig.</u>	<u>K.-W.</u>	<u>Chi-Sq.</u>	<u>df</u>	<u>N</u>	<u>Alpha</u>
Fluoride (mg/L)	G45S (bg)	No	2.048	7.815	3	8	0.05

Seasonality: G45S (bg)

Data set is of insufficient size to test for seasonality (non-parametric ANOVA requires a minimum of three observations per group, i.e. season).



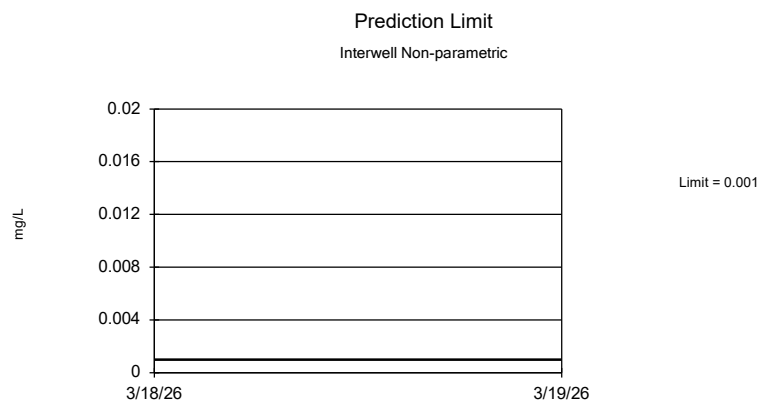
Constituent: Fluoride Analysis Run 5/18/2026 3:17 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Prediction Limits

Prediction Limit - G45S BG Last 12 Rounds

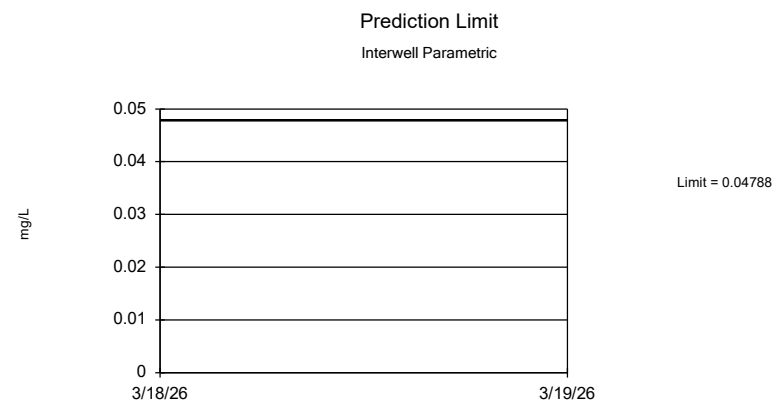
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 4:22 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	n/a	0.001	n/a	n/a	8 future	n/a	13	100	n/a	0.006699	NP Inter (NDs) 1 of 2
Barium (mg/L)	n/a	0.04788	n/a	n/a	8 future	n/a	13	0	No	0.000...	Param Inter 1 of 2
Beryllium (mg/L)	n/a	0.0004	n/a	n/a	8 future	n/a	13	100	n/a	0.006699	NP Inter (NDs) 1 of 2
Boron (mg/L)	n/a	0.6236	n/a	n/a	8 future	n/a	13	0	No	0.000...	Param Inter 1 of 2
Cadmium (mg/L)	n/a	0.0005	n/a	n/a	8 future	n/a	13	100	n/a	0.006699	NP Inter (NDs) 1 of 2
Calcium (mg/L)	n/a	120.8	n/a	n/a	8 future	n/a	13	0	No	0.000...	Param Inter 1 of 2
Chromium (mg/L)	n/a	0.005	n/a	n/a	8 future	n/a	13	100	n/a	0.006699	NP Inter (NDs) 1 of 2
Cobalt (mg/L)	n/a	0.001	n/a	n/a	8 future	n/a	13	100	n/a	0.006699	NP Inter (NDs) 1 of 2
Combined Radium 226 + 228 (pCi/L)	n/a	3.39	n/a	n/a	8 future	n/a	13	0	No	0.000...	Param Inter 1 of 2
Field pH (SU)	n/a	7.594	7.097	n/a	8 future	n/a	13	0	No	0.000...	Param Inter 1 of 2
Lead (mg/L)	n/a	0.0005	n/a	n/a	8 future	n/a	13	100	n/a	0.006699	NP Inter (NDs) 1 of 2
Lithium (mg/L)	n/a	0.03287	n/a	n/a	8 future	n/a	13	0	ln(x)	0.000...	Param Inter 1 of 2
Mercury (mg/L)	n/a	0.0002	n/a	n/a	8 future	n/a	13	100	n/a	0.006699	NP Inter (NDs) 1 of 2
Molybdenum (mg/L)	n/a	0.01662	n/a	n/a	8 future	n/a	13	0	No	0.000...	Param Inter 1 of 2
Selenium (mg/L)	n/a	0.0025	n/a	n/a	8 future	n/a	13	100	n/a	0.006699	NP Inter (NDs) 1 of 2
Thallium (mg/L)	n/a	0.0004	n/a	n/a	8 future	n/a	13	100	n/a	0.006699	NP Inter (NDs) 1 of 2
Total Dissolved Solids (mg/L)	n/a	897.3	n/a	n/a	8 future	n/a	13	0	No	0.000...	Param Inter 1 of 2
Turbidity (NTU)	n/a	3.818	n/a	n/a	8 future	n/a	13	0	No	0.000...	Param Inter 1 of 2



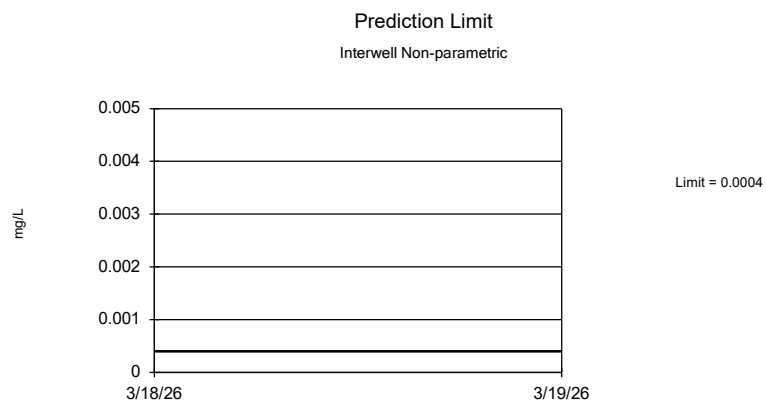
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values ($n = 13$) were censored; limit is most recent reporting limit. Annual per-constituent $\alpha = 0.1935$. Individual comparison $\alpha = 0.006699$ (1 of 2). Assumes 8 future values. Seasonality was not detected with 95% confidence.

Constituent: Antimony Analysis Run 5/18/2026 4:20 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



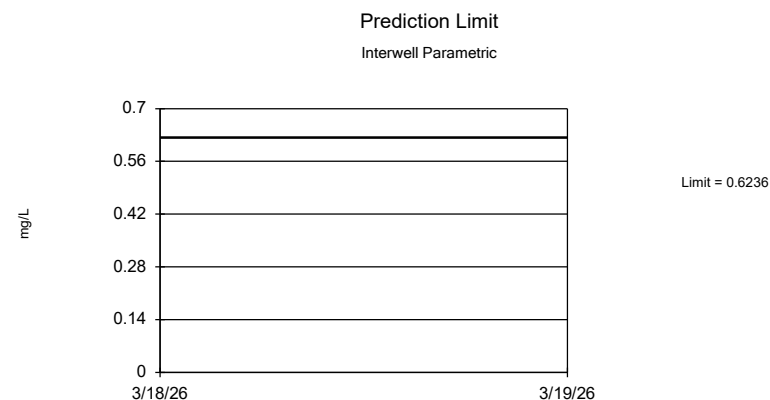
Background Data Summary: Mean=0.03746, Std. Dev.=0.003282, $n=13$. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @ $\alpha = 0.05$, calculated = 0.9305, critical = 0.866. Kappa = 3.175 ($c=22$, $w=8$, 1 of 2, event $\alpha = 0.026$). Report $\alpha = 0.001197$. Individual comparison $\alpha = 0.0001496$. Assumes 8 future values.

Constituent: Barium Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



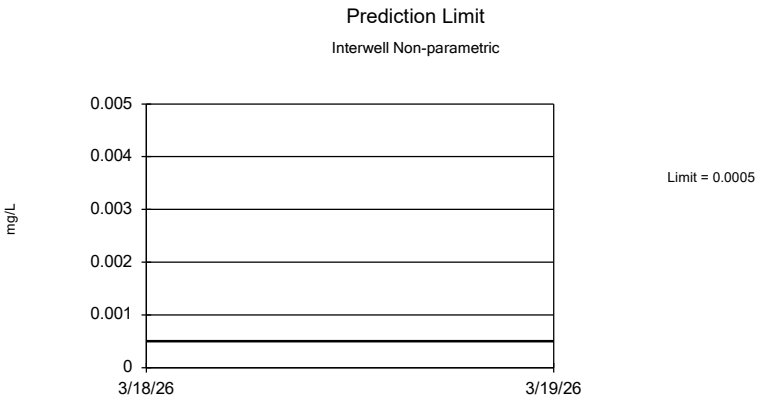
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values ($n = 13$) were censored; limit is most recent reporting limit. Annual per-constituent $\alpha = 0.1935$. Individual comparison $\alpha = 0.006699$ (1 of 2). Assumes 8 future values. Seasonality was not detected with 95% confidence.

Constituent: Beryllium Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



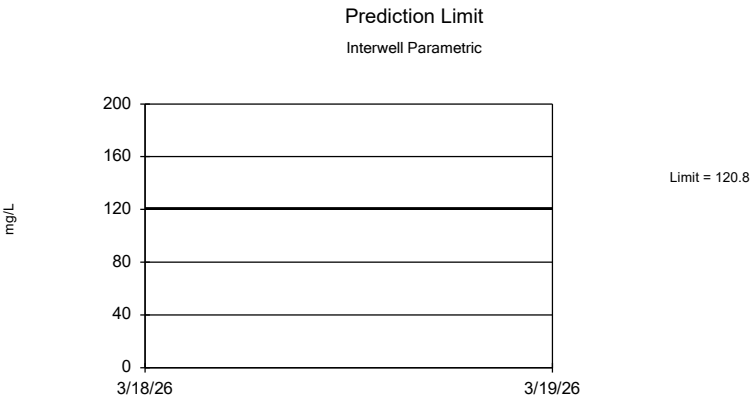
Background Data Summary: Mean=0.4246, Std. Dev.=0.06267, $n=13$. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @ $\alpha = 0.05$, calculated = 0.9494, critical = 0.866. Kappa = 3.175 ($c=22$, $w=8$, 1 of 2, event $\alpha = 0.026$). Report $\alpha = 0.001197$. Individual comparison $\alpha = 0.0001496$. Assumes 8 future values.

