

December 21, 2023  
File No. 27223129.24

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Subject            2023 Annual Water Quality Report, Leachate Control System Performance Evaluation  
Report, and Landfill Gas Annual Report  
Great River Regional Waste Authority Sanitary Landfill  
Phase 2 MSWLF Unit  
Permit No. 56-SDP-07-80P

Dear Mick:

SCS Engineers, on behalf of the Great River Regional Waste Authority (GRRWA), has completed the required groundwater monitoring and statistical evaluation for the Phase 2 municipal solid waste landfill (MSWLF) unit at the GRRWA Sanitary Landfill for the year 2023. Services were performed in general accordance with Iowa Administrative Code (IAC) 567-113.10 and the current requirements for implementation of the Hydrologic Monitoring System Plan for the Phase 2 MSWLF unit. Please find enclosed a copy of the 2023 Annual Water Quality Report.

Additionally, an evaluation of the leachate control system and gas monitoring results for the Phase 2 MSWLF unit is included in accordance with IAC 567-113.7(5)"b"(14) and 113.9(2)"d," respectively. The 2023 Leachate Control System Performance Evaluation Report and the 2023 Landfill Gas Annual Report are included as appendices to the Annual Water Quality Report.

If you have any questions regarding these reports, please contact Nathan Ohrt at (319) 331-9613.

Sincerely,



Nathan Ohrt  
Senior Project Professional  
SCS Engineers



Timothy C. Buelow, P.E.  
Project Director  
SCS Engineers

NPO/TCB

Copies: Mr. Austin Banks, Great River Regional Waste Authority





**2023 ANNUAL WATER QUALITY REPORT,  
LEACHATE CONTROL SYSTEM PERFORMANCE EVALUATION  
REPORT, & LANDFILL GAS ANNUAL REPORT**

**FOR**

**GREAT RIVER REGIONAL WASTE AUTHORITY SANITARY LANDFILL  
PHASE 2 MSWLF UNIT**

**FORT MADISON, IOWA**

**SOLID WASTE PERMIT NO. 56-SDP-07-80P**

**SUBMITTAL DATE: DECEMBER 2023**

**PREPARED FOR:**

**GREAT RIVER REGIONAL WASTE AUTHORITY**

**PREPARED BY:**

**SCS ENGINEERS**





**Certification**

Prepared by: 

Date: 12/21/2023

Typed: Nathan Ohrt

Reviewed by: 

Date: 12/21/2023

Typed: Timothy C. Buelow, P.E.

Certification page (PE or ground water scientist signature) **113.10(1)"d"**

For the purposes of this rule, a “qualified groundwater scientist” means a scientist or an engineer who has received a baccalaureate or postgraduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

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## **Executive Summary**

### **ES.1 Period of Report Coverage**

The period of report coverage is November 2022 through September 2023 and includes the sampling events summarized in Table 2.

### **ES.2 Report Priority**

The following summarizes report priorities associated with groundwater compliance of the Phase 2 municipal solid waste landfill unit (Phase 2 MSWLF unit) at the Great River Regional Waste Authority (GRRWA) Sanitary Landfill (Landfill):

- Department review urgency: It is recommended that sulfide sampling be discontinued for monitoring wells MW-28 and MW-29. Sulfide was not detected in the most recent 16 samples for monitoring well MW-28 and sulfide was detected once in the most recent 16 samples for MW-29.
- Department review impact on rules schedule: None.
- Actions or activities on hold pending Department review or comment: None.
- Actions and/or permit amendments needed: None.

### **ES.3 Site Status and Applicable Rules**

- Landfill Status: Active.
- Types of waste accepted: Municipal solid waste, construction and demolition waste, special waste.
- Applicable IAC rules: 2009 567-113.10.

### **ES.4 Comments**

Statistically significant increases (SSIs) above background were indicated for chloroethane in monitoring points GU-3A and MW-29 and barium, thallium, and acetone in monitoring well MW-26. The indicated SSIs will be retested before the next routine semi-annual sampling event.

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## Contents

<b>Executive Summary.....</b>	<b>i</b>
ES.1 Period of Report Coverage.....	i
ES.2 Report Priority.....	i
ES.3 Site Status and Applicable Rules .....	i
ES.4 Comments .....	i
<b>Section 1.0 Acronyms/Abbreviations.....</b>	<b>1</b>
<b>Section 2.0 Site Background.....</b>	<b>3</b>
2.1 Site Location.....	3
2.2 Facility.....	3
2.3 Geology and Hydrogeology of the Site .....	3
<b>Section 3.0 Figures Discussion .....</b>	<b>5</b>
Figure 1 – Approved Monitoring Network.....	5
Figure 2 – Groundwater Contours .....	5
Figure 3 – Reporting Period Detection Summary .....	5
<b>Section 4.0 Standards History Graphs.....</b>	<b>7</b>
<b>Section 5.0 QA/QC Summary .....</b>	<b>9</b>
<b>Section 6.0 Data Evaluation.....</b>	<b>11</b>
6.1 Data Evaluation.....	11
<b>Section 7.0 Summary and Recommendations.....</b>	<b>13</b>
7.1 Site Impact on Groundwater .....	13
7.2 Proposed Monitoring.....	13
7.3 Proposed Monitoring Well Changes.....	13

## Tables

TABLE 1	MONITORING PROGRAM SUMMARY
TABLE 2	MONITORING PROGRAM IMPLEMENTATION SCHEDULE
TABLE 3	MONITORING WELL MAINTENANCE AND PERFORMANCE RE-EVALUATION SCHEDULE
TABLE 4	MONITORING WELL PERFORMANCE AND MAINTENANCE SUMMARY
TABLE 5	BACKGROUND AND GWPS SUMMARY
TABLE 6	SUMMARY OF WELL/DETECTED CONSTITUENT PAIRS WITH NO PREVIOUS SSIs
TABLE 7	SUMMARY TABLE OF ONGOING AND NEWLY IDENTIFIED SSIs
TABLE 8	SUMMARY TABLE OF ONGOING AND NEWLY IDENTIFIED SSLs
TABLE 9	SUMMARY OF GROUNDWATER CHEMISTRY
TABLE 10	HISTORICAL SSIs AND SSLs
TABLE 11	CORRECTIVE ACTION TREND ANALYSIS

## Figures

FIGURE 1	APPROVED MONITORING NETWORK
FIGURE 2	GROUNDWATER CONTOURS
FIGURE 3	REPORTING PERIOD DETECTION SUMMARY

## Appendices

APPENDIX A	FIELD SAMPLING FORMS
APPENDIX B-1	LABORATORY ANALYTICAL DATA SHEETS
APPENDIX B-2	DATA VALIDATION DOCUMENTATION
APPENDIX C	SUMMARY OF GROUNDWATER CHEMISTRY
APPENDIX D	STATISTICAL METHOD AND OUTPUT
APPENDIX E	2023 LEACHATE CONTROL SYSTEM PERFORMANCE EVALUATION REPORT
APPENDIX F	2023 LANDFILL GAS ANNUAL REPORT

## Section 1.0 Acronyms/Abbreviations

ACM = Assessment of Corrective Measures  
CAMP = Corrective Action Groundwater Monitoring Program  
CCV = Continuing Calibration Verification  
CL = Control Limit - Mean plus Two Standard Deviations  
COC = Chain of Custody  
DNR = Iowa Department of Natural Resources  
DO = Dissolved Oxygen  
DQR = Double Quantification Rule  
GWPS = Groundwater Protection Standard  
LEL = Lower Explosive Limit  
LCL = Lower Confidence Limit  
LCS = Laboratory Control Sample  
LN = Lognormal  
MCL = EPA Maximum Contaminant Level  
N = Normal  
NC = No Change  
NM = Not Measured  
NP = Non-Parametric  
ORP = Oxidation-Reduction Potential  
P = Parametric  
PL = Prediction Limit  
RL = Reporting Limit  
SWS = DNR Statewide Standard for a protected groundwater source  
SSI = Statistically Significant Increase above background  
SSL = Statistically Significant Level above groundwater protection standard  
SSS = Site-Specific Standard (Site-Specific GWPS)  
TSS = Total Suspended Solids  
UCL = Upper Confidence Limit  
VOC = Volatile Organic Compound

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## Section 2.0

# Site Background

### 2.1 Site Location

The Landfill property is depicted in Figure 1, Approved Monitoring Network. The facility is located at 2092 303<sup>rd</sup> Avenue in Fort Madison, Iowa. The Landfill property consists of approximately 221 acres generally within the NW ¼ and SW ¼ of Section 27 and the NW ¼ of Section 34, T68N, R4W, in Lee County, Iowa.

### 2.2 Facility

The Landfill has two non-contiguous fill areas: the Phase 1 MSWLF unit, which stopped receiving waste prior to October 9, 1994, and the Phase 2 MSWLF unit, which consists of Regions 1, 2, and 3. The Phase 2 MSWLF unit began accepting waste on April 20, 1993 and has been actively receiving waste since that time.

According to information received from Landfill staff, the property was purchased from the State of Iowa, who used the site for agricultural purposes.

### 2.3 Geology and Hydrogeology of the Site

A previous hydrologic investigation of the site was conducted by James M. Montgomery Engineers, Inc. in October 1990. The report entitled Phase II Hydrogeological Investigation of the Lee County Sanitary Landfill, dated February 1991 (1991 HIR), provided a detailed geological description for the Phase 1 and Phase 2 areas. An excerpt from the 2008 Revised HMSP, which relied on the 1991 HIR, is included below.

*The currently closed landfill operation (Phase 1) utilized steep ravines as fill areas. The site is located in an area consisting primarily of loess soils overlying glacial till. Bedrock exists at a depth of approximately 300 feet below ground surface (bgs) with the upper strata consisting of shales, siltstones, dolomites, and limestones from the Devonian Era. The current fill area (Phase 2), located east of the closed fill area, consists of similar geologic strata.*

*Cross sections indicate that the upland glacial deposits consist of a loess mantle of clayey silt over a light brown, sandy, silty clay. Underneath this clay, a dark gray, silty clay is present. The downslope glacial deposits consist of a light brown, sandy, silty clay overlying a dark gray clay.*

*Bedrock boring logs obtained for the area of the landfill indicate that the uppermost bedrock systems beneath the landfill site are the Mississippian and Devonian units consisting of a sequence of siltstones, limestones, and shales. The first bedrock unit encountered is the Prospect Hill Formation, which is usually classified as an aquifer and is considered a very low-yielding aquifer in Southeast Iowa.*

*Boring logs for the site indicate that the depth to bedrock in the general area of the landfill ranges from 250 feet bgs in the lowland areas to 330 feet bgs in the upland areas.*

*Vertical and horizontal permeabilities of specific site deposits were analyzed by laboratory analysis and slug testing. It was found that the average horizontal permeability measurements of the strata on site were almost two orders of magnitude greater than the average vertical permeability measurements.*

The water table system occurs entirely within the glacial deposits. In this sense, an aquifer is defined as a saturated, permeable, geologic unit capable of transmitting water. The uppermost useable aquifer on site as a water supply is probably the Mississippian Prospect Hill Formation, located approximately 250 feet bgs in the lowlands. The uppermost aquifer for the site has been determined to be the glacial till, or more specifically, highly permeable sand or gravel seams within. Based on this information, the water table will be subject to groundwater monitoring and compliance determination.

Surface water draining from the site and adjacent areas flows to a small stream leaving the southern boundary of the GRRWA Sanitary Landfill property. This stream begins within the landfill, widens and becomes Fork Creek, flows south, and eventually empties into the Mississippi River. The on-site portion of the stream is an ephemeral channel and only flows after heavy precipitation events.

The lowest natural elevation at the site is approximately 610 feet asl south of the leachate lagoon in the channel that drains the sedimentation pond. The majority of the site slopes toward the sedimentation pond. Drainage from the site is generally to the sedimentation pond, which outlets to Fork Creek.

The depth to the upper or surficial aquifer across the site as measured in annual water quality reports (AWQRs) varies from an average of 9 feet to 24 feet bgs with the deeper levels measured in wells screened in a sandy silty clay layer.

## Section 3.0

### Figures Discussion

The following figures are attached.

#### **Figure 1 – Approved Monitoring Network**

The Landfill property and the hydrologic monitoring system plan (HMSP) monitoring points are depicted on Figure 1. Figure 1 indicates the respective monitoring programs of the HMSP monitoring points as of the beginning of this reporting period. A summary of the HMSP monitoring network is included in Table 1.

#### **Figure 2 – Groundwater Contours**

A groundwater contour map based on groundwater levels measured during the August 2023 sampling event is included as Figure 2. Groundwater flow is generally to the southeast beneath the Phase 1 MSWLF unit. The underdrains beneath the Phase 2 MSWLF unit create an inward gradient as evidenced by the contours. This is consistent with previous groundwater contour maps.

#### **Figure 3 – Reporting Period Detection Summary**

Figure 3 shows the range of measured concentrations by monitoring point for the HMSP monitoring points during this reporting period. Further discussion of the detected constituents is included in Section 6.0 – Data Evaluation and Summary of this report.

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## Section 4.0

### Standards History Graphs

As stated in DNR correspondence dated April 11, 2019 (Doc #94881), the DNR has allowed the use of tables as an alternative to the standards history graphs to reduce the overall report size. Therefore, graphs are not provided as the monitoring network monitoring points were analyzed using intrawell statistical methods. Monitoring point GU-3A completed background collection during this reporting period and will be included in Table 5 in the 2024 AWQR.

Prediction limits were below the GWPSs during this reporting period except for cobalt in monitoring points MW-26, MW-28, MW-29 and PH2UD and arsenic in monitoring point PH2UD. The prediction limits for the intrawell background datasets were used for the site-specific GWPSs. The monitoring points MW-26, MW-28, MW-29, and PH2UD details are included in Table 5.

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## Section 5.0 QA/QC Summary

The quality assurance/quality control (QA/QC) program for the Phase 2 MSWLF unit follows similar protocols as included in the HMSP. Data validation procedures were performed on analytical results for laboratory quality control samples and a quality assurance assessment of the data was conducted as the data were generated. The QA review procedure provided documentation of the accuracy and precision of the analytical data and confirms that the analyses were sufficiently sensitive to detect constituents at levels below regulatory standards when technically feasible with the laboratory method utilized. SCS then conducted QA/QC data validation of the produced data, which included a review of sample handling, analytical sensitivity, and blanks, accuracy, and precision. A summary of the laboratory QA/QC and data validation can be found in Appendix B-1, Laboratory Analytical Data Sheets, and Appendix B-2, Data Validation Documentation, respectively.

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## Section 6.0

### Data Evaluation

Detection monitoring statistical analyses in accordance with the requirements of Iowa Administrative Code (IAC) 567-113.10(5) were conducted for the groundwater analytical data collected during the 2023 reporting period. The statistical evaluation output for samples collected during this reporting period are located in Appendix D (Statistical Method and Output) of this report.

#### 6.1 Data Evaluation

Groundwater monitoring for the Phase 2 MSWLF unit consists of samples from two monitoring wells to the south, one monitoring well downgradient of the leachate lagoon to the southwest, and four groundwater underdrain discharge points, three of which discharge to the south of the Phase 2 MSWLF unit and one that discharges to the east of the Phase 2 MSWLF unit. The range of measured concentrations for the detected constituents during this reporting period is shown in Figure 3, Reporting Period Detection Summary. The Phase 2 Underdrain (PH2UD) did not produce a sample during the February 2023 sampling event due to dry weather conditions and was not accessible during the August 2023 sampling event (an 8-inch storm event put the outlet pipe 10-15 feet from the “shore” of the sediment pond). The Monitoring Well Maintenance and Performance Reevaluation Schedule is shown on the attached Table 3. Water levels and well depths measured during this reporting period, and whether the screened intervals of the monitoring wells were submerged or exposed to the atmosphere, are included in Table 4, Monitoring Well Performance and Maintenance Summary.

Prediction limits to evaluate for statistically significant increases (SSIs) above background were calculated to evaluate changes to groundwater quality. Newly indicated SSIs (Table 6), new and ongoing SSIs (Table 7), and a historical tracking table of SSIs (Table 10) are attached.

The majority of site-wide maximum concentrations occurred in monitoring points GU-1 and GU-2, which are treated with the leachate, and monitoring point GU-3A. Site-wide maximum concentrations were measured for thallium in monitoring well MW-26 and carbon disulfide in monitoring well MW-28.

The GWPS exceedances in the monitoring points (not including GU-1 and GU-2 that are treated with the leachate) during this reporting period were arsenic, cobalt, and nickel in monitoring point GU-3A.. The GWPS exceedances measured in monitoring point GU-3A are likely related to TSS as the August 2023 sample had the highest measured TSS concentration from this monitoring point in the brief period of record.

Statistically significant increases (SSI) above background were indicated for chloroethane in monitoring point GU-3A and for barium, thallium, and acetone in monitoring well MW-26. These indicated SSIs will be retested before the next routine semi-annual sampling event.

Monitoring point GU-3A was installed in 2021 in conjunction with the construction of Cell R3-1. Samples were collected in May and August 2022 and February, May, and August 2023. Multiple additional attempts to collect samples were unsuccessful due to the unusually dry weather conditions in 2023. As a background dataset of five samples is now established, intrawell prediction limits will be calculated following the next sample collection.

During the February 2023 sampling event, acetone in monitoring point GU-3A had an initial quantified detection. Four retesting attempts were made to verify the acetone detection in GU-3A, but the dry conditions during this reporting period resulted in the monitoring point not producing a sample. Therefore, sampling results from the May 2023 background sampling were used to confirm or not confirm the indicated statistically significant increase (SSI) above background for acetone in

monitoring point GU-3A. Acetone was not detected in monitoring point GU-3A during the May 2023 sampling event.

Monitoring points GU-1 and GU-2, which are treated with the leachate and not statistically evaluated, had three and one VOC detections, respectively, during this reporting period. Due to the impact indicated by persistent VOC detections and elevated arsenic and barium concentrations, the discharge from monitoring points GU-1 and GU-2 will continue to be treated with the leachate.

## Section 7.0 Summary and Recommendations

### 7.1 Site Impact on Groundwater

The majority of constituents detected during this reporting period were below their respective background concentrations with the exception of monitoring points GU-1 and GU-2, which are treated with the leachate. Constituents that were statistically above the background concentrations, with the exception of those in monitoring points GU-1 and GU-2, will be retested before the next routine semi-annual sampling event.

It is recommended that sulfide sampling be discontinued for monitoring wells MW-28 and MW-29. Sulfide was not detected in the most recent 16 samples for monitoring well MW-28 and sulfide was detected once in the most recent 16 samples for MW-29.

The Phase 2 MSWLF unit does not appear to be having a significant impact on groundwater quality.

### 7.2 Proposed Monitoring

The proposed monitoring for the upcoming reporting period is summarized in the attached Table 2.

### 7.3 Proposed Monitoring Well Changes

No changes to the monitoring points are recommended at this time.



## Tables



**Table 1**  
**Monitoring Program Summary**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill - Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

Monitoring Well	Formation <sup>(1)</sup>	Current Monitoring Program	Change for next sampling event	Constituents with SSIs during the 2023 Reporting Period	Constituents with SSLs	Total # of Samples in each monitoring program <sup>(2)</sup>		
						Detection inorganic #/organic #	Assessment inorganic #/organic #	Corrective Action inorganic #/organic #
MW-26	Weathered Till, Sand	Detection	No change	Barium*, Thallium*, Acetone*	Not applicable	17/35	-	-
MW-28	Weathered/Unweathered Till	Detection	No change	Carbon Disulfide*	Not applicable	17/36	-	-
MW-29	Weathered/Unweathered Till	Detection	No change	Chloroethane*	Not applicable	17/31	-	-
Phase 2 Underdrain (PH2UD)	Not applicable	Detection	No change	None (Not sampled during this reporting period)	Not applicable	21/22	-	-
GU-1	Not applicable	Treated with leachate	No change	1,4-Dichlorobenzene, benzene, chlorobenzene	Not applicable	7/21	-	-
GU-2	Not applicable	Treated with leachate	No change	Benzene	Not applicable	8/15	-	-
GU-3A	Not applicable	Background Collection	Detection	Chloroethane*	Not applicable	5/5	-	-
MW-9	Not available	Water Level						
MW-31	Weathered/Unweathered Till	Water Level						
MW-32	Weathered till	Water Level						
MW-33	Weathered/Unweathered Till	Water Level						
MW-34A	Weathered till	Water Level						
MW-35A	Weathered till	Water Level						
MW-38A	Weathered/Unweathered Till	Water Level						

Notes:

1) Obtained from screened interval on boring logs or historical cross sections.

2) As directed in DNR correspondence dated November 16, 2017 (Doc #90839), this report was prepared with non-low-flow inorganic data removed from statistical consideration.

\* - Not confirmed pending retest.

SSI = Statistically Significant Increase above background.

SSL = Statistically Significant Level above groundwater protection standard.

**Table 2**  
**Monitoring Program Implementation Schedule**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill - Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

Monitoring Well	Upcoming Sampling Dates and Constituents			Full Appendix II Sample Dates				
	February 2023 (1 <sup>st</sup> Semi-Annual)	May 2023 (Background)	August 2023 (2 <sup>nd</sup> Semi-Annual)	Fall 2023	1 <sup>st</sup> 2024 Semi-Annual	2 <sup>nd</sup> 2024 Semi-Annual	Previously Collected	Next Event
MW-26	Appendix I, TSS		Appendix I, TSS	Barium, Thallium, TSS, Acetone	Appendix I, TSS*	Appendix I, TSS*	Not applicable	Not applicable
MW-28	Appendix I, TSS		Appendix I, TSS		Appendix I, TSS	Appendix I, TSS	1/19/2012, 3/20/2013, 5/1/2018	Not applicable
MW-29	Appendix I, TSS		Appendix I, TSS, Sulfide	Chloroethane	Appendix I, TSS*	Appendix I, TSS*	1/19/2012, 3/20/2013, 5/1/2018	Not applicable
PH2UD	Appendix I, TSS		Not sampled (inaccessible)		Appendix I, TSS	Appendix I, TSS	Not applicable	Not applicable
GU-1	Appendix I, TSS				Appendix I, TSS		Not applicable	Not applicable
GU-2	Appendix I, TSS				Appendix I, TSS		Not applicable	Not applicable
GU-3A	Appendix I, TSS	Appendix I, TSS	Appendix I, TSS	Chloroethane	Appendix I, TSS*	Appendix I, TSS*	Not applicable	Not applicable

Notes:

TSS - Total Suspended Solids

\* - Sampling may change based on results of retesting.



**Table 3**  
**Monitoring Well Maintenance and Performance Reevaluation Schedule**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill - Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

Compliance with:	2021	2022	2023	2024	2025
567 IAC 113.10(2)"f"(1) high and low water levels (biennial)	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 113.10(2)"f"(2) changes in the hydrologic setting and flow paths	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 113.10(2)"f"(3) well depths	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 113.10(2)"f"(4) well recharge rates and chemistry (biennial)		Completed		Scheduled	
Waste separation from ground water 113.6(2)"l"	Completed	Completed	Included	Scheduled	Scheduled

**Table 4**  
**Monitoring Well Maintenance and Performance Summary**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill - Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

Well	Top of Casing	Top of Screen	Total Depth		Date of Measurements		Maximum Depth Discrepancy (ft)
					2/6-7/2023	8/9-10/2023	
MW-26	643.51	614.01	39.5	Groundwater Level (ft)	18.95	17.05	0.7
				Groundwater Elevation (ft msl)	624.56	626.46	
				Measured Well Depth (ft)	38.8	39.5	
				Submerged screen	Y	Y	
MW-28	662.42	642.70	29.7	Groundwater Level (ft)	20.00	18.52	-0.4
				Groundwater Elevation (ft msl)	642.42	643.90	
				Measured Well Depth (ft)	30.1	30.1	
				Submerged screen	N	Y	
MW-29	661.059	638.27	32.7	Groundwater Level (ft)	19.65	19.01	-0.8
				Groundwater Elevation (ft msl)	641.41	642.05	
				Measured Well Depth (ft)	33.6	33.5	
				Submerged screen	Y	Y	

Notes:

Measured well depths were within 0.8 feet of the installed depths, indicating siltation is not impacting the ability of the monitoring wells to produce samples.

**Groundwater Control System Measurement Points**

The groundwater/waste separation for Phase 2, Region 1 is controlled by a pump in the PH2 UD lift station. The water elevation in the lift station is monitored by a SCADA system, which records the depth measured by a transducer on the bottom of the pump. The engineered groundwater/waste separation distance was maintained throughout this reporting period.

Well		Date of Measurements	
		2/7/2023	8/10/2023
PH2 UD GW	Bottom of waste (feet MSL)	640.0	
	Groundwater Elevation (feet MSL)	621.65	620.50
	Separation distance (feet)	18.4	19.5

The groundwater/waste separation for the R2-1 and R2-2 cells is controlled by pumps in the groundwater underdrain sumps. The water elevation in the sumps is monitored by a SCADA system, which records the depth measured by a transducer on the bottom of the pumps. The bottom of the sumps is approximately nine (9 feet) below the waste. The compliance elevation for the R-1 and R-2 sumps is 4 feet (Doc #95742). The engineered groundwater/waste separation distances for the GU-1 and GU-2 underdrains were maintained during this reporting period.

Date	GU-1 GW	GU-2 GW
January 2023	3.91	1.78
February 2023	1.65	1.75
March 2023	1.74	1.72
April 2023	1.74	1.73
May 2023	1.73	NA
June 2023	1.75	NA
July 2023	1.71	2.18
August 2023	2.01	1.82
September 2023	1.80	1.82

NA - Not available.

**Table 5**  
**Background and GWPS Summary**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill - Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

**MW-26 Intrawell Background/GWPS (8/31/2015 - 3/31/2021)**

Constituent	Units	Samples	Detections	Min	Max	Mean	Background Level	Statistical Test	GWPS	Source
Antimony (Sb)	mg/L	12	0	0.0005 (1/2 RL)	0.0015 (1/2 RL)	0.000625	< 0.003	DQR	0.006	MCL
Arsenic (As)	mg/L	12	1	0.000776*	0.001 (1/2 RL)	0.000981	0.00100	PL (NP)	0.01	MCL
Barium (Ba)	mg/L	12	12	0.0268	0.0496	0.041713	0.05284	PL (P)	2.0	MCL
Beryllium (Be)	mg/L	12	0	0.0005 (1/2 RL)	0.0005 (1/2 RL)	5.00E-04	< 0.001	DQR	0.004	MCL
Cadmium (Cd)	mg/L	12	2	0.00005 (1/2 RL)	0.00025 (1/2 RL)	0.000203	0.00025	PL (NP)	0.005	MCL
Chromium (Cr)	mg/L	12	1	0.0025 (1/2 RL)	0.00431*	0.002651	0.00431	PL (NP)	0.1	MCL
Cobalt (Co)	mg/L	12	12	0.00217	0.0107	0.007463	0.01113	PL (P)	0.01113	SSS
Copper (Cu)	mg/L	12	5	0.00179	0.00565	0.002828	0.00565	PL (NP)	1.3	MCL
Lead (Pb)	mg/L	12	5	0.00015*	0.000952	0.000326	0.00095	PL (NP)	0.015	MCL
Nickel (Ni)	mg/L	12	12	0.005175	0.0233	0.018656	0.02479	PL (P)	0.1	SWS
Selenium (Se)	mg/L	12	0	0.00125 (1/2 RL)	0.0025 (1/2 RL)	0.002396	< 0.005	DQR	0.05	MCL
Silver (Ag)	mg/L	12	0	0.00025 (1/2 RL)	0.0005 (1/2 RL)	0.000479	< 0.001	DQR	0.1	SWS
Thallium (Tl)	mg/L	12	1	0.000037*	0.001 (1/2 RL)	0.000503	0.00100	PL (NP)	0.002	MCL
Vanadium (V)	mg/L	12	4	0.000255*	0.002865*	0.002168	0.00287	PL (NP)	0.035	SWS
Zinc (Zn)	mg/L	12	3	0.005 (1/2 RL)	0.0146	0.009491	0.01460	PL (NP)	2.0	SWS

**MW-28 Intrawell Background/GWPS (8/31/2015 - 2/6/2023)**

Constituent	Units	Samples	Detections	Min	Max	Mean	Background Level	Statistical Test	GWPS	Source
Antimony (Sb)	mg/L	16	1	0.000262*	0.0015 (1/2 RL)	0.000704	0.00150	PL (NP)	0.006	MCL
Arsenic (As)	mg/L	16	5	0.000596*	0.00136*	0.001002	0.00136	PL (NP)	0.01	MCL
Barium (Ba)	mg/L	17	17	0.0146	0.0271	0.019541	0.02462	PL (P)	2.0	MCL
Beryllium (Be)	mg/L	16	1	0.000075*	0.0005 (1/2 RL)	0.000473	0.00050	PL (NP)	0.004	MCL
Cadmium (Cd)	mg/L	16	10	0.00005 (1/2 RL)	0.00213	0.000459	0.00152	PL (P)	0.005	MCL
Chromium (Cr)	mg/L	17	3	0.000937*	0.00643	0.002715	0.00643	PL (NP)	0.1	MCL
Cobalt (Co)	mg/L	16	16	0.000734	0.0209	0.011633	0.02350	PL (P)	0.0235	SSS
Copper (Cu)	mg/L	16	8	0.00189*	0.00503	0.002851	0.00503	PL (NP)	1.3	MCL
Lead (Pb)	mg/L	16	1	0.00025 (1/2 RL)	0.000327*	0.000255	0.00033	PL (NP)	0.015	MCL
Nickel (Ni)	mg/L	16	16	0.00833	0.0671	0.038946	0.06353	PL (P)	0.1	SWS
Selenium (Se)	mg/L	16	1	0.00125 (1/2 RL)	0.0025 (1/2 RL)	0.002413	0.00250	PL (NP)	0.05	MCL
Silver (Ag)	mg/L	16	2	0.00025 (1/2 RL)	0.000844*	0.000509	0.00084	PL (NP)	0.1	SWS
Thallium (Tl)	mg/L	16	6	0.00008*	0.001 (1/2 RL)	0.000416	0.00100	PL (NP)	0.002	MCL
Vanadium (V)	mg/L	16	7	0.00101*	0.0036*	0.002108	0.00360	PL (NP)	0.035	SWS
Zinc (Zn)	mg/L	16	4	0.005 (1/2 RL)	0.0234	0.010458	0.02340	PL (NP)	2.0	SWS

**MW-29 Intrawell Background/GWPS (8/31/2015 - 2/6/2023)**

Constituent	Units	Samples	Detections	Min	Max	Mean	Background Level	Statistical Test	GWPS	Source
Antimony (Sb)	mg/L	16	0	0.0005 (1/2 RL)	0.0015 (1/2 RL)	0.000719	< 0.003	DQR	0.006	MCL
Arsenic (As)	mg/L	16	12	0.000833*	0.006	0.002026	0.00600	PL (NP)	0.01	MCL
Barium (Ba)	mg/L	16	16	0.0137	0.0192	0.016016	0.01814	PL (P)	2.0	MCL
Beryllium (Be)	mg/L	16	0	0.0005 (1/2 RL)	0.0015 (1/2 RL)	0.000563	< 0.0025	DQR	0.004	MCL
Cadmium (Cd)	mg/L	16	3	0.000041*	0.00025 (1/2 RL)	0.000134	0.00025	PL (NP)	0.005	MCL
Chromium (Cr)	mg/L	16	1	0.0025 (1/2 RL)	0.00341*	0.002557	0.00341	PL (NP)	0.1	MCL
Cobalt (Co)	mg/L	16	16	0.0006995	0.004645	0.002521	0.00457	PL (P)	0.00457	SSS
Copper (Cu)	mg/L	16	5	0.0013*	0.0049*	0.002552	0.00490	PL (NP)	1.3	MCL
Lead (Pb)	mg/L	16	7	0.000144*	0.000898	0.00036	0.00090	PL (NP)	0.015	MCL
Nickel (Ni)	mg/L	16	16	0.00439*	0.0127	0.010029	0.01295	PL (P)	0.1	SWS
Selenium (Se)	mg/L	16	1	0.00112*	0.0025 (1/2 RL)	0.002336	0.00250	PL (NP)	0.05	MCL
Silver (Ag)	mg/L	16	0	0.00025 (1/2 RL)	0.0005 (1/2 RL)	0.000484	< 0.001	DQR	0.1	SWS
Thallium (Tl)	mg/L	16	0	0.0005 (1/2 RL)	0.0015 (1/2 RL)	0.000594	< 0.0025	DQR	0.002	MCL
Vanadium (V)	mg/L	16	3	0.000776*	0.00632	0.002582	0.00632	PL (NP)	0.035	SWS
Zinc (Zn)	mg/L	16	8	0.00772*	0.0297	0.012593	0.02970	PL (NP)	2.0	SWS

**Table 5**  
**Background and GWPS Summary**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill - Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

**Phase 2 Underdrain Intrawell Background/GWPS (02/26/2008 - 2/24/2021)**

Constituent	Units	Samples	Detections	Min	Max	Mean	Background Level	Statistical Test	GWPS	Source
Antimony (Sb)	mg/L	19	1	0.0005 (1/2 RL)	0.003 (1/2 RL)	0.001086	0.00300	PL (NP)	0.006	MCL
Arsenic (As)	mg/L	18	17	0.0005 (1/2 RL)	0.03	0.008216	0.02231	PL (P)	0.02231	SSS
Barium (Ba)	mg/L	21	21	0.17	2.8	0.626024	1.27700	PL (P)	2.0	MCL
Beryllium (Be)	mg/L	19	2	0.000361*	0.0025 (1/2 RL)	0.000645	0.00250	PL (NP)	0.004	MCL
Chromium (Cr)	mg/L	18	6	0.00101*	0.013	0.00541	0.01300	PL (NP)	0.1	MCL
Cobalt (Co)	mg/L	18	15	0.000387*	0.012	0.002825	0.01200	PL (NP)	0.012	SSS
Copper (Cu)	mg/L	20	10	0.00089*	0.0198	0.005123	0.01023	PL (P)	1.3	MCL
Nickel (Ni)	mg/L	18	17	0.0029*	0.053	0.011833	0.02877	PL (P)	0.1	SWS
Selenium (Se)	mg/L	20	7	0.0005 (1/2 RL)	0.0125 (1/2 RL)	0.002876	0.01250	PL (NP)	0.05	MCL
Silver (Ag)	mg/L	20	0	0.00025 (1/2 RL)	0.01 (1/2 RL)	0.002038	< 0.02	DQR	0.1	SWS
Thallium (Tl)	mg/L	19	0	0.0005 (1/2 RL)	0.001 (1/2 RL)	0.000579	< 0.002	DQR	0.002	MCL
Vanadium (V)	mg/L	18	5	0.000591*	0.025 (1/2 RL)	0.007331	0.02500	PL (NP)	0.035	SWS
Zinc (Zn)	mg/L	18	5	0.003 (1/2 RL)	0.066	0.017637	0.06600	PL (NP)	2.0	SWS

Notes:

Background levels are calculated prediction limits or one-half of the highest reporting limit (RL), as applicable.

J flag concentrations are considered detections for the purposes of these tables.

\* - Indicates J flag. The concentration is above the method detection limit but below the reporting limit; the concentration is estimated.

Acronyms/Abbreviations:

RL = Reporting Limit  
DQR = Double Quantification Rule  
SSS = Site-Specific GWPS  
SWS = Statewide Standard  
MCL = EPA Maximum Contaminant Level

PL = Prediction Limit  
GWPS = Groundwater Protection Standard (mg/L)  
NP = Non-Parametric  
P = Parametric

1) Water quality results and effectiveness of the statistical data evaluation criteria: Statistical evaluations consist of prediction limits, double quantification rule, and confidence intervals/confidence bands, as appropriate.

2) Changes to the previous statistical method during reporting period: None.

**Table 6**  
**Summary of Well/Detected Constituent Pairs With No Previous SSIs**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill - Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

Well	Constituent	Units	Most recent result	Background Standard
MW-26	Acetone*	µg/L	11.5	<10
	Barium*	mg/L	0.059	0.05284
	Thallium*	mg/L	0.00177	0.001
MW-28	Carbon Disulfide*	µg/L	3.505	<1
MW-29	Chloroethane*	µg/L	6.59	<4
GU-3A	Chloroethane*	µg/L	8.71	<4

**Notes:**

This table includes SSIs indicated during this reporting period that were not indicated in the 2022 reporting period.

\* - The indicated SSI is not confirmed pending retesting.

- 1) Problems with the current detection network: None.
- 2) Schedule to implement remedies: Not applicable.
- 3) Alternative constituent or sample frequency changes: None.
- 4) Significant changes to calculated prediction limits: None.
- 5) Resampling strategy: Retesting is performed on a 1-of-3 retesting scheme.
- 6) Data Exclusion Justification: Inorganic data collected prior to implementation of low-flow sampling in August 2015 were removed from statistical consideration.

**Table 7**  
**Summary of Ongoing and Newly Identified SSIs**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill**  
**Permit No. 56-SDP-07-80P**

Well	Constituent	Units	Most Recent Result	Background Standard	Lower Confidence Limit	GWPS	Sample Dates		
							Initial Exceedance	Resample(s)	5th background sample
MW-26	Acetone*	µg/L	11.5	<10	NA	6300	8/9/2023	Fall 2023	
	Barium*	mg/L	0.059	0.05284	NA	2	8/9/2023	Fall 2023	
	Thallium*	mg/L	0.00177	0.001	NA	0.002	8/9/2023	Fall 2023	
MW-28	Carbon Disulfide*	µg/L	3.505	<1	NA	700	8/9/2023	Fall 2023	
MW-29	Chloroethane*	µg/L	6.59	<4	NA	2800	8/9/2023	Fall 2023	
PH2UD**	None								
GU-3A	Chloroethane*	µg/L	8.71	<4	NA	2800	8/9/2023	Fall 2023	

Shaded rows denote constituent/well pairs with SSIs indicated in 2023 but not in 2022. Unshaded rows denote constituent/well pairs with SSIs indicated during both the 2022 and 2023 reporting periods.

NA - Monitoring points are in the detection monitoring program, so confidence limits were not calculated.

\* - The indicated SSI is not confirmed pending retesting.

\*\* - PH2UD did not produce a sample during this reporting period.



**Table 9**  
**Summary of Groundwater Chemistry**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill - Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

The Summary of Groundwater Chemistry is located in Appendix C.



**Table 10**  
**Historical SSI and SSL since January 1, 2019**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill - Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

Key

	SSI - Statistically Significant Increase above background
	SSL - Statistically Significant Level above a groundwater protection standard

		S p r i n g	F a l l	S p r i n g	F a l l	S p r i n g	F a l l	S p r i n g	F a l l	S p r i n g	F a l l
<b>Well</b>	<b>Constituent</b>	2019	2019	2020	2020	2021	2021	2022	2022	2023	2023
MW-26	None										
MW-28	Barium					*	*				
MW-29	None										
Phase 2 Underdrain	None										

Comments:

1) Only initial confirmed SSIs are included on this table.

2) \* - Barium was confirmed at an SSI above background in monitoring well MW-28 in 2021. In correspondence dated August 17, 2021 (Doc #101034), the DNR approved the alternative source demonstration that demonstrated the recently measured barium concentrations at MW-28 are most likely indicative of natural variability in the aquifer and are not indicative of a release from the Phase 2 MSWLF unit, submitted in correspondence dated August 13, 2021 (Doc #101016).

**Table 11**  
**Corrective Action Trend Analysis**  
**2023 Annual Water Quality Report**  
**Great River Regional Waste Authority Sanitary Landfill - Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

Well	Current SSL	Trend	N	Projected Year to Completion
NA				

Comments:

NA - Not applicable. There are no SSLs at the Phase 2 MSWLF unit.

## Figures



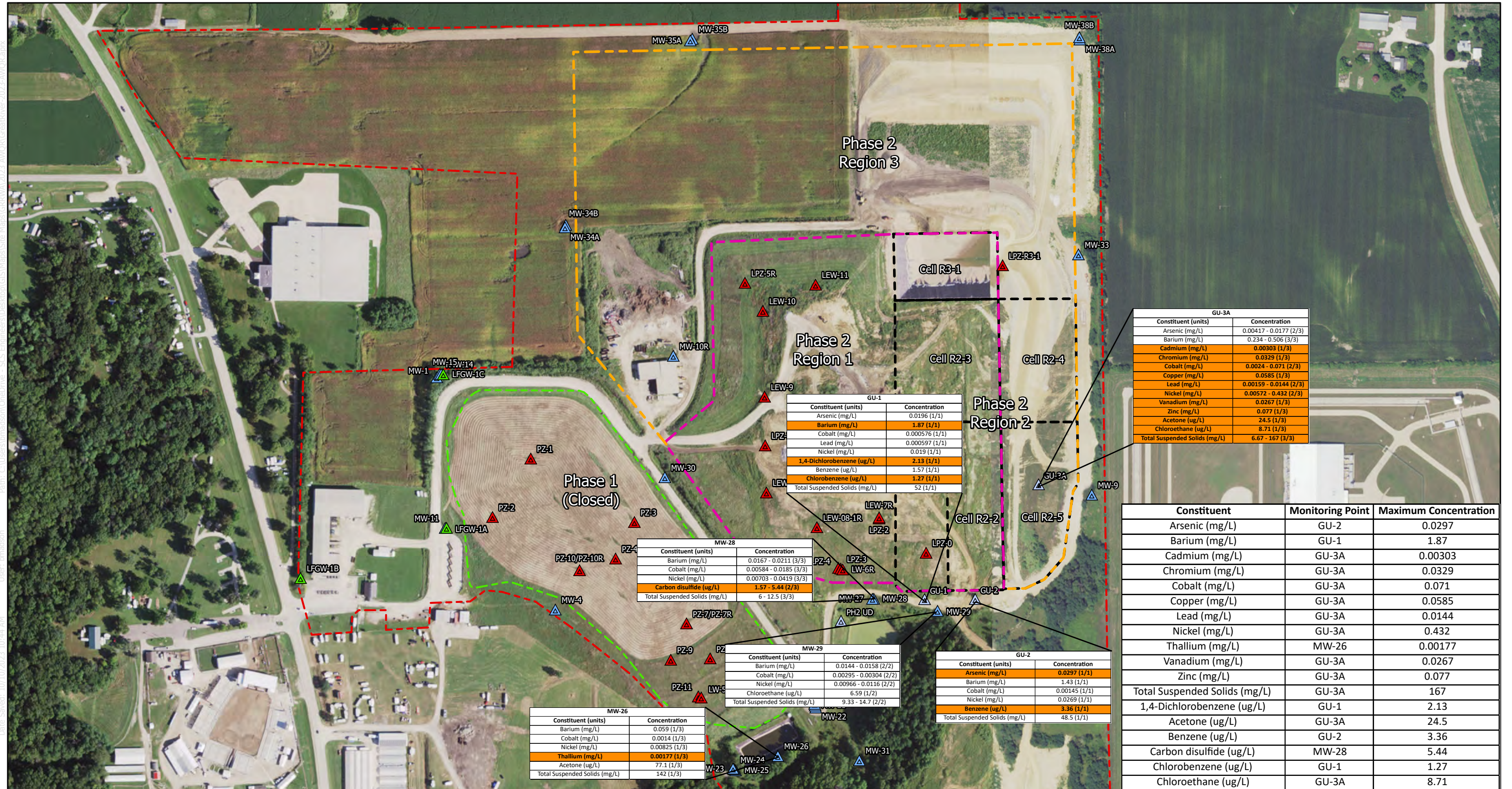












## Reporting Period Detection Summary

Legend	
	Monitoring Well
	Underdrain Monitoring Point
	Landfill Gas Well
	Leachate Monitoring Point
	Approximate Future Waste Boundary - Phase 2
	Approximate Waste Boundary - Phase 2
	Located Waste Boundary
	Approximate GRRWA Property Boundary
	Approximate Location Of Cell Boundaries

GRRWA Sanitary Landfill  
Phase 2  
Fort Madison, Iowa  
Project No: 27223129.24  
Drawing Date: October 2023

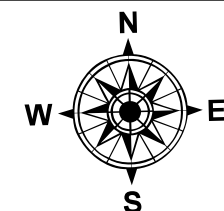
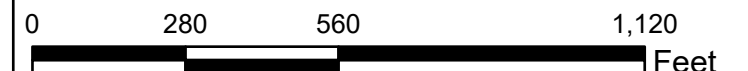


Figure 3









**Appendix A**  
**Field Sampling Forms**



### FORM FOR GROUNDWATER SAMPLING

Project: <b>GRRWA.23001</b>	
Monitoring Well/Piezometer ID: <b>MW-26</b>	Date: <b>2/6/2023</b>
Gradient: Down	Sampler: Scott Stoller

**A. MW/PIEZOMETER CONDITIONS**

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

**B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)**

Measured Well Total Depth (feet):	38.8
Initial Static Water Level (feet):	18.95
Initial Groundwater Elevation (ft-amsl):	624.56
Equipment Used:	Dedicated Tubing – Peristaltic Pump

**C. WELL PURGING**

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
4:30 PM	Purging start time.						
4:33 PM	11.4	1.5	1044.3	6.50	-167.1	47.7	
4:36 PM	11.6	0.8	1044.9	6.51	-200.8	53.5	
4:39 PM	11.5	0.5	1049.0	6.52	-216.8	70.1	
4:42 PM	11.4	0.4	1050.1	6.53	-228.9	78.1	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	145.83

**D. WELL MAINTENANCE**

Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	
----------------------	--

### FORM FOR GROUNDWATER SAMPLING

Project:	<b>GRRWA.23001</b>		
Monitoring Well/Piezometer ID:	<b>MW-28</b>	Date:	<b>2/7/2023</b>
Gradient:	Compliance	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	30.1
Initial Static Water Level (feet):	20.00
Initial Groundwater Elevation (ft-amsl):	642.42
Equipment Used:	Dedicated Tubing – Peristaltic Pump

**C. WELL PURGING**

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
9:17 AM	Purging start time.						
9:20 AM	8.9	1.3	3649.3	6.21	-31.2	5.7	
9:23 AM	9.4	0.8	3662.1	6.28	-37.6	5.6	
9:26 AM	9.3	0.7	3672.1	6.30	-39.8	5.9	
9:29 AM	9.4	0.7	3669.6	6.32	-42.1	5.7	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	145.83

**D. WELL MAINTENANCE**

Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	
----------------------	--

## FORM FOR GROUNDWATER SAMPLING

Project:	<b>GRRWA.23001</b>		
Monitoring Well/Piezometer ID:	<b>MW-29</b>	Date:	<b>2/7/2023</b>
Gradient:	Compliance	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	33.6
Initial Static Water Level (feet):	19.65
Initial Groundwater Elevation (ft-amsl):	641.41
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING
-----------------

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
9:51 AM	Purging start time.						
9:54 AM	10.4	1.4	4434.6	6.45	-56.4	3.8	
9:57 AM	10.4	0.9	4445.0	6.44	-49.4	4.0	
10:00 AM	10.5	0.6	4446.5	6.44	-49.1	4.2	
10:03 AM	10.6	0.6	4446.1	6.44	-49.4	4.5	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.9
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	158.33

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	

## FORM FOR SURFACE WATER SAMPLING

Site Name GRRWA Permit No. 56-SDP-07-80P  
 Surface Monitoring Point No. PH2UD Date 2/7/2023

Name of Person Sampling Scott Steller

**A. TYPE OF MONITORING POINT**

Stream <input type="checkbox"/>	Open Tile <input type="checkbox"/>
Road Ditch <input type="checkbox"/>	Tile with Riser <input type="checkbox"/>
Drainage Ditch <input type="checkbox"/>	Other <input checked="" type="checkbox"/>

**B. PURPOSE OF MONITORING POINT**

Upstream <input type="checkbox"/>	Downstream <input checked="" type="checkbox"/>
Within Landfill <input checked="" type="checkbox"/>	Other <input type="checkbox"/>

**C. MONITORING POINT CONDITIONS/LOCATION**

[Redacted]  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Was monitoring point dry?	<u>yes</u>	Too little water to sample?	<u>yes (1 drg/min)</u>
Was water flowing?	_____	If yes, estimate quantity (cfs)	_____
Standing Water?	_____	If yes, estimate depth (inches)	_____
		If yes, estimate width (inches)	_____
Was water discolored?	_____		
Does water have odor?	_____		
Was ground discolored?	_____		
Litter present?	_____		

**D. FIELD MEASUREMENTS**

Weather Conditions: 38°F, Cloudy  
 Time: 11:40 AM  
 Field Measurements:

Temperature _____	Units <u>Celsius</u>
Equipment Used _____	
pH _____	Units <u>Standard units</u>
Equipment Used _____	
Spec. Conductance _____	Units <u>uS/cm</u>
Equipment Used _____	

**COMMENTS** Turned pump off on 2/16/23. On 2/7/23 There was a drip but not enough to sample

## FORM FOR SURFACE WATER SAMPLING

Site Name GRRWA Permit No. 56-SDP-07-80P  
 Surface Monitoring Point No. GU-1 Date 2-7-23

Name of Person Sampling Scott Stollen

**A. TYPE OF MONITORING POINT**

Stream	<input type="checkbox"/>	Open Tile	<input type="checkbox"/>
Road Ditch	<input type="checkbox"/>	Tile with Riser	<input type="checkbox"/>
Drainage Ditch	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/>

**B. PURPOSE OF MONITORING POINT**

Upstream	<input type="checkbox"/>	Downstream	<input checked="" type="checkbox"/>
Within Landfill	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>

**C. MONITORING POINT CONDITIONS/LOCATION**

Phase \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Was monitoring point dry?	<u>No</u>	Too little water to sample?	<u>No</u>
Was water flowing?	<u>Yes</u>	If yes, estimate quantity (cfs)	_____
Standing Water?	<u>No</u>	If yes, estimate depth (inches)	_____
		If yes, estimate width (inches)	_____
Was water discolored?	<u>No</u>		
Does water have odor?	<u>No</u>		
Was ground discolored?	<u>No</u>		
Litter present?	<u>No</u>		

**D. FIELD MEASUREMENTS**

Weather Conditions: 38°F, Cloudy

Time: 11:23

Field Measurements:

Temperature	<u>19.4</u>	Units	<u>Celsius</u>
Equipment Used	<u>YSI</u>		
pH	<u>6.57</u>	Units	<u>Standard units</u>
Equipment Used	_____		
Spec. Conductance	<u>1675</u>	Units	<u>uS/cm</u>
Equipment Used	_____		

**COMMENTS**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## FORM FOR SURFACE WATER SAMPLING

Site Name GRRWA Permit No. 56-SDP-07-80P  
 Surface Monitoring Point No. GU-2 Date 2-7-23

Name of Person Sampling Scott Stoller

### A. TYPE OF MONITORING POINT

Stream	<input type="checkbox"/>	Open Tile	<input type="checkbox"/>
Road Ditch	<input type="checkbox"/>	Tile with Riser	<input type="checkbox"/>
Drainage Ditch	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/>

### B. PURPOSE OF MONITORING POINT

Upstream	<input type="checkbox"/>	Downstream	<input checked="" type="checkbox"/>
Within Landfill	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>

### C. MONITORING POINT CONDITIONS/LOCATION

Phase

[Redacted]  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Was monitoring point dry?	<u>No</u>	Too little water to sample?	<u>No</u>
Was water flowing?	<u>Yes</u>	If yes, estimate quantity (cfs)	_____
Standing Water?	<u>No</u>	If yes, estimate depth (inches)	_____
		If yes, estimate width (inches)	_____
Was water discolored?	<u>No</u>		
Does water have odor?	<u>No</u>		
Was ground discolored?	<u>No</u>		
Litter present?	<u>No</u>		

### D. FIELD MEASUREMENTS

Weather Conditions: 38° F, Cloudy

Time: 11:13

Field Measurements:

Temperature	<u>15.5</u>	Units	<u>Celsius</u>
Equipment Used	_____		
pH	<u>6.47</u>	Units	<u>Standard units</u>
Equipment Used	_____		
Spec. Conductance	<u>2029</u>	Units	<u>uS/cm</u>
Equipment Used	_____		

### COMMENTS

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



### FORM FOR SURFACE WATER SAMPLING

Site Name GRRWA Permit No. 56-SDP-07-80P  
 Surface Monitoring Point No. GU-3A Date \_\_\_\_\_

Name of Person Sampling Scafe Staller

**A. TYPE OF MONITORING POINT**

Stream	<input type="checkbox"/>	Open Tile	<input checked="" type="checkbox"/>
Road Ditch	<input type="checkbox"/>	Tile with Riser	<input type="checkbox"/>
Drainage Ditch	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/>

**B. PURPOSE OF MONITORING POINT**

Upstream	<input type="checkbox"/>	Downstream	<input checked="" type="checkbox"/>
Within Landfill	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>

**C. MONITORING POINT CONDITIONS/LOCATION**

Underdrain for R3-1. Outfall located east of Cell R2-2.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Was monitoring point dry?	<u>No</u>	Too little water to sample?	<u>No</u>
Was water flowing?	<u>YES</u>	If yes, estimate quantity (cfs)	<u>0.56/RAIN</u>
Standing Water?	<u>YES</u>	If yes, estimate depth (inches)	<u>1.5 in</u>
		If yes, estimate width (inches)	<u>12 in</u>
Was water discolored?	<u>Yes - brown</u>		
Does water have odor?	<u>yes</u>		
Was ground discolored?	<u>YES - Brown/orange</u>		
Litter present?	<u>yes</u>		

**D. FIELD MEASUREMENTS**

Weather Conditions: 38°F, cloudy, 15 mph wind

Time: 11:03

Field Measurements:

Temperature	<u>13.1</u>	Units	<u>Celsius</u>
Equipment Used	<u>YSI</u>		
pH	<u>6.47</u>	Units	<u>Standard units</u>
Equipment Used	<u>YSI</u>		
Spec. Conductance	<u>1049</u>	Units	<u>uS/cm</u>
Equipment Used	<u>YSI</u>		

**COMMENTS**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



### FORM FOR GROUNDWATER SAMPLING

Project: <b>GRRWA Sanitary Landfill, Phase 2 MSWLF Unit</b>			
Monitoring Well/Piezometer ID:	<b>MW-26</b>	Date:	<b>8/10/2023</b>
Gradient:	Compliance	Sampler:	Chad Dentlinger

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	39.5
Initial Static Water Level (feet):	17.05
Initial Groundwater Elevation (ft-amsl):	626.46
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
10:09 AM	Purging start time.						
10:12 AM	16.5	1.2	2216.4	6.64	-318.4	19.1	
10:15 AM	16.6	0.7	2187.9	6.64	-341.7	14.9	
10:18 AM	16.5	0.5	2114.0	6.66	-352.1	9.3	
10:21 AM	15.7	0.3	1937.8	6.71	-350.7	9.3	
10:24 AM	15.8	0.3	1878.4	6.75	-346.1	12.9	
10:27 AM	15.9	0.2	1806.5	6.77	-342.6	19.4	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.5
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	18:00
Average Purge Rate (mL/min):	138.89

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	Water was cloudy with black particles and had an odor.

## FORM FOR GROUNDWATER SAMPLING

Project: <b>GRRWA Sanitary Landfill, Phase 2 MSWLF Unit</b>	
Monitoring Well/Piezometer ID: <b>MW-28</b>	Date: <b>8/9/2023</b>
Gradient: <b>Compliance</b>	Sampler: <b>Chad Dentlinger</b>

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	30.1
Initial Static Water Level (feet):	18.52
Initial Groundwater Elevation (ft-amsl):	643.90
Equipment Used:	Dedicated Tubing – Peristaltic Pump

### C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
5:38 PM	Purging start time.						
5:41 PM	18.8	0.6	3844.0	6.36	-104.0	3.0	
5:44 PM	18.8	0.3	3826.4	6.35	-110.0	3.5	
5:47 PM	18.8	0.2	3824.2	6.35	-111.0	3.7	
5:50 PM	18.8	0.1	3817.3	6.35	-112.0	3.5	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	1.9
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	154.17

### D. WELL MAINTENANCE

Does the well require any future maintenance?	No
If yes, explain:	

Additional Comments:	Water went from mostly clear to dark gray as bottles were filling and had an odor.
----------------------	--

## FORM FOR GROUNDWATER SAMPLING

Project: <b>GRRWA Sanitary Landfill, Phase 2 MSWLF Unit</b>	
Monitoring Well/Piezometer ID: <b>MW-29</b>	Date: <b>8/9/2023</b>
Gradient: <b>Compliance</b>	Sampler: <b>Chad Dentlinger</b>

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	33.5
Initial Static Water Level (feet):	19.01
Initial Groundwater Elevation (ft-amsl):	642.05
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING							
FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES							
Time	Temperature (°C) 10%	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm) +/- 10%	pH (S.U.) +/- 0.1	ORP (mV)	Turbidity (FNU)	
4:56 PM	Purging start time.						
4:59 PM	16.3	0.6	4653.8	6.33	-58.7	3.1	
5:02 PM	16.2	0.3	4659.6	6.39	-64.0	6.9	
5:05 PM	16.3	0.2	4654.8	6.42	-66.9	14.9	
5:08 PM	16.4	0.2	4656.8	6.43	-68.0	12.9	
Parameters stabilized, sample collected.							

Quantity of Water Removed from Well (liters):	2.2
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	183.33

D. WELL MAINTENANCE	
Does the well require any future maintenance?	No
If yes, explain:	
Additional Comments:	

**FORM FOR SURFACE WATER SAMPLING**

Site Name GRRWA Permit No. 56-SDP-07-80P  
 Surface Monitoring Point No. GU-3A Date 8-10-23

Name of Person Sampling Chad Dentinger

**A. TYPE OF MONITORING POINT**

Stream	<input type="checkbox"/>	Open Tile	<input checked="" type="checkbox"/>
Road Ditch	<input type="checkbox"/>	Tile with Riser	<input type="checkbox"/>
Drainage Ditch	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/>

**B. PURPOSE OF MONITORING POINT**

Upstream	<input type="checkbox"/>	Downstream	<input checked="" type="checkbox"/>
Within Landfill	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>

**C. MONITORING POINT CONDITIONS/LOCATION**

Underdrain for R3-1. Outfall located east of Cell R2-2.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Was monitoring point dry?	<u>No</u>	Too little water to sample?	<input type="checkbox"/>
Was water flowing?	<u>yes</u>	If yes, estimate quantity (cfs)	<u>~ 150 mL/min</u>
Standing Water?	<u>No</u>	If yes, estimate depth (inches)	_____
		If yes, estimate width (inches)	_____
Was water discolored?	<u>No</u>		
Does water have odor?	<u>No</u>		
Was ground discolored?	<u>No</u>		
Litter present?	<u>yes</u>		

**D. FIELD MEASUREMENTS**

Weather Conditions: 80's Sunny

Time: 12:30

Field Measurements:

Temperature	<u>26.1</u>	Units	<u>Celsius</u>
Equipment Used	_____		
pH	<u>7.30</u>	Units	<u>Standard units</u>
Equipment Used	_____		
Spec. Conductance	<u>1031</u>	Units	<u>uS/cm</u>
Equipment Used	_____		

**COMMENTS**

Pipe was partially buried under sediment, area needs dug out and rock put down near pipe to allow access to get sample

**Appendix B-1**  
**Laboratory Analytical Data Sheets**







# ANALYTICAL REPORT

## PREPARED FOR

Attn: Nathan Ohrt  
Evora Consulting  
1690 All State Court  
Suite 100  
West Des Moines, Iowa 50265

Generated 2/15/2023 3:26:07 PM

## JOB DESCRIPTION

Great River Regional Waste Authority (1st 2023)

## JOB NUMBER

310-249387-1

# Eurofins Cedar Falls

## Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



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Authorized for release by  
Shirley Thompson, Client Service Manager  
[Shirley.Thompson@et.eurofinsus.com](mailto:Shirley.Thompson@et.eurofinsus.com)  
(319)277-2401



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Case Narrative . . . . .	4
Sample Summary . . . . .	5
Detection Summary . . . . .	6
Client Sample Results . . . . .	8
Definitions . . . . .	24
Surrogate Summary . . . . .	25
QC Sample Results . . . . .	26
QC Association . . . . .	36
Chronicle . . . . .	38
Certification Summary . . . . .	40
Method Summary . . . . .	41
Chain of Custody . . . . .	42
Receipt Checklists . . . . .	44

# Case Narrative

Client: Evora Consulting  
Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

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## Job ID: 310-249387-1

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### Laboratory: Eurofins Cedar Falls

#### Narrative

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#### Job Narrative 310-249387-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 2/8/2023 4:45 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.4° C.

#### GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-378870 recovered outside the control limit for 2-Hexanone(-20.8D) and 4-Methyl-2-pentaone(-20.1%D). The LCS associated with this CCV passes CCV criteria for the affected analytes; therefore, the data have been reported.

Method 8260D: The following samples were diluted due to the nature of the sample matrix: MW-26 (310-249387-1) and MW-D (310-249387-7). Elevated reporting limits (RLs) are provided.

Method 8260D: The laboratory control sample (LCS) for analytical batch 310-378874 recovered outside control limits for the following analytes: 1,2,3-Trichloropropane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: The following sample(s) was collected in a properly preserved vial; however, the pH was outside the required criteria when verified by the laboratory. The sample was analyzed within the 7-day holding time specified for unpreserved samples: GU-3A (310-249387-6).

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

#### 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.

#### VOA Prep

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

# Sample Summary

Client: Evora Consulting  
Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-249387-1	MW-26	Ground Water	02/06/23 16:42	02/08/23 16:45
310-249387-2	MW-28	Ground Water	02/07/23 09:29	02/08/23 16:45
310-249387-3	MW-29	Ground Water	02/07/23 10:02	02/08/23 16:45
310-249387-4	GU-1	Ground Water	02/07/23 11:23	02/08/23 16:45
310-249387-5	GU-2	Ground Water	02/07/23 11:13	02/08/23 16:45
310-249387-6	GU-3A	Ground Water	02/07/23 11:03	02/08/23 16:45
310-249387-7	MW-D	Ground Water	02/06/23 16:42	02/08/23 16:45
310-249387-8	HCl Trip Blank	Water	02/07/23 00:00	02/08/23 16:45

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# Detection Summary

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Client Sample ID: MW-26

Lab Sample ID: 310-249387-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	77.1	J	100	31.0	ug/L	10		8260D	Total/NA
Barium	0.0337		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.0000970	J	0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.00125		0.000500	0.000190	mg/L	1		6020B	Total/NA
Copper	0.00220	J	0.00500	0.00180	mg/L	1		6020B	Total/NA
Lead	0.000727		0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.00445	J	0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0415		0.0200	0.0100	mg/L	1		6020B	Total/NA
Total Suspended Solids	142		30.0	10.2	mg/L	1		I-3765-85	Total/NA

## Client Sample ID: MW-28

Lab Sample ID: 310-249387-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon disulfide	0.479	J	1.00	0.450	ug/L	1		8260D	Total/NA
Barium	0.0211		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cobalt	0.0185		0.000500	0.000190	mg/L	1		6020B	Total/NA
Nickel	0.0419		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	6.00		5.00	1.70	mg/L	1		I-3765-85	Total/NA

## Client Sample ID: MW-29

Lab Sample ID: 310-249387-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00119	J	0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.0158		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cobalt	0.00295		0.000500	0.000190	mg/L	1		6020B	Total/NA
Nickel	0.0116		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	9.33		5.00	1.70	mg/L	1		I-3765-85	Total/NA

## Client Sample ID: GU-1

Lab Sample ID: 310-249387-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.226	J	1.00	0.220	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	2.13		1.00	0.230	ug/L	1		8260D	Total/NA
Benzene	1.57		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	1.27		1.00	0.400	ug/L	1		8260D	Total/NA
Arsenic	0.0196		0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	1.87		0.00800	0.00352	mg/L	4		6020B	Total/NA
Cobalt	0.000576		0.000500	0.000190	mg/L	1		6020B	Total/NA
Lead	0.000597		0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.0190		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	52.0		7.50	2.55	mg/L	1		I-3765-85	Total/NA

## Client Sample ID: GU-2

Lab Sample ID: 310-249387-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	0.683	J	1.00	0.230	ug/L	1		8260D	Total/NA
Benzene	3.36		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.579	J	1.00	0.400	ug/L	1		8260D	Total/NA
Arsenic	0.0297		0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	1.43		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cobalt	0.00145		0.000500	0.000190	mg/L	1		6020B	Total/NA
Nickel	0.0269		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	48.5		7.50	2.55	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Detection Summary

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Client Sample ID: GU-3A

## Lab Sample ID: 310-249387-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Acetone	24.5		10.0	3.10	ug/L			1	8260D	Total/NA
Antimony	0.00195	J	0.00200	0.000690	mg/L			1	6020B	Total/NA
Arsenic	0.0177		0.00200	0.000750	mg/L			1	6020B	Total/NA
Barium	0.374		0.00200	0.000880	mg/L			1	6020B	Total/NA
Cadmium	0.00303		0.000100	0.0000550	mg/L			1	6020B	Total/NA
Chromium	0.0329		0.00500	0.00110	mg/L			1	6020B	Total/NA
Cobalt	0.0710		0.000500	0.000190	mg/L			1	6020B	Total/NA
Copper	0.0585		0.00500	0.00180	mg/L			1	6020B	Total/NA
Lead	0.0144		0.000500	0.000240	mg/L			1	6020B	Total/NA
Nickel	0.432		0.00500	0.00190	mg/L			1	6020B	Total/NA
Selenium	0.00421	J	0.00500	0.000960	mg/L			1	6020B	Total/NA
Vanadium	0.0267		0.00500	0.00110	mg/L			1	6020B	Total/NA
Zinc	0.0770		0.0200	0.0100	mg/L			1	6020B	Total/NA
Total Suspended Solids	6.67		5.00	1.70	mg/L			1	I-3765-85	Total/NA

## Client Sample ID: MW-D

## Lab Sample ID: 310-249387-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Acetone	76.5	J	100	31.0	ug/L			10	8260D	Total/NA
Barium	0.0363		0.00200	0.000880	mg/L			1	6020B	Total/NA
Cadmium	0.0000980	J	0.000100	0.0000550	mg/L			1	6020B	Total/NA
Cobalt	0.00131		0.000500	0.000190	mg/L			1	6020B	Total/NA
Lead	0.000736		0.000500	0.000240	mg/L			1	6020B	Total/NA
Nickel	0.00493	J	0.00500	0.00190	mg/L			1	6020B	Total/NA
Zinc	0.0444		0.0200	0.0100	mg/L			1	6020B	Total/NA
Total Suspended Solids	104		30.0	10.2	mg/L			1	I-3765-85	Total/NA