Constituent: Boron Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



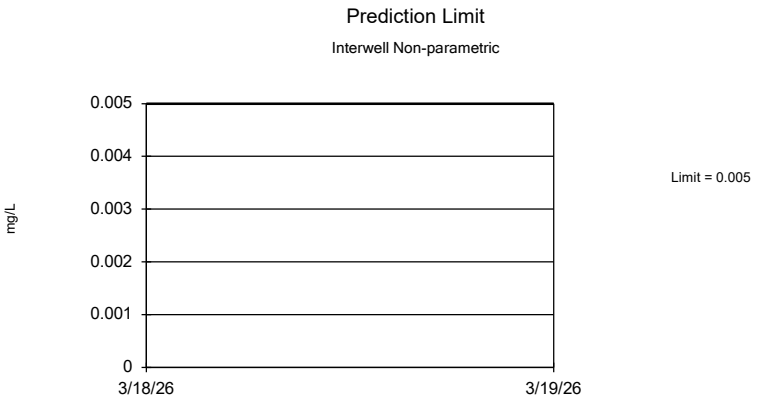
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values ($n = 13$) were censored; limit is most recent reporting limit. Annual per-constituent $\alpha = 0.1935$. Individual comparison $\alpha = 0.006699$ (1 of 2). Assumes 8 future values. Seasonality was not detected with 95% confidence.

Constituent: Cadmium Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



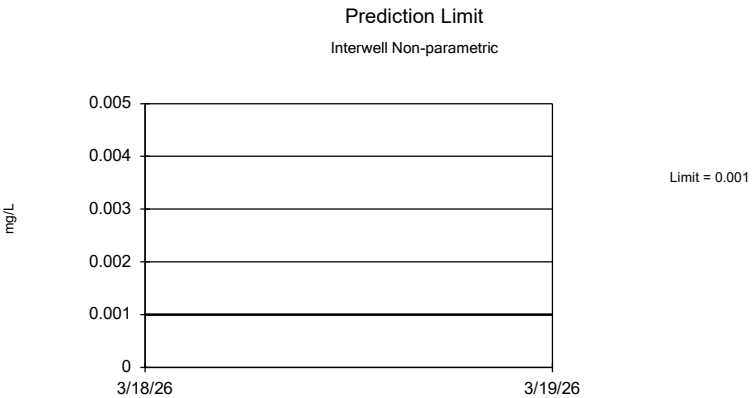
Background Data Summary: Mean=89.08, Std. Dev.=9.996, $n=13$. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @ $\alpha = 0.05$, calculated = 0.946, critical = 0.866. Kappa = 3.175 ($c=22$, $w=8$, 1 of 2, event $\alpha = 0.026$). Report $\alpha = 0.001197$. Individual comparison $\alpha = 0.0001496$. Assumes 8 future values.

Constituent: Calcium Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values ($n = 13$) were censored; limit is most recent reporting limit. Annual per-constituent $\alpha = 0.1935$. Individual comparison $\alpha = 0.006699$ (1 of 2). Assumes 8 future values. Seasonality was not detected with 95% confidence.

Constituent: Chromium Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values ($n = 13$) were censored; limit is most recent reporting limit. Annual per-constituent $\alpha = 0.1935$. Individual comparison $\alpha = 0.006699$ (1 of 2). Assumes 8 future values. Seasonality was not detected with 95% confidence.

Constituent: Cobalt Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Prediction Limit

Interwell Parametric



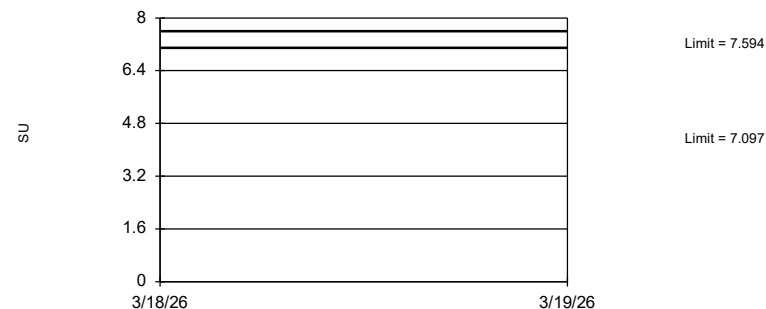
Background Data Summary: Mean=2.118, Std. Dev.=0.4006, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9936, critical = 0.866. Kappa = 3.175 (c=22, w=8, 1 of 2, event alpha = 0.026). Report alpha = 0.001197. Individual comparison alpha = 0.0001496. Assumes 8 future values.

Constituent: Combined Radium 226 + 228 Analysis Run 5/18/2026 4:21 PM

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=7.345, Std. Dev.=0.07827, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9389, critical = 0.866. Kappa = 3.175 (c=22, w=8, 1 of 2, event alpha = 0.026). Report alpha = 0.001197. Individual comparison alpha = 0.00007482. Assumes 8 future values.

Constituent: Field pH Analysis Run 5/18/2026 4:21 PM

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 13) were censored; limit is most recent reporting limit. Annual per-constituent alpha = 0.1935. Individual comparison alpha = 0.006699 (1 of 2). Assumes 8 future values. Seasonality was not detected with 95% confidence.

Constituent: Lead Analysis Run 5/18/2026 4:21 PM

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Prediction Limit

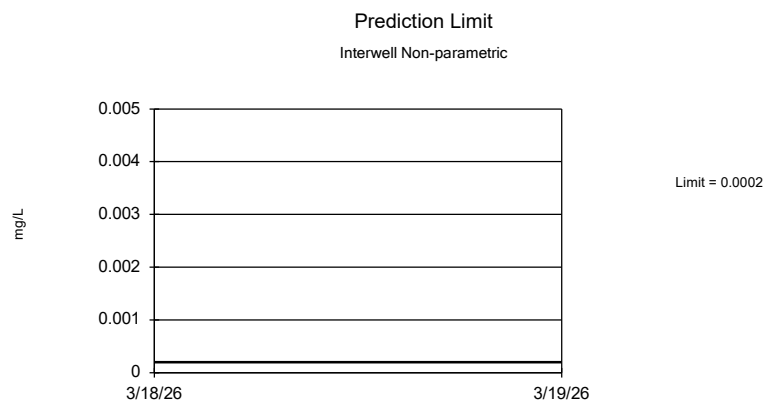
Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=-3.591, Std. Dev.=0.05531, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8663, critical = 0.866. Kappa = 3.175 (c=22, w=8, 1 of 2, event alpha = 0.026). Report alpha = 0.001197. Individual comparison alpha = 0.0001496. Assumes 8 future values.

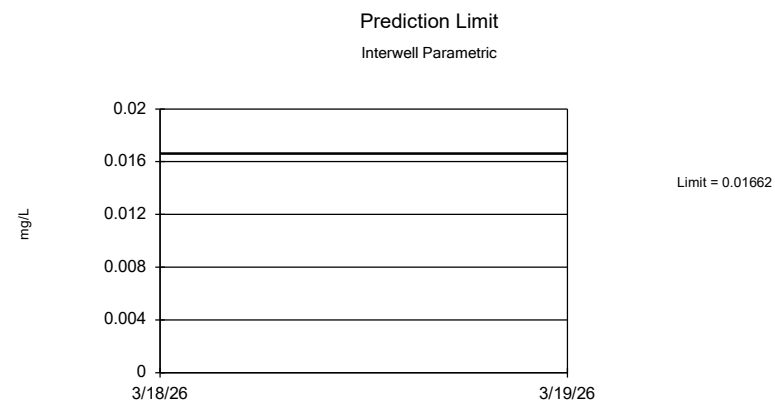
Constituent: Lithium Analysis Run 5/18/2026 4:21 PM

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



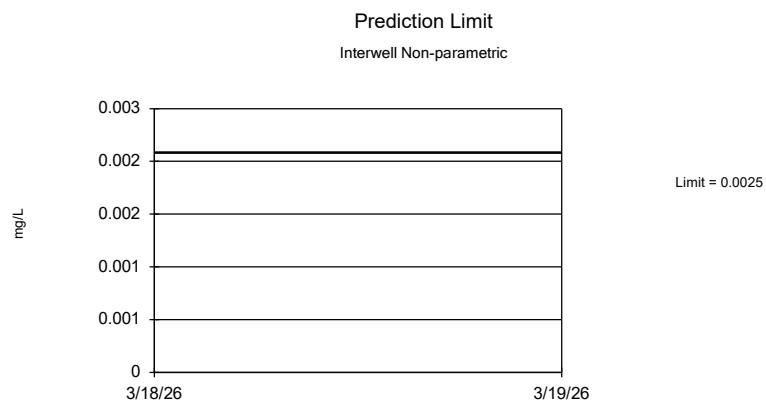
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values ($n = 13$) were censored; limit is most recent reporting limit. Annual per-constituent $\alpha = 0.1935$. Individual comparison $\alpha = 0.006699$ (1 of 2). Assumes 8 future values. Seasonality was not detected with 95% confidence.

Constituent: Mercury Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



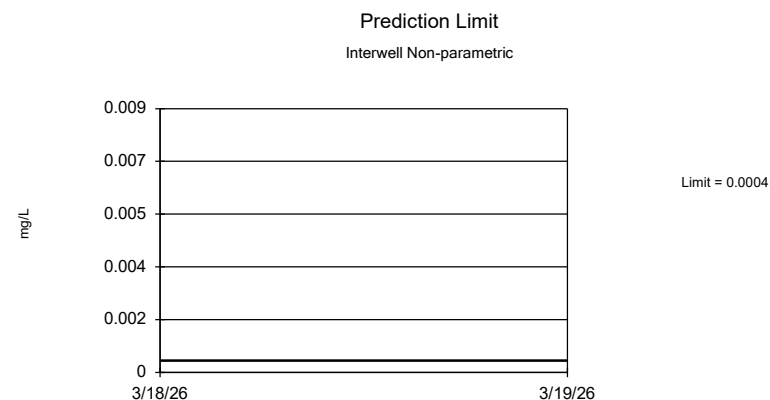
Background Data Summary: Mean=0.01188, Std. Dev.=0.001493, $n=13$. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @ $\alpha = 0.05$, calculated = 0.909, critical = 0.866. Kappa = 3.175 ($c=22$, $w=8$, 1 of 2, event $\alpha = 0.026$). Report $\alpha = 0.001197$. Individual comparison $\alpha = 0.0001496$. Assumes 8 future values.

Constituent: Molybdenum Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values ($n = 13$) were censored; limit is most recent reporting limit. Annual per-constituent $\alpha = 0.1935$. Individual comparison $\alpha = 0.006699$ (1 of 2). Assumes 8 future values. Seasonality was not detected with 95% confidence.

Constituent: Selenium Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values ($n = 13$) were censored; limit is most recent reporting limit. Annual per-constituent $\alpha = 0.1935$. Individual comparison $\alpha = 0.006699$ (1 of 2). Assumes 8 future values. Seasonality was not detected with 95% confidence.

Constituent: Thallium Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

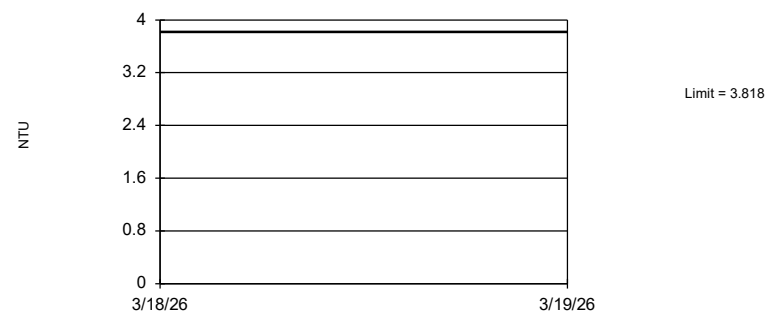
Prediction Limit
Interwell Parametric



Background Data Summary: Mean=686.9, Std. Dev.=66.26, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9175, critical = 0.866. Kappa = 3.175 (c=22, w=8, 1 of 2, event alpha = 0.026). Report alpha = 0.001197. Individual comparison alpha = 0.0001496. Assumes 8 future values.