## Client Sample ID: HCI Trip Blank

## Lab Sample ID: 310-249387-8

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: MW-26**

**Lab Sample ID: 310-249387-1**

Date Collected: 02/06/23 16:42

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<10.0		10.0	3.80	ug/L			02/09/23 20:49	10
1,1,1-Trichloroethane	<10.0		10.0	1.90	ug/L			02/09/23 20:49	10
1,1,2,2-Tetrachloroethane	<10.0		10.0	4.70	ug/L			02/09/23 20:49	10
1,1,2-Trichloroethane	<10.0		10.0	4.50	ug/L			02/09/23 20:49	10
1,1-Dichloroethane	<10.0		10.0	2.20	ug/L			02/09/23 20:49	10
1,1-Dichloroethene	<20.0		20.0	5.60	ug/L			02/09/23 20:49	10
1,2,3-Trichloropropane	<10.0		10.0	5.90	ug/L			02/09/23 20:49	10
1,2-Dibromo-3-chloropropane	<50.0		50.0	12.0	ug/L			02/09/23 20:49	10
1,2-Dibromoethane (EDB)	<10.0		10.0	3.40	ug/L			02/09/23 20:49	10
1,2-Dichlorobenzene	<10.0		10.0	3.70	ug/L			02/09/23 20:49	10
1,2-Dichloroethane	<10.0		10.0	3.90	ug/L			02/09/23 20:49	10
1,2-Dichloropropane	<10.0		10.0	2.70	ug/L			02/09/23 20:49	10
1,4-Dichlorobenzene	<10.0		10.0	2.30	ug/L			02/09/23 20:49	10
2-Butanone (MEK)	<100		100	21.0	ug/L			02/09/23 20:49	10
2-Hexanone	<100		100	20.0	ug/L			02/09/23 20:49	10
4-Methyl-2-pentanone (MIBK)	<100		100	21.0	ug/L			02/09/23 20:49	10
Acetone	77.1	J	100	31.0	ug/L			02/09/23 20:49	10
Acrylonitrile	<50.0		50.0	22.0	ug/L			02/09/23 20:49	10
Benzene	<5.00		5.00	2.20	ug/L			02/09/23 20:49	10
Bromochloromethane	<50.0		50.0	5.40	ug/L			02/09/23 20:49	10
Bromodichloromethane	<10.0		10.0	3.90	ug/L			02/09/23 20:49	10
Bromoform	<50.0		50.0	7.80	ug/L			02/09/23 20:49	10
Bromomethane	<40.0		40.0	11.0	ug/L			02/09/23 20:49	10
Carbon disulfide	<10.0		10.0	4.50	ug/L			02/09/23 20:49	10
Carbon tetrachloride	<20.0		20.0	6.50	ug/L			02/09/23 20:49	10
Chlorobenzene	<10.0		10.0	4.00	ug/L			02/09/23 20:49	10
Chlorodibromomethane	<50.0		50.0	7.50	ug/L			02/09/23 20:49	10
Chloroethane	<40.0		40.0	7.90	ug/L			02/09/23 20:49	10
Chloroform	<30.0		30.0	13.0	ug/L			02/09/23 20:49	10
Chloromethane	<30.0		30.0	6.10	ug/L			02/09/23 20:49	10
cis-1,2-Dichloroethene	<10.0		10.0	2.10	ug/L			02/09/23 20:49	10
cis-1,3-Dichloropropene	<50.0		50.0	2.50	ug/L			02/09/23 20:49	10
Dibromomethane	<10.0		10.0	3.30	ug/L			02/09/23 20:49	10
Ethylbenzene	<10.0		10.0	3.10	ug/L			02/09/23 20:49	10
Iodomethane	<100		100	70.0	ug/L			02/09/23 20:49	10
Methylene chloride	<50.0		50.0	17.0	ug/L			02/09/23 20:49	10
Styrene	<10.0		10.0	3.70	ug/L			02/09/23 20:49	10
Tetrachloroethene	<10.0		10.0	4.80	ug/L			02/09/23 20:49	10
Toluene	<10.0		10.0	4.30	ug/L			02/09/23 20:49	10
trans-1,2-Dichloroethene	<10.0		10.0	2.70	ug/L			02/09/23 20:49	10
trans-1,3-Dichloropropene	<50.0		50.0	5.60	ug/L			02/09/23 20:49	10
trans-1,4-Dichloro-2-butene	<100		100	11.0	ug/L			02/09/23 20:49	10
Trichloroethene	<10.0		10.0	4.30	ug/L			02/09/23 20:49	10
Trichlorofluoromethane	<40.0		40.0	3.80	ug/L			02/09/23 20:49	10
Vinyl acetate	<100	*	100	25.0	ug/L			02/09/23 20:49	10
Vinyl chloride	<10.0		10.0	1.80	ug/L			02/09/23 20:49	10
Xylenes, Total	<30.0		30.0	4.00	ug/L			02/09/23 20:49	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	105		80 - 128		02/09/23 20:49	10

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# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: MW-26**

**Lab Sample ID: 310-249387-1**

Date Collected: 02/06/23 16:42

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 120		02/09/23 20:49	10
4-Bromofluorobenzene (Surr)	100		80 - 120		02/09/23 20:49	10

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		02/13/23 09:50	02/13/23 17:31	1
Arsenic	<0.00200		0.00200	0.000750	mg/L		02/13/23 09:50	02/13/23 17:31	1
<b>Barium</b>	<b>0.0337</b>		0.00200	0.000880	mg/L		02/13/23 09:50	02/13/23 17:31	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		02/13/23 09:50	02/13/23 17:31	1
<b>Cadmium</b>	<b>0.0000970</b>	<b>J</b>	0.000100	0.0000550	mg/L		02/13/23 09:50	02/13/23 17:31	1
Chromium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 17:31	1
<b>Cobalt</b>	<b>0.00125</b>		0.000500	0.000190	mg/L		02/13/23 09:50	02/13/23 17:31	1
<b>Copper</b>	<b>0.00220</b>	<b>J</b>	0.00500	0.00180	mg/L		02/13/23 09:50	02/13/23 17:31	1
<b>Lead</b>	<b>0.000727</b>		0.000500	0.000240	mg/L		02/13/23 09:50	02/13/23 17:31	1
<b>Nickel</b>	<b>0.00445</b>	<b>J</b>	0.00500	0.00190	mg/L		02/13/23 09:50	02/13/23 17:31	1
Selenium	<0.00500		0.00500	0.000960	mg/L		02/13/23 09:50	02/13/23 17:31	1
Silver	<0.00100		0.00100	0.000490	mg/L		02/13/23 09:50	02/13/23 17:31	1
Thallium	<0.00100		0.00100	0.000260	mg/L		02/13/23 09:50	02/13/23 17:31	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 17:31	1
<b>Zinc</b>	<b>0.0415</b>		0.0200	0.0100	mg/L		02/13/23 09:50	02/13/23 17:31	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>142</b>		30.0	10.2	mg/L			02/09/23 10:36	1

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: MW-28**

**Lab Sample ID: 310-249387-2**

Date Collected: 02/07/23 09:29

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/10/23 08:15	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/10/23 08:15	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/10/23 08:15	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/10/23 08:15	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/10/23 08:15	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/10/23 08:15	1
1,2,3-Trichloropropane	<1.00	*+	1.00	0.590	ug/L			02/10/23 08:15	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/10/23 08:15	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/10/23 08:15	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/10/23 08:15	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/10/23 08:15	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/10/23 08:15	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/10/23 08:15	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/10/23 08:15	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/10/23 08:15	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/10/23 08:15	1
Acetone	<10.0		10.0	3.10	ug/L			02/10/23 08:15	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/10/23 08:15	1
Benzene	<0.500		0.500	0.220	ug/L			02/10/23 08:15	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/10/23 08:15	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/10/23 08:15	1
Bromoform	<5.00		5.00	0.780	ug/L			02/10/23 08:15	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/10/23 08:15	1
<b>Carbon disulfide</b>	<b>0.479</b>	<b>J</b>	1.00	0.450	ug/L			02/10/23 08:15	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/10/23 08:15	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/10/23 08:15	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/10/23 08:15	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/10/23 08:15	1
Chloroform	<3.00		3.00	1.30	ug/L			02/10/23 08:15	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/10/23 08:15	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/10/23 08:15	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/10/23 08:15	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/10/23 08:15	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/10/23 08:15	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/10/23 08:15	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/10/23 08:15	1
Styrene	<1.00		1.00	0.370	ug/L			02/10/23 08:15	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/10/23 08:15	1
Toluene	<1.00		1.00	0.430	ug/L			02/10/23 08:15	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/10/23 08:15	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/10/23 08:15	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/10/23 08:15	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/10/23 08:15	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/10/23 08:15	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/10/23 08:15	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/10/23 08:15	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/10/23 08:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	115		80 - 128		02/10/23 08:15	1

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# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: MW-28**

**Lab Sample ID: 310-249387-2**

Date Collected: 02/07/23 09:29

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		80 - 120		02/10/23 08:15	1
4-Bromofluorobenzene (Surr)	98		80 - 120		02/10/23 08:15	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		02/13/23 09:50	02/13/23 17:54	1
Arsenic	<0.00200		0.00200	0.000750	mg/L		02/13/23 09:50	02/13/23 17:54	1
<b>Barium</b>	<b>0.0211</b>		0.00200	0.000880	mg/L		02/13/23 09:50	02/13/23 17:54	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		02/13/23 09:50	02/13/23 17:54	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		02/13/23 09:50	02/13/23 17:54	1
Chromium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 17:54	1
<b>Cobalt</b>	<b>0.0185</b>		0.000500	0.000190	mg/L		02/13/23 09:50	02/13/23 17:54	1
Copper	<0.00500		0.00500	0.00180	mg/L		02/13/23 09:50	02/13/23 17:54	1
Lead	<0.000500		0.000500	0.000240	mg/L		02/13/23 09:50	02/13/23 17:54	1
<b>Nickel</b>	<b>0.0419</b>		0.00500	0.00190	mg/L		02/13/23 09:50	02/13/23 17:54	1
Selenium	<0.00500		0.00500	0.000960	mg/L		02/13/23 09:50	02/13/23 17:54	1
Silver	<0.00100		0.00100	0.000490	mg/L		02/13/23 09:50	02/13/23 17:54	1
Thallium	<0.00100		0.00100	0.000260	mg/L		02/13/23 09:50	02/13/23 17:54	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 17:54	1
Zinc	<0.0200		0.0200	0.0100	mg/L		02/13/23 09:50	02/13/23 17:54	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>6.00</b>		5.00	1.70	mg/L			02/09/23 10:36	1

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: MW-29**

**Lab Sample ID: 310-249387-3**

Date Collected: 02/07/23 10:02

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/10/23 08:39	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/10/23 08:39	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/10/23 08:39	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/10/23 08:39	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/10/23 08:39	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/10/23 08:39	1
1,2,3-Trichloropropane	<1.00	*+	1.00	0.590	ug/L			02/10/23 08:39	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/10/23 08:39	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/10/23 08:39	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/10/23 08:39	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/10/23 08:39	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/10/23 08:39	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/10/23 08:39	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/10/23 08:39	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/10/23 08:39	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/10/23 08:39	1
Acetone	<10.0		10.0	3.10	ug/L			02/10/23 08:39	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/10/23 08:39	1
Benzene	<0.500		0.500	0.220	ug/L			02/10/23 08:39	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/10/23 08:39	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/10/23 08:39	1
Bromoform	<5.00		5.00	0.780	ug/L			02/10/23 08:39	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/10/23 08:39	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/10/23 08:39	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/10/23 08:39	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/10/23 08:39	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/10/23 08:39	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/10/23 08:39	1
Chloroform	<3.00		3.00	1.30	ug/L			02/10/23 08:39	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/10/23 08:39	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/10/23 08:39	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/10/23 08:39	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/10/23 08:39	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/10/23 08:39	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/10/23 08:39	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/10/23 08:39	1
Styrene	<1.00		1.00	0.370	ug/L			02/10/23 08:39	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/10/23 08:39	1
Toluene	<1.00		1.00	0.430	ug/L			02/10/23 08:39	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/10/23 08:39	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/10/23 08:39	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/10/23 08:39	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/10/23 08:39	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/10/23 08:39	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/10/23 08:39	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/10/23 08:39	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/10/23 08:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	117		80 - 128		02/10/23 08:39	1

Eurofins Cedar Falls

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: MW-29**

**Lab Sample ID: 310-249387-3**

Date Collected: 02/07/23 10:02

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120		02/10/23 08:39	1
4-Bromofluorobenzene (Surr)	100		80 - 120		02/10/23 08:39	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		02/13/23 09:50	02/13/23 18:00	1
<b>Arsenic</b>	<b>0.00119</b>	<b>J</b>	0.00200	0.000750	mg/L		02/13/23 09:50	02/13/23 18:00	1
<b>Barium</b>	<b>0.0158</b>		0.00200	0.000880	mg/L		02/13/23 09:50	02/13/23 18:00	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		02/13/23 09:50	02/13/23 18:00	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		02/13/23 09:50	02/13/23 18:00	1
Chromium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 18:00	1
<b>Cobalt</b>	<b>0.00295</b>		0.000500	0.000190	mg/L		02/13/23 09:50	02/13/23 18:00	1
Copper	<0.00500		0.00500	0.00180	mg/L		02/13/23 09:50	02/13/23 18:00	1
Lead	<0.000500		0.000500	0.000240	mg/L		02/13/23 09:50	02/13/23 18:00	1
<b>Nickel</b>	<b>0.0116</b>		0.00500	0.00190	mg/L		02/13/23 09:50	02/13/23 18:00	1
Selenium	<0.00500		0.00500	0.000960	mg/L		02/13/23 09:50	02/13/23 18:00	1
Silver	<0.00100		0.00100	0.000490	mg/L		02/13/23 09:50	02/13/23 18:00	1
Thallium	<0.00100		0.00100	0.000260	mg/L		02/13/23 09:50	02/13/23 18:00	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 18:00	1
Zinc	<0.0200		0.0200	0.0100	mg/L		02/13/23 09:50	02/13/23 18:00	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>9.33</b>		5.00	1.70	mg/L			02/09/23 10:36	1

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: GU-1**

**Lab Sample ID: 310-249387-4**

Date Collected: 02/07/23 11:23

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/10/23 09:03	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/10/23 09:03	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/10/23 09:03	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/10/23 09:03	1
<b>1,1-Dichloroethane</b>	<b>0.226</b>	<b>J</b>	1.00	0.220	ug/L			02/10/23 09:03	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/10/23 09:03	1
1,2,3-Trichloropropane	<1.00	*+	1.00	0.590	ug/L			02/10/23 09:03	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/10/23 09:03	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/10/23 09:03	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/10/23 09:03	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/10/23 09:03	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/10/23 09:03	1
<b>1,4-Dichlorobenzene</b>	<b>2.13</b>		1.00	0.230	ug/L			02/10/23 09:03	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/10/23 09:03	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/10/23 09:03	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/10/23 09:03	1
Acetone	<10.0		10.0	3.10	ug/L			02/10/23 09:03	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/10/23 09:03	1
<b>Benzene</b>	<b>1.57</b>		0.500	0.220	ug/L			02/10/23 09:03	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/10/23 09:03	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/10/23 09:03	1
Bromoform	<5.00		5.00	0.780	ug/L			02/10/23 09:03	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/10/23 09:03	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/10/23 09:03	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/10/23 09:03	1
<b>Chlorobenzene</b>	<b>1.27</b>		1.00	0.400	ug/L			02/10/23 09:03	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/10/23 09:03	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/10/23 09:03	1
Chloroform	<3.00		3.00	1.30	ug/L			02/10/23 09:03	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/10/23 09:03	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/10/23 09:03	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/10/23 09:03	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/10/23 09:03	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/10/23 09:03	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/10/23 09:03	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/10/23 09:03	1
Styrene	<1.00		1.00	0.370	ug/L			02/10/23 09:03	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/10/23 09:03	1
Toluene	<1.00		1.00	0.430	ug/L			02/10/23 09:03	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/10/23 09:03	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/10/23 09:03	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/10/23 09:03	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/10/23 09:03	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/10/23 09:03	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/10/23 09:03	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/10/23 09:03	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/10/23 09:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	114		80 - 128		02/10/23 09:03	1

Eurofins Cedar Falls

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: GU-1**

**Lab Sample ID: 310-249387-4**

Date Collected: 02/07/23 11:23

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		80 - 120		02/10/23 09:03	1
4-Bromofluorobenzene (Surr)	99		80 - 120		02/10/23 09:03	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		02/13/23 09:50	02/13/23 18:03	1
<b>Arsenic</b>	<b>0.0196</b>		0.00200	0.000750	mg/L		02/13/23 09:50	02/13/23 18:03	1
<b>Barium</b>	<b>1.87</b>		0.00800	0.00352	mg/L		02/13/23 09:50	02/14/23 12:14	4
Beryllium	<0.00100		0.00100	0.000270	mg/L		02/13/23 09:50	02/13/23 18:03	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		02/13/23 09:50	02/13/23 18:03	1
Chromium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 18:03	1
<b>Cobalt</b>	<b>0.000576</b>		0.000500	0.000190	mg/L		02/13/23 09:50	02/13/23 18:03	1
Copper	<0.00500		0.00500	0.00180	mg/L		02/13/23 09:50	02/13/23 18:03	1
<b>Lead</b>	<b>0.000597</b>		0.000500	0.000240	mg/L		02/13/23 09:50	02/13/23 18:03	1
<b>Nickel</b>	<b>0.0190</b>		0.00500	0.00190	mg/L		02/13/23 09:50	02/13/23 18:03	1
Selenium	<0.00500		0.00500	0.000960	mg/L		02/13/23 09:50	02/13/23 18:03	1
Silver	<0.00100		0.00100	0.000490	mg/L		02/13/23 09:50	02/13/23 18:03	1
Thallium	<0.00100		0.00100	0.000260	mg/L		02/13/23 09:50	02/13/23 18:03	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 18:03	1
Zinc	<0.0200		0.0200	0.0100	mg/L		02/13/23 09:50	02/13/23 18:03	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>52.0</b>		7.50	2.55	mg/L			02/09/23 11:50	1

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: GU-2**

**Lab Sample ID: 310-249387-5**

Date Collected: 02/07/23 11:13

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/10/23 09:27	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/10/23 09:27	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/10/23 09:27	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/10/23 09:27	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/10/23 09:27	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/10/23 09:27	1
1,2,3-Trichloropropane	<1.00	*+	1.00	0.590	ug/L			02/10/23 09:27	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/10/23 09:27	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/10/23 09:27	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/10/23 09:27	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/10/23 09:27	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/10/23 09:27	1
<b>1,4-Dichlorobenzene</b>	<b>0.683</b>	<b>J</b>	1.00	0.230	ug/L			02/10/23 09:27	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/10/23 09:27	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/10/23 09:27	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/10/23 09:27	1
Acetone	<10.0		10.0	3.10	ug/L			02/10/23 09:27	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/10/23 09:27	1
<b>Benzene</b>	<b>3.36</b>		0.500	0.220	ug/L			02/10/23 09:27	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/10/23 09:27	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/10/23 09:27	1
Bromoform	<5.00		5.00	0.780	ug/L			02/10/23 09:27	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/10/23 09:27	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/10/23 09:27	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/10/23 09:27	1
<b>Chlorobenzene</b>	<b>0.579</b>	<b>J</b>	1.00	0.400	ug/L			02/10/23 09:27	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/10/23 09:27	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/10/23 09:27	1
Chloroform	<3.00		3.00	1.30	ug/L			02/10/23 09:27	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/10/23 09:27	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/10/23 09:27	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/10/23 09:27	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/10/23 09:27	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/10/23 09:27	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/10/23 09:27	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/10/23 09:27	1
Styrene	<1.00		1.00	0.370	ug/L			02/10/23 09:27	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/10/23 09:27	1
Toluene	<1.00		1.00	0.430	ug/L			02/10/23 09:27	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/10/23 09:27	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/10/23 09:27	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/10/23 09:27	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/10/23 09:27	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/10/23 09:27	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/10/23 09:27	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/10/23 09:27	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/10/23 09:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	116		80 - 128		02/10/23 09:27	1

Eurofins Cedar Falls



# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: GU-2**

**Lab Sample ID: 310-249387-5**

Date Collected: 02/07/23 11:13

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120		02/10/23 09:27	1
4-Bromofluorobenzene (Surr)	100		80 - 120		02/10/23 09:27	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		02/13/23 09:50	02/13/23 18:05	1
<b>Arsenic</b>	<b>0.0297</b>		0.00200	0.000750	mg/L		02/13/23 09:50	02/13/23 18:05	1
<b>Barium</b>	<b>1.43</b>		0.00200	0.000880	mg/L		02/13/23 09:50	02/13/23 18:05	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		02/13/23 09:50	02/13/23 18:05	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		02/13/23 09:50	02/13/23 18:05	1
Chromium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 18:05	1
<b>Cobalt</b>	<b>0.00145</b>		0.000500	0.000190	mg/L		02/13/23 09:50	02/13/23 18:05	1
Copper	<0.00500		0.00500	0.00180	mg/L		02/13/23 09:50	02/13/23 18:05	1
Lead	<0.000500		0.000500	0.000240	mg/L		02/13/23 09:50	02/13/23 18:05	1
<b>Nickel</b>	<b>0.0269</b>		0.00500	0.00190	mg/L		02/13/23 09:50	02/13/23 18:05	1
Selenium	<0.00500		0.00500	0.000960	mg/L		02/13/23 09:50	02/13/23 18:05	1
Silver	<0.00100		0.00100	0.000490	mg/L		02/13/23 09:50	02/13/23 18:05	1
Thallium	<0.00100		0.00100	0.000260	mg/L		02/13/23 09:50	02/13/23 18:05	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 18:05	1
Zinc	<0.0200		0.0200	0.0100	mg/L		02/13/23 09:50	02/13/23 18:05	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>48.5</b>		7.50	2.55	mg/L			02/09/23 11:50	1

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: GU-3A**

**Lab Sample ID: 310-249387-6**

Date Collected: 02/07/23 11:03

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/10/23 13:30	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/10/23 13:30	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/10/23 13:30	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/10/23 13:30	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/10/23 13:30	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/10/23 13:30	1
1,2,3-Trichloropropane	<1.00	*+	1.00	0.590	ug/L			02/10/23 13:30	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/10/23 13:30	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/10/23 13:30	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/10/23 13:30	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/10/23 13:30	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/10/23 13:30	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/10/23 13:30	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/10/23 13:30	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/10/23 13:30	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/10/23 13:30	1
<b>Acetone</b>	<b>24.5</b>		10.0	3.10	ug/L			02/10/23 13:30	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/10/23 13:30	1
Benzene	<0.500		0.500	0.220	ug/L			02/10/23 13:30	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/10/23 13:30	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/10/23 13:30	1
Bromoform	<5.00		5.00	0.780	ug/L			02/10/23 13:30	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/10/23 13:30	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/10/23 13:30	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/10/23 13:30	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/10/23 13:30	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/10/23 13:30	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/10/23 13:30	1
Chloroform	<3.00		3.00	1.30	ug/L			02/10/23 13:30	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/10/23 13:30	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/10/23 13:30	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/10/23 13:30	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/10/23 13:30	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/10/23 13:30	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/10/23 13:30	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/10/23 13:30	1
Styrene	<1.00		1.00	0.370	ug/L			02/10/23 13:30	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/10/23 13:30	1
Toluene	<1.00		1.00	0.430	ug/L			02/10/23 13:30	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/10/23 13:30	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/10/23 13:30	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/10/23 13:30	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/10/23 13:30	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/10/23 13:30	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/10/23 13:30	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/10/23 13:30	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/10/23 13:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	120		80 - 128		02/10/23 13:30	1

Eurofins Cedar Falls

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: GU-3A**

**Lab Sample ID: 310-249387-6**

Date Collected: 02/07/23 11:03

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120		02/10/23 13:30	1
4-Bromofluorobenzene (Surr)	98		80 - 120		02/10/23 13:30	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00195	J	0.00200	0.000690	mg/L		02/13/23 09:50	02/13/23 18:08	1
Arsenic	0.0177		0.00200	0.000750	mg/L		02/13/23 09:50	02/13/23 18:08	1
Barium	0.374		0.00200	0.000880	mg/L		02/13/23 09:50	02/13/23 18:08	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		02/13/23 09:50	02/13/23 18:08	1
Cadmium	0.00303		0.000100	0.0000550	mg/L		02/13/23 09:50	02/13/23 18:08	1
Chromium	0.0329		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 18:08	1
Cobalt	0.0710		0.000500	0.000190	mg/L		02/13/23 09:50	02/13/23 18:08	1
Copper	0.0585		0.00500	0.00180	mg/L		02/13/23 09:50	02/13/23 18:08	1
Lead	0.0144		0.000500	0.000240	mg/L		02/13/23 09:50	02/13/23 18:08	1
Nickel	0.432		0.00500	0.00190	mg/L		02/13/23 09:50	02/13/23 18:08	1
Selenium	0.00421	J	0.00500	0.000960	mg/L		02/13/23 09:50	02/13/23 18:08	1
Silver	<0.00100		0.00100	0.000490	mg/L		02/13/23 09:50	02/13/23 18:08	1
Thallium	<0.00100		0.00100	0.000260	mg/L		02/13/23 09:50	02/13/23 18:08	1
Vanadium	0.0267		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 18:08	1
Zinc	0.0770		0.0200	0.0100	mg/L		02/13/23 09:50	02/13/23 18:08	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	6.67		5.00	1.70	mg/L			02/09/23 11:50	1

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: MW-D**

**Lab Sample ID: 310-249387-7**

Date Collected: 02/06/23 16:42

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<10.0		10.0	3.80	ug/L			02/09/23 21:10	10
1,1,1-Trichloroethane	<10.0		10.0	1.90	ug/L			02/09/23 21:10	10
1,1,2,2-Tetrachloroethane	<10.0		10.0	4.70	ug/L			02/09/23 21:10	10
1,1,2-Trichloroethane	<10.0		10.0	4.50	ug/L			02/09/23 21:10	10
1,1-Dichloroethane	<10.0		10.0	2.20	ug/L			02/09/23 21:10	10
1,1-Dichloroethene	<20.0		20.0	5.60	ug/L			02/09/23 21:10	10
1,2,3-Trichloropropane	<10.0		10.0	5.90	ug/L			02/09/23 21:10	10
1,2-Dibromo-3-chloropropane	<50.0		50.0	12.0	ug/L			02/09/23 21:10	10
1,2-Dibromoethane (EDB)	<10.0		10.0	3.40	ug/L			02/09/23 21:10	10
1,2-Dichlorobenzene	<10.0		10.0	3.70	ug/L			02/09/23 21:10	10
1,2-Dichloroethane	<10.0		10.0	3.90	ug/L			02/09/23 21:10	10
1,2-Dichloropropane	<10.0		10.0	2.70	ug/L			02/09/23 21:10	10
1,4-Dichlorobenzene	<10.0		10.0	2.30	ug/L			02/09/23 21:10	10
2-Butanone (MEK)	<100		100	21.0	ug/L			02/09/23 21:10	10
2-Hexanone	<100		100	20.0	ug/L			02/09/23 21:10	10
4-Methyl-2-pentanone (MIBK)	<100		100	21.0	ug/L			02/09/23 21:10	10
<b>Acetone</b>	<b>76.5</b>	<b>J</b>	100	31.0	ug/L			02/09/23 21:10	10
Acrylonitrile	<50.0		50.0	22.0	ug/L			02/09/23 21:10	10
Benzene	<5.00		5.00	2.20	ug/L			02/09/23 21:10	10
Bromochloromethane	<50.0		50.0	5.40	ug/L			02/09/23 21:10	10
Bromodichloromethane	<10.0		10.0	3.90	ug/L			02/09/23 21:10	10
Bromoform	<50.0		50.0	7.80	ug/L			02/09/23 21:10	10
Bromomethane	<40.0		40.0	11.0	ug/L			02/09/23 21:10	10
Carbon disulfide	<10.0		10.0	4.50	ug/L			02/09/23 21:10	10
Carbon tetrachloride	<20.0		20.0	6.50	ug/L			02/09/23 21:10	10
Chlorobenzene	<10.0		10.0	4.00	ug/L			02/09/23 21:10	10
Chlorodibromomethane	<50.0		50.0	7.50	ug/L			02/09/23 21:10	10
Chloroethane	<40.0		40.0	7.90	ug/L			02/09/23 21:10	10
Chloroform	<30.0		30.0	13.0	ug/L			02/09/23 21:10	10
Chloromethane	<30.0		30.0	6.10	ug/L			02/09/23 21:10	10
cis-1,2-Dichloroethene	<10.0		10.0	2.10	ug/L			02/09/23 21:10	10
cis-1,3-Dichloropropene	<50.0		50.0	2.50	ug/L			02/09/23 21:10	10
Dibromomethane	<10.0		10.0	3.30	ug/L			02/09/23 21:10	10
Ethylbenzene	<10.0		10.0	3.10	ug/L			02/09/23 21:10	10
Iodomethane	<100		100	70.0	ug/L			02/09/23 21:10	10
Methylene chloride	<50.0		50.0	17.0	ug/L			02/09/23 21:10	10
Styrene	<10.0		10.0	3.70	ug/L			02/09/23 21:10	10
Tetrachloroethene	<10.0		10.0	4.80	ug/L			02/09/23 21:10	10
Toluene	<10.0		10.0	4.30	ug/L			02/09/23 21:10	10
trans-1,2-Dichloroethene	<10.0		10.0	2.70	ug/L			02/09/23 21:10	10
trans-1,3-Dichloropropene	<50.0		50.0	5.60	ug/L			02/09/23 21:10	10
trans-1,4-Dichloro-2-butene	<100		100	11.0	ug/L			02/09/23 21:10	10
Trichloroethene	<10.0		10.0	4.30	ug/L			02/09/23 21:10	10
Trichlorofluoromethane	<40.0		40.0	3.80	ug/L			02/09/23 21:10	10
Vinyl acetate	<100	*	100	25.0	ug/L			02/09/23 21:10	10
Vinyl chloride	<10.0		10.0	1.80	ug/L			02/09/23 21:10	10
Xylenes, Total	<30.0		30.0	4.00	ug/L			02/09/23 21:10	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	106		80 - 128		02/09/23 21:10	10

Eurofins Cedar Falls

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: MW-D**

**Lab Sample ID: 310-249387-7**

Date Collected: 02/06/23 16:42

Matrix: Ground Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		80 - 120		02/09/23 21:10	10
4-Bromofluorobenzene (Surr)	106		80 - 120		02/09/23 21:10	10

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		02/13/23 09:50	02/13/23 18:11	1
Arsenic	<0.00200		0.00200	0.000750	mg/L		02/13/23 09:50	02/13/23 18:11	1
<b>Barium</b>	<b>0.0363</b>		0.00200	0.000880	mg/L		02/13/23 09:50	02/13/23 18:11	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		02/13/23 09:50	02/13/23 18:11	1
<b>Cadmium</b>	<b>0.0000980</b>	<b>J</b>	0.000100	0.0000550	mg/L		02/13/23 09:50	02/13/23 18:11	1
Chromium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 18:11	1
<b>Cobalt</b>	<b>0.00131</b>		0.000500	0.000190	mg/L		02/13/23 09:50	02/13/23 18:11	1
Copper	<0.00500		0.00500	0.00180	mg/L		02/13/23 09:50	02/13/23 18:11	1
<b>Lead</b>	<b>0.000736</b>		0.000500	0.000240	mg/L		02/13/23 09:50	02/13/23 18:11	1
<b>Nickel</b>	<b>0.00493</b>	<b>J</b>	0.00500	0.00190	mg/L		02/13/23 09:50	02/13/23 18:11	1
Selenium	<0.00500		0.00500	0.000960	mg/L		02/13/23 09:50	02/13/23 18:11	1
Silver	<0.00100		0.00100	0.000490	mg/L		02/13/23 09:50	02/13/23 18:11	1
Thallium	<0.00100		0.00100	0.000260	mg/L		02/13/23 09:50	02/13/23 18:11	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 18:11	1
<b>Zinc</b>	<b>0.0444</b>		0.0200	0.0100	mg/L		02/13/23 09:50	02/13/23 18:11	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>104</b>		30.0	10.2	mg/L			02/09/23 11:50	1

# Client Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: HCl Trip Blank**

**Lab Sample ID: 310-249387-8**

Date Collected: 02/07/23 00:00

Matrix: Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/10/23 06:14	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/10/23 06:14	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/10/23 06:14	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/10/23 06:14	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/10/23 06:14	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/10/23 06:14	1
1,2,3-Trichloropropane	<1.00	*+	1.00	0.590	ug/L			02/10/23 06:14	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/10/23 06:14	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/10/23 06:14	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/10/23 06:14	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/10/23 06:14	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/10/23 06:14	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/10/23 06:14	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/10/23 06:14	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/10/23 06:14	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/10/23 06:14	1
Acetone	<10.0		10.0	3.10	ug/L			02/10/23 06:14	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/10/23 06:14	1
Benzene	<0.500		0.500	0.220	ug/L			02/10/23 06:14	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/10/23 06:14	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/10/23 06:14	1
Bromoform	<5.00		5.00	0.780	ug/L			02/10/23 06:14	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/10/23 06:14	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/10/23 06:14	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/10/23 06:14	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/10/23 06:14	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/10/23 06:14	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/10/23 06:14	1
Chloroform	<3.00		3.00	1.30	ug/L			02/10/23 06:14	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/10/23 06:14	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/10/23 06:14	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/10/23 06:14	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/10/23 06:14	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/10/23 06:14	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/10/23 06:14	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/10/23 06:14	1
Styrene	<1.00		1.00	0.370	ug/L			02/10/23 06:14	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/10/23 06:14	1
Toluene	<1.00		1.00	0.430	ug/L			02/10/23 06:14	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/10/23 06:14	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/10/23 06:14	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/10/23 06:14	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/10/23 06:14	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/10/23 06:14	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/10/23 06:14	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/10/23 06:14	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/10/23 06:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	116		80 - 128		02/10/23 06:14	1

Eurofins Cedar Falls

# Client Sample Results

Client: Evora Consulting  
Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: HCI Trip Blank**

**Lab Sample ID: 310-249387-8**

Date Collected: 02/07/23 00:00

Matrix: Water

Date Received: 02/08/23 16:45

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Toluene-d8 (Surr)	100		80 - 120		02/10/23 06:14	1
4-Bromofluorobenzene (Surr)	100		80 - 120		02/10/23 06:14	1

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# Definitions/Glossary

Client: Evora Consulting  
Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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



# Surrogate Summary

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Ground Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		DBFM (80-128)	TOL (80-120)	BFB (80-120)
310-249387-1	MW-26	105	101	100
310-249387-2	MW-28	115	98	98
310-249387-2 MS	MW-28	101	97	104
310-249387-2 MSD	MW-28	103	98	103
310-249387-3	MW-29	117	97	100
310-249387-4	GU-1	114	99	99
310-249387-5	GU-2	116	97	100
310-249387-6	GU-3A	120	97	98
310-249387-7	MW-D	106	102	106

**Surrogate Legend**

DBFM = Dibromofluoromethane (Surr)  
 TOL = Toluene-d8 (Surr)  
 BFB = 4-Bromofluorobenzene (Surr)

## Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		DBFM (80-128)	TOL (80-120)	BFB (80-120)
310-249387-8	HCl Trip Blank	116	100	100
LCS 310-378870/6	Lab Control Sample	109	102	101
LCS 310-378870/7	Lab Control Sample	104	102	100
LCS 310-378874/6	Lab Control Sample	100	95	103
LCS 310-378874/7	Lab Control Sample	117	97	98
MB 310-378870/5	Method Blank	109	102	104
MB 310-378874/5	Method Blank	116	100	100

**Surrogate Legend**

DBFM = Dibromofluoromethane (Surr)  
 TOL = Toluene-d8 (Surr)  
 BFB = 4-Bromofluorobenzene (Surr)

# QC Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 310-378870/5

Matrix: Water

Analysis Batch: 378870

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/09/23 15:00	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/09/23 15:00	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/09/23 15:00	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/09/23 15:00	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/09/23 15:00	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/09/23 15:00	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/09/23 15:00	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/09/23 15:00	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/09/23 15:00	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/09/23 15:00	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/09/23 15:00	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/09/23 15:00	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/09/23 15:00	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/09/23 15:00	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/09/23 15:00	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/09/23 15:00	1
Acetone	<10.0		10.0	3.10	ug/L			02/09/23 15:00	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/09/23 15:00	1
Benzene	<0.500	0.500	0.500	0.220	ug/L			02/09/23 15:00	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/09/23 15:00	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/09/23 15:00	1
Bromoform	<5.00		5.00	0.780	ug/L			02/09/23 15:00	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/09/23 15:00	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/09/23 15:00	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/09/23 15:00	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/09/23 15:00	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/09/23 15:00	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/09/23 15:00	1
Chloroform	<3.00		3.00	1.30	ug/L			02/09/23 15:00	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/09/23 15:00	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/09/23 15:00	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/09/23 15:00	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/09/23 15:00	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/09/23 15:00	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/09/23 15:00	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/09/23 15:00	1
Styrene	<1.00		1.00	0.370	ug/L			02/09/23 15:00	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/09/23 15:00	1
Toluene	<1.00		1.00	0.430	ug/L			02/09/23 15:00	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/09/23 15:00	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/09/23 15:00	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/09/23 15:00	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/09/23 15:00	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/09/23 15:00	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/09/23 15:00	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/09/23 15:00	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/09/23 15:00	1

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# QC Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

**Lab Sample ID: MB 310-378870/5**

**Matrix: Water**

**Analysis Batch: 378870**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	109		80 - 128		02/09/23 15:00	1
Toluene-d8 (Surr)	102		80 - 120		02/09/23 15:00	1
4-Bromofluorobenzene (Surr)	104		80 - 120		02/09/23 15:00	1

**Lab Sample ID: LCS 310-378870/6**

**Matrix: Water**

**Analysis Batch: 378870**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	20.0	20.22		ug/L		101	71 - 128
1,1,1,2,2-Tetrachloroethane	20.0	19.42		ug/L		97	64 - 124
1,1,2-Trichloroethane	20.0	19.50		ug/L		98	70 - 124
1,1-Dichloroethane	20.0	20.40		ug/L		102	71 - 123
1,1-Dichloroethane	20.0	20.13		ug/L		101	61 - 129
1,2,3-Trichloropropane	20.0	19.95		ug/L		100	64 - 125
1,2-Dibromo-3-chloropropane	20.0	17.50		ug/L		87	50 - 150
1,2-Dibromoethane (EDB)	20.0	18.95		ug/L		95	73 - 125
1,2-Dichlorobenzene	20.0	21.16		ug/L		106	68 - 120
1,2-Dichloroethane	20.0	21.98		ug/L		110	70 - 124
1,2-Dichloropropane	20.0	19.12		ug/L		96	73 - 121
1,4-Dichlorobenzene	20.0	21.08		ug/L		105	67 - 120
2-Butanone (MEK)	40.0	31.96		ug/L		80	50 - 150
2-Hexanone	40.0	32.71		ug/L		82	60 - 132
4-Methyl-2-pentanone (MIBK)	40.0	32.65		ug/L		82	62 - 130
Acetone	40.0	39.84		ug/L		100	50 - 150
Acrylonitrile	200	156.2		ug/L		78	50 - 150
Benzene	20.0	19.44		ug/L		97	73 - 122
Bromochloromethane	20.0	18.43		ug/L		92	68 - 132
Bromodichloromethane	20.0	20.24		ug/L		101	72 - 121
Bromoform	20.0	16.04		ug/L		80	55 - 129
Carbon disulfide	20.0	15.54		ug/L		78	58 - 131
Carbon tetrachloride	20.0	20.99		ug/L		105	67 - 132
Chlorobenzene	20.0	20.24		ug/L		101	69 - 121
Chlorodibromomethane	20.0	18.94		ug/L		95	69 - 122
Chloroform	20.0	21.29		ug/L		106	72 - 120
cis-1,2-Dichloroethene	20.0	18.97		ug/L		95	74 - 120
cis-1,3-Dichloropropene	20.0	19.36		ug/L		97	71 - 126
Dibromomethane	20.0	20.69		ug/L		103	72 - 123
Ethylbenzene	20.0	20.68		ug/L		103	69 - 122
Iodomethane	20.0	11.47		ug/L		57	10 - 150
Methylene chloride	20.0	18.17		ug/L		91	50 - 150
Styrene	20.0	19.41		ug/L		97	67 - 125
Tetrachloroethene	20.0	20.47		ug/L		102	69 - 131
Toluene	20.0	19.29		ug/L		96	72 - 121
trans-1,2-Dichloroethene	20.0	19.51		ug/L		98	68 - 125
trans-1,3-Dichloropropene	20.0	17.67		ug/L		88	68 - 124
trans-1,4-Dichloro-2-butene	20.0	13.41		ug/L		67	48 - 150

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# QC Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-378870/6

Matrix: Water

Analysis Batch: 378870

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Trichloroethene	20.0	19.22		ug/L		96	73 - 126
Xylenes, Total	40.0	40.45		ug/L		101	68 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	109		80 - 128
Toluene-d8 (Surr)	102		80 - 120
4-Bromofluorobenzene (Surr)	101		80 - 120

Lab Sample ID: LCS 310-378870/7

Matrix: Water

Analysis Batch: 378870

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromomethane	20.0	18.22		ug/L		91	24 - 150
Chloroethane	20.0	23.35		ug/L		117	51 - 137
Chloromethane	20.0	22.35		ug/L		112	37 - 150
Trichlorofluoromethane	20.0	21.75		ug/L		109	56 - 144
Vinyl chloride	20.0	22.23		ug/L		111	57 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	104		80 - 128
Toluene-d8 (Surr)	102		80 - 120
4-Bromofluorobenzene (Surr)	100		80 - 120

Lab Sample ID: MB 310-378874/5

Matrix: Water

Analysis Batch: 378874

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/10/23 04:37	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/10/23 04:37	1
1,1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/10/23 04:37	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/10/23 04:37	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/10/23 04:37	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/10/23 04:37	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/10/23 04:37	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/10/23 04:37	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/10/23 04:37	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/10/23 04:37	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/10/23 04:37	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/10/23 04:37	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/10/23 04:37	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/10/23 04:37	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/10/23 04:37	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/10/23 04:37	1
Acetone	<10.0		10.0	3.10	ug/L			02/10/23 04:37	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/10/23 04:37	1
Benzene	<0.500		0.500	0.220	ug/L			02/10/23 04:37	1

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# QC Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-378874/5

Matrix: Water

Analysis Batch: 378874

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/10/23 04:37	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/10/23 04:37	1
Bromoform	<5.00		5.00	0.780	ug/L			02/10/23 04:37	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/10/23 04:37	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/10/23 04:37	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/10/23 04:37	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/10/23 04:37	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/10/23 04:37	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/10/23 04:37	1
Chloroform	<3.00		3.00	1.30	ug/L			02/10/23 04:37	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/10/23 04:37	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/10/23 04:37	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/10/23 04:37	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/10/23 04:37	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/10/23 04:37	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/10/23 04:37	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/10/23 04:37	1
Styrene	<1.00		1.00	0.370	ug/L			02/10/23 04:37	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/10/23 04:37	1
Toluene	<1.00		1.00	0.430	ug/L			02/10/23 04:37	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/10/23 04:37	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/10/23 04:37	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/10/23 04:37	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/10/23 04:37	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/10/23 04:37	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/10/23 04:37	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/10/23 04:37	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/10/23 04:37	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	116		80 - 128		02/10/23 04:37	1
Toluene-d8 (Surr)	100		80 - 120		02/10/23 04:37	1
4-Bromofluorobenzene (Surr)	100		80 - 120		02/10/23 04:37	1

Lab Sample ID: LCS 310-378874/6

Matrix: Water

Analysis Batch: 378874

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	20.0	20.49		ug/L		102	71 - 128
1,1,2,2-Tetrachloroethane	20.0	19.85		ug/L		99	64 - 124
1,1,2-Trichloroethane	20.0	20.33		ug/L		102	70 - 124
1,1-Dichloroethane	20.0	18.15		ug/L		91	71 - 123
1,1-Dichloroethene	20.0	20.29		ug/L		101	61 - 129
1,2,3-Trichloropropane	20.0	27.06	*+	ug/L		135	64 - 125
1,2-Dibromo-3-chloropropane	20.0	21.63		ug/L		108	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.61		ug/L		103	73 - 125

Eurofins Cedar Falls

# QC Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-378874/6

Matrix: Water

Analysis Batch: 378874

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,2-Dichlorobenzene	20.0	19.03		ug/L		95	68 - 120
1,2-Dichloroethane	20.0	19.92		ug/L		100	70 - 124
1,2-Dichloropropane	20.0	19.22		ug/L		96	73 - 121
1,4-Dichlorobenzene	20.0	18.83		ug/L		94	67 - 120
2-Butanone (MEK)	40.0	37.77		ug/L		94	50 - 150
2-Hexanone	40.0	40.99		ug/L		102	60 - 132
4-Methyl-2-pentanone (MIBK)	40.0	38.20		ug/L		95	62 - 130
Acetone	40.0	38.37		ug/L		96	50 - 150
Acrylonitrile	200	195.9		ug/L		98	50 - 150
Benzene	20.0	18.94		ug/L		95	73 - 122
Bromochloromethane	20.0	21.65		ug/L		108	68 - 132
Bromodichloromethane	20.0	19.46		ug/L		97	72 - 121
Bromoform	20.0	19.31		ug/L		97	55 - 129
Carbon disulfide	20.0	20.13		ug/L		101	58 - 131
Carbon tetrachloride	20.0	21.01		ug/L		105	67 - 132
Chlorobenzene	20.0	19.55		ug/L		98	69 - 121
Chlorodibromomethane	20.0	19.82		ug/L		99	69 - 122
Chloroform	20.0	19.92		ug/L		100	72 - 120
cis-1,2-Dichloroethene	20.0	18.64		ug/L		93	74 - 120
cis-1,3-Dichloropropene	20.0	19.89		ug/L		99	71 - 126
Dibromomethane	20.0	20.21		ug/L		101	72 - 123
Ethylbenzene	20.0	20.43		ug/L		102	69 - 122
Iodomethane	20.0	10.34		ug/L		52	10 - 150
Methylene chloride	20.0	20.16		ug/L		101	50 - 150
Styrene	20.0	19.89		ug/L		99	67 - 125
Tetrachloroethene	20.0	20.15		ug/L		101	69 - 131
Toluene	20.0	18.99		ug/L		95	72 - 121
trans-1,2-Dichloroethene	20.0	19.74		ug/L		99	68 - 125
trans-1,3-Dichloropropene	20.0	19.28		ug/L		96	68 - 124
trans-1,4-Dichloro-2-butene	20.0	15.60		ug/L		78	48 - 150
Trichloroethene	20.0	19.98		ug/L		100	73 - 126
Vinyl acetate	40.0	36.87		ug/L		92	50 - 150
Xylenes, Total	40.0	40.03		ug/L		100	68 - 124

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	100		80 - 128
Toluene-d8 (Surr)	95		80 - 120
4-Bromofluorobenzene (Surr)	103		80 - 120

Lab Sample ID: LCS 310-378874/7

Matrix: Water

Analysis Batch: 378874

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Bromomethane	20.0	13.81		ug/L		69	24 - 150
Chloroethane	20.0	19.11		ug/L		96	51 - 137
Chloromethane	20.0	15.11		ug/L		76	37 - 150
Trichlorofluoromethane	20.0	22.88		ug/L		114	56 - 144

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# QC Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-378874/7

Matrix: Water

Analysis Batch: 378874

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	20.0	19.49		ug/L		97	57 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	117		80 - 128
Toluene-d8 (Surr)	97		80 - 120
4-Bromofluorobenzene (Surr)	98		80 - 120

Lab Sample ID: 310-249387-2 MS

Matrix: Ground Water

Analysis Batch: 378874

Client Sample ID: MW-28

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	<1.00		20.0	16.58		ug/L		83	52 - 130
1,1,1,1-Trichloroethane	<1.00		20.0	17.15		ug/L		86	49 - 130
1,1,1,2,2-Tetrachloroethane	<1.00		20.0	18.17		ug/L		91	51 - 130
1,1,1,2-Trichloroethane	<1.00		20.0	17.74		ug/L		89	56 - 130
1,1-Dichloroethane	<1.00		20.0	16.19		ug/L		81	53 - 130
1,1-Dichloroethene	<2.00		20.0	17.27		ug/L		86	39 - 130
1,2,3-Trichloropropane	<1.00	*+	20.0	17.26		ug/L		86	50 - 130
1,2-Dibromo-3-chloropropane	<5.00		20.0	19.83		ug/L		99	45 - 150
1,2-Dibromoethane (EDB)	<1.00		20.0	18.09		ug/L		90	59 - 130
1,2-Dichlorobenzene	<1.00		20.0	16.89		ug/L		84	53 - 130
1,2-Dichloroethane	<1.00		20.0	18.19		ug/L		91	57 - 130
1,2-Dichloropropane	<1.00		20.0	17.00		ug/L		85	60 - 130
1,4-Dichlorobenzene	<1.00		20.0	16.78		ug/L		84	53 - 130
2-Butanone (MEK)	<10.0		40.0	35.20		ug/L		88	47 - 150
2-Hexanone	<10.0		40.0	37.52		ug/L		94	45 - 132
4-Methyl-2-pentanone (MIBK)	<10.0		40.0	34.16		ug/L		85	46 - 132
Acetone	<10.0		40.0	46.66		ug/L		117	35 - 150
Acrylonitrile	<5.00		200	166.7		ug/L		83	50 - 150
Benzene	<0.500		20.0	16.79		ug/L		84	47 - 130
Bromochloromethane	<5.00		20.0	19.39		ug/L		97	54 - 132
Bromodichloromethane	<1.00		20.0	17.70		ug/L		88	58 - 130
Bromoform	<5.00		20.0	17.54		ug/L		88	42 - 130
Carbon disulfide	0.479	J	20.0	18.53		ug/L		90	39 - 131
Carbon tetrachloride	<2.00		20.0	17.26		ug/L		86	45 - 132
Chlorobenzene	<1.00		20.0	17.14		ug/L		86	54 - 130
Chlorodibromomethane	<5.00		20.0	17.72		ug/L		89	53 - 130
Chloroform	<3.00		20.0	17.37		ug/L		87	55 - 130
cis-1,2-Dichloroethene	<1.00		20.0	16.95		ug/L		85	52 - 130
cis-1,3-Dichloropropene	<5.00		20.0	17.31		ug/L		87	55 - 130
Dibromomethane	<1.00		20.0	17.92		ug/L		90	61 - 130
Ethylbenzene	<1.00		20.0	17.29		ug/L		86	48 - 130
Iodomethane	<10.0		20.0	12.03		ug/L		60	10 - 150
Methylene chloride	<5.00		20.0	17.36		ug/L		87	50 - 150
Styrene	<1.00		20.0	17.50		ug/L		88	46 - 130
Tetrachloroethene	<1.00		20.0	16.62		ug/L		83	42 - 131
Toluene	<1.00		20.0	16.66		ug/L		83	48 - 130

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# QC Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 310-249387-2 MS

Client Sample ID: MW-28

Matrix: Ground Water

Prep Type: Total/NA

Analysis Batch: 378874

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	<1.00		20.0	16.54		ug/L		83	54 - 130
trans-1,3-Dichloropropene	<5.00		20.0	16.72		ug/L		84	51 - 130
trans-1,4-Dichloro-2-butene	<10.0		20.0	16.48		ug/L		82	33 - 150
Trichloroethene	<1.00		20.0	16.94		ug/L		85	55 - 130
Vinyl acetate	<10.0		40.0	30.82		ug/L		77	34 - 150
Xylenes, Total	<3.00		40.0	34.79		ug/L		87	44 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
Dibromofluoromethane (Surr)	101		80 - 128
Toluene-d8 (Surr)	97		80 - 120
4-Bromofluorobenzene (Surr)	104		80 - 120

Lab Sample ID: 310-249387-2 MSD

Client Sample ID: MW-28

Matrix: Ground Water

Prep Type: Total/NA

Analysis Batch: 378874

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	<1.00		20.0	16.89		ug/L		84	52 - 130	2	20
1,1,1-Trichloroethane	<1.00		20.0	17.37		ug/L		87	49 - 130	1	20
1,1,2,2-Tetrachloroethane	<1.00		20.0	18.66		ug/L		93	51 - 130	3	20
1,1,2-Trichloroethane	<1.00		20.0	18.01		ug/L		90	56 - 130	2	20
1,1-Dichloroethane	<1.00		20.0	16.65		ug/L		83	53 - 130	3	20
1,1-Dichloroethene	<2.00		20.0	17.48		ug/L		87	39 - 130	1	28
1,2,3-Trichloropropane	<1.00	*+	20.0	18.29		ug/L		91	50 - 130	6	20
1,2-Dibromo-3-chloropropane	<5.00		20.0	20.61		ug/L		103	45 - 150	4	20
1,2-Dibromoethane (EDB)	<1.00		20.0	18.31		ug/L		92	59 - 130	1	20
1,2-Dichlorobenzene	<1.00		20.0	17.86		ug/L		89	53 - 130	6	20
1,2-Dichloroethane	<1.00		20.0	18.93		ug/L		95	57 - 130	4	21
1,2-Dichloropropane	<1.00		20.0	17.62		ug/L		88	60 - 130	4	31
1,4-Dichlorobenzene	<1.00		20.0	17.51		ug/L		88	53 - 130	4	20
2-Butanone (MEK)	<10.0		40.0	34.46		ug/L		86	47 - 150	2	20
2-Hexanone	<10.0		40.0	38.14		ug/L		95	45 - 132	2	20
4-Methyl-2-pentanone (MIBK)	<10.0		40.0	36.08		ug/L		90	46 - 132	5	20
Acetone	<10.0		40.0	39.19		ug/L		98	35 - 150	17	26
Acrylonitrile	<5.00		200	176.3		ug/L		88	50 - 150	6	21
Benzene	<0.500		20.0	17.33		ug/L		87	47 - 130	3	20
Bromochloromethane	<5.00		20.0	19.80		ug/L		99	54 - 132	2	20
Bromodichloromethane	<1.00		20.0	17.81		ug/L		89	58 - 130	1	20
Bromoform	<5.00		20.0	17.99		ug/L		90	42 - 130	3	20
Carbon disulfide	0.479	J	20.0	18.00		ug/L		88	39 - 131	3	32
Carbon tetrachloride	<2.00		20.0	17.63		ug/L		88	45 - 132	2	20
Chlorobenzene	<1.00		20.0	17.30		ug/L		87	54 - 130	1	20
Chlorodibromomethane	<5.00		20.0	17.78		ug/L		89	53 - 130	0	20
Chloroform	<3.00		20.0	18.26		ug/L		91	55 - 130	5	20
cis-1,2-Dichloroethene	<1.00		20.0	17.26		ug/L		86	52 - 130	2	20
cis-1,3-Dichloropropene	<5.00		20.0	17.34		ug/L		87	55 - 130	0	20
Dibromomethane	<1.00		20.0	19.00		ug/L		95	61 - 130	6	20
Ethylbenzene	<1.00		20.0	17.25		ug/L		86	48 - 130	0	20

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# QC Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

**Lab Sample ID: 310-249387-2 MSD**  
**Matrix: Ground Water**  
**Analysis Batch: 378874**

**Client Sample ID: MW-28**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Iodomethane	<10.0		20.0	13.94		ug/L		70	10 - 150	15	35
Methylene chloride	<5.00		20.0	18.41		ug/L		92	50 - 150	6	24
Styrene	<1.00		20.0	17.49		ug/L		87	46 - 130	0	20
Tetrachloroethene	<1.00		20.0	16.77		ug/L		84	42 - 131	1	20
Toluene	<1.00		20.0	16.95		ug/L		85	48 - 130	2	20
trans-1,2-Dichloroethene	<1.00		20.0	16.88		ug/L		84	54 - 130	2	24
trans-1,3-Dichloropropene	<5.00		20.0	17.77		ug/L		89	51 - 130	6	20
trans-1,4-Dichloro-2-butene	<10.0		20.0	16.62		ug/L		83	33 - 150	1	20
Trichloroethene	<1.00		20.0	17.35		ug/L		87	55 - 130	2	20
Vinyl acetate	<10.0		40.0	32.90		ug/L		82	34 - 150	7	27
Xylenes, Total	<3.00		40.0	34.73		ug/L		87	44 - 130	0	20

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	103		80 - 128
Toluene-d8 (Surr)	98		80 - 120
4-Bromofluorobenzene (Surr)	103		80 - 120

## Method: 6020B - Metals (ICP/MS)

**Lab Sample ID: MB 310-378963/1-A**  
**Matrix: Water**  
**Analysis Batch: 379122**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 378963**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200	0.000690	mg/L		02/13/23 09:50	02/13/23 16:32	1
Arsenic	<0.00200		0.00200	0.000750	mg/L		02/13/23 09:50	02/13/23 16:32	1
Barium	<0.00200		0.00200	0.000880	mg/L		02/13/23 09:50	02/13/23 16:32	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		02/13/23 09:50	02/13/23 16:32	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		02/13/23 09:50	02/13/23 16:32	1
Chromium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 16:32	1
Cobalt	<0.000500		0.000500	0.000190	mg/L		02/13/23 09:50	02/13/23 16:32	1
Copper	<0.00500		0.00500	0.00180	mg/L		02/13/23 09:50	02/13/23 16:32	1
Lead	<0.000500		0.000500	0.000240	mg/L		02/13/23 09:50	02/13/23 16:32	1
Nickel	<0.00500		0.00500	0.00190	mg/L		02/13/23 09:50	02/13/23 16:32	1
Selenium	<0.00500		0.00500	0.000960	mg/L		02/13/23 09:50	02/13/23 16:32	1
Silver	<0.00100		0.00100	0.000490	mg/L		02/13/23 09:50	02/13/23 16:32	1
Thallium	<0.00100		0.00100	0.000260	mg/L		02/13/23 09:50	02/13/23 16:32	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		02/13/23 09:50	02/13/23 16:32	1
Zinc	<0.0200		0.0200	0.0100	mg/L		02/13/23 09:50	02/13/23 16:32	1

**Lab Sample ID: LCS 310-378963/2-A**  
**Matrix: Water**  
**Analysis Batch: 379122**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 378963**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Antimony	0.200	0.1982		mg/L		99	80 - 120
Arsenic	0.200	0.2012		mg/L		101	80 - 120
Barium	0.100	0.1061		mg/L		106	80 - 120
Beryllium	0.100	0.1000		mg/L		100	80 - 120

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# QC Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: 6020B - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 310-378963/2-A**  
**Matrix: Water**  
**Analysis Batch: 379122**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 378963**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Cadmium	0.100	0.1021		mg/L		102	80 - 120	
Chromium	0.100	0.09765		mg/L		98	80 - 120	
Cobalt	0.100	0.1109		mg/L		111	80 - 120	
Copper	0.200	0.2161		mg/L		108	80 - 120	
Lead	0.200	0.2028		mg/L		101	80 - 120	
Nickel	0.200	0.2068		mg/L		103	80 - 120	
Selenium	0.400	0.3998		mg/L		100	80 - 120	
Silver	0.100	0.1049		mg/L		105	80 - 120	
Thallium	0.200	0.2407		mg/L		120	80 - 120	
Vanadium	0.100	0.09672		mg/L		97	80 - 120	
Zinc	0.200	0.1992		mg/L		100	80 - 120	

**Lab Sample ID: 310-249387-2 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 379122**

**Client Sample ID: MW-28**  
**Prep Type: Total/NA**  
**Prep Batch: 378963**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	
							RPD	Limit
Antimony	<0.00200		<0.00200		mg/L		NC	20
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Barium	0.0211		0.02061		mg/L		2	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Cadmium	<0.000100		<0.000100		mg/L		NC	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	0.0185		0.01840		mg/L		0.3	20
Copper	<0.00500		<0.00500		mg/L		NC	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Nickel	0.0419		0.04153		mg/L		0.9	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Silver	<0.00100		<0.00100		mg/L		NC	20
Thallium	<0.00100		<0.00100		mg/L		NC	20
Vanadium	<0.00500		<0.00500		mg/L		NC	20
Zinc	<0.0200		<0.0200		mg/L		NC	20

## Method: I-3765-85 - Residue, Non-filterable (TSS)

**Lab Sample ID: MB 310-378844/1**  
**Matrix: Water**  
**Analysis Batch: 378844**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Suspended Solids	<5.00		5.00	1.70	mg/L			02/09/23 10:36	1

**Lab Sample ID: LCS 310-378844/2**  
**Matrix: Water**  
**Analysis Batch: 378844**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Total Suspended Solids	100	94.00		mg/L		94	75 - 116	

# QC Sample Results

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Method: I-3765-85 - Residue, Non-filterable (TSS) (Continued)

**Lab Sample ID: 310-249387-1 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 378844**

**Client Sample ID: MW-26**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	142		136.0		mg/L		4	35

**Lab Sample ID: MB 310-378850/1**  
**Matrix: Water**  
**Analysis Batch: 378850**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			02/09/23 11:50	1

**Lab Sample ID: LCS 310-378850/2**  
**Matrix: Water**  
**Analysis Batch: 378850**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	98.00		mg/L		98	75 - 116

# QC Association Summary

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## GC/MS VOA

### Analysis Batch: 378870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249387-1	MW-26	Total/NA	Ground Water	8260D	
310-249387-7	MW-D	Total/NA	Ground Water	8260D	
MB 310-378870/5	Method Blank	Total/NA	Water	8260D	
LCS 310-378870/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-378870/7	Lab Control Sample	Total/NA	Water	8260D	

### Analysis Batch: 378874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249387-2	MW-28	Total/NA	Ground Water	8260D	
310-249387-3	MW-29	Total/NA	Ground Water	8260D	
310-249387-4	GU-1	Total/NA	Ground Water	8260D	
310-249387-5	GU-2	Total/NA	Ground Water	8260D	
310-249387-6	GU-3A	Total/NA	Ground Water	8260D	
310-249387-8	HCl Trip Blank	Total/NA	Water	8260D	
MB 310-378874/5	Method Blank	Total/NA	Water	8260D	
LCS 310-378874/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-378874/7	Lab Control Sample	Total/NA	Water	8260D	
310-249387-2 MS	MW-28	Total/NA	Ground Water	8260D	
310-249387-2 MSD	MW-28	Total/NA	Ground Water	8260D	

## Metals

### Prep Batch: 378963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249387-1	MW-26	Total/NA	Ground Water	3005A	
310-249387-2	MW-28	Total/NA	Ground Water	3005A	
310-249387-3	MW-29	Total/NA	Ground Water	3005A	
310-249387-4	GU-1	Total/NA	Ground Water	3005A	
310-249387-5	GU-2	Total/NA	Ground Water	3005A	
310-249387-6	GU-3A	Total/NA	Ground Water	3005A	
310-249387-7	MW-D	Total/NA	Ground Water	3005A	
MB 310-378963/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-378963/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-249387-2 DU	MW-28	Total/NA	Ground Water	3005A	

### Analysis Batch: 379122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249387-1	MW-26	Total/NA	Ground Water	6020B	378963
310-249387-2	MW-28	Total/NA	Ground Water	6020B	378963
310-249387-3	MW-29	Total/NA	Ground Water	6020B	378963
310-249387-4	GU-1	Total/NA	Ground Water	6020B	378963
310-249387-5	GU-2	Total/NA	Ground Water	6020B	378963
310-249387-6	GU-3A	Total/NA	Ground Water	6020B	378963
310-249387-7	MW-D	Total/NA	Ground Water	6020B	378963
MB 310-378963/1-A	Method Blank	Total/NA	Water	6020B	378963
LCS 310-378963/2-A	Lab Control Sample	Total/NA	Water	6020B	378963
310-249387-2 DU	MW-28	Total/NA	Ground Water	6020B	378963

### Analysis Batch: 379186

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249387-4	GU-1	Total/NA	Ground Water	6020B	378963

Eurofins Cedar Falls

# QC Association Summary

Client: Evora Consulting  
Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## General Chemistry

### Analysis Batch: 378844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249387-1	MW-26	Total/NA	Ground Water	I-3765-85	
310-249387-2	MW-28	Total/NA	Ground Water	I-3765-85	
310-249387-3	MW-29	Total/NA	Ground Water	I-3765-85	
MB 310-378844/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-378844/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-249387-1 DU	MW-26	Total/NA	Ground Water	I-3765-85	

### Analysis Batch: 378850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-249387-4	GU-1	Total/NA	Ground Water	I-3765-85	
310-249387-5	GU-2	Total/NA	Ground Water	I-3765-85	
310-249387-6	GU-3A	Total/NA	Ground Water	I-3765-85	
310-249387-7	MW-D	Total/NA	Ground Water	I-3765-85	
MB 310-378850/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-378850/2	Lab Control Sample	Total/NA	Water	I-3765-85	

# Lab Chronicle

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Client Sample ID: MW-26

Lab Sample ID: 310-249387-1

Date Collected: 02/06/23 16:42

Matrix: Ground Water

Date Received: 02/08/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		10	378870	MZR8	EET CF	02/09/23 20:49
Total/NA	Prep	3005A			378963	QTZ5	EET CF	02/13/23 09:50
Total/NA	Analysis	6020B		1	379122	A6US	EET CF	02/13/23 17:31
Total/NA	Analysis	I-3765-85		1	378844	D7CP	EET CF	02/09/23 10:36

## Client Sample ID: MW-28

Lab Sample ID: 310-249387-2

Date Collected: 02/07/23 09:29

Matrix: Ground Water

Date Received: 02/08/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	378874	FE5V	EET CF	02/10/23 08:15
Total/NA	Prep	3005A			378963	QTZ5	EET CF	02/13/23 09:50
Total/NA	Analysis	6020B		1	379122	A6US	EET CF	02/13/23 17:54
Total/NA	Analysis	I-3765-85		1	378844	D7CP	EET CF	02/09/23 10:36

## Client Sample ID: MW-29

Lab Sample ID: 310-249387-3

Date Collected: 02/07/23 10:02

Matrix: Ground Water

Date Received: 02/08/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	378874	FE5V	EET CF	02/10/23 08:39
Total/NA	Prep	3005A			378963	QTZ5	EET CF	02/13/23 09:50
Total/NA	Analysis	6020B		1	379122	A6US	EET CF	02/13/23 18:00
Total/NA	Analysis	I-3765-85		1	378844	D7CP	EET CF	02/09/23 10:36

## Client Sample ID: GU-1

Lab Sample ID: 310-249387-4

Date Collected: 02/07/23 11:23

Matrix: Ground Water

Date Received: 02/08/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	378874	FE5V	EET CF	02/10/23 09:03
Total/NA	Prep	3005A			378963	QTZ5	EET CF	02/13/23 09:50
Total/NA	Analysis	6020B		4	379186	ZRI4	EET CF	02/14/23 12:14
Total/NA	Prep	3005A			378963	QTZ5	EET CF	02/13/23 09:50
Total/NA	Analysis	6020B		1	379122	A6US	EET CF	02/13/23 18:03
Total/NA	Analysis	I-3765-85		1	378850	D7CP	EET CF	02/09/23 11:50

## Client Sample ID: GU-2

Lab Sample ID: 310-249387-5

Date Collected: 02/07/23 11:13

Matrix: Ground Water

Date Received: 02/08/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	378874	FE5V	EET CF	02/10/23 09:27
Total/NA	Prep	3005A			378963	QTZ5	EET CF	02/13/23 09:50
Total/NA	Analysis	6020B		1	379122	A6US	EET CF	02/13/23 18:05

# Lab Chronicle

Client: Evora Consulting  
 Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

**Client Sample ID: GU-2**

**Lab Sample ID: 310-249387-5**

Date Collected: 02/07/23 11:13

Matrix: Ground Water

Date Received: 02/08/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	I-3765-85		1	378850	D7CP	EET CF	02/09/23 11:50

**Client Sample ID: GU-3A**

**Lab Sample ID: 310-249387-6**

Date Collected: 02/07/23 11:03

Matrix: Ground Water

Date Received: 02/08/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	378874	FE5V	EET CF	02/10/23 13:30
Total/NA	Prep	3005A			378963	QTZ5	EET CF	02/13/23 09:50
Total/NA	Analysis	6020B		1	379122	A6US	EET CF	02/13/23 18:08
Total/NA	Analysis	I-3765-85		1	378850	D7CP	EET CF	02/09/23 11:50

**Client Sample ID: MW-D**

**Lab Sample ID: 310-249387-7**

Date Collected: 02/06/23 16:42

Matrix: Ground Water

Date Received: 02/08/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		10	378870	MZR8	EET CF	02/09/23 21:10
Total/NA	Prep	3005A			378963	QTZ5	EET CF	02/13/23 09:50
Total/NA	Analysis	6020B		1	379122	A6US	EET CF	02/13/23 18:11
Total/NA	Analysis	I-3765-85		1	378850	D7CP	EET CF	02/09/23 11:50

**Client Sample ID: HCI Trip Blank**

**Lab Sample ID: 310-249387-8**

Date Collected: 02/07/23 00:00

Matrix: Water

Date Received: 02/08/23 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	378874	FE5V	EET CF	02/10/23 06:14

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

# Accreditation/Certification Summary

Client: Evora Consulting  
Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

## Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

- 1
- 2
- 3
- 4
- 5
- 6
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- 10
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- 13
- 14
- 15



# Method Summary

Client: Evora Consulting  
Project/Site: Great River Regional Waste Authority (1st 2023)

Job ID: 310-249387-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

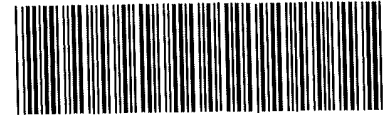
**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.  
USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401





Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>EVONA CONSULTING</u>			
City/State:	<u>WEST DES MOINES</u>	STATE	<u>IA</u> Project:
<b>Receipt Information</b>			
Date/Time Received:	<u>2/8/2023</u>	TIME	<u>16.45</u> Received By: <u>MU</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: _____			
Multiple Coolers? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Cooler # _____ of _____			
Cooler Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Sample Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Trip Blank Present? <u>HCI</u> <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓			
<u>AI</u>			
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>U</u>		Correction Factor (°C): <u>D</u>	
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>2.4</u>		Corrected Temp (°C): <u>2.4</u>	
• <b>Sample Container Temperature</b>			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			





## Login Sample Receipt Checklist

Client: Evora Consulting

Job Number: 310-249387-1

**Login Number: 249387**

**List Source: Eurofins Cedar Falls**

**List Number: 1**

**Creator: Tucker, Sarah L**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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	
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Nathan Ohrt  
SCS Engineers  
1690 All State Court  
Suite 100  
West Des Moines, Iowa 50265

Generated 5/26/2023 2:33:23 PM

## JOB DESCRIPTION

GRRWA Sanitary Landfill(May 2023 Background)

## JOB NUMBER

310-255424-1

# Eurofins Cedar Falls

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



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5/26/2023 2:33:23 PM

Authorized for release by  
Meredith Liechti, Service Center Manager  
[meredith.liechti@et.eurofinsus.com](mailto:meredith.liechti@et.eurofinsus.com)  
(319)277-2401



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Case Narrative . . . . .	4
Sample Summary . . . . .	5
Detection Summary . . . . .	6
Client Sample Results . . . . .	7
Definitions . . . . .	11
Surrogate Summary . . . . .	12
QC Sample Results . . . . .	13
QC Association . . . . .	20
Chronicle . . . . .	21
Certification Summary . . . . .	22
Method Summary . . . . .	23
Chain of Custody . . . . .	24
Receipt Checklists . . . . .	26

# Case Narrative

Client: SCS Engineers  
Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

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## Job ID: 310-255424-1

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### Laboratory: Eurofins Cedar Falls

#### Narrative

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#### Job Narrative 310-255424-1

#### Receipt

The samples were received on 5/10/2023 8:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.0°C

#### GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-387309 recovered above the upper control limit for 1,1,1,2-Tetrachloroethane (28.5%D). The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The associated sample is impacted: (CCV 310-387309/4).