Constituent: Total Dissolved Solids Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Prediction Limit
Interwell Parametric



Background Data Summary: Mean=1.148, Std. Dev.=0.8412, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8805, critical = 0.866. Kappa = 3.175 (c=22, w=8, 1 of 2, event alpha = 0.026). Report alpha = 0.001197. Individual comparison alpha = 0.0001496. Assumes 8 future values.

Constituent: Turbidity Analysis Run 5/18/2026 4:21 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Prediction Limit - G45S BG Last 16 Rounds

Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29 Printed 5/18/2026, 4:19 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	n/a	0.01072	n/a	n/a	8 future	n/a	17	0	x^4	0.000...	Param Inter 1 of 2
Chloride (mg/L)	n/a	195.6	n/a	n/a	8 future	n/a	17	0	x^(1/3)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	n/a	200.3	n/a	n/a	8 future	n/a	17	0	No	0.000...	Param Inter 1 of 2

Prediction Limit

Interwell Parametric



Background Data Summary (based on x^4 transformation): Mean=6.2e-9, Std. Dev.=2.4e-9, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9409, critical = 0.892. Kappa = 2.905 (c=22, w=8, 1 of 2, event alpha = 0.026). Report alpha = 0.001197. Individual comparison alpha = 0.0001496. Assumes 8 future values.

Constituent: Arsenic Analysis Run 5/18/2026 4:17 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Prediction Limit

Interwell Parametric

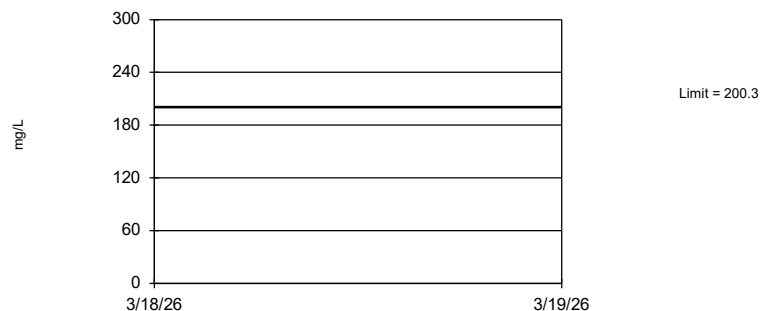


Background Data Summary (based on cube root transformation): Mean=4.977, Std. Dev.=0.2847, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8965, critical = 0.892. Kappa = 2.905 (c=22, w=8, 1 of 2, event alpha = 0.026). Report alpha = 0.001197. Individual comparison alpha = 0.0001496. Assumes 8 future values.

Constituent: Chloride Analysis Run 5/18/2026 4:17 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Prediction Limit

Interwell Parametric

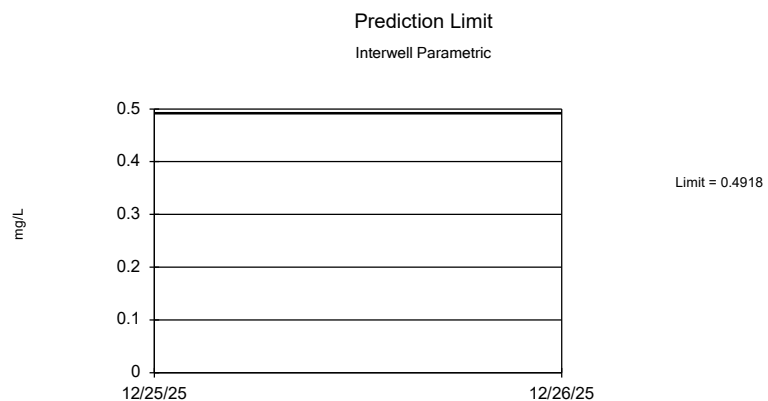


Background Data Summary: Mean=157.1, Std. Dev.=14.9, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9016, critical = 0.892. Kappa = 2.905 (c=22, w=8, 1 of 2, event alpha = 0.026). Report alpha = 0.001197. Individual comparison alpha = 0.0001496. Assumes 8 future values.

Constituent: Sulfate Analysis Run 5/18/2026 4:17 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

Prediction Limit - G45S BG Last 8 Rounds

Joliet 9 Generating Station				Client: NRG	Data: Joliet 9 - Joliet 29		Printed 5/18/2026, 3:23 PM				
<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Fluoride (mg/L)	n/a	0.4918	n/a	n/a	8 future	n/a	8	0	No	0.000...	Param Inter 1 of 2



Background Data Summary: Mean=0.37, Std. Dev.=0.03024, n=8. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9183, critical = 0.818. Kappa = 4.029 (c=22, w=8, 1 of 2, event alpha = 0.026). Report alpha = 0.001197. Individual comparison alpha = 0.0001496. Assumes 8 future values.

Constituent: Fluoride Analysis Run 5/18/2026 3:22 PM
Joliet 9 Generating Station Client: NRG Data: Joliet 9 - Joliet 29

ATTACHMENT 10

No Attachment

ATTACHMENT 11

No Attachment

ATTACHMENT 12

Liner Certification Calculations

Attachment 12: Liquid Flow Rate through Alternative Composite Liner
Joliet 9 Lincoln Stone Quarry

Darcy's Law for Gravity Flow through Porous Media

$$Q/A = q = k((h/t)+1)$$

Q= flow rate (cubic centimeters/second)
A = Surface area of the liner (squared centimeters)
q = flow rate per unit area (cubic centimeters/second/squared centimeter)
k = hydraulic conductivity of the liner (centimeters/second)
h = hydraulic head above the liner (centimeters)
t = thickness of the liner (centimeters)

Section 845.400(c) Comparison Flow Rate

$$Q/A = q = k((h/t)+1)$$

Q= calculated
A = 2,257,198 ft² = 2,097,005,560.8 cm² Based on surface area at toe of embankment
q = calculated
k = 1.00E-07 cm/s
h = 45 ft = 1371.6 cm
t = 2 ft = 60.96 cm

$$Q = 1.00E-07 \frac{1371.6}{60.96} + 1 * 2,097,005,560.82$$

Q = 4927.96 cm ³ /s	Compare to Surface Impoundment Flow Rate
--------------------------------	--

Pond Profile

Layers	Depth (ft)	Elevation (ft msl)		Layer Description	Permeability (cm/s)	Layer Thickness (inch)	Layer Thickness (cm)	Product of Permeability & Layer Thickness
		From	To					
Pond	0	580	500	Pond embankment crest	--	--	--	--
	80	500	500	Pond bottom	--	--	--	--
Upper Liner Component	5	500	495	Silurian dolomite	2.00E-04	60	152.4	0.03048
Lower Liner Component								

Totals	152.4	3.05E-02
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Permeability (weighted) = 0.0002

LSQ Flow Rate Calculation

$$Q/A = q = k((h/t)+1)$$

Q= calculated
A = 2,257,198 ft² = 2,097,005,560.82 cm² Based on surface area at toe of embankment
q = calculated
k = 2.00E-04 cm/s
h = 45 ft = 1371.6 cm
t = 5 ft = 152.4 cm

$$Q = 2.00E-04 \frac{1371.6}{152.4} + 1 * 2,097,005,560.82$$

Q = 4,194,011.12 cm ³ /s	Compare to Section 845.400(c) Comparison Flow Rate
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Comparison of Surface Impoundment Flow Rate vs Section 845.400(c) Flow Rate

Is the Surface Impoundment Flow Rate of 4,194,011.12 less than the Section 845.400(c) Comparison Flow Rate of 4,928.0 **NO**

ATTACHMENT 13

No Attachment

ATTACHMENT 14

Financial Assurance Certification



NRG Energy, Inc.
NRG Tower
1301 McKinney St.
Houston, Texas 77010
maria.castro@nrg.com
713.537.2653

July 2, 2026

James Thorne
Environmental & Safety Specialist
Joliet Generating Station
1800 Channahon Road
Joliet, IL 60436

Dear James,

Attached please find the original Increase Rider for Bond Number SU1174125 on behalf of Midwest Generation, LLC to the Illinois Environmental Protection Agency.

I have also included the Verification Certificate for this bond.

If anything else should be needed, please let me know.

Best Regards,

A handwritten signature in blue ink, appearing to read "Maria M. Castro", with a long horizontal flourish extending to the right.

Maria M. Castro
Risk Analyst

Attachments

INCREASE RIDER

To be attached to and form part of Bond Number SU1174125 effective
06/21/2021 issued by the Arch Insurance Company
in the amount of Twenty Six Million Four Hundred Seventeen
Thousand Seven Hundred Eighty One Dollars And 96/100 Cents DOLLARS (\$ 26,417,781.96),
on behalf of NRG Energy, Inc. on behalf of Midwest Generation, LLC,
as Principal and in favor of Illinois Environmental Protection Agency,
as Obligee.

Now therefore, it is agreed that:

We, Arch Insurance Company,
Surety on the above bond, hereby stipulate and agree that from and after the effective date of this
Stipulation, the Penalty of said Bond shall be Increased

FROM: Twenty Six Million Four Hundred Seventeen Thousand Seven Hundred (\$ 26,417,781.96)
Eighty One Dollars And 96/100 Cents

TO: Thirty Two Million Five Hundred Thirty Four Thousand Six Hundred Six Dollars (\$ 32,534,606.00)
And 00/100 Cents

It is further understood and agreed that all other terms and conditions of this bond shall remain unchanged.

This rider is to be effective the 1st Day of July, 2026.

Signed, Sealed and Dated this 1st Day of July, 2026.

NRG Energy, Inc. on behalf of Midwest Generation, LLC
(Principal)

By: [Signature]

Arch Insurance Company

(Surety)

By: [Signature]

Mark W. Edwards, II

Attorney-In-Fact

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for Note, Loan, Letter of Credit, Currency Rate, Interest Rate or Residential Value Guarantees.

POWER OF ATTORNEY

Know All Persons By These Presents:

That the Arch Insurance Company, a corporation organized and existing under the laws of the State of Missouri, having its principal administrative office in Jersey City, New Jersey (hereinafter referred to as the "Company") does hereby appoint:

Alisa B. Ferris, Anna Childress, Jeffrey M. Wilson, Mark W. Edwards II, Richard H. Mitchell, Robert R. Freel and William M. Smith of Birmingham, AL (EACH)

its true and lawful Attorney(s)-in-Fact, to make, execute, seal, and deliver from the date of issuance of this power for and on its behalf as surety, and as its act and deed: Any and all bonds, undertakings, recognizances and other surety obligations, in the penal sum not exceeding One Hundred Fifty Million Dollars (\$150,000,000.00). This authority does not permit the same obligation to be split into two or more bonds in order to bring each such bond within the dollar limit of authority as set forth herein.

The execution of such bonds, undertakings, recognizances and other surety obligations in pursuance of these presents shall be as binding upon the said Company as fully and amply to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at its principal administrative office in Jersey City, New Jersey.

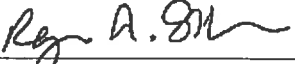
This Power of Attorney is executed by authority of resolutions adopted by unanimous consent of the Board of Directors of the Company on August 31, 2022, true and accurate copies of which are hereinafter set forth and are hereby certified to by the undersigned Secretary as being in full force and effect:

"**VOTED**, That the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, or the Secretary shall have the power and authority to appoint agents and attorneys-in-fact, and to authorize them subject to the limitations set forth in their respective powers of attorney, to execute on behalf of the Company, and attach the seal of the Company thereto, bonds, undertakings, recognizances and other surety obligations obligatory in the nature thereof, and any such officers of the Company may appoint agents for acceptance of process."

This Power of Attorney is signed, sealed and certified by facsimile under and by authority of the following resolution adopted by the unanimous consent of the Board of Directors of the Company on August 31, 2022:

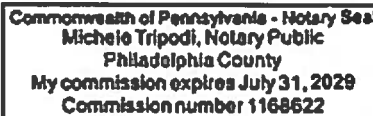
VOTED, That the signature of the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, and the signature of the Secretary, the seal of the Company, and certifications by the Secretary, may be affixed by facsimile on any power of attorney or bond executed pursuant to the resolution adopted by the Board of Directors on August 31, 2022, and any such power so executed, sealed and certified with respect to any bond or undertaking to which it is attached, shall continue to be valid and binding upon the Company. **In Testimony Whereof**, the Company has caused this instrument to be signed and its corporate seal to be affixed by their authorized officers, this 30th day of June, 2025.

Attested and Certified


Regan A. Shulman, Secretary

STATE OF PENNSYLVANIA SS
COUNTY OF PHILADELPHIA SS

I, **Michele Tripodi**, a Notary Public, do hereby certify that Regan A. Shulman and Stephen C. Ruschak personally known to me to be the same persons whose names are respectively as Secretary and Executive Vice President of the Arch Insurance Company, a Corporation organized and existing under the laws of the State of Missouri, subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that they being thereunto duly authorized signed, sealed with the corporate seal and delivered the said instrument as the free and voluntary act of said corporation and as their own free and voluntary acts for the uses and purposes therein set forth.



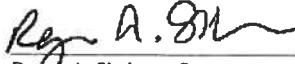
Arch Insurance Company


Stephen C. Ruschak, Executive Vice President

CERTIFICATION

I, **Regan A. Shulman**, Secretary of the Arch Insurance Company, do hereby certify that the attached **Power of Attorney dated June 30, 2025** on behalf of the person(s) as listed above is a true and correct copy and that the same has been in full force and effect since the date thereof and is in full force and effect on the date of this certificate; and I do further certify that the said Stephen C. Ruschak, who executed the Power of Attorney as Executive Vice President, was on the date of execution of the attached Power of Attorney the duly elected Executive Vice President of the Arch Insurance Company.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the Arch Insurance Company on this 1st day of July, 2026.


Regan A. Shulman, Secretary

This Power of Attorney limits the acts of those named therein to the bonds and undertakings specifically named therein and they have no authority to bind the Company except in the manner and to the extent herein stated.

PLEASE SEND ALL CLAIM INQUIRIES RELATING TO THIS BOND TO THE FOLLOWING ADDRESS:

Arch Insurance Company Claims Department
Surety Claims
P.O. Box 542033
Omaha, NE 68154
suretyclaims@archinsurance.com



To verify the authenticity of this Power of Attorney, please contact Arch Insurance Company at SuretyAuthentic@archinsurance.com. Please refer to the above named Attorney-in-Fact and the details of the bond to which the power is attached.

VERIFICATION CERTIFICATE

Bond No.: SU1174125

THIS IS TO CERTIFY that the above referenced Bond, issued by Arch Insurance Company dated June 21st, 2021, in the amount of Thirty Two Million Five Hundred Thirty Four Thousand Six Hundred Six And 00/100 Dollars (\$32,534,606.00) on behalf of NRG Energy, Inc. on behalf of Midwest Generation, LLC (as Principal), and in favor of Illinois Environmental Protection Agency (as Obligee), remains in effect, subject to all agreements, conditions and limitations.

Signed, sealed and dated July 1st, 2026.

Arch Insurance Company

By Mark W. Edwards, II
Mark W. Edwards, II Attorney-in-Fact

Bond has been renewed for the below term:
6/21/2026 to 6/21/2027



This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for Note, Loan, Letter of Credit, Currency Rate, Interest Rate or Residential Value Guarantees.

POWER OF ATTORNEY

Know All Persons By These Presents:

That the Arch Insurance Company, a corporation organized and existing under the laws of the State of Missouri, having its principal administrative office in Jersey City, New Jersey (hereinafter referred to as the "Company") does hereby appoint:

Alisa B. Ferris, Anna Childress, Jeffrey M. Wilson, Mark W. Edwards II, Richard H. Mitchell, Robert R. Freel and William M. Smith of Birmingham, AL (EACH)

its true and lawful Attorney(s)in-Fact, to make, execute, seal, and deliver from the date of issuance of this power for and on its behalf as surety, and as its act and deed: Any and all bonds, undertakings, recognizances and other surety obligations, in the penal sum not exceeding One Hundred Fifty Million Dollars (\$150,000,000.00). This authority does not permit the same obligation to be split into two or more bonds In order to bring each such bond within the dollar limit of authority as set forth herein.

The execution of such bonds, undertakings, recognizances and other surety obligations in pursuance of these presents shall be as binding upon the said Company as fully and amply to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at its principal administrative office in Jersey City, New Jersey.

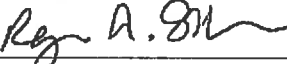
This Power of Attorney is executed by authority of resolutions adopted by unanimous consent of the Board of Directors of the Company on August 31, 2022, true and accurate copies of which are hereinafter set forth and are hereby certified to by the undersigned Secretary as being in full force and effect:

"**VOTED**, That the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, or the Secretary shall have the power and authority to appoint agents and attorneys-in-fact, and to authorize them subject to the limitations set forth in their respective powers of attorney, to execute on behalf of the Company, and attach the seal of the Company thereto, bonds, undertakings, recognizances and other surety obligations obligatory in the nature thereof, and any such officers of the Company may appoint agents for acceptance of process."

This Power of Attorney is signed, sealed and certified by facsimile under and by authority of the following resolution adopted by the unanimous consent of the Board of Directors of the Company on August 31, 2022:

VOTED, That the signature of the Chairman of the Board, the President, or the Executive Vice President, or any Senior Vice President, of the Surety Business Division, or their appointees designated in writing and filed with the Secretary, and the signature of the Secretary, the seal of the Company, and certifications by the Secretary, may be affixed by facsimile on any power of attorney or bond executed pursuant to the resolution adopted by the Board of Directors on August 31, 2022, and any such power so executed, sealed and certified with respect to any bond or undertaking to which it is attached, shall continue to be valid and binding upon the Company. **In Testimony Whereof**, the Company has caused this instrument to be signed and its corporate seal to be affixed by their authorized officers, this 30th day of June, 2025.

Attested and Certified


Regan A. Shulman, Secretary

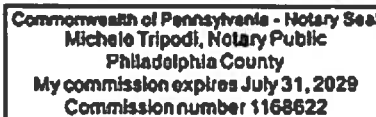
STATE OF PENNSYLVANIA SS
COUNTY OF PHILADELPHIA SS

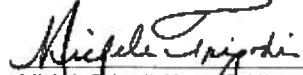


Arch Insurance Company


Stephen C. Ruschak, Executive Vice President

I, **Michele Tripodi**, a Notary Public, do hereby certify that Regan A. Shulman and Stephen C. Ruschak personally known to me to be the same persons whose names are respectively as Secretary and Executive Vice President of the Arch Insurance Company, a Corporation organized and existing under the laws of the State of Missouri, subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that they being thereunto duly authorized signed, sealed with the corporate seal and delivered the said instrument as the free and voluntary act of said corporation and as their own free and voluntary acts for the uses and purposes therein set forth.

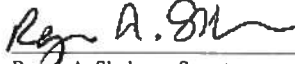



Michele Tripodi, Notary Public
My commission expires 07/31/2029

CERTIFICATION

I, **Regan A. Shulman**, Secretary of the Arch Insurance Company, do hereby certify that the attached **Power of Attorney dated June 30, 2025** on behalf of the person(s) as listed above is a true and correct copy and that the same has been in full force and effect since the date thereof and is in full force and effect on the date of this certificate; and I do further certify that the said Stephen C. Ruschak, who executed the Power of Attorney as Executive Vice President, was on the date of execution of the attached Power of Attorney the duly elected Executive Vice President of the Arch Insurance Company.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the Arch Insurance Company on this 1st day of July, 2026.


Regan A. Shulman, Secretary

This Power of Attorney limits the acts of those named therein to the bonds and undertakings specifically named therein and they have no authority to bind the Company except in the manner and to the extent herein stated.

PLEASE SEND ALL CLAIM INQUIRIES RELATING TO THIS BOND TO THE FOLLOWING ADDRESS:

Arch Insurance Company Claims Department
Surety Claims
P.O. Box 542033
Omaha, NE 68154
suretyclaims@archinsurance.com



To verify the authenticity of this Power of Attorney, please contact Arch Insurance Company at SuretyAuthentic@archinsurance.com. Please refer to the above named Attorney-in-Fact and the details of the bond to which the power is attached.

ATTACHMENT 15

No Attachment

ATTACHMENT 16

No Attachment

ATTACHMENT 17

No Attachment

ATTACHMENT 18

Inflow Design Report

**INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN
LINCOLN STONE QUARRY
JOLIET 9 STATION
SEPTEMBER 2025**

Pursuant to Illinois Administrative Code (IAC) Part 845.510, Geosyntec Consultants, Inc. (Geosyntec) prepared this Inflow Design Flood Control System Plan for the CCR surface impoundment referred to as the Lincoln Stone Quarry (Quarry) at the Joliet 9 Station (Site) in Joliet, Illinois. The Quarry is leased and operated by Midwest Generation, LLC (Midwest Generation).

Section 845.510(a) of the CCR Rule requires that operators of every existing or new CCR surface impoundment design, construct, operate, and maintain an inflow design flood control system plan that adequately manages flow into the CCR unit during and following the peak discharge of the inflow design flood.

This Inflow Design Flood Control System Plan is being completed in accordance with Sections 845.510(c) and 845.540(b), which require an annual plan certification be completed with the annual inspection. The inflow design flood control system consists of an outflow pipe and maintaining minimum operating freeboard. Justification and documentation of the adequacy of the inflow design flood control systems are presented in the sections below.

The work presented in this report was performed under the direction of Mr. David Kein, P.E. of Geosyntec in accordance with Section 845.510(c) and 845.540(b). Mr. Samuel Stafford, P.E. reviewed this plan in accordance with Geosyntec's senior review policy.

1. Quarry Design

The Quarry is located east of the Site's former coal pile and approximately 1,000 feet south of the Des Plaines River. The Quarry is bounded on the north by Patterson Road and on the east by Brandon Road. The Quarry is considered incised in accordance with 35 IAC Section 845.120 (Geosyntec, 2021) and is bounded on the north, south, and east boundaries by cut slopes. The western portion of the Quarry, referred to as the West Filled Area, has been backfilled to existing adjacent grades and capped. Prior to the conversion of the Joliet 9 Station to natural gas in spring 2016, the Quarry received sluiced CCR from Joliet Units 6, 7, and 8, through a piping system that discharged into the southwest corner (Units 7 and 8) and the northwest corner (Unit 6) of the Quarry. The Quarry stopped receiving CCR in 2019; therefore, rainfall and storm water runoff from the farmland and wooded area to the south are the only sources of discharge to the Quarry. Discharge of water from the Quarry is controlled through two pipes that gravity drain to a quarry

located north of Patterson Road which is then discharged to the Des Plaines River in accordance with the Station's NPDES permit. The invert elevation of these pipes is approximately 527 feet Mean Sea Level (ft MSL), which is above the ash accumulation level in that area of the Quarry. Gate valves on the outlet pipes are controlled manually by Midwest Generation staff to comply with the Quarry's Bureau of Land Permit No. 1994-241-LFM requirement that local groundwater gradients flow from east to west and from south to north. Discharge from the Quarry is handled in accordance with the surface water requirements in Section 845.110(b)(3) and 35 IAC Subtitle C.