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-387479 recovered above the upper control limit for 1,1,1,2-Tetrachloroethane (44.2%D), 1,2,3-Trichloropropane (29.6%D), 1-Hexanone (38.8%D), 1,1,2,2-Tetrachloroethane (27.2%D), and 4-Methyl-2-pentanone (37.8%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-387479/3).

Method 8260D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 310-387479 recovered outside control limits for the following analytes: 1,1,1,2-Tetrachloroethane. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

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

#### Metals

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

#### General Chemistry

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





# Sample Summary

Client: SCS Engineers  
Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-255424-1	GU-3A	Ground Water	05/09/23 13:30	05/10/23 08:25
310-255424-2	Trip Blank	Water	05/09/23 00:00	05/10/23 08:25

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# Detection Summary

Client: SCS Engineers

Job ID: 310-255424-1

Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

## Client Sample ID: GU-3A

Lab Sample ID: 310-255424-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00142	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.506		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.000372	J	0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00229	J	0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	11.8		3.75	1.28	mg/L	1		I-3765-85	Total/NA

## Client Sample ID: Trip Blank

Lab Sample ID: 310-255424-2

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Client Sample Results

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

**Client Sample ID: GU-3A**

**Lab Sample ID: 310-255424-1**

Date Collected: 05/09/23 13:30

Matrix: Ground Water

Date Received: 05/10/23 08:25

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00	*+	1.00	0.380	ug/L			05/15/23 13:28	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			05/15/23 13:28	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			05/15/23 13:28	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			05/15/23 13:28	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			05/15/23 13:28	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			05/15/23 13:28	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			05/15/23 13:28	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			05/15/23 13:28	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			05/15/23 13:28	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			05/15/23 13:28	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			05/15/23 13:28	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			05/15/23 13:28	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			05/15/23 13:28	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			05/15/23 13:28	1
2-Hexanone	<10.0		10.0	2.00	ug/L			05/15/23 13:28	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			05/15/23 13:28	1
Acetone	<10.0		10.0	3.10	ug/L			05/15/23 13:28	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			05/15/23 13:28	1
Benzene	<0.500		0.500	0.220	ug/L			05/15/23 13:28	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			05/15/23 13:28	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			05/15/23 13:28	1
Bromoform	<5.00		5.00	0.780	ug/L			05/15/23 13:28	1
Bromomethane	<4.00		4.00	1.10	ug/L			05/15/23 13:28	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			05/15/23 13:28	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			05/15/23 13:28	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			05/15/23 13:28	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			05/15/23 13:28	1
Chloroethane	<4.00		4.00	0.790	ug/L			05/15/23 13:28	1
Chloroform	<3.00		3.00	1.30	ug/L			05/15/23 13:28	1
Chloromethane	<3.00		3.00	0.610	ug/L			05/15/23 13:28	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			05/15/23 13:28	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			05/15/23 13:28	1
Dibromomethane	<1.00		1.00	0.330	ug/L			05/15/23 13:28	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			05/15/23 13:28	1
Iodomethane	<10.0		10.0	7.00	ug/L			05/15/23 13:28	1
Methylene chloride	<5.00		5.00	1.70	ug/L			05/15/23 13:28	1
Styrene	<1.00		1.00	0.370	ug/L			05/15/23 13:28	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			05/15/23 13:28	1
Toluene	<1.00		1.00	0.430	ug/L			05/15/23 13:28	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			05/15/23 13:28	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			05/15/23 13:28	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			05/15/23 13:28	1
Trichloroethene	<1.00		1.00	0.430	ug/L			05/15/23 13:28	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			05/15/23 13:28	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			05/15/23 13:28	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			05/15/23 13:28	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			05/15/23 13:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	107		80 - 128		05/15/23 13:28	1

Eurofins Cedar Falls

# Client Sample Results

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

**Client Sample ID: GU-3A**

**Lab Sample ID: 310-255424-1**

Date Collected: 05/09/23 13:30

Matrix: Ground Water

Date Received: 05/10/23 08:25

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 120		05/15/23 13:28	1
4-Bromofluorobenzene (Surr)	100		80 - 120		05/15/23 13:28	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		05/12/23 08:40	05/24/23 14:03	1
<b>Arsenic</b>	<b>0.00142</b>	<b>J</b>	0.00200	0.000530	mg/L		05/12/23 08:40	05/24/23 14:03	1
<b>Barium</b>	<b>0.506</b>		0.00200	0.000640	mg/L		05/12/23 08:40	05/24/23 14:03	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		05/12/23 08:40	05/24/23 14:03	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		05/12/23 08:40	05/24/23 14:03	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/12/23 08:40	05/24/23 14:03	1
<b>Cobalt</b>	<b>0.000372</b>	<b>J</b>	0.000500	0.000170	mg/L		05/12/23 08:40	05/24/23 14:03	1
Copper	<0.00500		0.00500	0.00180	mg/L		05/12/23 08:40	05/24/23 14:03	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/12/23 08:40	05/24/23 14:03	1
<b>Nickel</b>	<b>0.00229</b>	<b>J</b>	0.00500	0.00190	mg/L		05/12/23 08:40	05/24/23 14:03	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/12/23 08:40	05/24/23 14:03	1
Silver	<0.00100		0.00100	0.000500	mg/L		05/12/23 08:40	05/24/23 14:03	1
Thallium	<0.00100		0.00100	0.000260	mg/L		05/12/23 08:40	05/24/23 14:03	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		05/12/23 08:40	05/24/23 14:03	1
Zinc	<0.0200		0.0200	0.00640	mg/L		05/12/23 08:40	05/24/23 14:03	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>11.8</b>		3.75	1.28	mg/L			05/10/23 12:23	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 310-255424-2**

Date Collected: 05/09/23 00:00

Matrix: Water

Date Received: 05/10/23 08:25

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			05/12/23 12:06	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			05/12/23 12:06	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			05/12/23 12:06	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			05/12/23 12:06	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			05/12/23 12:06	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			05/12/23 12:06	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			05/12/23 12:06	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			05/12/23 12:06	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			05/12/23 12:06	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			05/12/23 12:06	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			05/12/23 12:06	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			05/12/23 12:06	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			05/12/23 12:06	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			05/12/23 12:06	1
2-Hexanone	<10.0		10.0	2.00	ug/L			05/12/23 12:06	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			05/12/23 12:06	1
Acetone	<10.0		10.0	3.10	ug/L			05/12/23 12:06	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			05/12/23 12:06	1
Benzene	<0.500		0.500	0.220	ug/L			05/12/23 12:06	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			05/12/23 12:06	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			05/12/23 12:06	1
Bromoform	<5.00		5.00	0.780	ug/L			05/12/23 12:06	1
Bromomethane	<4.00		4.00	1.10	ug/L			05/12/23 12:06	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			05/12/23 12:06	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			05/12/23 12:06	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			05/12/23 12:06	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			05/12/23 12:06	1
Chloroethane	<4.00		4.00	0.790	ug/L			05/12/23 12:06	1
Chloroform	<3.00		3.00	1.30	ug/L			05/12/23 12:06	1
Chloromethane	<3.00		3.00	0.610	ug/L			05/12/23 12:06	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			05/12/23 12:06	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			05/12/23 12:06	1
Dibromomethane	<1.00		1.00	0.330	ug/L			05/12/23 12:06	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			05/12/23 12:06	1
Iodomethane	<10.0		10.0	7.00	ug/L			05/12/23 12:06	1
Methylene chloride	<5.00		5.00	1.70	ug/L			05/12/23 12:06	1
Styrene	<1.00		1.00	0.370	ug/L			05/12/23 12:06	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			05/12/23 12:06	1
Toluene	<1.00		1.00	0.430	ug/L			05/12/23 12:06	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			05/12/23 12:06	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			05/12/23 12:06	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			05/12/23 12:06	1
Trichloroethene	<1.00		1.00	0.430	ug/L			05/12/23 12:06	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			05/12/23 12:06	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			05/12/23 12:06	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			05/12/23 12:06	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			05/12/23 12:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	110		80 - 128		05/12/23 12:06	1

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# Client Sample Results

Client: SCS Engineers  
Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 310-255424-2**

Date Collected: 05/09/23 00:00

Matrix: Water

Date Received: 05/10/23 08:25

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)**

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Toluene-d8 (Surr)	95		80 - 120		05/12/23 12:06	1
4-Bromofluorobenzene (Surr)	101		80 - 120		05/12/23 12:06	1

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# Definitions/Glossary

Client: SCS Engineers

Job ID: 310-255424-1

Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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
SQL	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

# Surrogate Summary

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

## Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Ground Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DBFM (80-128)	TOL (80-120)	BFB (80-120)
310-255424-1	GU-3A	107	103	100

#### Surrogate Legend

DBFM = Dibromofluoromethane (Surr)  
 TOL = Toluene-d8 (Surr)  
 BFB = 4-Bromofluorobenzene (Surr)

## Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DBFM (80-128)	TOL (80-120)	BFB (80-120)
310-255424-2	Trip Blank	110	95	101
LCS 310-387309/7	Lab Control Sample	94	101	103
LCS 310-387309/8	Lab Control Sample	111	96	101
LCS 310-387479/6	Lab Control Sample	89	106	102
LCS 310-387479/7	Lab Control Sample	108	102	100
MB 310-387309/6	Method Blank	111	95	101
MB 310-387479/5	Method Blank	107	102	102

#### Surrogate Legend

DBFM = Dibromofluoromethane (Surr)  
 TOL = Toluene-d8 (Surr)  
 BFB = 4-Bromofluorobenzene (Surr)



# QC Sample Results

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

## Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 310-387309/6

Matrix: Water

Analysis Batch: 387309

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			05/12/23 10:19	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			05/12/23 10:19	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			05/12/23 10:19	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			05/12/23 10:19	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			05/12/23 10:19	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			05/12/23 10:19	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			05/12/23 10:19	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			05/12/23 10:19	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			05/12/23 10:19	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			05/12/23 10:19	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			05/12/23 10:19	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			05/12/23 10:19	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			05/12/23 10:19	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			05/12/23 10:19	1
2-Hexanone	<10.0		10.0	2.00	ug/L			05/12/23 10:19	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			05/12/23 10:19	1
Acetone	<10.0		10.0	3.10	ug/L			05/12/23 10:19	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			05/12/23 10:19	1
Benzene	<0.500	0.500	0.500	0.220	ug/L			05/12/23 10:19	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			05/12/23 10:19	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			05/12/23 10:19	1
Bromoform	<5.00		5.00	0.780	ug/L			05/12/23 10:19	1
Bromomethane	<4.00		4.00	1.10	ug/L			05/12/23 10:19	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			05/12/23 10:19	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			05/12/23 10:19	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			05/12/23 10:19	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			05/12/23 10:19	1
Chloroethane	<4.00		4.00	0.790	ug/L			05/12/23 10:19	1
Chloroform	<3.00		3.00	1.30	ug/L			05/12/23 10:19	1
Chloromethane	<3.00		3.00	0.610	ug/L			05/12/23 10:19	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			05/12/23 10:19	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			05/12/23 10:19	1
Dibromomethane	<1.00		1.00	0.330	ug/L			05/12/23 10:19	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			05/12/23 10:19	1
Iodomethane	<10.0		10.0	7.00	ug/L			05/12/23 10:19	1
Methylene chloride	<5.00		5.00	1.70	ug/L			05/12/23 10:19	1
Styrene	<1.00		1.00	0.370	ug/L			05/12/23 10:19	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			05/12/23 10:19	1
Toluene	<1.00		1.00	0.430	ug/L			05/12/23 10:19	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			05/12/23 10:19	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			05/12/23 10:19	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			05/12/23 10:19	1
Trichloroethene	<1.00		1.00	0.430	ug/L			05/12/23 10:19	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			05/12/23 10:19	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			05/12/23 10:19	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			05/12/23 10:19	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			05/12/23 10:19	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-387309/6

Matrix: Water

Analysis Batch: 387309

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	111		80 - 128		05/12/23 10:19	1
Toluene-d8 (Surr)	95		80 - 120		05/12/23 10:19	1
4-Bromofluorobenzene (Surr)	101		80 - 120		05/12/23 10:19	1

Lab Sample ID: LCS 310-387309/7

Matrix: Water

Analysis Batch: 387309

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	20.0	20.19		ug/L		101	71 - 128
1,1,2,2-Tetrachloroethane	20.0	22.39		ug/L		112	64 - 124
1,1,2-Trichloroethane	20.0	22.18		ug/L		111	70 - 124
1,1-Dichloroethane	20.0	17.65		ug/L		88	71 - 123
1,1-Dichloroethane	20.0	19.25		ug/L		96	61 - 129
1,2,3-Trichloropropane	20.0	24.13		ug/L		121	64 - 125
1,2-Dibromo-3-chloropropane	20.0	19.88		ug/L		99	50 - 150
1,2-Dibromoethane (EDB)	20.0	21.41		ug/L		107	73 - 125
1,2-Dichlorobenzene	20.0	20.99		ug/L		105	68 - 120
1,2-Dichloroethane	20.0	18.56		ug/L		93	70 - 124
1,2-Dichloropropane	20.0	20.27		ug/L		101	73 - 121
1,4-Dichlorobenzene	20.0	21.23		ug/L		106	67 - 120
2-Butanone (MEK)	40.0	38.12		ug/L		95	50 - 150
2-Hexanone	40.0	48.27		ug/L		121	60 - 132
4-Methyl-2-pentanone (MIBK)	40.0	46.28		ug/L		116	62 - 130
Acetone	40.0	36.11		ug/L		90	50 - 150
Acrylonitrile	200	174.8		ug/L		87	50 - 150
Benzene	20.0	19.43		ug/L		97	73 - 122
Bromochloromethane	20.0	19.54		ug/L		98	68 - 132
Bromodichloromethane	20.0	20.02		ug/L		100	72 - 121
Bromoform	20.0	20.07		ug/L		100	55 - 129
Carbon disulfide	20.0	17.82		ug/L		89	58 - 131
Carbon tetrachloride	20.0	21.02		ug/L		105	67 - 132
Chlorobenzene	20.0	20.45		ug/L		102	69 - 121
Chlorodibromomethane	20.0	21.43		ug/L		107	69 - 122
Chloroform	20.0	17.76		ug/L		89	72 - 120
cis-1,2-Dichloroethene	20.0	18.92		ug/L		95	74 - 120
cis-1,3-Dichloropropene	20.0	19.32		ug/L		97	71 - 126
Dibromomethane	20.0	19.14		ug/L		96	72 - 123
Ethylbenzene	20.0	20.83		ug/L		104	69 - 122
Iodomethane	20.0	13.34		ug/L		67	10 - 150
Methylene chloride	20.0	18.86		ug/L		94	50 - 150
Styrene	20.0	21.97		ug/L		110	67 - 125
Tetrachloroethene	20.0	21.22		ug/L		106	69 - 131
Toluene	20.0	19.00		ug/L		95	72 - 121
trans-1,2-Dichloroethene	20.0	18.57		ug/L		93	68 - 125
trans-1,3-Dichloropropene	20.0	19.08		ug/L		95	68 - 124
trans-1,4-Dichloro-2-butene	20.0	21.75		ug/L		109	48 - 150

Eurofins Cedar Falls

# QC Sample Results

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-387309/7

Matrix: Water

Analysis Batch: 387309

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
	Added	Result	Qualifier				
Trichloroethene	20.0	20.46		ug/L		102	73 - 126
Vinyl acetate	40.0	38.05		ug/L		95	50 - 150
Xylenes, Total	40.0	41.96		ug/L		105	68 - 124

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	94		80 - 128
Toluene-d8 (Surr)	101		80 - 120
4-Bromofluorobenzene (Surr)	103		80 - 120

Lab Sample ID: LCS 310-387309/8

Matrix: Water

Analysis Batch: 387309

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
	Added	Result	Qualifier				
Bromomethane	20.0	17.40		ug/L		87	24 - 150
Chloroethane	20.0	16.94		ug/L		85	51 - 137
Chloromethane	20.0	16.73		ug/L		84	37 - 150
Trichlorofluoromethane	20.0	18.44		ug/L		92	56 - 144
Vinyl chloride	20.0	17.62		ug/L		88	57 - 136

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	111		80 - 128
Toluene-d8 (Surr)	96		80 - 120
4-Bromofluorobenzene (Surr)	101		80 - 120

Lab Sample ID: MB 310-387479/5

Matrix: Water

Analysis Batch: 387479

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			05/15/23 10:17	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			05/15/23 10:17	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			05/15/23 10:17	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			05/15/23 10:17	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			05/15/23 10:17	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			05/15/23 10:17	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			05/15/23 10:17	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			05/15/23 10:17	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			05/15/23 10:17	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			05/15/23 10:17	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			05/15/23 10:17	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			05/15/23 10:17	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			05/15/23 10:17	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			05/15/23 10:17	1
2-Hexanone	<10.0		10.0	2.00	ug/L			05/15/23 10:17	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			05/15/23 10:17	1
Acetone	<10.0		10.0	3.10	ug/L			05/15/23 10:17	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			05/15/23 10:17	1

Eurofins Cedar Falls

# QC Sample Results

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-387479/5

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 387479

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	<0.500		0.500	0.220	ug/L			05/15/23 10:17	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			05/15/23 10:17	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			05/15/23 10:17	1
Bromoform	<5.00		5.00	0.780	ug/L			05/15/23 10:17	1
Bromomethane	<4.00		4.00	1.10	ug/L			05/15/23 10:17	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			05/15/23 10:17	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			05/15/23 10:17	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			05/15/23 10:17	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			05/15/23 10:17	1
Chloroethane	<4.00		4.00	0.790	ug/L			05/15/23 10:17	1
Chloroform	<3.00		3.00	1.30	ug/L			05/15/23 10:17	1
Chloromethane	<3.00		3.00	0.610	ug/L			05/15/23 10:17	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			05/15/23 10:17	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			05/15/23 10:17	1
Dibromomethane	<1.00		1.00	0.330	ug/L			05/15/23 10:17	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			05/15/23 10:17	1
Iodomethane	<10.0		10.0	7.00	ug/L			05/15/23 10:17	1
Methylene chloride	<5.00		5.00	1.70	ug/L			05/15/23 10:17	1
Styrene	<1.00		1.00	0.370	ug/L			05/15/23 10:17	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			05/15/23 10:17	1
Toluene	<1.00		1.00	0.430	ug/L			05/15/23 10:17	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			05/15/23 10:17	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			05/15/23 10:17	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			05/15/23 10:17	1
Trichloroethene	<1.00		1.00	0.430	ug/L			05/15/23 10:17	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			05/15/23 10:17	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			05/15/23 10:17	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			05/15/23 10:17	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			05/15/23 10:17	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	107		80 - 128		05/15/23 10:17	1
Toluene-d8 (Surr)	102		80 - 120		05/15/23 10:17	1
4-Bromofluorobenzene (Surr)	102		80 - 120		05/15/23 10:17	1

Lab Sample ID: LCS 310-387479/6

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 387479

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	20.0	20.24		ug/L		101	71 - 128
1,1,2,2-Tetrachloroethane	20.0	23.69		ug/L		118	64 - 124
1,1,2-Trichloroethane	20.0	21.51		ug/L		108	70 - 124
1,1-Dichloroethane	20.0	18.41		ug/L		92	71 - 123
1,1-Dichloroethene	20.0	20.26		ug/L		101	61 - 129
1,2,3-Trichloropropane	20.0	24.73		ug/L		124	64 - 125
1,2-Dibromo-3-chloropropane	20.0	24.60		ug/L		123	50 - 150

Eurofins Cedar Falls

# QC Sample Results

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-387479/6

Matrix: Water

Analysis Batch: 387479

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,2-Dibromoethane (EDB)	20.0	20.39		ug/L		102	73 - 125
1,2-Dichlorobenzene	20.0	22.38		ug/L		112	68 - 120
1,2-Dichloroethane	20.0	19.77		ug/L		99	70 - 124
1,2-Dichloropropane	20.0	20.72		ug/L		104	73 - 121
1,4-Dichlorobenzene	20.0	22.48		ug/L		112	67 - 120
2-Butanone (MEK)	40.0	43.14		ug/L		108	50 - 150
2-Hexanone	40.0	51.35		ug/L		128	60 - 132
4-Methyl-2-pentanone (MIBK)	40.0	49.68		ug/L		124	62 - 130
Acetone	40.0	49.71		ug/L		124	50 - 150
Acrylonitrile	200	222.1		ug/L		111	50 - 150
Benzene	20.0	19.65		ug/L		98	73 - 122
Bromochloromethane	20.0	18.10		ug/L		90	68 - 132
Bromodichloromethane	20.0	20.32		ug/L		102	72 - 121
Bromoform	20.0	20.30		ug/L		102	55 - 129
Carbon disulfide	20.0	20.10		ug/L		100	58 - 131
Carbon tetrachloride	20.0	21.16		ug/L		106	67 - 132
Chlorobenzene	20.0	21.07		ug/L		105	69 - 121
Chlorodibromomethane	20.0	19.75		ug/L		99	69 - 122
Chloroform	20.0	17.95		ug/L		90	72 - 120
cis-1,2-Dichloroethene	20.0	17.88		ug/L		89	74 - 120
cis-1,3-Dichloropropene	20.0	19.57		ug/L		98	71 - 126
Dibromomethane	20.0	18.93		ug/L		95	72 - 123
Ethylbenzene	20.0	22.42		ug/L		112	69 - 122
Iodomethane	20.0	10.90		ug/L		55	10 - 150
Methylene chloride	20.0	20.21		ug/L		101	50 - 150
Styrene	20.0	22.20		ug/L		111	67 - 125
Tetrachloroethene	20.0	18.57		ug/L		93	69 - 131
Toluene	20.0	18.19		ug/L		91	72 - 121
trans-1,2-Dichloroethene	20.0	19.77		ug/L		99	68 - 125
trans-1,3-Dichloropropene	20.0	19.18		ug/L		96	68 - 124
trans-1,4-Dichloro-2-butene	20.0	24.68		ug/L		123	48 - 150
Trichloroethene	20.0	20.76		ug/L		104	73 - 126
Vinyl acetate	40.0	41.18		ug/L		103	50 - 150
Xylenes, Total	40.0	43.02		ug/L		108	68 - 124

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	89		80 - 128
Toluene-d8 (Surr)	106		80 - 120
4-Bromofluorobenzene (Surr)	102		80 - 120

Lab Sample ID: LCS 310-387479/7

Matrix: Water

Analysis Batch: 387479

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Bromomethane	20.0	19.10		ug/L		96	24 - 150
Chloroethane	20.0	20.75		ug/L		104	51 - 137
Chloromethane	20.0	21.65		ug/L		108	37 - 150

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-387479/7

Matrix: Water

Analysis Batch: 387479

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
	Added	Result	Qualifier				
Trichlorofluoromethane	20.0	21.36		ug/L		107	56 - 144
Vinyl chloride	20.0	22.35		ug/L		112	57 - 136

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	108		80 - 128
Toluene-d8 (Surr)	102		80 - 120
4-Bromofluorobenzene (Surr)	100		80 - 120

## Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-387250/1-A

Matrix: Water

Analysis Batch: 388579

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 387250

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200	0.00100	mg/L		05/12/23 08:40	05/24/23 13:17	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		05/12/23 08:40	05/24/23 13:17	1
Barium	<0.00200		0.00200	0.000640	mg/L		05/12/23 08:40	05/24/23 13:17	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		05/12/23 08:40	05/24/23 13:17	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		05/12/23 08:40	05/24/23 13:17	1
Chromium	<0.00500		0.00500	0.00110	mg/L		05/12/23 08:40	05/24/23 13:17	1
Cobalt	<0.000500		0.000500	0.000170	mg/L		05/12/23 08:40	05/24/23 13:17	1
Copper	<0.00500		0.00500	0.00180	mg/L		05/12/23 08:40	05/24/23 13:17	1
Lead	<0.000500		0.000500	0.000240	mg/L		05/12/23 08:40	05/24/23 13:17	1
Nickel	<0.00500		0.00500	0.00190	mg/L		05/12/23 08:40	05/24/23 13:17	1
Selenium	<0.00500		0.00500	0.00140	mg/L		05/12/23 08:40	05/24/23 13:17	1
Silver	<0.00100		0.00100	0.000500	mg/L		05/12/23 08:40	05/24/23 13:17	1
Thallium	<0.00100		0.00100	0.000260	mg/L		05/12/23 08:40	05/24/23 13:17	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		05/12/23 08:40	05/24/23 13:17	1
Zinc	<0.0200		0.0200	0.00640	mg/L		05/12/23 08:40	05/24/23 13:17	1

Lab Sample ID: LCS 310-387250/2-A

Matrix: Water

Analysis Batch: 388579

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 387250

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
	Added	Result	Qualifier				
Antimony	0.200	0.2038		mg/L		102	80 - 120
Arsenic	0.200	0.2020		mg/L		101	80 - 120
Barium	0.100	0.1053		mg/L		105	80 - 120
Beryllium	0.100	0.1062		mg/L		106	80 - 120
Cadmium	0.100	0.1039		mg/L		104	80 - 120
Chromium	0.100	0.1047		mg/L		105	80 - 120
Cobalt	0.100	0.09862		mg/L		99	80 - 120
Copper	0.200	0.2179		mg/L		109	80 - 120
Lead	0.200	0.2046		mg/L		102	80 - 120
Nickel	0.200	0.2136		mg/L		107	80 - 120
Selenium	0.400	0.3941		mg/L		99	80 - 120
Silver	0.100	0.1011		mg/L		101	80 - 120
Thallium	0.200	0.1856		mg/L		93	80 - 120

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

## Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 310-387250/2-A  
 Matrix: Water  
 Analysis Batch: 388579

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 387250

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vanadium	0.100	0.1057		mg/L		106	80 - 120
Zinc	0.200	0.2106		mg/L		105	80 - 120

## Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-387060/1  
 Matrix: Water  
 Analysis Batch: 387060

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			05/10/23 12:23	1

Lab Sample ID: LCS 310-387060/2  
 Matrix: Water  
 Analysis Batch: 387060

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	94.00		mg/L		94	75 - 116

# QC Association Summary

Client: SCS Engineers  
Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

## GC/MS VOA

### Analysis Batch: 387309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255424-2	Trip Blank	Total/NA	Water	8260D	
MB 310-387309/6	Method Blank	Total/NA	Water	8260D	
LCS 310-387309/7	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-387309/8	Lab Control Sample	Total/NA	Water	8260D	

### Analysis Batch: 387479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255424-1	GU-3A	Total/NA	Ground Water	8260D	
MB 310-387479/5	Method Blank	Total/NA	Water	8260D	
LCS 310-387479/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-387479/7	Lab Control Sample	Total/NA	Water	8260D	

## Metals

### Prep Batch: 387250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255424-1	GU-3A	Total/NA	Ground Water	3005A	
MB 310-387250/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-387250/2-A	Lab Control Sample	Total/NA	Water	3005A	

### Analysis Batch: 388579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255424-1	GU-3A	Total/NA	Ground Water	6020B	387250
MB 310-387250/1-A	Method Blank	Total/NA	Water	6020B	387250
LCS 310-387250/2-A	Lab Control Sample	Total/NA	Water	6020B	387250

## General Chemistry

### Analysis Batch: 387060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255424-1	GU-3A	Total/NA	Ground Water	I-3765-85	
MB 310-387060/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-387060/2	Lab Control Sample	Total/NA	Water	I-3765-85	



# Lab Chronicle

Client: SCS Engineers  
 Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

**Client Sample ID: GU-3A**  
**Date Collected: 05/09/23 13:30**  
**Date Received: 05/10/23 08:25**

**Lab Sample ID: 310-255424-1**  
**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	387479	WSE8	EET CF	05/15/23 13:28
Total/NA	Prep	3005A			387250	QTZ5	EET CF	05/12/23 08:40
Total/NA	Analysis	6020B		1	388579	A6US	EET CF	05/24/23 14:03
Total/NA	Analysis	I-3765-85		1	387060	DGU1	EET CF	05/10/23 12:23

**Client Sample ID: Trip Blank**  
**Date Collected: 05/09/23 00:00**  
**Date Received: 05/10/23 08:25**

**Lab Sample ID: 310-255424-2**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	387309	WSE8	EET CF	05/12/23 12:06

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401



# Accreditation/Certification Summary

Client: SCS Engineers  
Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

## Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# Method Summary

Client: SCS Engineers  
Project/Site: GRRWA Sanitary Landfill(May 2023 Background)

Job ID: 310-255424-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

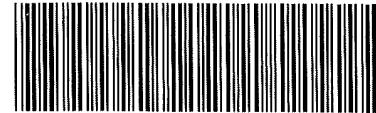
**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.  
USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401





Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>Great River Reg Waste SCS</u>			
City/State:	CITY	STATE	Project:
		<u>IA</u>	
<b>Receipt Information</b>			
Date/Time Received:	DATE	TIME	Received By:
	<u>5/10/23</u>	<u>0800</u>	<u>ST</u>
Delivery Type: <input checked="" type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # ____ of ____
Cooler Custody Seals Present?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
<u>All</u>			
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>P</u>		Correction Factor (°C): <u>+0.2</u>	
* Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>1.6</u>		Corrected Temp (°C): <u>2.0</u>	
<b>Sample Container Temperature</b>			
Container(s) used:	CONTAINER 1		CONTAINER 2
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE. If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			



**SAMPLER:** *Austin Banks*  
**SITE NAME:** Great River Regional Waste Authority Sanitary Landfill  
**ADDRESS:** \_\_\_\_\_  
**CITY/STATE/ZIP:** \_\_\_\_\_  
**TELEPHONE NUMBER:** \_\_\_\_\_ **Fax:** \_\_\_\_\_  
**SAMPLED BY (PRINT NAME):** *Austin Banks*  
**SIGNATURE:** \_\_\_\_\_

**REPORT TO:** Nathan Ohrt (nohrt@scsengineers.com)  
**NAME:** SCS Engineers  
**COMPANY NAME:** GRRWA Sanitary Landfill (May 2023 Background)  
**PROJECT NAME:** 27223129.00  
**PROJECT NUMBER:** 1690 All State Court, Suite 100  
**ADDRESS:** West Des Moines, IA 50265  
**CITY/STATE/ZIP:** \_\_\_\_\_

Sample ID	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Ice	Preservative								Matrix								Total Suspended Solids	Appendix I	Trip Blank	Fax Results								
								HNO <sub>3</sub> (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H <sub>2</sub> SO <sub>4</sub> Plastic (Yellow & White Label)	H <sub>2</sub> SO <sub>4</sub> Glass (Yellow & White Label)	None (Black & White Label)	Trip Blank	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Trip Blank	Appendix I	Trip Blank	Fax Results												
GU-3A	5-9-23	1:30	5	X			X									X							X												
Trip Blank											X																								
Returned by:	<i>[Signature]</i>	Date:	5-9-23	Time:	2:00	Received by:		Date:	5/10/23	Time:	0825	Relinquished by:		Date:		Time:																			
Shipped Via		Received for lab by:				Comments:	Temperature Upon Receipt:																												

Laboratory Comments: (1) For Appendix I and II analysis, report to the reporting limits, not the detection limits. Make sure that the reporting limits are below the EPA's MCLL.  
 (2) For analysis other than Appendix I and II, report to the detection limits. Please make sure that the detection limits are below the EPA's MCLL.  
 (3) In the "Result" column for all EDD files, when non-detect, please report "<" the reporting limits or the detection limits instead of indicating with "ND".



## Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-255424-1

**Login Number: 255424**

**List Source: Eurofins Cedar Falls**

**List Number: 1**

**Creator: Tucker, Sarah L**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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	
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Nathan Ohrt  
SCS Engineers  
1690 All State Court  
Suite 100  
West Des Moines, Iowa 50265

Generated 8/25/2023 2:24:23 PM

## JOB DESCRIPTION

Great River Regional Waste Authority 2nd 2023 Semi

## JOB NUMBER

310-262479-1

# Eurofins Cedar Falls

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



Generated  
8/25/2023 2:24:23 PM

Authorized for release by  
Meredith Liechti, Service Center Manager  
[meredith.liechti@et.eurofinsus.com](mailto:meredith.liechti@et.eurofinsus.com)  
(319)277-2401





# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Case Narrative . . . . .	4
Sample Summary . . . . .	5
Detection Summary . . . . .	6
Client Sample Results . . . . .	8
Definitions . . . . .	20
Surrogate Summary . . . . .	21
QC Sample Results . . . . .	22
QC Association . . . . .	33
Chronicle . . . . .	35
Certification Summary . . . . .	37
Method Summary . . . . .	38
Chain of Custody . . . . .	39
Receipt Checklists . . . . .	41

# Case Narrative

Client: SCS Engineers  
Project/Site: Great River Regional Waste Authority 2nd 2023 Semi

Job ID: 310-262479-1

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## Job ID: 310-262479-1

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### Laboratory: Eurofins Cedar Falls

#### Narrative

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#### Job Narrative 310-262479-1

#### Receipt

The samples were received on 8/11/2023 4:15 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.1°C

#### GC/MS VOA

Method 8260D: The surrogate recovery for the blank associated with analytical batch 310-396647 was outside the upper control limits.