2. Inflow Design Flood Control System Plan Documentation

Table 1 below provides a summary of applicable documentation demonstrating how the system has been designed and constructed to meet the requirements of Section 845.510.

Table 1: Additional Documentation

Documentation	Assessment
Identification of the design storm event for the catchment area and CCR unit	Identification of the design storm event is provided in Section 3. A drawing of the Quarry and catchment area is presented in Figure 1 .
Characterization of the rainfall abstractions, including but not limited to depression storage and infiltration in the upstream catchment area and selection of the appropriate run-off model	The selected run-off model, calculations, and upstream catchment area assumptions are provided in Appendix A .
Identification and characterization of and intake or decant structures	Outflow pipes are described in Section 1. Because there is sufficient freeboard in the Quarry to prevent overflow during the design event, as described in Section 6, capacity of outflow pipes is not evaluated.
Appropriate characterization and capacity of spillways	The Quarry does include a spillway.
Characterization of downstream hydraulic structures	Because there is sufficient freeboard in the Quarry to prevent overflow during the design event, as described in Section 6, characterization of downstream structures is not required.

3. Design Event

As the Quarry is considered incised in accordance with 35 IAC Section 845.120 (Geosyntec, 2021), the inflow design flood is the 25-year flood in accordance with Section 845.510(a)(3). Flood flows are typically established by performing statistical analysis on historical stream gauge records. In instances where measured stream flow records are not available, deterministic methods

such as a design storm method (ASCE, 1996) is used to establish flood flows. In the design storm method, a rainfall to runoff analysis (e.g., Runoff Curve Number Method) is used to establish the stormwater runoff flows. The underlying assumptions in the design storm method are: 1) rainfall will occur uniformly across the entire contributing watershed; and 2) a specified return period storm event produces the same return period flood flow (e.g., 25-year storm event produces the 25-year flood). Since there are no measured stream flow records at the Quarry, the design storm method was used to estimate the inflows to the Quarry for the 24-hour, 25-year precipitation event.

4. Existing Quarry Water Level

Water accumulates inside the Quarry due to its incised characteristics, and water levels within the Quarry are controlled to meet the Quarry's permitting requirements (see Section 1). Midwest Generation monitors the surface water level within the Quarry daily and controls outflow from the Quarry to influence the localized groundwater gradients. Average daily water level data within the Quarry is shown in **Figure 2** and indicates that the surface water level has been maintained below 548 ft MSL over the last five years. The operating level of the Quarry is assumed to be 548 ft MSL or below. Based on the site topography¹, the water level within the Quarry could rise to approximately 572 ft MSL before discharging from the Quarry.

5. Catchment Area

A description of the area surrounding the Quarry is shown in the following table.

Direction	Land Use
North	Patterson Road, two small quarries, woodland, Des Plaines River.
West	Woodland, heavy industrial site.
South	Grass and farmland, woodland, heavy industrial site.
East	South Brandon Road, low density residential area, inactive quarry, grass and farmland, large active quarry (Southeast)

The catchment area of the Quarry was delineated using topographic maps and images. The catchment area is approximately 89 acres, see **Figure 1**.

6. Analysis of Inflow Design Flow and Storage Capacity

The inflow design flow for the 25-year event was calculated based on runoff associated with the

¹ Topography is dated April 2021, generated by Will County, Illinois Server.

24-hour, 25-year storm event for the upstream catchment area, which was estimated based on regional topography and the Runoff Curve Number Method. Analysis demonstrating the inflow design flow is included in **Appendix A**. The total inflow into the Quarry during the 24-hour 25-year storm event is estimated to be 38.4 acre-feet. Based on 2025 surface water conditions and Site observations, the surface area of the impounded water within the Quarry is approximately 12.5 acres. The Site drainage area has remained unchanged from 2024, therefore the Stormwater Run-On Calculation results provided **Appendix A** have also remained constant. The estimated potential water level increase is calculated to be 3.1 ft from the design event. Therefore, the water level in the Quarry after the design event is estimated to be at or below 552 ft MSL (operating level of 548 ft MSL plus 4 ft).

The freeboard after the design event is estimated to be a minimum of 20 ft (572 ft MSL – 552 ft MSL). As the existing freeboard is estimated to be at least 20 feet, sufficient storage capacity exists within Quarry to manage the inflow from the design flood event. The inflow design system, as designed and constructed, meets the requirements of Section 845.510.

7. Limitations and Certification

The annual inflow design flood control system plan meets the requirements of 35 IAC Sections 845.510 and 845.540 and was prepared in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in the field of civil engineering. The contents of this report are based solely on the observations of the conditions observed by Geosyntec personnel and information provided to Geosyntec by Midwest Generation. Consistent with applicable professional standards of care, our opinions and recommendations were based in part on data furnished by others, which was consistent with other information that we developed in the course of our performance of the scope of services. The information contained in this report is intended for use solely by Midwest Generation and their subconsultants.



A handwritten signature in black ink that reads "David Kein".

David Kein, P.E.
Illinois Professional Engineer No. 062.074005
License Expires: November 30, 2025

8. *References*

ASCE, 1996. American Society of Civil Engineers Task Committee on Hydrology Handbook. Hydrology Handbook. ASCE Publications.

Geosyntec Consultants, 2021, Lincoln Stone Quarry Site Visit, CCR Rule Compliance Demonstrations, Midwest Generation LLC Power Stations, Illinois, dated 31 August.

Attachments

Figure 1: Catchment Area
Figure 2: Quarry Water Level
Appendix A: Stormwater Run-on Calculations

Figures



Legend

- Catchment Area
- 1 ft. Elevation Contours

Notes

- Aerial imagery from Azure Imagery (2025).
- Topography contours provided by Will County Data Viewer (March 2021).



Catchment Area Lincoln Stone Quarry Joliet 9 Station

Joliet, Illinois

Geosyntec
consultants

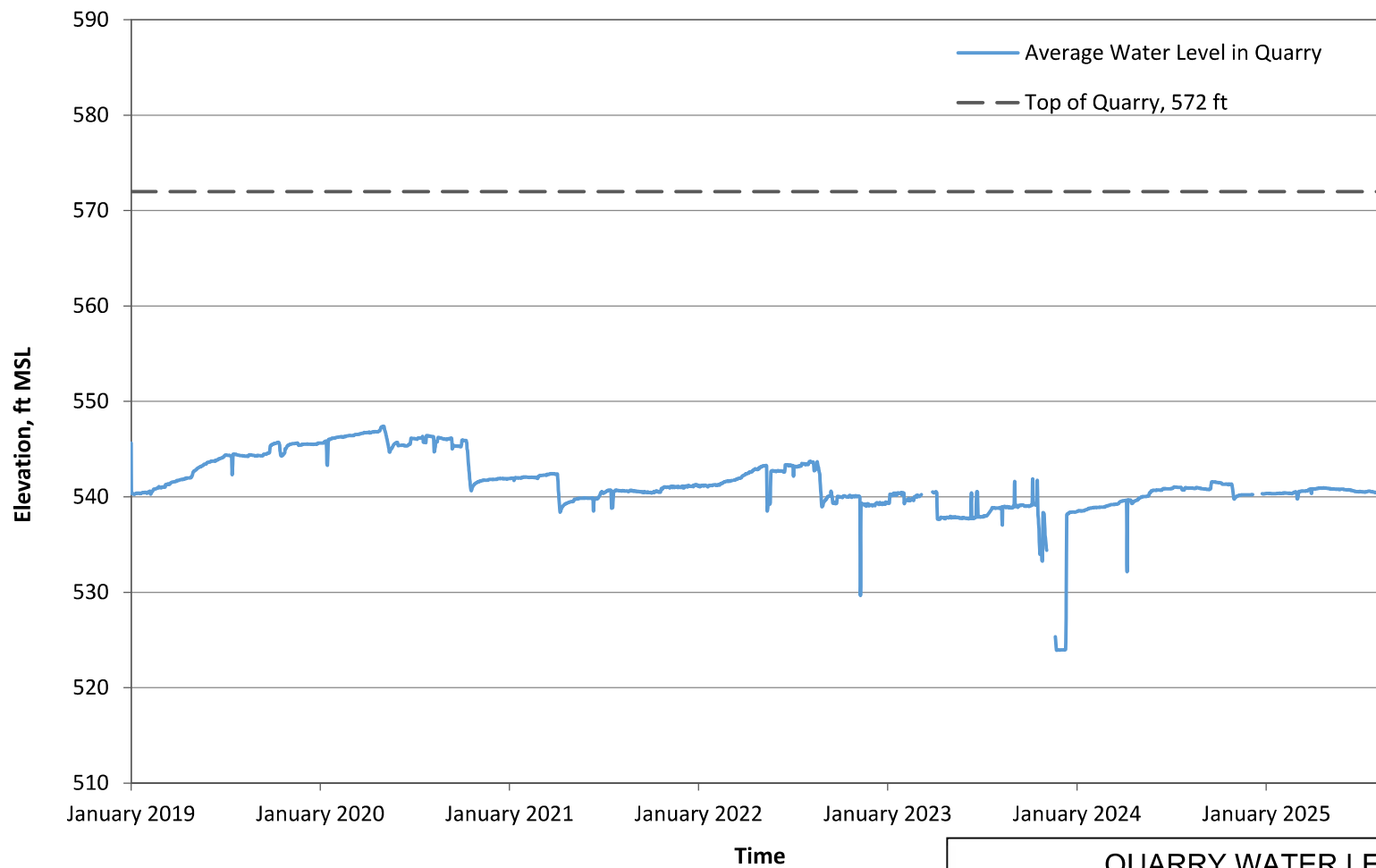
Project No: GLW8043

September 2025

Figure

1

Internal Info: O:\Oak Brook Projects\GLW1014 - LSG 2025 (BFCP) Figure\2025-08-28 Fig 2 Quarry Water Level.docx, 9/9/2025, Olivia Covert



Note: Daily Quarry water levels recorded by KPRG Associates.

QUARRY WATER LEVEL
LINCOLN STONE QUARRY
JOLIET 9 STATION
JOLIET, ILLINOIS

Geosyntec
consultants

PROJECT NO: GLW8o6g

SEPTEMBER 2025

Figure
2

Appendix A

Stormwater Run-on Calculations

COMPUTATION COVER SHEET REVISION 3

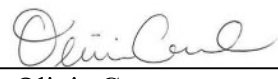
Client: Midwest Generation Project: Joliet 9 Station Project/
Proposal No.: GLW8069
Task No.

Title of Computations **STORMWATER RUN-ON CALCULATIONS, LINCOLN
STONE QUARRY**

Computations by: Signature  20 September 2021
Printed Name Olivia Covert Date
Title Professional

Assumptions and Procedures Checked by: Signature  27 September 2021
Printed Name Regan Welch Date
Title Project Engineer

Computations Checked by: Signature  27 September 2021
Printed Name Regan Welch Date
Title Project Engineer

Computations backchecked by: Signature  27 September 2021
Printed Name Olivia Covert Date
Title Professional

Approved by: Signature  29 September 2021
Printed Name Jesse Varsho, P.E. Date
Title Principal Engineer

Approval notes: _____

Revisions (number and initial all revisions)

No.	Sheet	Date	By	Checked by	Approval
1	All	09/28/22	ORC	REW	10/3/22
2	All	09/13/23	ORC	JPV	09/13/23
3	All	08/26/24	BA	ORC	09/03/24
4	All	08/28/25	BA	DK	09/04/25

Written by: <u>OC</u>	Date: <u>20 / 09 / 21</u>	Reviewed by: <u>RW</u>	Date: <u>27 / 09 / 21</u>
	DD MM YY		DD MM YY
Client: Midwest Generation	Project: Joliet 9	Project/Prop No.: GLW8069	Task No.: 1

STORMWATER RUN-ON CALCULATIONS LINCOLN STONE QUARRY JOLIET 9 STATION

INTRODUCTION

Pursuant to 35 Illinois Administration Code (IAC) Section 845.510(c), Geosyntec Consultants, Inc. (Geosyntec) prepared this calculation package to support development of the Inflow Design Flood Control System Plan for the Lincoln Stone Quarry (Quarry) at the Joliet 9 Station (Site) in Joliet, Illinois. 35 IAC Section 845.510(c) requires that operators of every existing or new CCR (Coal Combustion Residuals) surface impoundment design, construct, operate, and maintain an inflow design flood control system that adequately manages flow into the CCR unit during and following the peak discharge of the inflow design flood. This calculation evaluates the inflow design flood and evaluates the capacity of the Quarry to handle inflow from this event.

CALCULATION OF INFLOW DESIGN FLOW

The City of Joliet's "Consolidated Stormwater Management, Soil Erosion and Sediment Control and Floodplain Management Regulations specifies that the Soil Conservation Service (SCS) Runoff Curve Number Method be used to calculate design runoff volumes. The SCS method and its current application are documented in Technical Release 55 (TR-55) published by Natural Resources Conservation Service (NRCS). The SCS runoff equation is:

$$Q = \frac{(P - I_a)^2}{(P - I_a) + S}$$

Where:

Q = runoff (in)

P = rainfall (in)

S = potential maximum retention after runoff begins (in) and

I_a = initial abstraction (in)

The initial abstraction (I_a) accounts for all losses prior to the beginning of runoff including water retained in surface depressions, intercepted by vegetation, evaporation, and

Written by: <u>OC</u>	Date: <u>20 / 09 / 21</u> DD MM YY	Reviewed by: <u>RW</u>	Date: <u>27 / 09 / 21</u> DD MM YY
Client: Midwest Generation	Project: Joliet 9	Project/Prop No.: GLW8069	Task No.: 1

infiltration. I_a is typically correlated with soil cover parameters and is approximated by the equation:

$$I_a = 0.2S$$

S is a function of the soil type and cover and is related to the runoff curve number (CN) by the equation:

$$S = \frac{1000}{CN} - 10$$

Where:

CN = Runoff Curve Number

CN is determined by the Hydrologic Soils Group (HSG) and cover type, treatment, hydrologic condition, and antecedent moisture condition. In cases where multiple land uses occur in the same drainage area, a composite CN is determined by the area weighted method.

After calculating runoff (Q) for a design storm event, the total volume of runoff is then calculated by multiplying the runoff by the drainage area (A).

DRAINAGE AREA (A)

The area of the drainage basin of the Quarry was delineated using topographic maps¹ and aerial images². The catchment area has an estimated area of 89.2 acres (refer to Figure 1), and was subdivided into four areas based on land use (cover) and soil type (HSG) for determination of CN. The catchment area outside of the Quarry footprint is located to the south.

RUNOFF CURVE NUMBER (CN)

The value of the runoff curve number (CN) has been extensively studied in the literature. Its value depends on the land use and type of soil (HSG). In general, the value of CN is

¹ Topography is dated April 2021, generated by Will County, Illinois Server.

² ESRI ArcGIS online images accessed in August 2025. Imagery credit: ESRI

Written by: OC	Date: 20 / 09 / 21 DD MM YY	Reviewed by: RW	Date: 27 / 09 / 21 DD MM YY
Client: Midwest Generation	Project: Joliet 9	Project/Prop No.: GLW8069	Task No.: 1

higher for developed, impervious surfaces, and Type D soils. Correspondingly, CN has lower values for undeveloped pervious surfaces, and Type A soils.

Land use in the drainage basin within the Quarry is mostly rock or standing water. Land use in the drainage basin outside of the Quarry is mostly pasture, grass and farmland. Industrial sites to the south and east of the Quarry are located outside the drainage basin.

HSG for use in CN selection was determined by importing the watershed boundary into the Natural Resources Conservation Service Web Soil Survey (Attachment A). Approximately 0.5% of the site consists of vegetated Type B soils, 45.2% of the site consists of vegetated Type C soils, 11.4% vegetated Type D soils, 42.9% water. Based on the HSG and land use analysis a composite CN of 88.5 was determined for the drainage area. The following table summarized the analysis of the runoff curve number.

Description	Area (acres)	HSG	Map Unit Symbols	Cover Type	CN	Weighted
Pond	38.3	W	W	Water	100	42.9
Vegetated	0.4	B	369A	Open Space-Fair	69	0.3
Vegetated	40.3	C	530C2, 530D2, 531B, 531C2, 802B, 802D, 232A	Open Space-Fair	79	35.7
Vegetated	10.2	D	228C2, 23B	Open Space-Fair	84	9.6
Total	89.2 acres			Composite		88.5

RAINFALL DEPTH (P)

In accordance with 35 IAC Section 845.510(a)(3)(C), the inflow design flood for an incised CCR surface impoundment, such as the Quarry, is the 25-year flood.

Written by: OC Date: 20 / 09 / 21 Reviewed by: RW Date: 27 / 09 / 21
DD MM YY DD MM YY
 Client: **Midwest** Project: **Joliet 9** Project/Prop No.: **GLW8069** Task No.: **1**
Generation

The City of Joliet requires the use of the Illinois State Water Survey Bulletin 70, Northeast Sectional rainfall statistics. Will County requires the use of the Illinois State Water Survey Updated Bulletin 70, Northeast Sectional Code (Angel and Marcus, 2019) in runoff volume calculations. The 1989 Bulletin 70 has a 25-year, 24-hour rainfall depth of 6.04 inches, and the Updated Bulletin 70 has a higher 25-year, 24-hour rainfall depth (6.45 inches). Per the City of Joliet and Will County requirements, Updated Bulletin 70 publication value was used in the calculations for the Quarry.

It should be noted that the Illinois State Water Survey Bulletin 75 (Angel and Marcus, 2020) is the most recent publication of the precipitation frequency study for Illinois. Bulletin 75 has the same 25-year, 24-hour rainfall depth as the Updated Bulletin 70.

INFLOW DESIGN FLOW

The following table summarizes the inflow design flow calculations.

Parameter	25-Year, 24-Hour Precipitation Event
CN	88.5
S	1.3
P	6.5
I _a	0.3
Q (in)	5.2
Area (Ac)	89.2
Volume (ac-ft)	38.4

The potential increase in Quarry water surface elevation was estimated by dividing the total inflow (38.4 acre-ft for the design event) by the Quarry wet area (estimated to be 12.5 acres based on 2025 aerial images). The increase in water depth in the Quarry for the design event is approximately 3.1 ft.

WATER LEVEL AND FREEBOARD

Water accumulates inside the Quarry due to its incised characteristics, and water levels within the Quarry are controlled to meet the Quarry's Bureau of Land Permit No. 1994-241-LFM requirement that local groundwater gradients flow from east to west and from south to north. Midwest Generation monitors the surface water level within the Quarry

Written by: <u>OC</u>	Date: <u>20 / 09 / 21</u>	Reviewed by: <u>RW</u>	Date: <u>27 / 09 / 21</u>
	DD MM YY		DD MM YY
Client: Midwest Generation	Project: Joliet 9	Project/Prop No.: GLW8069	Task No.: 1

daily and implements engineering controls to influence the localized groundwater gradients. Average daily water level data within the Quarry indicates that the surface water level has been maintained below 548 feet mean seal level (ft MSL) over the last five years (Figure 2). The water surface elevation for the design event, assuming the water level is at 548 ft prior to the start of the design event, is 552 ft.

Based on the site topography³, the water level within the Quarry could rise to approximately 572 ft MSL before discharging. The freeboard after the design event is estimated to be at least 20 ft (572 ft MSL – 552 ft MSL). As the existing freeboard is estimated to be 20 feet (minimum), sufficient storage capacity exists within Quarry to manage the design flood event without discharge.

1. REFERENCES

City of Joliet, 2003, Consolidated Storm Water Management, Soil Erosion and Sediment Control and Floodplain Management Regulations.

Angel, James, and Markus, Momcilo, March 2019. Frequency Distributions of Heavy Precipitation in Illinois: Updated Bulletin 70 (Updated Bulletin 70, Illinois State Water Survey).

Angel, James, and Markus, Momcilo, March 2020. Frequency Distributions of Heavy Precipitation in Illinois: Bulletin 75 (Bulletin 75, Illinois State Water Survey).

Technical Release 55 (TR-55), Natural Resources Conservation Service, USDA, 2016, Soil Map, Will County, Illinois, Web Soil Survey, National Cooperative Soil Survey. USDA Natural Resources Conservation Service.

Water Resource Ordinance for Unincorporated Will County.

ATTACHMENTS

Attachment A: Soil Map from USDA – Natural Resources Conservation Service

Attachment B: Illinois State Water Survey Updated Bulletin 70

³ Topography is dated April 2021, generated by Will County, Illinois Server.

Attachment A

Soil Map from USDA – Natural Resources Conservation Service

Custom Soil Resource Report Soil Map



Map Scale: 1:5,760 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Will County, Illinois
Survey Area Data: Version 19, Aug 21, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 4, 2020—Jul 6, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
23B	Blount silt loam, Lake Michigan Lobe, 2 to 4 percent slopes	9.4	10.5%
228C2	Nappanee silty clay loam, 4 to 6 percent slopes, eroded	0.8	0.9%
232A	Ashkum silty clay loam, 0 to 2 percent slopes	6.0	6.7%
369A	Waupecan silt loam, 0 to 2 percent slopes	0.4	0.5%
530C2	Ozaukee silt loam, 4 to 6 percent slopes, eroded	1.7	1.9%
530D2	Ozaukee silt loam, 6 to 12 percent slopes, eroded	0.6	0.6%
531B	Markham silt loam, 2 to 4 percent slopes	4.9	5.5%
531C2	Markham silt loam, 4 to 6 percent slopes, eroded	2.2	2.5%
802B	Orthents, loamy, 1 to 6 percent slopes	12.6	14.2%
802D	Orthents, loamy, rolling	12.3	13.8%
W	Water	38.3	42.9%
Totals for Area of Interest		89.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties

and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Custom Soil Resource Report

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Attachment B

Illinois State Water Survey Updated Bulletin 70

Frequency Distributions of Heavy Precipitation in Illinois: Updated Bulletin 70

James Angel and Momcilo Markus

March 2019



Illinois State Water Survey

PRAIRIE RESEARCH INSTITUTE

Results

Frequency Estimates

To determine the precipitation frequency, the previously described regional frequency analysis was applied to the AMS data. The results were then converted to the PDS domain based on the relationship defined in Eq. 1 and adjusted for the trend (Eq. 3). These results, however, still had occasional minor inconsistencies caused by several factors, such as variable data length for different durations, which resulted in irregular frequency curves. To produce the final curves, these irregularities had to be smoothed out, which was done based on the authors' professional judgment and knowledge of specific regions and gages.

The results for all sections are shown in the following tables. Table 4 displays the key for the codes used in Table 5, where the results are presented numerically. The results are shown graphically in Figures 8–12.