Method 8260D: The surrogate recovery for the LCS associated with analytical batch 310-396647 was outside the upper control limits.

Method 8260D: Surrogate recovery for the following samples was outside the upper control limit: MW-D (310-262479-4). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8260D: The surrogate recovery for the LCS associated with analytical batch 310-397418 was outside the upper control limits.

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

#### Metals

Method 6020B: The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of >2: MW-28 (310-262479-2) and MW-29 (310-262479-3). The sample(s) was preserved to the appropriate pH in the laboratory.

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

#### General Chemistry

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



# Sample Summary

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-262479-1	MW-26	Ground Water	08/10/23 10:27	08/11/23 16:15
310-262479-2	MW-28	Ground Water	08/09/23 17:50	08/11/23 16:15
310-262479-3	MW-29	Ground Water	08/09/23 17:08	08/11/23 16:15
310-262479-4	MW-D	Ground Water	08/09/23 17:50	08/11/23 16:15
310-262479-5	GU-3A	Water	08/10/23 12:30	08/11/23 16:15
310-262479-6	Trip Blank	Water	08/10/23 00:00	08/11/23 16:15

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# Detection Summary

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

## Client Sample ID: MW-26

## Lab Sample ID: 310-262479-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	11.5		10.0	3.10	ug/L	1		8260D	Total/NA
Barium	0.0590		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00140		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00825		0.00500	0.00190	mg/L	1		6020B	Total/NA
Thallium	0.00177		0.00100	0.000260	mg/L	1		6020B	Total/NA
Total Suspended Solids	17.3		5.00	1.70	mg/L	1		I-3765-85	Total/NA

## Client Sample ID: MW-28

## Lab Sample ID: 310-262479-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon disulfide	5.44		1.00	0.450	ug/L	1		8260D	Total/NA
Barium	0.0167		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00584		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00703		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	7.88		1.88	0.638	mg/L	1		I-3765-85	Total/NA

## Client Sample ID: MW-29

## Lab Sample ID: 310-262479-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroethane	6.59		4.00	0.790	ug/L	1		8260D	Total/NA
Arsenic	0.00172	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0144		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00304		0.000500	0.000170	mg/L	1		6020B	Total/NA
Lead	0.000257	J	0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.00966		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	14.7		10.0	3.40	mg/L	1		I-3765-85	Total/NA

## Client Sample ID: MW-D

## Lab Sample ID: 310-262479-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon disulfide	1.57		1.00	0.450	ug/L	1		8260D	Total/NA
Barium	0.0172		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00591		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00719		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	12.5		7.50	2.55	mg/L	1		I-3765-85	Total/NA

## Client Sample ID: GU-3A

## Lab Sample ID: 310-262479-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.69	J	10.0	3.10	ug/L	1		8260D	Total/NA
Chloroethane	8.71		4.00	0.790	ug/L	1		8260D	Total/NA
Arsenic	0.00417		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.234		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00240		0.000500	0.000170	mg/L	1		6020B	Total/NA
Copper	0.00235	J	0.00500	0.00180	mg/L	1		6020B	Total/NA
Lead	0.00159		0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.00572		0.00500	0.00190	mg/L	1		6020B	Total/NA
Vanadium	0.00270	J	0.00500	0.00110	mg/L	1		6020B	Total/NA
Zinc	0.0103	J	0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	167		15.0	5.10	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Detection Summary

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

**Client Sample ID: Trip Blank**

**Lab Sample ID: 310-262479-6**

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: MW-26**

**Lab Sample ID: 310-262479-1**

**Date Collected: 08/10/23 10:27**

**Matrix: Ground Water**

**Date Received: 08/11/23 16:15**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			08/15/23 05:51	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			08/15/23 05:51	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			08/15/23 05:51	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			08/15/23 05:51	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			08/15/23 05:51	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			08/15/23 05:51	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			08/15/23 05:51	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			08/15/23 05:51	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			08/15/23 05:51	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			08/15/23 05:51	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			08/15/23 05:51	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			08/15/23 05:51	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			08/15/23 05:51	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			08/15/23 05:51	1
2-Hexanone	<10.0		10.0	2.00	ug/L			08/15/23 05:51	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			08/15/23 05:51	1
<b>Acetone</b>	<b>11.5</b>		10.0	3.10	ug/L			08/15/23 05:51	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			08/15/23 05:51	1
Benzene	<0.500		0.500	0.220	ug/L			08/15/23 05:51	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			08/15/23 05:51	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			08/15/23 05:51	1
Bromoform	<5.00		5.00	0.780	ug/L			08/15/23 05:51	1
Bromomethane	<4.00		4.00	1.10	ug/L			08/15/23 05:51	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			08/15/23 05:51	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			08/15/23 05:51	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			08/15/23 05:51	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			08/15/23 05:51	1
Chloroethane	<4.00		4.00	0.790	ug/L			08/15/23 05:51	1
Chloroform	<3.00		3.00	1.30	ug/L			08/15/23 05:51	1
Chloromethane	<3.00		3.00	0.610	ug/L			08/15/23 05:51	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			08/15/23 05:51	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			08/15/23 05:51	1
Dibromomethane	<1.00		1.00	0.330	ug/L			08/15/23 05:51	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			08/15/23 05:51	1
Iodomethane	<10.0		10.0	7.00	ug/L			08/15/23 05:51	1
Methylene chloride	<5.00		5.00	1.70	ug/L			08/15/23 05:51	1
Styrene	<1.00		1.00	0.370	ug/L			08/15/23 05:51	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			08/15/23 05:51	1
Toluene	<1.00		1.00	0.430	ug/L			08/15/23 05:51	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			08/15/23 05:51	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			08/15/23 05:51	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			08/15/23 05:51	1
Trichloroethene	<1.00		1.00	0.430	ug/L			08/15/23 05:51	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			08/15/23 05:51	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			08/15/23 05:51	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			08/15/23 05:51	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			08/15/23 05:51	1

Eurofins Cedar Falls

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: MW-26**

**Lab Sample ID: 310-262479-1**

Date Collected: 08/10/23 10:27

Matrix: Ground Water

Date Received: 08/11/23 16:15

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	96		80 - 128		08/15/23 05:51	1
Toluene-d8 (Surr)	102		80 - 120		08/15/23 05:51	1
4-Bromofluorobenzene (Surr)	106		80 - 120		08/15/23 05:51	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		08/16/23 08:40	08/24/23 15:03	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		08/16/23 08:40	08/24/23 03:14	1
<b>Barium</b>	<b>0.0590</b>		0.00200	0.000640	mg/L		08/16/23 08:40	08/24/23 03:14	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/16/23 08:40	08/24/23 03:14	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/16/23 08:40	08/24/23 03:14	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 03:14	1
<b>Cobalt</b>	<b>0.00140</b>		0.000500	0.000170	mg/L		08/16/23 08:40	08/24/23 03:14	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/16/23 08:40	08/24/23 03:14	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/16/23 08:40	08/24/23 03:14	1
<b>Nickel</b>	<b>0.00825</b>		0.00500	0.00190	mg/L		08/16/23 08:40	08/24/23 03:14	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/16/23 08:40	08/24/23 03:14	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/16/23 08:40	08/24/23 03:14	1
<b>Thallium</b>	<b>0.00177</b>		0.00100	0.000260	mg/L		08/16/23 08:40	08/24/23 15:03	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 03:14	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/16/23 08:40	08/24/23 03:14	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>17.3</b>		5.00	1.70	mg/L			08/14/23 09:56	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: MW-28**

**Lab Sample ID: 310-262479-2**

Date Collected: 08/09/23 17:50

Matrix: Ground Water

Date Received: 08/11/23 16:15

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			08/15/23 06:13	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			08/15/23 06:13	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			08/15/23 06:13	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			08/15/23 06:13	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			08/15/23 06:13	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			08/15/23 06:13	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			08/15/23 06:13	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			08/15/23 06:13	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			08/15/23 06:13	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			08/15/23 06:13	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			08/15/23 06:13	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			08/15/23 06:13	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			08/15/23 06:13	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			08/15/23 06:13	1
2-Hexanone	<10.0		10.0	2.00	ug/L			08/15/23 06:13	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			08/15/23 06:13	1
Acetone	<10.0		10.0	3.10	ug/L			08/15/23 06:13	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			08/15/23 06:13	1
Benzene	<0.500		0.500	0.220	ug/L			08/15/23 06:13	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			08/15/23 06:13	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			08/15/23 06:13	1
Bromoform	<5.00		5.00	0.780	ug/L			08/15/23 06:13	1
Bromomethane	<4.00		4.00	1.10	ug/L			08/15/23 06:13	1
<b>Carbon disulfide</b>	<b>5.44</b>		1.00	0.450	ug/L			08/15/23 06:13	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			08/15/23 06:13	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			08/15/23 06:13	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			08/15/23 06:13	1
Chloroethane	<4.00		4.00	0.790	ug/L			08/15/23 06:13	1
Chloroform	<3.00		3.00	1.30	ug/L			08/15/23 06:13	1
Chloromethane	<3.00		3.00	0.610	ug/L			08/15/23 06:13	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			08/15/23 06:13	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			08/15/23 06:13	1
Dibromomethane	<1.00		1.00	0.330	ug/L			08/15/23 06:13	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			08/15/23 06:13	1
Iodomethane	<10.0		10.0	7.00	ug/L			08/15/23 06:13	1
Methylene chloride	<5.00		5.00	1.70	ug/L			08/15/23 06:13	1
Styrene	<1.00		1.00	0.370	ug/L			08/15/23 06:13	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			08/15/23 06:13	1
Toluene	<1.00		1.00	0.430	ug/L			08/15/23 06:13	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			08/15/23 06:13	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			08/15/23 06:13	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			08/15/23 06:13	1
Trichloroethene	<1.00		1.00	0.430	ug/L			08/15/23 06:13	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			08/15/23 06:13	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			08/15/23 06:13	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			08/15/23 06:13	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			08/15/23 06:13	1

Eurofins Cedar Falls



# Client Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: MW-28**

**Lab Sample ID: 310-262479-2**

Date Collected: 08/09/23 17:50

Matrix: Ground Water

Date Received: 08/11/23 16:15

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	97		80 - 128		08/15/23 06:13	1
Toluene-d8 (Surr)	98		80 - 120		08/15/23 06:13	1
4-Bromofluorobenzene (Surr)	106		80 - 120		08/15/23 06:13	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		08/16/23 08:40	08/24/23 15:05	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		08/16/23 08:40	08/24/23 03:16	1
<b>Barium</b>	<b>0.0167</b>		0.00200	0.000640	mg/L		08/16/23 08:40	08/24/23 03:16	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/16/23 08:40	08/24/23 03:16	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/16/23 08:40	08/24/23 03:16	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 03:16	1
<b>Cobalt</b>	<b>0.00584</b>		0.000500	0.000170	mg/L		08/16/23 08:40	08/24/23 03:16	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/16/23 08:40	08/24/23 03:16	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/16/23 08:40	08/24/23 03:16	1
<b>Nickel</b>	<b>0.00703</b>		0.00500	0.00190	mg/L		08/16/23 08:40	08/24/23 03:16	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/16/23 08:40	08/24/23 03:16	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/16/23 08:40	08/24/23 03:16	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/16/23 08:40	08/24/23 15:05	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 03:16	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/16/23 08:40	08/24/23 03:16	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>7.88</b>		1.88	0.638	mg/L			08/14/23 09:56	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: MW-29**

**Lab Sample ID: 310-262479-3**

Date Collected: 08/09/23 17:08

Matrix: Ground Water

Date Received: 08/11/23 16:15

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			08/15/23 06:36	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			08/15/23 06:36	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			08/15/23 06:36	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			08/15/23 06:36	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			08/15/23 06:36	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			08/15/23 06:36	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			08/15/23 06:36	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			08/15/23 06:36	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			08/15/23 06:36	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			08/15/23 06:36	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			08/15/23 06:36	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			08/15/23 06:36	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			08/15/23 06:36	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			08/15/23 06:36	1
2-Hexanone	<10.0		10.0	2.00	ug/L			08/15/23 06:36	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			08/15/23 06:36	1
Acetone	<10.0		10.0	3.10	ug/L			08/15/23 06:36	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			08/15/23 06:36	1
Benzene	<0.500		0.500	0.220	ug/L			08/15/23 06:36	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			08/15/23 06:36	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			08/15/23 06:36	1
Bromoform	<5.00		5.00	0.780	ug/L			08/15/23 06:36	1
Bromomethane	<4.00		4.00	1.10	ug/L			08/15/23 06:36	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			08/15/23 06:36	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			08/15/23 06:36	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			08/15/23 06:36	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			08/15/23 06:36	1
<b>Chloroethane</b>	<b>6.59</b>		4.00	0.790	ug/L			08/15/23 06:36	1
Chloroform	<3.00		3.00	1.30	ug/L			08/15/23 06:36	1
Chloromethane	<3.00		3.00	0.610	ug/L			08/15/23 06:36	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			08/15/23 06:36	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			08/15/23 06:36	1
Dibromomethane	<1.00		1.00	0.330	ug/L			08/15/23 06:36	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			08/15/23 06:36	1
Iodomethane	<10.0		10.0	7.00	ug/L			08/15/23 06:36	1
Methylene chloride	<5.00		5.00	1.70	ug/L			08/15/23 06:36	1
Styrene	<1.00		1.00	0.370	ug/L			08/15/23 06:36	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			08/15/23 06:36	1
Toluene	<1.00		1.00	0.430	ug/L			08/15/23 06:36	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			08/15/23 06:36	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			08/15/23 06:36	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			08/15/23 06:36	1
Trichloroethene	<1.00		1.00	0.430	ug/L			08/15/23 06:36	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			08/15/23 06:36	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			08/15/23 06:36	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			08/15/23 06:36	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			08/15/23 06:36	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: MW-29**

**Lab Sample ID: 310-262479-3**

Date Collected: 08/09/23 17:08

Matrix: Ground Water

Date Received: 08/11/23 16:15

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	95		80 - 128		08/15/23 06:36	1
Toluene-d8 (Surr)	101		80 - 120		08/15/23 06:36	1
4-Bromofluorobenzene (Surr)	106		80 - 120		08/15/23 06:36	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		08/16/23 08:40	08/24/23 15:08	1
<b>Arsenic</b>	<b>0.00172</b>	<b>J</b>	0.00200	0.000530	mg/L		08/16/23 08:40	08/24/23 03:19	1
<b>Barium</b>	<b>0.0144</b>		0.00200	0.000640	mg/L		08/16/23 08:40	08/24/23 03:19	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/16/23 08:40	08/24/23 03:19	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/16/23 08:40	08/24/23 03:19	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 03:19	1
<b>Cobalt</b>	<b>0.00304</b>		0.000500	0.000170	mg/L		08/16/23 08:40	08/24/23 03:19	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/16/23 08:40	08/24/23 03:19	1
<b>Lead</b>	<b>0.000257</b>	<b>J</b>	0.000500	0.000240	mg/L		08/16/23 08:40	08/24/23 03:19	1
<b>Nickel</b>	<b>0.00966</b>		0.00500	0.00190	mg/L		08/16/23 08:40	08/24/23 03:19	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/16/23 08:40	08/24/23 03:19	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/16/23 08:40	08/24/23 03:19	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/16/23 08:40	08/24/23 15:08	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 03:19	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/16/23 08:40	08/24/23 03:19	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>14.7</b>		10.0	3.40	mg/L			08/14/23 09:56	1
Sulfide (SM 4500 S2 F)	<2.00		2.00	1.50	mg/L		08/16/23 08:53	08/16/23 08:53	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: MW-D**

**Lab Sample ID: 310-262479-4**

**Date Collected: 08/09/23 17:50**

**Matrix: Ground Water**

**Date Received: 08/11/23 16:15**

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			08/15/23 18:16	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			08/15/23 18:16	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			08/15/23 18:16	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			08/15/23 18:16	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			08/15/23 18:16	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			08/15/23 18:16	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			08/15/23 18:16	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			08/15/23 18:16	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			08/15/23 18:16	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			08/15/23 18:16	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			08/15/23 18:16	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			08/15/23 18:16	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			08/15/23 18:16	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			08/15/23 18:16	1
2-Hexanone	<10.0		10.0	2.00	ug/L			08/15/23 18:16	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			08/15/23 18:16	1
Acetone	<10.0		10.0	3.10	ug/L			08/15/23 18:16	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			08/15/23 18:16	1
Benzene	<0.500		0.500	0.220	ug/L			08/15/23 18:16	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			08/15/23 18:16	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			08/15/23 18:16	1
Bromoform	<5.00		5.00	0.780	ug/L			08/15/23 18:16	1
Bromomethane	<4.00		4.00	1.10	ug/L			08/15/23 18:16	1
<b>Carbon disulfide</b>	<b>1.57</b>		1.00	0.450	ug/L			08/23/23 01:28	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			08/15/23 18:16	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			08/15/23 18:16	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			08/15/23 18:16	1
Chloroethane	<4.00		4.00	0.790	ug/L			08/15/23 18:16	1
Chloroform	<3.00		3.00	1.30	ug/L			08/15/23 18:16	1
Chloromethane	<3.00		3.00	0.610	ug/L			08/15/23 18:16	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			08/15/23 18:16	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			08/15/23 18:16	1
Dibromomethane	<1.00		1.00	0.330	ug/L			08/15/23 18:16	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			08/15/23 18:16	1
Iodomethane	<10.0		10.0	7.00	ug/L			08/15/23 18:16	1
Methylene chloride	<5.00		5.00	1.70	ug/L			08/15/23 18:16	1
Styrene	<1.00		1.00	0.370	ug/L			08/15/23 18:16	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			08/15/23 18:16	1
Toluene	<1.00		1.00	0.430	ug/L			08/15/23 18:16	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			08/15/23 18:16	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			08/15/23 18:16	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			08/15/23 18:16	1
Trichloroethene	<1.00		1.00	0.430	ug/L			08/15/23 18:16	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			08/15/23 18:16	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			08/15/23 18:16	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			08/15/23 18:16	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			08/15/23 18:16	1

Eurofins Cedar Falls

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: MW-D**

**Lab Sample ID: 310-262479-4**

Date Collected: 08/09/23 17:50

Matrix: Ground Water

Date Received: 08/11/23 16:15

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	129	S1+	80 - 128		08/15/23 18:16	1
Dibromofluoromethane (Surr)	123		80 - 128		08/23/23 01:28	1
Toluene-d8 (Surr)	95		80 - 120		08/15/23 18:16	1
Toluene-d8 (Surr)	93		80 - 120		08/23/23 01:28	1
4-Bromofluorobenzene (Surr)	95		80 - 120		08/15/23 18:16	1
4-Bromofluorobenzene (Surr)	96		80 - 120		08/23/23 01:28	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		08/16/23 08:40	08/24/23 15:10	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		08/16/23 08:40	08/24/23 03:21	1
<b>Barium</b>	<b>0.0172</b>		0.00200	0.000640	mg/L		08/16/23 08:40	08/24/23 03:21	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/16/23 08:40	08/24/23 03:21	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/16/23 08:40	08/24/23 03:21	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 03:21	1
<b>Cobalt</b>	<b>0.00591</b>		0.000500	0.000170	mg/L		08/16/23 08:40	08/24/23 03:21	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/16/23 08:40	08/24/23 03:21	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/16/23 08:40	08/24/23 03:21	1
<b>Nickel</b>	<b>0.00719</b>		0.00500	0.00190	mg/L		08/16/23 08:40	08/24/23 03:21	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/16/23 08:40	08/24/23 03:21	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/16/23 08:40	08/24/23 03:21	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/16/23 08:40	08/24/23 15:10	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 03:21	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/16/23 08:40	08/24/23 03:21	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>12.5</b>		7.50	2.55	mg/L			08/14/23 08:57	1

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: GU-3A**

**Lab Sample ID: 310-262479-5**

Date Collected: 08/10/23 12:30

Matrix: Water

Date Received: 08/11/23 16:15

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			08/15/23 06:59	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			08/15/23 06:59	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			08/15/23 06:59	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			08/15/23 06:59	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			08/15/23 06:59	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			08/15/23 06:59	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			08/15/23 06:59	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			08/15/23 06:59	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			08/15/23 06:59	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			08/15/23 06:59	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			08/15/23 06:59	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			08/15/23 06:59	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			08/15/23 06:59	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			08/15/23 06:59	1
2-Hexanone	<10.0		10.0	2.00	ug/L			08/15/23 06:59	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			08/15/23 06:59	1
<b>Acetone</b>	<b>3.69</b>	<b>J</b>	10.0	3.10	ug/L			08/15/23 06:59	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			08/15/23 06:59	1
Benzene	<0.500		0.500	0.220	ug/L			08/15/23 06:59	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			08/15/23 06:59	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			08/15/23 06:59	1
Bromoform	<5.00		5.00	0.780	ug/L			08/15/23 06:59	1
Bromomethane	<4.00		4.00	1.10	ug/L			08/15/23 06:59	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			08/15/23 06:59	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			08/15/23 06:59	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			08/15/23 06:59	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			08/15/23 06:59	1
<b>Chloroethane</b>	<b>8.71</b>		4.00	0.790	ug/L			08/15/23 06:59	1
Chloroform	<3.00		3.00	1.30	ug/L			08/15/23 06:59	1
Chloromethane	<3.00		3.00	0.610	ug/L			08/15/23 06:59	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			08/15/23 06:59	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			08/15/23 06:59	1
Dibromomethane	<1.00		1.00	0.330	ug/L			08/15/23 06:59	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			08/15/23 06:59	1
Iodomethane	<10.0		10.0	7.00	ug/L			08/15/23 06:59	1
Methylene chloride	<5.00		5.00	1.70	ug/L			08/15/23 06:59	1
Styrene	<1.00		1.00	0.370	ug/L			08/15/23 06:59	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			08/15/23 06:59	1
Toluene	<1.00		1.00	0.430	ug/L			08/15/23 06:59	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			08/15/23 06:59	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			08/15/23 06:59	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			08/15/23 06:59	1
Trichloroethene	<1.00		1.00	0.430	ug/L			08/15/23 06:59	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			08/15/23 06:59	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			08/15/23 06:59	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			08/15/23 06:59	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			08/15/23 06:59	1

Eurofins Cedar Falls

# Client Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: GU-3A**

**Lab Sample ID: 310-262479-5**

Date Collected: 08/10/23 12:30

Matrix: Water

Date Received: 08/11/23 16:15

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	95		80 - 128		08/15/23 06:59	1
Toluene-d8 (Surr)	100		80 - 120		08/15/23 06:59	1
4-Bromofluorobenzene (Surr)	105		80 - 120		08/15/23 06:59	1

**Method: SW846 6020B - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.00100	mg/L		08/16/23 08:40	08/24/23 15:12	1
<b>Arsenic</b>	<b>0.00417</b>		0.00200	0.000530	mg/L		08/16/23 08:40	08/24/23 03:24	1
<b>Barium</b>	<b>0.234</b>		0.00200	0.000640	mg/L		08/16/23 08:40	08/24/23 03:24	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/16/23 08:40	08/24/23 03:24	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/16/23 08:40	08/24/23 03:24	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 03:24	1
<b>Cobalt</b>	<b>0.00240</b>		0.000500	0.000170	mg/L		08/16/23 08:40	08/24/23 03:24	1
<b>Copper</b>	<b>0.00235</b>	J	0.00500	0.00180	mg/L		08/16/23 08:40	08/24/23 03:24	1
<b>Lead</b>	<b>0.00159</b>		0.000500	0.000240	mg/L		08/16/23 08:40	08/24/23 03:24	1
<b>Nickel</b>	<b>0.00572</b>		0.00500	0.00190	mg/L		08/16/23 08:40	08/24/23 03:24	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/16/23 08:40	08/24/23 03:24	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/16/23 08:40	08/24/23 03:24	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/16/23 08:40	08/24/23 15:12	1
<b>Vanadium</b>	<b>0.00270</b>	J	0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 03:24	1
<b>Zinc</b>	<b>0.0103</b>	J	0.0200	0.00640	mg/L		08/16/23 08:40	08/24/23 03:24	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Suspended Solids (USGS I-3765-85)</b>	<b>167</b>		15.0	5.10	mg/L			08/14/23 09:56	1

# Client Sample Results

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

**Client Sample ID: Trip Blank**

**Lab Sample ID: 310-262479-6**

Date Collected: 08/10/23 00:00

Matrix: Water

Date Received: 08/11/23 16:15

**Method: SW846 8260D - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			08/15/23 00:35	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			08/15/23 00:35	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			08/15/23 00:35	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			08/15/23 00:35	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			08/15/23 00:35	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			08/15/23 00:35	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			08/15/23 00:35	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			08/15/23 00:35	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			08/15/23 00:35	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			08/15/23 00:35	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			08/15/23 00:35	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			08/15/23 00:35	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			08/15/23 00:35	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			08/15/23 00:35	1
2-Hexanone	<10.0		10.0	2.00	ug/L			08/15/23 00:35	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			08/15/23 00:35	1
Acetone	<10.0		10.0	3.10	ug/L			08/15/23 00:35	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			08/15/23 00:35	1
Benzene	<0.500		0.500	0.220	ug/L			08/15/23 00:35	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			08/15/23 00:35	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			08/15/23 00:35	1
Bromoform	<5.00		5.00	0.780	ug/L			08/15/23 00:35	1
Bromomethane	<4.00		4.00	1.10	ug/L			08/15/23 00:35	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			08/15/23 00:35	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			08/15/23 00:35	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			08/15/23 00:35	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			08/15/23 00:35	1
Chloroethane	<4.00		4.00	0.790	ug/L			08/15/23 00:35	1
Chloroform	<3.00		3.00	1.30	ug/L			08/15/23 00:35	1
Chloromethane	<3.00		3.00	0.610	ug/L			08/15/23 00:35	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			08/15/23 00:35	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			08/15/23 00:35	1
Dibromomethane	<1.00		1.00	0.330	ug/L			08/15/23 00:35	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			08/15/23 00:35	1
Iodomethane	<10.0		10.0	7.00	ug/L			08/15/23 00:35	1
Methylene chloride	<5.00		5.00	1.70	ug/L			08/15/23 00:35	1
Styrene	<1.00		1.00	0.370	ug/L			08/15/23 00:35	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			08/15/23 00:35	1
Toluene	<1.00		1.00	0.430	ug/L			08/15/23 00:35	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			08/15/23 00:35	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			08/15/23 00:35	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			08/15/23 00:35	1
Trichloroethene	<1.00		1.00	0.430	ug/L			08/15/23 00:35	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			08/15/23 00:35	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			08/15/23 00:35	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			08/15/23 00:35	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			08/15/23 00:35	1

Eurofins Cedar Falls



# Client Sample Results

Client: SCS Engineers  
Project/Site: Great River Regional Waste Authority 2nd 2023  
Semi

Job ID: 310-262479-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 310-262479-6**

**Date Collected: 08/10/23 00:00**

**Matrix: Water**

**Date Received: 08/11/23 16:15**

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Dibromofluoromethane (Surr)	98		80 - 128		08/15/23 00:35	1
Toluene-d8 (Surr)	102		80 - 120		08/15/23 00:35	1
4-Bromofluorobenzene (Surr)	105		80 - 120		08/15/23 00:35	1

- 1
- 2
- 3
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# Definitions/Glossary

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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

# Surrogate Summary

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

## Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Ground Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DBFM	TOL	BFB
		(80-128)	(80-120)	(80-120)
310-262479-1	MW-26	96	102	106
310-262479-2	MW-28	97	98	106
310-262479-3	MW-29	95	101	106
310-262479-4	MW-D	129 S1+	95	95
310-262479-4	MW-D	123	93	96

#### Surrogate Legend

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

## Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DBFM	TOL	BFB
		(80-128)	(80-120)	(80-120)
310-262479-5	GU-3A	95	100	105
310-262479-6	Trip Blank	98	102	105
LCS 310-396529/6	Lab Control Sample	98	105	102
LCS 310-396529/7	Lab Control Sample	96	101	103
LCS 310-396647/6	Lab Control Sample	110	99	99
LCS 310-396647/7	Lab Control Sample	131 S1+	95	99
LCS 310-397418/6	Lab Control Sample	105	97	100
LCS 310-397418/7	Lab Control Sample	129 S1+	93	98
MB 310-396529/5	Method Blank	97	98	106
MB 310-396647/5	Method Blank	130 S1+	95	101
MB 310-397418/5	Method Blank	120	93	100

#### Surrogate Legend

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

# QC Sample Results

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

## Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 310-396529/5

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 396529

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			08/14/23 23:05	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			08/14/23 23:05	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			08/14/23 23:05	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			08/14/23 23:05	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			08/14/23 23:05	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			08/14/23 23:05	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			08/14/23 23:05	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			08/14/23 23:05	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			08/14/23 23:05	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			08/14/23 23:05	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			08/14/23 23:05	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			08/14/23 23:05	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			08/14/23 23:05	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			08/14/23 23:05	1
2-Hexanone	<10.0		10.0	2.00	ug/L			08/14/23 23:05	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			08/14/23 23:05	1
Acetone	<10.0		10.0	3.10	ug/L			08/14/23 23:05	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			08/14/23 23:05	1
Benzene	<0.500	0.500	0.500	0.220	ug/L			08/14/23 23:05	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			08/14/23 23:05	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			08/14/23 23:05	1
Bromoform	<5.00		5.00	0.780	ug/L			08/14/23 23:05	1
Bromomethane	<4.00		4.00	1.10	ug/L			08/14/23 23:05	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			08/14/23 23:05	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			08/14/23 23:05	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			08/14/23 23:05	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			08/14/23 23:05	1
Chloroethane	<4.00		4.00	0.790	ug/L			08/14/23 23:05	1
Chloroform	<3.00		3.00	1.30	ug/L			08/14/23 23:05	1
Chloromethane	<3.00		3.00	0.610	ug/L			08/14/23 23:05	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			08/14/23 23:05	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			08/14/23 23:05	1
Dibromomethane	<1.00		1.00	0.330	ug/L			08/14/23 23:05	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			08/14/23 23:05	1
Iodomethane	<10.0		10.0	7.00	ug/L			08/14/23 23:05	1
Methylene chloride	<5.00		5.00	1.70	ug/L			08/14/23 23:05	1
Styrene	<1.00		1.00	0.370	ug/L			08/14/23 23:05	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			08/14/23 23:05	1
Toluene	<1.00		1.00	0.430	ug/L			08/14/23 23:05	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			08/14/23 23:05	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			08/14/23 23:05	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			08/14/23 23:05	1
Trichloroethene	<1.00		1.00	0.430	ug/L			08/14/23 23:05	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			08/14/23 23:05	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			08/14/23 23:05	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			08/14/23 23:05	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			08/14/23 23:05	1

Eurofins Cedar Falls

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-396529/5

Matrix: Water

Analysis Batch: 396529

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	97		80 - 128		08/14/23 23:05	1
Toluene-d8 (Surr)	98		80 - 120		08/14/23 23:05	1
4-Bromofluorobenzene (Surr)	106		80 - 120		08/14/23 23:05	1

Lab Sample ID: LCS 310-396529/6

Matrix: Water

Analysis Batch: 396529

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	20.0	17.48		ug/L		87	68 - 123
1,1,1,1-Trichloroethane	20.0	19.08		ug/L		95	71 - 128
1,1,1,2,2-Tetrachloroethane	20.0	18.53		ug/L		93	64 - 124
1,1,1,2-Trichloroethane	20.0	19.52		ug/L		98	70 - 124
1,1-Dichloroethane	20.0	19.00		ug/L		95	71 - 123
1,1-Dichloroethane	20.0	18.76		ug/L		94	61 - 129
1,2,3-Trichloropropane	20.0	16.80		ug/L		84	64 - 125
1,2-Dibromo-3-chloropropane	20.0	18.55		ug/L		93	50 - 150
1,2-Dibromoethane (EDB)	20.0	19.30		ug/L		96	73 - 125
1,2-Dichlorobenzene	20.0	18.40		ug/L		92	68 - 120
1,2-Dichloroethane	20.0	17.44		ug/L		87	70 - 124
1,2-Dichloropropane	20.0	17.95		ug/L		90	73 - 121
1,4-Dichlorobenzene	20.0	19.01		ug/L		95	67 - 120
2-Butanone (MEK)	40.0	35.48		ug/L		89	50 - 150
2-Hexanone	40.0	38.45		ug/L		96	60 - 132
4-Methyl-2-pentanone (MIBK)	40.0	36.54		ug/L		91	62 - 130
Acetone	40.0	37.58		ug/L		94	50 - 150
Acrylonitrile	200	197.1		ug/L		99	50 - 150
Benzene	20.0	19.62		ug/L		98	73 - 122
Bromochloromethane	20.0	18.27		ug/L		91	68 - 132
Bromodichloromethane	20.0	18.71		ug/L		94	72 - 121
Bromoform	20.0	17.86		ug/L		89	55 - 129
Carbon disulfide	20.0	19.05		ug/L		95	58 - 131
Carbon tetrachloride	20.0	18.55		ug/L		93	67 - 132
Chlorobenzene	20.0	18.43		ug/L		92	69 - 121
Chlorodibromomethane	20.0	18.56		ug/L		93	69 - 122
Chloroform	20.0	18.88		ug/L		94	72 - 120
cis-1,2-Dichloroethene	20.0	18.80		ug/L		94	74 - 120
cis-1,3-Dichloropropene	20.0	18.04		ug/L		90	71 - 126
Dibromomethane	20.0	17.75		ug/L		89	72 - 123
Ethylbenzene	20.0	18.46		ug/L		92	69 - 122
Iodomethane	20.0	18.32		ug/L		92	10 - 150
Methylene chloride	20.0	17.56		ug/L		88	50 - 150
Styrene	20.0	18.41		ug/L		92	67 - 125
Tetrachloroethene	20.0	20.69		ug/L		103	69 - 131
Toluene	20.0	19.02		ug/L		95	72 - 121
trans-1,2-Dichloroethene	20.0	18.71		ug/L		94	68 - 125
trans-1,3-Dichloropropene	20.0	15.63		ug/L		78	68 - 124

Eurofins Cedar Falls

# QC Sample Results

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-396529/6

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 396529

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier				
trans-1,4-Dichloro-2-butene	20.0	16.93		ug/L		85	48 - 150
Trichloroethene	20.0	17.40		ug/L		87	73 - 126
Vinyl acetate	40.0	38.55		ug/L		96	50 - 150
Xylenes, Total	40.0	36.68		ug/L		92	68 - 124

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	98		80 - 128
Toluene-d8 (Surr)	105		80 - 120
4-Bromofluorobenzene (Surr)	102		80 - 120

Lab Sample ID: LCS 310-396529/7

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 396529

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier				
Bromomethane	20.0	20.04		ug/L		100	24 - 150
Chloroethane	20.0	18.04		ug/L		90	51 - 137
Chloromethane	20.0	20.56		ug/L		103	37 - 150
Trichlorofluoromethane	20.0	22.79		ug/L		114	56 - 144
Vinyl chloride	20.0	22.15		ug/L		111	57 - 136

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	96		80 - 128
Toluene-d8 (Surr)	101		80 - 120
4-Bromofluorobenzene (Surr)	103		80 - 120

Lab Sample ID: MB 310-396647/5

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 396647

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			08/15/23 11:27	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			08/15/23 11:27	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			08/15/23 11:27	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			08/15/23 11:27	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			08/15/23 11:27	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			08/15/23 11:27	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			08/15/23 11:27	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			08/15/23 11:27	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			08/15/23 11:27	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			08/15/23 11:27	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			08/15/23 11:27	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			08/15/23 11:27	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			08/15/23 11:27	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			08/15/23 11:27	1
2-Hexanone	<10.0		10.0	2.00	ug/L			08/15/23 11:27	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			08/15/23 11:27	1

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-396647/5

Matrix: Water

Analysis Batch: 396647

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	<10.0		10.0	3.10	ug/L			08/15/23 11:27	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			08/15/23 11:27	1
Benzene	<0.500		0.500	0.220	ug/L			08/15/23 11:27	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			08/15/23 11:27	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			08/15/23 11:27	1
Bromoform	<5.00		5.00	0.780	ug/L			08/15/23 11:27	1
Bromomethane	<4.00		4.00	1.10	ug/L			08/15/23 11:27	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			08/15/23 11:27	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			08/15/23 11:27	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			08/15/23 11:27	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			08/15/23 11:27	1
Chloroethane	<4.00		4.00	0.790	ug/L			08/15/23 11:27	1
Chloroform	<3.00		3.00	1.30	ug/L			08/15/23 11:27	1
Chloromethane	<3.00		3.00	0.610	ug/L			08/15/23 11:27	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			08/15/23 11:27	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			08/15/23 11:27	1
Dibromomethane	<1.00		1.00	0.330	ug/L			08/15/23 11:27	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			08/15/23 11:27	1
Iodomethane	<10.0		10.0	7.00	ug/L			08/15/23 11:27	1
Methylene chloride	<5.00		5.00	1.70	ug/L			08/15/23 11:27	1
Styrene	<1.00		1.00	0.370	ug/L			08/15/23 11:27	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			08/15/23 11:27	1
Toluene	<1.00		1.00	0.430	ug/L			08/15/23 11:27	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			08/15/23 11:27	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			08/15/23 11:27	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			08/15/23 11:27	1
Trichloroethene	<1.00		1.00	0.430	ug/L			08/15/23 11:27	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			08/15/23 11:27	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			08/15/23 11:27	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			08/15/23 11:27	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			08/15/23 11:27	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	130	S1+	80 - 128		08/15/23 11:27	1
Toluene-d8 (Surr)	95		80 - 120		08/15/23 11:27	1
4-Bromofluorobenzene (Surr)	101		80 - 120		08/15/23 11:27	1

Lab Sample ID: LCS 310-396647/6

Matrix: Water

Analysis Batch: 396647

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	20.0	22.15		ug/L		111	71 - 128
1,1,2,2-Tetrachloroethane	20.0	18.01		ug/L		90	64 - 124
1,1,2-Trichloroethane	20.0	16.51		ug/L		83	70 - 124
1,1-Dichloroethane	20.0	21.78		ug/L		109	71 - 123

Eurofins Cedar Falls

# QC Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-396647/6

Matrix: Water

Analysis Batch: 396647

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier				
1,1-Dichloroethene	20.0	22.19		ug/L		111	61 - 129
1,2,3-Trichloropropane	20.0	18.37		ug/L		92	64 - 125
1,2-Dibromo-3-chloropropane	20.0	18.37		ug/L		92	50 - 150
1,2-Dibromoethane (EDB)	20.0	17.67		ug/L		88	73 - 125
1,2-Dichlorobenzene	20.0	18.34		ug/L		92	68 - 120
1,2-Dichloroethane	20.0	20.42		ug/L		102	70 - 124
1,2-Dichloropropane	20.0	20.22		ug/L		101	73 - 121
1,4-Dichlorobenzene	20.0	18.19		ug/L		91	67 - 120
2-Butanone (MEK)	40.0	31.75		ug/L		79	50 - 150
2-Hexanone	40.0	35.20		ug/L		88	60 - 132
4-Methyl-2-pentanone (MIBK)	40.0	34.99		ug/L		87	62 - 130
Acetone	40.0	36.06		ug/L		90	50 - 150
Acrylonitrile	200	200.5		ug/L		100	50 - 150
Benzene	20.0	20.57		ug/L		103	73 - 122
Bromochloromethane	20.0	21.66		ug/L		108	68 - 132
Bromodichloromethane	20.0	19.55		ug/L		98	72 - 121
Bromoform	20.0	17.79		ug/L		89	55 - 129
Carbon disulfide	20.0	21.56		ug/L		108	58 - 131
Carbon tetrachloride	20.0	21.19		ug/L		106	67 - 132
Chlorobenzene	20.0	19.00		ug/L		95	69 - 121
Chlorodibromomethane	20.0	17.32		ug/L		87	69 - 122
Chloroform	20.0	20.58		ug/L		103	72 - 120
cis-1,2-Dichloroethene	20.0	21.33		ug/L		107	74 - 120
cis-1,3-Dichloropropene	20.0	16.10		ug/L		80	71 - 126
Dibromomethane	20.0	20.20		ug/L		101	72 - 123
Ethylbenzene	20.0	19.85		ug/L		99	69 - 122
Iodomethane	20.0	21.39		ug/L		107	10 - 150
Methylene chloride	20.0	21.90		ug/L		109	50 - 150
Styrene	20.0	19.92		ug/L		100	67 - 125
Tetrachloroethene	20.0	19.77		ug/L		99	69 - 131
Toluene	20.0	19.32		ug/L		97	72 - 121
trans-1,2-Dichloroethene	20.0	21.47		ug/L		107	68 - 125
trans-1,3-Dichloropropene	20.0	19.26		ug/L		96	68 - 124
trans-1,4-Dichloro-2-butene	20.0	18.54		ug/L		93	48 - 150
Trichloroethene	20.0	19.38		ug/L		97	73 - 126
Vinyl acetate	40.0	33.83		ug/L		85	50 - 150
Xylenes, Total	40.0	39.98		ug/L		100	68 - 124

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	110		80 - 128
Toluene-d8 (Surr)	99		80 - 120
4-Bromofluorobenzene (Surr)	99		80 - 120



# QC Sample Results

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-396647/7

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 396647

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromomethane	20.0	20.84		ug/L		104	24 - 150
Chloroethane	20.0	20.13		ug/L		101	51 - 137
Chloromethane	20.0	21.66		ug/L		108	37 - 150
Trichlorofluoromethane	20.0	21.56		ug/L		108	56 - 144
Vinyl chloride	20.0	21.91		ug/L		110	57 - 136

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	131	S1+	80 - 128
Toluene-d8 (Surr)	95		80 - 120
4-Bromofluorobenzene (Surr)	99		80 - 120

Lab Sample ID: MB 310-397418/5

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 397418

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			08/22/23 23:57	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			08/22/23 23:57	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			08/22/23 23:57	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			08/22/23 23:57	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			08/22/23 23:57	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			08/22/23 23:57	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			08/22/23 23:57	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			08/22/23 23:57	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			08/22/23 23:57	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			08/22/23 23:57	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			08/22/23 23:57	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			08/22/23 23:57	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			08/22/23 23:57	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			08/22/23 23:57	1
2-Hexanone	<10.0		10.0	2.00	ug/L			08/22/23 23:57	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			08/22/23 23:57	1
Acetone	<10.0		10.0	3.10	ug/L			08/22/23 23:57	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			08/22/23 23:57	1
Benzene	<0.500		0.500	0.220	ug/L			08/22/23 23:57	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			08/22/23 23:57	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			08/22/23 23:57	1
Bromoform	<5.00		5.00	0.780	ug/L			08/22/23 23:57	1
Bromomethane	<4.00		4.00	1.10	ug/L			08/22/23 23:57	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			08/22/23 23:57	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			08/22/23 23:57	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			08/22/23 23:57	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			08/22/23 23:57	1
Chloroethane	<4.00		4.00	0.790	ug/L			08/22/23 23:57	1
Chloroform	<3.00		3.00	1.30	ug/L			08/22/23 23:57	1
Chloromethane	<3.00		3.00	0.610	ug/L			08/22/23 23:57	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			08/22/23 23:57	1

Eurofins Cedar Falls

# QC Sample Results

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-397418/5

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 397418

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			08/22/23 23:57	1
Dibromomethane	<1.00		1.00	0.330	ug/L			08/22/23 23:57	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			08/22/23 23:57	1
Iodomethane	<10.0		10.0	7.00	ug/L			08/22/23 23:57	1
Methylene chloride	<5.00		5.00	1.70	ug/L			08/22/23 23:57	1
Styrene	<1.00		1.00	0.370	ug/L			08/22/23 23:57	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			08/22/23 23:57	1
Toluene	<1.00		1.00	0.430	ug/L			08/22/23 23:57	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			08/22/23 23:57	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			08/22/23 23:57	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			08/22/23 23:57	1
Trichloroethene	<1.00		1.00	0.430	ug/L			08/22/23 23:57	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			08/22/23 23:57	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			08/22/23 23:57	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			08/22/23 23:57	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			08/22/23 23:57	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Dibromofluoromethane (Surr)	120		80 - 128		08/22/23 23:57	1
Toluene-d8 (Surr)	93		80 - 120		08/22/23 23:57	1
4-Bromofluorobenzene (Surr)	100		80 - 120		08/22/23 23:57	1

Lab Sample ID: LCS 310-397418/6

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 397418

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	20.0	21.31		ug/L		107	71 - 128
1,1,2,2-Tetrachloroethane	20.0	18.69		ug/L		93	64 - 124
1,1,2-Trichloroethane	20.0	17.59		ug/L		88	70 - 124
1,1-Dichloroethane	20.0	21.76		ug/L		109	71 - 123
1,1-Dichloroethene	20.0	21.40		ug/L		107	61 - 129
1,2,3-Trichloropropane	20.0	18.69		ug/L		93	64 - 125
1,2-Dibromo-3-chloropropane	20.0	18.33		ug/L		92	50 - 150
1,2-Dibromoethane (EDB)	20.0	18.14		ug/L		91	73 - 125
1,2-Dichlorobenzene	20.0	17.89		ug/L		89	68 - 120
1,2-Dichloroethane	20.0	21.10		ug/L		105	70 - 124
1,2-Dichloropropane	20.0	20.81		ug/L		104	73 - 121
1,4-Dichlorobenzene	20.0	17.61		ug/L		88	67 - 120
2-Butanone (MEK)	40.0	36.75		ug/L		92	50 - 150
2-Hexanone	40.0	37.57		ug/L		94	60 - 132
4-Methyl-2-pentanone (MIBK)	40.0	39.10		ug/L		98	62 - 130
Acetone	40.0	42.68		ug/L		107	50 - 150
Acrylonitrile	200	222.7		ug/L		111	50 - 150
Benzene	20.0	20.41		ug/L		102	73 - 122
Bromochloromethane	20.0	21.31		ug/L		107	68 - 132

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

## Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-397418/6

Matrix: Water

Analysis Batch: 397418

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromodichloromethane	20.0	19.81		ug/L		99	72 - 121
Bromoform	20.0	17.24		ug/L		86	55 - 129
Carbon disulfide	20.0	21.00		ug/L		105	58 - 131
Carbon tetrachloride	20.0	20.37		ug/L		102	67 - 132
Chlorobenzene	20.0	18.34		ug/L		92	69 - 121
Chlorodibromomethane	20.0	17.15		ug/L		86	69 - 122
Chloroform	20.0	20.40		ug/L		102	72 - 120
cis-1,2-Dichloroethene	20.0	21.08		ug/L		105	74 - 120
cis-1,3-Dichloropropene	20.0	15.58		ug/L		78	71 - 126
Dibromomethane	20.0	20.85		ug/L		104	72 - 123
Ethylbenzene	20.0	19.27		ug/L		96	69 - 122
Iodomethane	20.0	18.34		ug/L		92	10 - 150
Methylene chloride	20.0	22.33		ug/L		112	50 - 150
Styrene	20.0	19.32		ug/L		97	67 - 125
Tetrachloroethene	20.0	18.51		ug/L		93	69 - 131
Toluene	20.0	18.94		ug/L		95	72 - 121
trans-1,2-Dichloroethene	20.0	20.69		ug/L		103	68 - 125
trans-1,3-Dichloropropene	20.0	18.48		ug/L		92	68 - 124
trans-1,4-Dichloro-2-butene	20.0	17.18		ug/L		86	48 - 150
Trichloroethene	20.0	19.19		ug/L		96	73 - 126
Vinyl acetate	40.0	32.98		ug/L		82	50 - 150
Xylenes, Total	40.0	38.10		ug/L		95	68 - 124

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	105		80 - 128
Toluene-d8 (Surr)	97		80 - 120
4-Bromofluorobenzene (Surr)	100		80 - 120

Lab Sample ID: LCS 310-397418/7

Matrix: Water

Analysis Batch: 397418

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromomethane	20.0	18.16		ug/L		91	24 - 150
Chloroethane	20.0	19.63		ug/L		98	51 - 137
Chloromethane	20.0	20.53		ug/L		103	37 - 150
Trichlorofluoromethane	20.0	20.78		ug/L		104	56 - 144
Vinyl chloride	20.0	21.14		ug/L		106	57 - 136

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	129	S1+	80 - 128
Toluene-d8 (Surr)	93		80 - 120
4-Bromofluorobenzene (Surr)	98		80 - 120

Eurofins Cedar Falls

# QC Sample Results

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

## Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-396715/1-A

Matrix: Water

Analysis Batch: 397621

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 396715

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	<0.00200		0.00200	0.000530	mg/L		08/16/23 08:40	08/24/23 02:43	1
Barium	<0.00200		0.00200	0.000640	mg/L		08/16/23 08:40	08/24/23 02:43	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/16/23 08:40	08/24/23 02:43	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/16/23 08:40	08/24/23 02:43	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 02:43	1
Cobalt	<0.000500		0.000500	0.000170	mg/L		08/16/23 08:40	08/24/23 02:43	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/16/23 08:40	08/24/23 02:43	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/16/23 08:40	08/24/23 02:43	1
Nickel	<0.00500		0.00500	0.00190	mg/L		08/16/23 08:40	08/24/23 02:43	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/16/23 08:40	08/24/23 02:43	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/16/23 08:40	08/24/23 02:43	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/16/23 08:40	08/24/23 02:43	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/16/23 08:40	08/24/23 02:43	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/16/23 08:40	08/24/23 02:43	1

Lab Sample ID: MB 310-396715/1-A

Matrix: Water

Analysis Batch: 397697

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 396715

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200	0.00100	mg/L		08/16/23 08:40	08/24/23 14:50	1

Lab Sample ID: LCS 310-396715/2-A

Matrix: Water

Analysis Batch: 397621

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 396715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.100	0.09997		mg/L		100	80 - 120
Beryllium	0.100	0.09063		mg/L		91	80 - 120
Cadmium	0.100	0.09510		mg/L		95	80 - 120
Chromium	0.100	0.09469		mg/L		95	80 - 120
Cobalt	0.100	0.09639		mg/L		96	80 - 120
Copper	0.200	0.1960		mg/L		98	80 - 120
Lead	0.200	0.1950		mg/L		98	80 - 120
Nickel	0.200	0.1949		mg/L		97	80 - 120
Selenium	0.400	0.3736		mg/L		93	80 - 120
Silver	0.100	0.09624		mg/L		96	80 - 120
Vanadium	0.100	0.09540		mg/L		95	80 - 120
Zinc	0.200	0.1902		mg/L		95	80 - 120

Lab Sample ID: LCS 310-396715/2-A

Matrix: Water

Analysis Batch: 397697

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 396715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Thallium	0.200	0.1618		mg/L		81	80 - 120

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# QC Sample Results

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

## Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-396493/1  
 Matrix: Water  
 Analysis Batch: 396493

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			08/14/23 08:57	1

Lab Sample ID: LCS 310-396493/2  
 Matrix: Water  
 Analysis Batch: 396493

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	94.00		mg/L		94	75 - 116

Lab Sample ID: MB 310-396501/1  
 Matrix: Water  
 Analysis Batch: 396501

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			08/14/23 09:56	1

Lab Sample ID: LCS 310-396501/2  
 Matrix: Water  
 Analysis Batch: 396501

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.00		mg/L		95	75 - 116

## Method: SM 4500 S2 F - Sulfide, Total

Lab Sample ID: MB 310-396767/1-A  
 Matrix: Water  
 Analysis Batch: 396768

Client Sample ID: Method Blank  
 Prep Type: Total/NA  
 Prep Batch: 396767

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.00		2.00	1.50	mg/L		08/16/23 08:53	08/16/23 08:53	1

Lab Sample ID: LCS 310-396767/2-A  
 Matrix: Water  
 Analysis Batch: 396768

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA  
 Prep Batch: 396767

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	5.00	2.000		mg/L		40	11 - 122

Lab Sample ID: 310-262479-3 MS  
 Matrix: Ground Water  
 Analysis Batch: 396768

Client Sample ID: MW-29  
 Prep Type: Total/NA  
 Prep Batch: 396767

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	<2.00		5.00	2.000		mg/L		40	10 - 122

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# QC Sample Results

Client: SCS Engineers  
Project/Site: Great River Regional Waste Authority 2nd 2023  
Semi

Job ID: 310-262479-1

## Method: SM 4500 S2 F - Sulfide, Total (Continued)

Lab Sample ID: 310-262479-3 MSD  
Matrix: Ground Water  
Analysis Batch: 396768

Client Sample ID: MW-29  
Prep Type: Total/NA  
Prep Batch: 396767

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfide	<2.00		5.00	2.000		mg/L		40	10 - 122	0	26

- 1
- 2
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- 14
- 15

# QC Association Summary

Client: SCS Engineers  
Project/Site: Great River Regional Waste Authority 2nd 2023  
Semi

Job ID: 310-262479-1

## GC/MS VOA

### Analysis Batch: 396529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-1	MW-26	Total/NA	Ground Water	8260D	
310-262479-2	MW-28	Total/NA	Ground Water	8260D	
310-262479-3	MW-29	Total/NA	Ground Water	8260D	
310-262479-5	GU-3A	Total/NA	Water	8260D	
310-262479-6	Trip Blank	Total/NA	Water	8260D	
MB 310-396529/5	Method Blank	Total/NA	Water	8260D	
LCS 310-396529/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-396529/7	Lab Control Sample	Total/NA	Water	8260D	

### Analysis Batch: 396647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-4	MW-D	Total/NA	Ground Water	8260D	
MB 310-396647/5	Method Blank	Total/NA	Water	8260D	
LCS 310-396647/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-396647/7	Lab Control Sample	Total/NA	Water	8260D	

### Analysis Batch: 397418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-4	MW-D	Total/NA	Ground Water	8260D	
MB 310-397418/5	Method Blank	Total/NA	Water	8260D	
LCS 310-397418/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-397418/7	Lab Control Sample	Total/NA	Water	8260D	

## Metals

### Prep Batch: 396715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-1	MW-26	Total/NA	Ground Water	3005A	
310-262479-2	MW-28	Total/NA	Ground Water	3005A	
310-262479-3	MW-29	Total/NA	Ground Water	3005A	
310-262479-4	MW-D	Total/NA	Ground Water	3005A	
310-262479-5	GU-3A	Total/NA	Water	3005A	
MB 310-396715/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-396715/2-A	Lab Control Sample	Total/NA	Water	3005A	

### Analysis Batch: 397621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-1	MW-26	Total/NA	Ground Water	6020B	396715
310-262479-2	MW-28	Total/NA	Ground Water	6020B	396715
310-262479-3	MW-29	Total/NA	Ground Water	6020B	396715
310-262479-4	MW-D	Total/NA	Ground Water	6020B	396715
310-262479-5	GU-3A	Total/NA	Water	6020B	396715
MB 310-396715/1-A	Method Blank	Total/NA	Water	6020B	396715
LCS 310-396715/2-A	Lab Control Sample	Total/NA	Water	6020B	396715

### Analysis Batch: 397697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-1	MW-26	Total/NA	Ground Water	6020B	396715
310-262479-2	MW-28	Total/NA	Ground Water	6020B	396715
310-262479-3	MW-29	Total/NA	Ground Water	6020B	396715

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# QC Association Summary

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

## Metals (Continued)

### Analysis Batch: 397697 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-4	MW-D	Total/NA	Ground Water	6020B	396715
310-262479-5	GU-3A	Total/NA	Water	6020B	396715
MB 310-396715/1-A	Method Blank	Total/NA	Water	6020B	396715
LCS 310-396715/2-A	Lab Control Sample	Total/NA	Water	6020B	396715

## General Chemistry

### Analysis Batch: 396493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-4	MW-D	Total/NA	Ground Water	I-3765-85	
MB 310-396493/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-396493/2	Lab Control Sample	Total/NA	Water	I-3765-85	

### Analysis Batch: 396501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-1	MW-26	Total/NA	Ground Water	I-3765-85	
310-262479-2	MW-28	Total/NA	Ground Water	I-3765-85	
310-262479-3	MW-29	Total/NA	Ground Water	I-3765-85	
310-262479-5	GU-3A	Total/NA	Water	I-3765-85	
MB 310-396501/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-396501/2	Lab Control Sample	Total/NA	Water	I-3765-85	

### Prep Batch: 396767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-3	MW-29	Total/NA	Ground Water	SM 4500 S2 C	
MB 310-396767/1-A	Method Blank	Total/NA	Water	SM 4500 S2 C	
LCS 310-396767/2-A	Lab Control Sample	Total/NA	Water	SM 4500 S2 C	
310-262479-3 MS	MW-29	Total/NA	Ground Water	SM 4500 S2 C	
310-262479-3 MSD	MW-29	Total/NA	Ground Water	SM 4500 S2 C	

### Analysis Batch: 396768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-262479-3	MW-29	Total/NA	Ground Water	SM 4500 S2 F	396767
MB 310-396767/1-A	Method Blank	Total/NA	Water	SM 4500 S2 F	396767
LCS 310-396767/2-A	Lab Control Sample	Total/NA	Water	SM 4500 S2 F	396767
310-262479-3 MS	MW-29	Total/NA	Ground Water	SM 4500 S2 F	396767
310-262479-3 MSD	MW-29	Total/NA	Ground Water	SM 4500 S2 F	396767



# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: MW-26**

**Lab Sample ID: 310-262479-1**

Date Collected: 08/10/23 10:27

Matrix: Ground Water

Date Received: 08/11/23 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	396529	FE5V	EET CF	08/15/23 05:51
Total/NA	Prep	3005A			396715	KCK5	EET CF	08/16/23 08:40
Total/NA	Analysis	6020B		1	397621	A6US	EET CF	08/24/23 03:14
Total/NA	Prep	3005A			396715	KCK5	EET CF	08/16/23 08:40
Total/NA	Analysis	6020B		1	397697	A6US	EET CF	08/24/23 15:03
Total/NA	Analysis	I-3765-85		1	396501	T8GC	EET CF	08/14/23 09:56

**Client Sample ID: MW-28**

**Lab Sample ID: 310-262479-2**

Date Collected: 08/09/23 17:50

Matrix: Ground Water

Date Received: 08/11/23 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	396529	FE5V	EET CF	08/15/23 06:13
Total/NA	Prep	3005A			396715	KCK5	EET CF	08/16/23 08:40
Total/NA	Analysis	6020B		1	397621	A6US	EET CF	08/24/23 03:16
Total/NA	Prep	3005A			396715	KCK5	EET CF	08/16/23 08:40
Total/NA	Analysis	6020B		1	397697	A6US	EET CF	08/24/23 15:05
Total/NA	Analysis	I-3765-85		1	396501	T8GC	EET CF	08/14/23 09:56

**Client Sample ID: MW-29**

**Lab Sample ID: 310-262479-3**

Date Collected: 08/09/23 17:08

Matrix: Ground Water

Date Received: 08/11/23 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	396529	FE5V	EET CF	08/15/23 06:36
Total/NA	Prep	3005A			396715	KCK5	EET CF	08/16/23 08:40
Total/NA	Analysis	6020B		1	397621	A6US	EET CF	08/24/23 03:19
Total/NA	Prep	3005A			396715	KCK5	EET CF	08/16/23 08:40
Total/NA	Analysis	6020B		1	397697	A6US	EET CF	08/24/23 15:08
Total/NA	Analysis	I-3765-85		1	396501	T8GC	EET CF	08/14/23 09:56
Total/NA	Prep	SM 4500 S2 C			396767	DGU1	EET CF	08/16/23 08:53
Total/NA	Analysis	SM 4500 S2 F		1	396768	DGU1	EET CF	08/16/23 08:53

**Client Sample ID: MW-D**

**Lab Sample ID: 310-262479-4**

Date Collected: 08/09/23 17:50

Matrix: Ground Water

Date Received: 08/11/23 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	396647	FE5V	EET CF	08/15/23 18:16
Total/NA	Analysis	8260D		1	397418	FE5V	EET CF	08/23/23 01:28
Total/NA	Prep	3005A			396715	KCK5	EET CF	08/16/23 08:40
Total/NA	Analysis	6020B		1	397621	A6US	EET CF	08/24/23 03:21
Total/NA	Prep	3005A			396715	KCK5	EET CF	08/16/23 08:40
Total/NA	Analysis	6020B		1	397697	A6US	EET CF	08/24/23 15:10

Eurofins Cedar Falls

# Lab Chronicle

Client: SCS Engineers  
 Project/Site: Great River Regional Waste Authority 2nd 2023  
 Semi

Job ID: 310-262479-1

**Client Sample ID: MW-D**

**Lab Sample ID: 310-262479-4**

Date Collected: 08/09/23 17:50

Matrix: Ground Water

Date Received: 08/11/23 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	I-3765-85		1	396493	T8GC	EET CF	08/14/23 08:57

**Client Sample ID: GU-3A**

**Lab Sample ID: 310-262479-5**

Date Collected: 08/10/23 12:30

Matrix: Water

Date Received: 08/11/23 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	396529	FE5V	EET CF	08/15/23 06:59
Total/NA	Prep	3005A			396715	KCK5	EET CF	08/16/23 08:40
Total/NA	Analysis	6020B		1	397621	A6US	EET CF	08/24/23 03:24
Total/NA	Prep	3005A			396715	KCK5	EET CF	08/16/23 08:40
Total/NA	Analysis	6020B		1	397697	A6US	EET CF	08/24/23 15:12
Total/NA	Analysis	I-3765-85		1	396501	T8GC	EET CF	08/14/23 09:56

**Client Sample ID: Trip Blank**

**Lab Sample ID: 310-262479-6**

Date Collected: 08/10/23 00:00

Matrix: Water

Date Received: 08/11/23 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	396529	FE5V	EET CF	08/15/23 00:35

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

# Accreditation/Certification Summary

Client: SCS Engineers  
Project/Site: Great River Regional Waste Authority 2nd 2023  
Semi

Job ID: 310-262479-1

## Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# Method Summary

Client: SCS Engineers

Job ID: 310-262479-1

Project/Site: Great River Regional Waste Authority 2nd 2023

Semi

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 4500 S2 F	Sulfide, Total	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
SM 4500 S2 C	Sulfide, Sample Pretreatment/Concentration	SM	EET CF

**Protocol References:**

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.

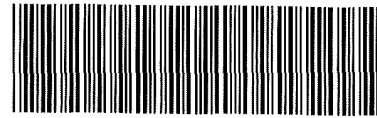
USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

**Laboratory References:**

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401



Environment Testing  
America



310-262479 Chain of Custody

### Cooler/Sample Receipt and Temperature Log Form

<b>Client Information</b>			
Client: <u>SCS</u>			
City/State:	CITY	STATE	Project:
		<u>IA</u>	
<b>Receipt Information</b>			
Date/Time Received:	DATE	TIME	Received By:
	<u>8/11/23</u>	<u>1615</u>	<u>ST</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee			
<input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
<b>Condition of Cooler/Containers</b>			
Sample(s) received in Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Cooler ID:</i>			
Multiple Coolers? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Cooler # _____ of _____</i>			
Cooler Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>			
Sample Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No</i>			
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes: Which VOA samples are in cooler? ↓</i>			
<u>HCl - All</u>			
<b>Temperature Record</b>			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>R</u>		Correction Factor (°C): <u>0</u>	
• <b>Temp Blank Temperature</b> – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>3.1</u>		Corrected Temp (°C): <u>3.1</u>	
• <b>Sample Container Temperature</b>			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
<b>Exceptions Noted</b>			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) <i>If yes: Is there evidence that the chilling process began?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
<b>Additional Comments</b>			



SAMPLER: Chad Deatlinger  
SITE NAME: Great River Regional Waste Authority Sanitary Landfill  
ADDRESS: \_\_\_\_\_  
CITY/STATE/ZIP: \_\_\_\_\_ Fax: \_\_\_\_\_  
TELEPHONE NUMBER: \_\_\_\_\_  
SAMPLED BY (PRINT NAME): Chad Deatlinger

REPORT TO: \_\_\_\_\_  
NAME: Nathan Ohrt  
COMPANY NAME: SCS Engineers  
PROJECT NAME: Great River Regional Waste Authority (2nd 2023 Semi-Annual)  
PROJECT NUMBER: 27223129\_24  
ADDRESS: 1590 All State Court, Suite 100  
CITY/STATE/ZIP: West Des Moines IA 50265

Sample ID	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Ice	Preservative							Matrix							Analyze For	Trip Blank	Fax Results										
								HNO <sub>3</sub> (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H <sub>2</sub> SO <sub>4</sub> Plastic (Yellow & White Label)	H <sub>2</sub> SO <sub>4</sub> Glass (Yellow & White Label)	None (Black & White Label)	Trip Blank	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Trip Blank	Appendix I				Sulfide	Total Suspended Solids								
MW-26	8-10	10:27		X			X								X				X															
MW 28	8-9	17:50		X			X								X				X															
MW-29	8-9	17:08		X			X								X				X															
PH2UD							X												X															
MW-D	8-9	17:50		X			X								X				X															
GU-3A	8-10	17:30		X			X								X				X															
Trip Blank																																		X
Requisitioned by: <u>Chad Deatlinger</u>	Date:	8-11-23	Time:	11:00	Received by:		Temperature Upon Receipt:		Comments:																			Shipped Via						
Shipped Via	Date:	8/11/23	Time:		Received by:		Temperature Upon Receipt:		Laboratory Comments: [1] For Appendix and analysis, report to the reporting limits, not the detection limit. Make sure that the reporting limits are below the EPA's MCL. [2] For analysis other than Appendix and II, report to the detection limit. Please make sure that the detection limits are below the EPA's MCL. [3] In the 'Result' column for all GDI files, when non-detect, please report '-'. The reporting limits or the detection limit instead of indicating with 'ND'.																									



## Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-262479-1

**Login Number: 262479**

**List Source: Eurofins Cedar Falls**

**List Number: 1**

**Creator: Tucker, Sarah L**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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	
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





**Appendix B-2**  
**Data Validation Documentation**



Completed by: Nathan Ohrt  
 Date of Sampling: 2/6-7/2023  
 Lab Report Date: 2/15/2023  
 Site Name: Great River Regional Waste Authority Sanitary Landfill  
 Project Type: 1<sup>st</sup> 2023 HMSP Phase 2  
 Lab Report Number: 310-249387

OK NO N/A NOTES

**Sample Collection and Sample Handling**

Chain of Custody	X		
Temperature	X		
Preservation	X		GU-3A was collected in a properly preserved vial; however, the pH was outside the required criteria when verified by the laboratory; the sample was analyzed within the 7-day holding time specified for unpreserved samples.
Condition	X		
Case Narrative	X		MW-26 was diluted due to the nature of the sample matrix; elevated reporting limits were provided.
Holding Times	X		

**Analytical Sensitivity and Blanks**

Method Blank Detections	X		No detections.
Trip Blank Detections	X		No detections.

**Accuracy**

ICV/CCV		X	CCVs recovered outside the control limit for 2-Hexanone and 4-Methyl-2-pentanone; the LCS passed using CCV criteria for the affected analytes so the data was reported.
LCS/LCSD		X	The LCS/LCSD recovered outside control limits for 1,2,3-Trichloropropane; the analyte was biased high in the LCS and not detected in the associated samples so the data was reported.
MS/MSD	X		
Surrogates (organics only)	X		

**Precision**

QA/QC Sample RPDs	X		
Field Duplicates	X		Sample MW-26 and duplicate sample MW-D has <50% RPD for analyzed parameters.

Completed by: Nathan Ohrt  
 Date of Sampling: 5/9/2023  
 Lab Report Date: 5/26/2023  
 Site Name: Great River Regional Waste Authority Sanitary Landfill  
 Project Type: May 2023 GU-3A Background  
 Lab Report Number: 310-255424

OK NO N/A NOTES

**Sample Collection and Sample Handling**

Chain of Custody	X		
Temperature	X		
Preservation	X		
Condition	X		
Case Narrative	X		
Holding Times	X		

**Analytical Sensitivity and Blanks**

Method Blank Detections	X		No detections.
Trip Blank Detections	X		No detections.