Table 4 Storm and Sectional Codes for Table 5

<i>Storm Code</i>		<i>Sectional Code</i>	
1	240 hours	1	Northwest
2	120 hours	2	Northeast
3	72 hours	3	West
4	48 hours	4	Central
5	24 hours	5	East
6	18 hours	6	West Southwest
7	12 hours	7	East Southeast
8	6 hours	8	Southwest
9	3 hours	9	Southeast
10	2 hours	10	South
11	1 hour		

Table 3 (continued)

Storm code	Section code	Rainfall (inches) for given recurrence interval						
		2-year	5-year	10-year	25-year	50-year	100- year	500- year
4	1	3.61	4.59	5.43	6.72	7.73	8.83	11.53
4	2	3.66	4.71	5.62	6.99	8.13	9.28	12.10
4	3	3.76	4.76	5.62	6.81	7.72	8.60	10.58
4	4	3.59	4.61	5.47	6.65	7.55	8.40	10.21
4	5	3.54	4.49	5.32	6.48	7.38	8.27	10.26
4	6	3.66	4.61	5.38	6.48	7.33	8.11	9.93
4	7	3.92	4.85	5.61	6.67	7.46	8.21	9.76
4	8	4.28	5.29	6.10	7.25	8.15	9.08	11.40
4	9	4.64	5.54	6.27	7.24	7.94	8.58	10.06
4	10	4.06	5.02	5.86	7.04	8.01	9.02	11.56
5	1	3.34	4.22	5.03	6.20	7.20	8.25	10.84
5	2	3.34	4.30	5.15	6.45	7.50	8.57	11.24
5	3	3.48	4.45	5.24	6.38	7.25	8.06	9.91
5	4	3.32	4.30	5.10	6.20	7.05	7.85	9.53
5	5	3.12	3.97	4.71	5.78	6.62	7.43	9.32
5	6	3.23	4.07	4.76	5.79	6.56	7.31	9.04
5	7	3.49	4.33	5.00	5.98	6.71	7.40	8.84
5	8	3.69	4.56	5.27	6.30	7.14	7.96	10.06
5	9	4.07	4.89	5.55	6.42	7.06	7.68	8.99
5	10	3.63	4.52	5.28	6.38	7.29	8.23	10.57
6	1	3.14	3.97	4.73	5.83	6.77	7.75	10.19
6	2	3.14	4.04	4.84	6.06	7.05	8.06	10.57
6	3	3.27	4.18	4.93	6.00	6.82	7.58	9.32
6	4	3.12	4.04	4.79	5.83	6.63	7.38	8.96
6	5	2.93	3.73	4.43	5.43	6.22	6.98	8.76
6	6	3.04	3.83	4.47	5.44	6.17	6.87	8.50
6	7	3.28	4.07	4.70	5.62	6.31	6.96	8.31
6	8	3.47	4.29	4.95	5.92	6.71	7.48	9.45
6	9	3.83	4.60	5.22	6.03	6.64	7.22	8.45
6	10	3.41	4.25	4.96	6.00	6.85	7.73	9.93

Table 6 Precipitation Frequency Estimates (in inches) with 90% Confidence Intervals (continued)

Storm Code	Section Code	Recurrence interval						
		2-year	5-year	10-year	25-year	50-year	100-year	500-year
5	1	3.34 (3.00 - 3.69)	4.22 (3.79 - 4.68)	5.03 (4.50 - 5.61)	6.20 (5.51 - 6.99)	7.20 (6.34 - 8.21)	8.25 (7.20 - 9.54)	10.84 (9.16 - 13.00)
5	2	3.34 (3.00 - 3.69)	4.30 (3.85 - 4.77)	5.15 (4.60 - 5.73)	6.45 (5.71 - 7.26)	7.50 (6.59 - 8.55)	8.57 (7.46 - 9.93)	11.24 (9.48 - 13.63)
5	3	3.48 (3.19 - 3.79)	4.45 (4.07 - 4.86)	5.24 (4.79 - 5.74)	6.38 (5.81 - 7.05)	7.25 (6.56 - 8.09)	8.06 (7.23 - 9.07)	9.91 (8.61 - 11.47)
5	4	3.32 (3.01 - 3.65)	4.30 (3.89 - 4.74)	5.10 (4.61 - 5.64)	6.20 (5.58 - 6.91)	7.05 (6.31 - 7.93)	7.85 (6.99 - 8.92)	9.53 (8.31 - 11.16)
5	5	3.12 (2.86 - 3.38)	3.97 (3.64 - 4.31)	4.71 (4.30 - 5.15)	5.78 (5.25 - 6.38)	6.62 (5.97 - 7.39)	7.43 (6.63 - 8.41)	9.32 (8.08 - 10.96)
5	6	3.23 (2.95 - 3.54)	4.07 (3.71 - 4.47)	4.76 (4.32 - 5.26)	5.79 (5.21 - 6.45)	6.56 (5.85 - 7.37)	7.31 (6.45 - 8.30)	9.04 (7.73 - 10.59)
5	7	3.49 (3.18 - 3.80)	4.33 (3.93 - 4.74)	5.00 (4.53 - 5.50)	5.98 (5.39 - 6.64)	6.71 (6.00 - 7.54)	7.40 (6.54 - 8.42)	8.84 (7.58 - 10.44)
5	8	3.69 (3.36 - 4.04)	4.56 (4.15 - 5.01)	5.27 (4.78 - 5.82)	6.3 (5.67 - 7.03)	7.14 (6.37 - 8.03)	7.96 (7.03 - 9.05)	10.06 (8.60 - 11.78)
5	9	4.07 (3.71 - 4.44)	4.89 (4.45 - 5.35)	5.55 (5.03 - 6.10)	6.42 (5.79 - 7.12)	7.06 (6.32 - 7.91)	7.68 (6.80 - 8.70)	8.99 (7.73 - 10.51)
5	10	3.63 (3.29 - 4.00)	4.52 (4.08 - 5.01)	5.28 (4.73 - 5.88)	6.38 (5.66 - 7.21)	7.29 (6.36 - 8.36)	8.23 (7.07 - 9.59)	10.57 (8.67 - 13.03)

ATTACHMENT 19

Safety and Health Plan

1.0 **SAFETY REQUIREMENTS**

1.1 The entire performance of the Work shall comply with the standards authorized by the latest issue of the U.S. Department of Labor Occupational Safety and Health Act (OSHA), as well as state and local jurisdictional requirements.

1.2 **CONTRACTORS SAFETY MANUAL**

- A. The Contractor shall have on file with the Midwest Generation corporate safety office a copy of the most current Safety and Industrial Hygiene Manual. As a minimum, this Manual must address the following items when applicable to their trade: OSHA Compliance, Accident Investigation, Corrective Action, First Aid Treatment, Inspections and Reporting of Deficiencies, Material Handling and Rigging, Performance and Accountability, Personal Safety Equipment, Safety Guidelines, Safety Meetings, Training, Housekeeping, Hearing Protection, Respiratory Protection, Fire Prevention, Grounding Program, Confined Space Entry, Hazard Communication, Fall Protection, Working on or near water and Trenching and Shoring.
- B. The Contractor's superintendent or other responsible person must have a copy of the Contractor's most current Safety and Industrial Hygiene Manual available at the job site.

1.3 **PRE-MOBILIZATION MEETING**

- A. The Contractor shall meet with the Purchasers Representative(s) for a pre-mobilization meeting. The pre-mobilization meeting will include a review of safety requirements, job hazard identification, a job specific safety plan (to be developed by the Contractor and provided to Midwest Generation), submittal requirements for health & safety records, scope and schedule. Hazard identification and assessment will include all chemical constituents found present in the analyses of the CCR and/or other waste streams within the impoundment(s). Recommendations within the NIOSH Pocket Guide to Chemical Hazards will be reviewed and considered. Applicable safety data sheets will be provided, as necessary.
- B. Prior to the start of the work at the job site. Contractor shall contact Purchaser's Representative to arrange to receive Purchasers site safety orientation. This session will last approximately 2 hours. The Contractor will be provided with information on the potential hazardous constituents of the CCR
- C. Contractor shall provide his employees with orientation in all Contractor, and job specific safety requirements related to their work area. Contractor shall provide Purchaser with completed training documents showing date of training and each employees craft related training as it relates to OSHA requirements. (i.e. competent person, scaffold builder, fork truck and crane operators)

- D. The Contractor Shall provide proof of training for all on site personnel in the following:
- HAZWOPER 29CFR1910.120/29CFR1926.65
 - OSHA 10 Hour or 30 Hour Voluntary Compliance Training for Construction
 - Hazard Communication 29 CFR 1910.1200
 - Contractor's Safety Plan
- E. A Competent Person shall be identified by name for Excavations, Fall Protection ,etc. if applicable.

1.4 FITNESS FOR DUTY

- A. The Contractor/Sub-Contractor/Supplier is required to have a drug and alcohol screening program for all employees assigned to work on Purchaser's property. The program must provide screening for pre-access testing, "for cause" testing and random testing. The Contractor/Sub-Contractor/Supplier shall certify that their employees have passed the appropriate screening test in accordance with their programs.
- B. Personnel covered by this program shall be denied access to, or may be required to leave the Purchaser's location if there are reasonable grounds to believe that the individual is:
1. Under the influence of using, possessing, buying, selling, or otherwise exchanging (whether or not for profit) controlled substances or drug paraphernalia.
 2. Under the influence of consuming, possessing, buying, selling, or otherwise exchanging (whether or not for profit) alcoholic beverages.

1.5 PERSONNEL PROTECTIVE EQUIPMENT (PPE)

- A. Prior to starting work, the contractor shall perform a Hazard assessment for PPE
1. The Contractor will conduct a walk-through survey of each work area to identify sources of work hazards. Each survey will be documented in which it will identify the work area surveyed, the relevant task, the person conducting the survey, findings of potential hazards, control measures, and date of the survey.
 2. The Contractor will conduct, review, and update the hazard assessment for PPE whenever:
 - o A job changes
 - o New equipment or process is installed
 - o There has been an accident
 - o Whenever a supervisor or employee requests it
 - o Or at least every year
 - o Any new PPE requirements that are developed will be added into the Contractors written safety program.

- B. Head Protection/ Hard Hats: Hard hats shall be worn in all work areas.
 - 1. Hard hats must not be more than 5 years old, and the harness shall not be more than 1 year old.
 - 2. Hard hats must be worn with brim forward
 - 3. Hard hats must be assigned and used in accordance with ANSI/ISEA Z89.1-2014(R2019)
 - 4. Hard Hats must be cleaned and maintained in accordance with the manufacturer's instruction.
- C. Eye Protection: Eye protection shall be worn in all work areas.
 - 1. At a minimum, ANSI Z87-1-2020 compliant Safety Glasses shall be worn.
 - 2. Goggles and face shields shall be used for splash hazards.
 - 3. Fogging potential shall be considered for humid conditions and appropriate anti-fog materials may be used.
 - 4. Detachable side protectors (e.g. clip-on or slide on side shields) that meet OSHA Rule 29 CFR Part 1910.133 and ANSI Z87.1 specifications are also acceptable to wear with prescription glasses. Prescription glasses used with detachable side shields must conform to ANSI Z87.1
 - 5. Employees must keep eyewear in clean condition and fit for use at all times.
- D. Protection Foot Wear
 - 1. All foot wear must be compliant with ASTM F2413-18: Performance Requirements For Protective (Safety) Toe Cap Footwear
 - 2. For work on or near the CCR impoundments, consideration shall be given to traction and slip issues.
 - 3. Safety shoes must be maintained and cleaned in accordance with the manufacturer's guidelines.
 - 4. Boot covers or Rubber boots shall be used in all areas that do or may contain CCR. These covers or boots must be cleaned or disposed of prior to leaving the work area.
- E. Hand Protection
 - 1. Employers shall base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified.
 - 2. Impervious disposable gloves shall be used when working with CCR. Leather, Cotton or other readily absorbable gloves shall not be used.
- F. Personal Flotation Devices
 - 1. When working with 10 feet of the water in the impoundments the following shall apply:
 - a. All personnel shall wear a Coast Guard Approved PFD
 - Type I: Off-Shore Life Jacket; effective for all waters or where rescue may be delayed.
 - Type II: Near-Shore Buoyant Vest; intended for calm, inland water or where there is a good chance of quick rescue.

- Type III: Flotation aid; good for calm, inland water, or where there is a good chance of rescue.
 - Type IV: PFD's are throwable devices. They are used to aid persons who have fallen into the water.
 - Type V: Flotation aids such as boardsailing vests, deck suits, work vests, and inflatable PFD's marked for commercial use.
2. Serviceable condition: A PFD is considered to be in serviceable condition only if the following conditions are met.
- a. No PFD may exhibit deterioration that could diminish the performance of the PFD, including:
 - 1. Metal or plastic hardware used to secure the PFD on the wearer that is broken, deformed, or weakened by corrosion;
 - 2. Webbing or straps used to secure the PFD on the wearer that are ripped, torn, or which have become separated from an attachment point on the PFD; or
 - 3. Any other rotted or deteriorated structural component that fails when tugged;
 - 4. Rips, tears, or open seams in fabric or coatings, that are large enough to allow the loss of buoyant material;
 - 5. Buoyant material that has become hardened, non-resilient, permanently compressed, waterlogged, oil-soaked, or which shows evidence of fungus or mildew; or
 - 6. Loss of buoyant material or buoyant material that is not securely held in position.

1.6 EXISTING PLANT FACILITIES

- A. Contractor shall be aware that Work may be performed in and around operating equipment.
- B. The Contractor shall give proper notices, make all necessary arrangements, and perform all other services required to avoid damage to all utilities, including gas mains, water pipes, sewer pipes, electric cables, fire hydrants, lamp posts, etc., for which Purchaser could be held liable.
- C. The Contractor shall barricade or cover any opening created during the course of work for excavations, or grating removal. Barricades shall be a "hard" barrier such as cable or pipe and clamp, safety barrier tape is unacceptable. In addition, any openings creating a fall hazard of 4 feet or more must have a permit authorized before the barrier can be removed. See section 11.4 below for permit requirements.
- D. Housekeeping, walkways and tripping hazards
All equipment and material must be kept in an orderly manner. Aisles exits stairways and emergency equipment must never be obstructed. Hoses and welding cables must be tied above walkways so as to not pose as a trip hazard. Barricades, signs and notifications provided by the contractor when required. The owner and contractor will conduct periodic housekeeping audits to assure compliance.

- E. Contractor's personnel shall observe all safety, warning, equipment identification instructional signs and tags. Do not remove any tag without prior consent of Purchaser's Representative.
- F. When work has been completed, and Contractor decides equipment is ready to be returned to service, Contractor employees shall have all of their employees (working party members) sign off the permit. Contractor shall notify Purchaser's Representative in whose name the outage is being held.

1.7 WELDING, CUTTING and BURNING PERMITS

- A. Contractor shall not start welding or cutting operations without a "Welding and Cutting Permit". Permits shall be obtained from Purchaser and posted in accordance with Station site-specific Safety Training requirements.
- B. Contractor shall use non-asbestos, fire retardant blankets as required to protect Purchaser's equipment, cable trays, coal transport and storage areas, etc. and to cover gratings (for personnel safety) when welding, grinding and flame cutting processes are used overhead or in such close proximity as to pose a hazard.
- C. Contractor shall supply appropriate portable fire extinguishers in welding and cutting areas.
- D. Contractor shall furnish a designated "Fire-watch" employee to monitor the area above to the sides and below the cutting and burning area. The fire-watch is to extinguish fires started by sparks from the acts of cutting or welding. The fire-watch employee is to continue monitoring on the job 30 minutes after cutting or burning has been completed.

1.8 SAFETY DATA SHEETS

- A. The Purchaser shall make Safety Data Sheets (SDS's) readily available to the Contractor for those substances to which the Contractor's employees may be exposed during normal working conditions and which are under the Purchaser's control.
- B. The Contractor shall make Safety Data Sheets (SDS's) readily available to the Purchaser for those substances which are furnished by and under the control of the Contractor. These are to be available at the time of delivery of the substance to the Purchaser's Premises.
- C. It is the responsibility of the Contractor to train their employees on SDS's.

1.9 CHEMICALS, SOLVENTS AND GASES

- A. Contractor shall comply with all federal, state and local regulations and codes pertaining to handling and storage of flammable liquids and gases.

- B. Cleaning agents, solvents, or other substances brought by Contractor onto any of Purchaser's properties by Contractor shall be stored, handled and used in accordance with applicable standards.
- C. Contractor shall ensure that liquids or solids will not be poured (disposed of) into Purchaser's drain, sewer systems, lake (where applicable), or onto ground. Contractor shall be liable for any damage and cleanup of improperly disposed liquids or solids.
- D. The Contractor is to provide the Purchaser with the name and quantity of usage of any listed Section 313 Toxic Chemical of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
- E. Signage must be posted detailing the presence of and hazards of CCR.

1.10 DISTURBANCE OF DUST

Contractor's work practices shall minimize dust generated while working with CCR. A fugitive dust mitigation plan shall be submitted to the facility prior to activities beginning.

1.11 FALL PROTECTION

Mandatory fall protection is required when working near an area where a fall hazard of 4 feet or more exists. Mandatory fall protection is required when working within 6 feet of the edge of the quarry.

1.12 BARRIERS AND WARNING SYSTEMS

- A. Warning and barricade systems shall be used to divert personnel from a work area. All warning barriers shall be tagged with yellow "Caution Cards". The caution card shall state the hazard, the date erected and a contact name, company and phone number. There are 2 levels of barricade systems. The barricade systems shall be taken down immediately when the hazard has been removed or at the end of the work shift.
- B. A conditional warning is designated with 'Yellow' safety warning tape. This is used to warn workers of a hazard such as wet floors, welding and cutting in an area, or other hazards that with an awareness and proper PPE can be approached.
- C. An Unconditional warning is designated with "Red" safety warning tape. This is used to warn workers of a hazard such as a crane lift or overhead work. Red safety tape barriers cannot be access or removed until permission is granted from the person responsible for installing it.
- D. Fire and Evacuation warning sirens. Each plant has a siren for fire notification and evacuation notification. The response location and procedure will be addressed in the pre-mobilization meeting and plant site-specific orientation.

1.13 For Contractor's and subcontractor's employees, visitors and any other individuals: Smoking is prohibited on the work site.

- 1.14 The Contractor is expected to pre-arrange medical emergency services for on-site and off-site treatment. This includes, but is not limited to, first aid and confined space rescue.

1.15 WORKING ON OR NEAR WATER:

- A. Life jackets and work vests shall be inspected before and after each use.
- B. Ring buoys or Class IV rescue device with at least 90 feet of line shall be provided and readily available for employee rescue operations.
- C. The distance from ring buoys to each worker shall not exceed 200 feet.
- D. At least one lifesaving skiff shall be immediately available at locations where employees are working over water and/or the local coast guard shall be notified when working in navigable waterways.
- E. Under no circumstances will team members enter water bodies without protective clothing (e.g.; waders, wet suit)
- F. At least one person should remain on shore as a lookout if other methods of rescue are not available.

1.16 EXCAVATIONS

- A. A Competent person shall determine the proper slope or identify engineering controls for all excavations in the CCR area.
- B. An inspection of the banks shall be made and documented at least daily to determine any impact of the excavation.

2.0 **CONTRACTOR'S FACILITIES**

- 2.1 Temporary chemical toilet accommodations shall be furnished and maintained by Contractor for the use of his employees. Location shall be as directed by Purchaser's Representative. Use of Purchaser's toilet facilities by Contractor's employees is not permitted.
- 2.2 Contractor shall provide his own storage vessels, coolers, ice, water containers, etc., as required for his own drinking water use. Contractor shall supply a trash can with each drinking water container to receive used paper cups. Contractor shall maintain drinking water container, supply suitable water cups and dispose of trash as required. Open drinking cups and containers in the plant areas are not permitted.
- 2.3 Each Contractor is expected to pre-arrange medical emergency services for on-site and off site treatment. This includes, but is not limited to, first aid and confined space rescue.

2.4 FIRE PROTECTION FACILITIES

- A. Contractor shall provide his own temporary fire protection facilities for the equipment and materials furnished by him or by Purchaser and for his temporary construction buildings and structures. This equipment shall be maintained and inspected in accordance with applicable NFPA codes.
 - B. Furnish a suitable quantity and type of portable fire extinguishers and equipment, to meet OSHA and applicable codes.
- 2.5 Purchaser will not furnish any additional illumination of aisles, passages in the buildings, floodlighting of outdoor areas or lighting inside equipment other than that which is existing. Any additional lighting required by the Contractor shall be provided by the Contractor.
- 2.6 Contractor shall provide and maintain suitably located distribution centers with fused switching equipment and Ground Fault Interruption protection. The equipment supplied shall comply with OSHA regulations and standards.
- 2.7 Contractor shall supply all adapters and equipment required to connect to station air, water, and electrical systems. All air hoses shall be safety clipped together.
- 2.8 Any heating facilities required for the performance of the Work shall be furnished, maintained, and removed by Contractor. Open fires WILL NOT BE PERMITTED at any time. Heating equipment shall be as approved by Purchaser's Representative.

3.0 **CONTRACTOR'S TOOLS AND EQUIPMENT**

3.1 TOOLS AND EQUIPMENT

- A. Contractor shall maintain, inspect and store tools and equipment for safe and proper use. This includes guards, shields, safety switches and electrical cords.
 - B. Contractor shall provide hoisting equipment as required to perform the Work. Provide all the necessary guards, signals, and safety devices required for its safe operation. Construction and operation of hoisting equipment shall comply with all applicable requirements of ANSI A10.5, the AGC Manual of Accident Prevention in Construction, and to all applicable federal, state, and local codes. Hoisting equipment shall not be used to transport personnel.
- 3.2 RIGGING
- A. Contractor shall design, furnish, and maintain rigging required for the Work. All rigging plans must be designed by an Illinois licensed structural engineer.

- B. Purchaser reserves the right to examine Contractor's design calculations, engineering data, plans, and procedures. Contractor shall submit any documentation requested by the Purchaser for the purpose of this review, including, but not limited to, calculations, diagrams and documents associated with computer-aided analyses and programs. If requested information is considered proprietary by Contractor, Contractor shall allow the Purchaser to review the information at Contractor's offices with the understanding that no copies of proprietary information will be given to the Purchaser. Purchaser's review and approval of submitted information is for general detail only and will not relieve the Contractor of responsibility for meeting all requirements and for accuracy.
- C. Lifting and rigging areas shall have the target area and corresponding personnel access landings barricaded with "red" safety tape or hard barriers. No one is allowed under the load or in the target area during lifts.
- D. All cranes, hoists, or derricks shall be operated in compliance with existing State and Federal regulations or orders. Cranes and hoists shall be inspected in accordance with OSHA and ANSI requirements. Cranes and hoists shall not be operated near high voltage lines or equipment until a safe operating clearance plan has been established.

ATTACHMENT 20

No Attachment