**Accuracy**

ICV/CCV		X	CCVs recovered above the upper control limit for multiple analytes; the samples were non-detect for the affected analytes so the data was reported.
LCS/LCSD		X	The LCS/LCSD recovered outside control limits for 1,1,1,2-Tetrachloroethane.; the analyte was biased high in the LCS and not detected in the associated samples so the data was reported.
MS/MSD	X		
Surrogates (organics only)	X		

**Precision**

QA/QC Sample RPDs	X		
Field Duplicates			X

Completed by: Nathan Ohrt  
 Date of Sampling: 8/9-10/2023  
 Lab Report Date: 8/25/2023  
 Site Name: Great River Regional Waste Authority Sanitary Landfill  
 Project Type: 2<sup>nd</sup> 2023 HMSP Phase 2  
 Lab Report Number: 310-262479

OK NO N/A NOTES

**Sample Collection and Sample Handling**

Chain of Custody	X		
Temperature	X		
Preservation	X		MW-28 and MW-29 were received with insufficient preservation and were preserved to the appropriate pH by the laboratory .
Condition	X		
Case Narrative	X		
Holding Times	X		

**Analytical Sensitivity and Blanks**

Method Blank Detections	X		No detections.
Trip Blank Detections	X		No detections.

**Accuracy**

ICV/CCV	X		
LCS/LCSD	X		
MS/MSD	X		
Surrogates (organics only)		X	The surrogate recovery for multiple analytical batches was outside the upper control limits. Surrogate recovery for MW-D was outside the upper control limit; the sample did not contain the target analyte so re-analysis was not performed.

**Precision**

QA/QC Sample RPDs	X		
Field Duplicates	X		Sample MW-28 and duplicate sample MW-D has <50% RPD for analyzed parameters.



**Appendix C**  
**Summary of Groundwater Chemistry**





# SCS ENGINEERS

Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
Total Metals Constituents Antimony, mg/L (CAS NO - 7440-36-0)	2/26/2008	N/A	< 0.003	N/A	N/A	< 0.003	< 0.003	N/A	< 0.003
	3/20/2008	N/A	< 0.003	N/A	N/A	< 0.003	< 0.003	N/A	< 0.003
	6/9/2008	< 0.003	< 0.003	N/A	N/A	< 0.003	< 0.003	N/A	< 0.003
	8/13/2008	< 0.003	< 0.003	N/A	N/A	< 0.003	< 0.003	N/A	< 0.003
	9/16/2008	< 0.003	N/A	N/A	N/A	< 0.003	< 0.003	N/A	N/A
	10/31/2008	N/A	< 0.003	N/A	N/A	N/A	N/A	N/A	0.0039
	3/17/2009	< 0.003	N/A	N/A	N/A	< 0.003	< 0.003	N/A	N/A
	9/15/2009	< 0.003	< 0.003	N/A	N/A	< 0.003	< 0.003	N/A	N/A
	3/16/2010	N/A	< 0.003	N/A	N/A	< 0.003	< 0.003	N/A	N/A
	8/31/2010	< 0.003	N/A	N/A	N/A	N/A	N/A	< 0.003	N/A
	9/21/2010	< 0.003	< 0.003	< 0.003	N/A	< 0.003	< 0.003	< 0.003	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 0.003	N/A
	2/4/2011	N/A	< 0.003	< 0.003	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 0.003	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 0.003	< 0.003	N/A	< 0.003	< 0.003	< 0.003	N/A
	3/15/2011	N/A	< 0.003	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.003	N/A
	9/13/2011	N/A	< 0.003	< 0.003	N/A	< 0.003	< 0.003	< 0.003	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 0.003	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.003	< 0.003	N/A
	3/27/2012	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	N/A
	3/27/2012	N/A	N/A	N/A	N/A	N/A	< 0.003	N/A	N/A
	9/11/2012	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 0.003	N/A
	3/20/2013	< 0.003	N/A	N/A	N/A	N/A	< 0.003	< 0.003	< 0.003
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.003	N/A
	9/3/2013	< 0.003	< 0.003	< 0.003	N/A	< 0.003	< 0.003	< 0.003	N/A
	9/3/2013	N/A	< 0.003	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 0.006	N/A	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006
	3/27/2014	N/A	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A
	9/15/2014	< 0.006	N/A	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006
	9/15/2014	< 0.006	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 0.001	N/A	N/A	N/A	0.000224	0.000439	< 0.001	< 0.001
	3/10/2015	N/A	N/A	N/A	N/A	0.00028	N/A	N/A	N/A
	8/31/2015	< 0.001	N/A	N/A	N/A	< 0.001	0.000262*	< 0.001	< 0.001
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	3/24/2016	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
	7/18/2016	< 0.001	0.00277	0.00325	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/2/2017	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/2/2017	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/2/2017	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
	5/1/2018	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	9/24/2018	< 0.003	< 0.003	< 0.003	N/A	< 0.003	< 0.003	< 0.003	< 0.003
	9/24/2018	N/A	N/A	N/A	N/A	< 0.003	N/A	N/A	N/A
	1/21/2019	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A
	8/13/2019	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	< 0.001
	9/10/2020	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	0.000633*
	9/10/2020	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002
	3/31/2021	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A
	8/30/2021	N/A	< 0.002	< 0.002	N/A	< 0.002	< 0.002	< 0.002	N/A
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.002	< 0.002	N/A	
5/24/2022	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 0.002	< 0.002	N/A	
8/17/2022	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	
2/6/2023	N/A	< 0.002	< 0.002	0.00195*	< 0.002	< 0.002	< 0.002	N/A	
2/6/2023	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	
5/9/2023	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	
8/9/2023	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	N/A	
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	
Arsenic, mg/L (CAS NO - 7440-38-2)	2/26/2008	N/A	0.0039	N/A	N/A	< 0.001	0.001	N/A	0.03
	3/20/2008	N/A	0.005	N/A	N/A	0.0012	< 0.001	N/A	0.02
	6/9/2008	0.014	0.021	N/A	N/A	0.0011	< 0.001	N/A	0.025
	8/13/2008	0.024	0.0024	N/A	N/A	0.0017	< 0.001	N/A	0.49
	9/16/2008	0.029	N/A	N/A	N/A	0.0013	< 0.001	N/A	N/A
	10/31/2008	N/A	0.0028	N/A	N/A	N/A	N/A	N/A	0.36
	3/17/2009	0.0082	N/A	N/A	N/A	< 0.001	0.0012	N/A	N/A
	9/15/2009	0.019	0.0028	N/A	N/A	0.0013	0.0035	N/A	N/A
	3/16/2010	N/A	0.0086	N/A	N/A	< 0.001	0.0017	N/A	N/A
	8/31/2010	0.011	N/A	N/A	N/A	N/A	N/A	0.0041	N/A
	9/21/2010	0.0084	0.0033	0.01	N/A	0.0016	0.0036	0.0049	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	0.0063	N/A
	2/4/2011	N/A	0.054	0.0055	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	0.062	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	0.026	0.0061	N/A	< 0.001	0.0032	0.012	N/A
	3/15/2011	N/A	0.026	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	0.0071	N/A
	9/13/2011	N/A	0.029	0.0022	N/A	0.0029	0.0039	0.008	N/A
	9/13/2011	N/A	N/A	N/A	N/A	0.0012	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	0.0028	0.0076	N/A
	3/27/2012	0.007	0.021	0.0011	N/A	0.0015	0.0031	0.0082	N/A
	3/27/2012	N/A	N/A	N/A	N/A	0.0014	N/A	N/A	N/A
	9/11/2012	0.0065	0.049	0.018	N/A	0.0018	0.003	0.0066	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	0.007	N/A
	3/20/2013	0.0072	N/A	N/A	N/A	< 0.001	< 0.001	0.0037	0.0084
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.0057	N/A
	9/3/2013	0.0033	0.019	0.005	N/A	< 0.001	0.0008	0.0021	N/A
9/3/2013	N/A	0.02	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014	0.00036	N/A	N/A	N/A	< 0.002	< 0.001	0.000425	< 0.001	
3/27/2014	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	
9/15/2014	0.00192	N/A	N/A	N/A	0.00243	0.00044	< 0.002	0.00163	
9/15/2014	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015	< 0.002	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	0.0121	
3/10/2015	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	
8/31/2015	< 0.002	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	0.01	
8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Total Metals Constituents Arsenic, mg/L (CAS NO - 7440-38-2)	3/24/2016	< 0.002	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	0.00473	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 0.002	< 0.002	N/A	
	7/18/2016	< 0.002	0.0156	0.018	N/A	< 0.002	< 0.002	< 0.002	0.00656	
	3/2/2017	< 0.002	N/A	N/A	N/A	< 0.002	< 0.002	0.006	0.000834*	
	3/2/2017	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	
	8/2/2017	< 0.002	0.022	0.0125	N/A	< 0.002	0.000602*	0.00539	0.000726*	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	0.00059*	N/A	N/A	
	5/1/2018	< 0.002	N/A	N/A	N/A	N/A	< 0.002	0.000837*	0.000788*	
	9/24/2018	0.000695*	0.0384	0.00812	N/A	0.00073*	0.00129	0.00424	0.0023	
	9/24/2018	N/A	N/A	N/A	N/A	0.000822*	N/A	N/A	N/A	
	1/21/2019	< 0.002	N/A	N/A	N/A	< 0.002	< 0.002	0.00164*	0.00326	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	
	8/13/2019	< 0.002	0.0838	0.0488	N/A	< 0.002	0.000774*	0.000916*	0.00896	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	0.000939*	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	< 0.002	< 0.002	0.00165*	0.00228	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00226	
	9/10/2020	N/A	0.0265	0.0299	N/A	< 0.002	< 0.002	0.00126*	0.00983	
	9/10/2020	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	
	3/31/2021	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	
	8/30/2021	N/A	0.0143	0.0361	N/A	< 0.002	0.00102*	0.00215	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	N/A	0.00182*	< 0.002	0.00128*	0.000833*	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	0.00144*	N/A	N/A	
	8/17/2022	N/A	N/A	0.0229	< 0.002	< 0.002	< 0.002	0.00214	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	0.00245	N/A	
	2/6/2023	N/A	0.0196	0.0297	0.0177	< 0.002	< 0.002	0.00119*	N/A	
	2/6/2023	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	0.00142*	N/A	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	0.00417	< 0.002	< 0.002	0.00172*	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	< 0.002	< 0.002	N/A	N/A	
	Barium, mg/L (CAS NO - 7440-39-3)	2/26/2008	N/A	0.15	N/A	N/A	0.37	0.11	N/A	0.21
		3/20/2008	N/A	0.24	N/A	N/A	0.21	0.035	N/A	0.17
		6/9/2008	0.48	0.47	N/A	N/A	0.11	0.059	N/A	0.31
		8/13/2008	0.58	0.075	N/A	N/A	0.11	0.067	N/A	1.5
		9/16/2008	0.65	N/A	N/A	N/A	0.087	0.045	N/A	N/A
10/31/2008		N/A	0.12	N/A	N/A	N/A	N/A	N/A	2.8	
3/17/2009		0.36	N/A	N/A	N/A	0.26	0.12	N/A	N/A	
9/15/2009		0.97	0.078	N/A	N/A	0.21	0.2	N/A	N/A	
3/16/2010		N/A	0.28	N/A	N/A	0.1	0.072	N/A	N/A	
8/31/2010		0.42	N/A	N/A	N/A	N/A	N/A	0.067	N/A	
9/21/2010		0.36	0.15	0.25	N/A	0.064	0.053	0.049	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	0.048	N/A	
2/4/2011		N/A	0.47	0.19	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	0.76	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	0.26	0.2	N/A	0.091	0.19	0.035	N/A	
3/15/2011		N/A	0.25	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	0.042	N/A	
9/13/2011		N/A	0.21	0.26	N/A	0.083	0.092	0.032	N/A	
9/13/2011		N/A	N/A	N/A	N/A	0.089	N/A	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	0.21	0.035	N/A	
3/27/2012		0.22	0.21	0.26	N/A	0.067	0.069	0.027	N/A	
3/27/2012		N/A	N/A	N/A	N/A	0.063	N/A	N/A	N/A	
9/11/2012		0.15	1.6	0.33	N/A	0.079	0.079	0.024	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	0.023	N/A	
3/20/2013		0.24	N/A	N/A	N/A	0.072	0.1	0.026	0.41	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	0.022	N/A	
9/3/2013		0.33	0.36	0.28	N/A	0.059	0.058	0.026	N/A	
9/3/2013		N/A	0.36	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		0.211	N/A	N/A	N/A	0.0605	0.0266	0.0102	0.415	
3/27/2014		N/A	N/A	N/A	N/A	0.0761	N/A	N/A	N/A	
9/15/2014		0.289	N/A	N/A	N/A	0.0483	0.123	0.0139	0.433	
9/15/2014		0.222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		0.11	N/A	N/A	N/A	0.0504	0.0211	0.0171	1.14	
3/10/2015		N/A	N/A	N/A	N/A	0.0486	N/A	N/A	N/A	
5/15/2015		N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.371	
8/31/2015		0.179	N/A	N/A	N/A	0.0496	0.0185	0.0169	0.653	
8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	0.0171	N/A		
3/24/2016	0.141	N/A	N/A	N/A	0.0422	0.0179	0.0162	0.527		
3/24/2016	N/A	N/A	N/A	N/A	N/A	0.0174	N/A	N/A		
7/18/2016	0.0534	0.214	0.188	N/A	0.0388	0.0172	0.0151	0.469		
3/2/2017	0.0837	N/A	N/A	N/A	0.0227	0.0179	0.0192	0.315		
3/2/2017	N/A	N/A	N/A	N/A	0.0309	N/A	N/A	N/A		
8/2/2017	0.0675	1.68	1.03	N/A	0.0463	0.0148	0.0157	0.321		
8/2/2017	N/A	N/A	N/A	N/A	N/A	0.016	N/A	N/A		
5/1/2018	0.0621	N/A	N/A	N/A	0.0493	0.0198	0.0162	0.392		
9/24/2018	0.0726	2.05	1.04	N/A	0.0412	0.0191	0.0178	0.376		
9/24/2018	N/A	N/A	N/A	N/A	0.04	N/A	N/A	N/A		
1/21/2019	0.0491	N/A	N/A	N/A	0.0343	0.0139	0.0157	0.494		
1/21/2019	N/A	N/A	N/A	N/A	N/A	0.0153	N/A	N/A		
8/13/2019	0.127	1.88	1.31	N/A	0.0401	0.0179	0.0166	1		
8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	0.0173	N/A		
3/24/2020	N/A	N/A	N/A	N/A	0.046	0.0189	0.0165	0.52		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.519		
9/10/2020	N/A	1.51	1.17	N/A	0.0399	0.0207	0.0155	0.321		
9/10/2020	N/A	N/A	N/A	N/A	0.041	N/A	N/A	N/A		
3/31/2021	N/A	N/A	N/A	N/A	0.0499	0.0224	0.0145	0.429		
3/31/2021	N/A	N/A	N/A	N/A	0.0423	N/A	N/A	N/A		
6/15/2021	N/A	N/A	N/A	N/A	N/A	0.0248	N/A	N/A		
8/30/2021	N/A	1.58	1.4	N/A	0.0416	0.0354	0.0161	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	0.0188	N/A	N/A		
5/24/2022	N/A	N/A	N/A	N/A	0.178	0.0416	0.0326	0.427		
5/24/2022	N/A	N/A	N/A	N/A	N/A	N/A	0.0207	N/A		
8/17/2022	N/A	N/A	1.15	0.248	0.0445	0.0185	0.0145	N/A		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	0.0141	N/A		
2/6/2023	N/A	1.87	1.43	0.374	0.0363	0.0211	0.0158	N/A		
2/6/2023	N/A	N/A	N/A	N/A	0.0337	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	N/A	0.506	N/A	N/A	N/A		
8/9/2023	N/A	N/A	N/A	N/A	0.234	0.059	0.0172	0.0144		
8/9/2023	N/A	N/A	N/A	N/A	N/A	0.0167	N/A	N/A		
Beryllium, mg/L (CAS NO - 7440-41-7)	2/26/2008	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	
	3/20/2008	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	
	6/9/2008	0.0018	0.0024	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	
	8/13/2008	0.0038	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	0.0014	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
<b>Total Metals Constituents</b>								
<b>Beryllium, mg/L (CAS NO - 7440-41-7)</b>								
9/16/2008	0.0042	N/A	N/A	N/A	< 0.001	< 0.001	N/A	N/A
10/31/2008	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	0.0022
3/17/2009	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	N/A	N/A
9/15/2009	0.0053	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	N/A
3/16/2010	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	N/A
8/31/2010	0.0012	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
9/21/2010	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
2/4/2011	N/A	< 0.001	< 0.001	N/A	N/A	N/A	N/A	N/A
2/4/2011	N/A	< 0.001	< 0.001	N/A	N/A	N/A	N/A	N/A
3/15/2011	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
3/15/2011	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
9/13/2011	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
9/13/2011	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A
3/27/2012	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
3/27/2012	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
9/11/2012	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
3/20/2013	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
9/3/2013	0.00063	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
9/3/2013	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A
3/27/2014	0.00104	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
3/27/2014	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
9/15/2014	0.00243	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
9/15/2014	0.00162	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/10/2015	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
3/10/2015	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
8/31/2015	< 0.001	N/A	N/A	N/A	< 0.001	0.000075*	< 0.001	< 0.005
8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
3/24/2016	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
3/24/2016	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
7/18/2016	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
3/2/2017	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
3/2/2017	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
8/2/2017	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
8/2/2017	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
5/1/2018	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
9/24/2018	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
9/24/2018	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
1/21/2019	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
8/13/2019	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
8/13/2019	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
3/24/2020	N/A	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001
9/10/2020	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	0.000361*
9/10/2020	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
3/31/2021	N/A	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
3/31/2021	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
8/30/2021	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
5/24/2022	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
5/24/2022	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A	N/A
8/17/2022	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
2/6/2023	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A
2/6/2023	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
5/9/2023	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
8/9/2023	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	N/A
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
<b>Cadmium, mg/L (CAS NO - 7440-43-9)</b>								
2/26/2008	N/A	< 0.001	< 0.001	N/A	< 0.001	0.0016	N/A	< 0.001
3/20/2008	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	N/A	< 0.001
6/9/2008	< 0.001	0.0022	< 0.001	N/A	< 0.001	< 0.001	N/A	< 0.001
8/13/2008	0.0012	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001
9/16/2008	0.0016	N/A	N/A	N/A	< 0.001	< 0.001	N/A	N/A
10/31/2008	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	0.0034
3/17/2009	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	N/A	N/A
9/15/2009	0.0027	< 0.001	N/A	N/A	< 0.001	0.0028	N/A	N/A
3/16/2010	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	N/A
8/31/2010	< 0.001	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
9/21/2010	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
2/4/2011	N/A	< 0.001	< 0.001	N/A	N/A	N/A	N/A	N/A
2/4/2011	N/A	< 0.001	< 0.001	N/A	N/A	N/A	N/A	N/A
3/15/2011	N/A	< 0.001	< 0.001	N/A	< 0.001	0.0015	< 0.001	N/A
3/15/2011	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
9/13/2011	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
9/13/2011	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A
3/27/2012	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
3/27/2012	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
9/11/2012	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
3/20/2013	< 0.0005	N/A	N/A	N/A	< 0.0005	0.00058	< 0.001	< 0.001
3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A
9/3/2013	0.00031	< 0.001	< 0.001	N/A	0.00025	0.00016	< 0.001	N/A
9/3/2013	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A
3/27/2014	0.000295	N/A	N/A	N/A	0.000445	0.00246	0.000163	< 0.0005
3/27/2014	N/A	N/A	N/A	N/A	0.000313	N/A	N/A	N/A
9/15/2014	0.00134	N/A	N/A	N/A	0.00138	0.00553	0.000187	< 0.0005
9/15/2014	0.00258	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/10/2015	< 0.0005	N/A	N/A	N/A	0.000217	0.00413	< 0.0005	< 0.0005
3/10/2015	N/A	N/A	N/A	N/A	0.000205	N/A	N/A	N/A
8/31/2015	< 0.0005	N/A	N/A	N/A	< 0.0005	0.000553	< 0.0005	< 0.0005
8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A
3/24/2016	0.00004*	N/A	N/A	N/A	< 0.0005	0.001	0.000083*	< 0.0005
3/24/2016	N/A	N/A	N/A	N/A	N/A	0.000963	N/A	N/A
7/18/2016	0.000084*	0.000383*	0.000503	N/A	< 0.0005	0.000496*	0.000041*	< 0.0005
3/2/2017	0.000069*	N/A	N/A	N/A	< 0.0005	0.00213	< 0.0005	< 0.0005
3/2/2017	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
<b>Total Metals Constituents</b>									
<b>Cadmium, mg/L (CAS NO - 7440-43-9)</b>									
	8/2/2017	< 0.0005	< 0.0005	< 0.0005	N/A	< 0.0005	0.0006	< 0.0005	< 0.0005
	8/2/2017	N/A	N/A	N/A	N/A	N/A	0.000541	N/A	N/A
	5/1/2018	< 0.0005	N/A	N/A	N/A	< 0.0005	0.000519	< 0.0005	< 0.0005
	9/24/2018	0.00018*	< 0.0005	< 0.0005	N/A	< 0.0005	0.000284*	0.000168*	< 0.0005
	9/24/2018	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A
	1/21/2019	< 0.0005	N/A	N/A	N/A	< 0.0005	0.000398*	< 0.0005	< 0.0005
	1/21/2019	N/A	N/A	N/A	N/A	N/A	0.00043*	N/A	N/A
	8/13/2019	< 0.0005	< 0.0005	< 0.0005	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 0.0001	0.000837	< 0.0001	< 0.0001
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0001
	9/10/2020	N/A	< 0.0001	< 0.0001	N/A	0.000086*	< 0.0001	< 0.0001	0.000586
	9/10/2020	N/A	N/A	N/A	N/A	0.000074*	N/A	N/A	N/A
	11/25/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00117
	2/24/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0001
	3/31/2021	N/A	N/A	N/A	N/A	< 0.0001	0.000053*	< 0.0001	< 0.0001
	3/31/2021	N/A	N/A	N/A	N/A	0.000056*	N/A	N/A	N/A
	6/15/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0001
	8/30/2021	N/A	< 0.0001	< 0.0001	N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.0001	N/A	N/A
	3/29/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0001
	5/24/2022	N/A	N/A	N/A	< 0.0001	0.000457	< 0.0001	< 0.0001	< 0.0001
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 0.0001	N/A	N/A
	8/17/2022	N/A	N/A	< 0.0001	< 0.0001	0.00018	< 0.0001	< 0.0001	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0001	N/A
	2/6/2023	N/A	< 0.0001	< 0.0001	0.00303	0.000098	< 0.0001	< 0.0001	N/A
	2/6/2023	N/A	N/A	N/A	N/A	0.000097	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A
<b>Chromium, mg/L (CAS NO - 7440-47-3)</b>									
	2/26/2008	N/A	0.015	N/A	N/A	< 0.004	< 0.004	N/A	0.0045
	3/20/2008	N/A	0.016	N/A	N/A	0.0045	< 0.004	N/A	< 0.004
	6/9/2008	0.038	0.059	N/A	N/A	0.0048	< 0.004	N/A	0.013
	8/13/2008	0.07	< 0.004	N/A	N/A	0.0067	< 0.004	N/A	0.029
	9/16/2008	0.08	N/A	N/A	N/A	0.0044	< 0.004	N/A	N/A
	10/31/2008	N/A	< 0.004	N/A	N/A	N/A	N/A	N/A	0.085
	3/17/2009	0.016	N/A	N/A	N/A	0.0042	< 0.004	N/A	N/A
	9/15/2009	0.046	< 0.004	N/A	N/A	0.005	0.0043	N/A	N/A
	3/16/2010	N/A	0.033	N/A	N/A	< 0.004	< 0.004	N/A	N/A
	8/31/2010	0.035	N/A	N/A	N/A	N/A	N/A	0.0068	N/A
	9/21/2010	0.03	0.0044	0.009	N/A	0.0045	< 0.004	0.0057	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	0.0042	N/A
	2/4/2011	N/A	0.0044	< 0.004	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	0.0041	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	0.0056	< 0.004	N/A	0.0053	0.0042	0.0055	N/A
	3/15/2011	N/A	0.0062	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	0.0053	N/A
	9/13/2011	N/A	0.0097	0.0046	N/A	0.025	0.017	0.0081	N/A
	9/13/2011	N/A	N/A	N/A	N/A	0.0047	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	0.006	0.0046	N/A
	3/27/2012	0.024	0.0079	< 0.004	N/A	< 0.004	< 0.004	< 0.004	N/A
	3/27/2012	N/A	N/A	< 0.004	N/A	< 0.004	N/A	N/A	N/A
	9/11/2012	0.016	0.046	0.0083	N/A	0.0059	0.0052	0.0053	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 0.004	N/A
	3/20/2013	0.018	N/A	N/A	N/A	< 0.004	< 0.004	< 0.004	0.0072
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.004	N/A
	9/3/2013	0.0077	0.00061	0.00067	N/A	0.00099	0.0011	0.0013	N/A
	9/3/2013	N/A	0.00067	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	0.0048	N/A	N/A	N/A	< 0.02	0.00772	0.00979	< 0.02
	3/27/2014	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	9/15/2014	< 0.02	N/A	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02
	9/15/2014	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/10/2015	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/31/2015	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/24/2016	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	7/18/2016	< 0.005	0.048	0.0513	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/2/2017	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/2/2017	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/2/2017	< 0.005	0.00101*	0.000934*	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	5/1/2018	< 0.005	N/A	N/A	N/A	< 0.005	0.000937*	< 0.005	< 0.005
	9/24/2018	0.00459*	0.00416*	0.00438*	N/A	0.00467*	0.00379*	0.00341*	0.00487*
	9/24/2018	N/A	N/A	N/A	N/A	0.00395*	N/A	N/A	N/A
	1/21/2019	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	8/13/2019	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	0.00101*
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005
	9/10/2020	N/A	< 0.005	< 0.005	N/A	< 0.005	0.00643	< 0.005	0.0123
	9/10/2020	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	11/25/2020	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/31/2021	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/30/2021	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	8/30/2021	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	N/A
	5/24/2022	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	8/17/2022	N/A	N/A	0.00142*	< 0.005	< 0.005	< 0.005	< 0.005	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	2/6/2023	N/A	< 0.005	< 0.005	0.0329	< 0.005	< 0.005	< 0.005	N/A
	2/6/2023	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
<b>Cobalt, mg/L (CAS NO - 7440-48-4)</b>									
	2/26/2008	N/A	0.0037	N/A	N/A	0.013	0.02	N/A	0.012
	3/20/2008	N/A	0.0061	N/A	N/A	0.009	0.016	N/A	0.0095
	6/9/2008	0.014	0.019	N/A	N/A	0.0091	0.021	N/A	0.0099
	8/13/2008	0.023	< 0.002	N/A	N/A	0.014	0.022	N/A	0.019
	9/16/2008	0.029	N/A	N/A	N/A	0.015	0.024	N/A	N/A
	10/31/2008	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	0.078

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Total Metals Constituents	Sample Date	MW-10R	GU-1	GU-2	GU-3A	MW-26	MW-28	MW-29	Phase2Underdrain
		UPG	DNG	DNG	DNG	DNG	DNG	DNG	DNG
Cobalt, mg/L (CAS NO - 7440-48-4)	3/17/2009	0.0076	N/A	N/A	N/A	0.011	0.037	N/A	N/A
	9/15/2009	0.019	< 0.002	N/A	N/A	0.0082	0.081	N/A	N/A
	3/16/2010	N/A	0.0084	N/A	N/A	0.012	0.059	N/A	N/A
	8/31/2010	0.0097	N/A	N/A	N/A	N/A	N/A	0.017	N/A
	9/21/2010	0.0084	0.0023	0.0062	N/A	0.01	0.06	0.022	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	0.022	N/A
	2/4/2011	N/A	0.004	0.012	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 0.002	0.014	N/A	0.0084	0.057	0.016	N/A
	3/15/2011	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	0.012	N/A
	9/13/2011	N/A	< 0.002	0.023	0.056	0.0066	0.056	0.01	N/A
	9/13/2011	N/A	N/A	N/A	N/A	0.0063	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	0.058	0.012	N/A
	3/27/2012	0.0061	< 0.002	0.026	N/A	0.0043	0.05	0.0055	N/A
	3/27/2012	N/A	N/A	N/A	N/A	0.0043	N/A	N/A	N/A
	9/11/2012	0.0054	0.004	0.033	N/A	0.0037	0.053	0.0049	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	0.0051	N/A
	3/20/2013	0.0075	N/A	N/A	N/A	0.0054	0.053	0.0063	< 0.002
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.0046	N/A
	9/3/2013	0.0057	0.00026	0.032	N/A	0.0077	0.051	0.0031	N/A
	9/3/2013	N/A	0.00033	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	0.00367	N/A	N/A	N/A	0.00637	0.0547	< 0.00482	< 0.00241
	3/27/2014	N/A	N/A	N/A	N/A	0.00666	N/A	N/A	N/A
	9/15/2014	0.00381	N/A	N/A	N/A	0.0117	0.0274	< 0.00241	< 0.00241
	9/15/2014	0.019	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 0.0005	N/A	N/A	N/A	0.00121	0.0182	0.0059	0.0016
	3/10/2015	N/A	N/A	N/A	N/A	0.00115	N/A	N/A	N/A
	8/31/2015	0.000161*	N/A	N/A	N/A	0.00823	0.000734	0.000574	0.00071*
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	0.000825*	N/A
	3/24/2016	0.000068*	N/A	N/A	N/A	0.00641	0.00166	0.00124	0.000587
	3/24/2016	N/A	N/A	N/A	N/A	N/A	0.00201	N/A	N/A
	7/18/2016	0.000043*	0.0315	0.0343	N/A	0.007	0.0115	0.00128	0.00128
	3/2/2017	0.000047*	N/A	N/A	N/A	0.00272	0.00577	0.00187	0.000475*
	3/2/2017	N/A	N/A	N/A	N/A	0.00162	N/A	N/A	N/A
	8/2/2017	0.000069*	0.000297*	0.000986	N/A	0.00994	0.00495	0.00443	0.00123
	8/2/2017	N/A	N/A	N/A	N/A	N/A	0.002	N/A	N/A
	5/1/2018	< 0.0005	N/A	N/A	N/A	0.0107	0.0201	0.00261	0.000389*
	9/24/2018	0.000525*	0.000479*	0.00102	N/A	0.00936	0.0118	0.00149	0.00059*
	9/24/2018	N/A	N/A	N/A	N/A	0.00872	N/A	N/A	N/A
	1/21/2019	0.000073*	N/A	N/A	N/A	0.00807	0.00225	0.00381	0.000387*
	1/21/2019	N/A	N/A	N/A	N/A	N/A	0.00265	N/A	N/A
	8/13/2019	< 0.0005	0.000955	0.00116	N/A	0.00748	0.019	0.00414	0.00181
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	0.00515	N/A
	3/24/2020	N/A	N/A	N/A	N/A	0.00647	0.0133	0.00372	0.000706
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000591
	9/10/2020	N/A	0.000494*	0.00118	N/A	0.00731	0.0178	0.00379	0.00594
	9/10/2020	N/A	N/A	N/A	N/A	0.00766	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	0.00747	0.0166	0.00112	0.000517
	3/31/2021	N/A	N/A	N/A	N/A	0.00566	N/A	N/A	N/A
8/30/2021	N/A	0.00078	0.00114	N/A	0.00622	0.0212	0.00264	N/A	
8/30/2021	N/A	N/A	N/A	N/A	N/A	0.0206	N/A	N/A	
5/24/2022	N/A	N/A	N/A	N/A	0.00189	0.00589	0.0163	0.00101	
5/24/2022	N/A	N/A	N/A	N/A	N/A	0.0166	N/A	N/A	
8/17/2022	N/A	N/A	0.00337	0.000604	0.00469	0.00591	0.00311	N/A	
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	0.00296	N/A	
2/6/2023	N/A	0.000576	0.00145	0.071	0.00131	0.0185	0.00295	N/A	
2/6/2023	N/A	N/A	N/A	N/A	0.00125	N/A	N/A	N/A	
5/9/2023	N/A	N/A	N/A	N/A	0.000372*	N/A	N/A	N/A	
8/9/2023	N/A	N/A	N/A	N/A	0.0024	0.00584	0.00304	N/A	
8/9/2023	N/A	N/A	N/A	N/A	N/A	0.00591	N/A	N/A	
Copper, mg/L (CAS NO - 7440-50-8)	2/26/2008	N/A	0.0096	N/A	N/A	0.029	0.023	N/A	0.005
	3/20/2008	N/A	0.011	N/A	N/A	0.017	0.0069	N/A	0.0036
	6/9/2008	0.038	0.048	N/A	N/A	0.012	0.0062	N/A	0.009
	8/13/2008	0.055	0.0032	N/A	N/A	0.025	0.0093	N/A	0.029
	9/16/2008	0.072	N/A	N/A	N/A	0.022	0.006	N/A	N/A
	10/31/2008	N/A	< 0.003	N/A	N/A	N/A	N/A	N/A	0.35
	3/17/2009	0.021	N/A	N/A	N/A	0.025	0.033	N/A	N/A
	9/15/2009	0.05	< 0.003	N/A	N/A	0.044	0.039	N/A	N/A
	3/16/2010	N/A	0.022	N/A	N/A	0.018	0.0094	N/A	N/A
	8/31/2010	0.025	N/A	N/A	N/A	N/A	N/A	0.01	N/A
	9/21/2010	0.02	0.0042	0.018	N/A	0.012	0.0069	0.0064	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	0.0067	N/A
	2/4/2011	N/A	0.025	0.01	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	0.012	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	0.01	0.0089	N/A	0.023	0.016	0.007	N/A
	3/15/2011	N/A	0.013	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	0.0088	N/A
	9/13/2011	N/A	0.018	0.021	N/A	0.021	0.015	0.006	N/A
	9/13/2011	N/A	N/A	N/A	N/A	0.016	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	0.2	0.0089	N/A
	3/27/2012	0.026	0.014	0.0099	N/A	0.0081	0.014	0.01	N/A
	3/27/2012	N/A	N/A	0.0075	N/A	0.0075	N/A	N/A	N/A
	9/11/2012	0.015	0.18	0.064	N/A	0.0062	0.01	0.005	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	0.0055	N/A
	3/20/2013	0.018	N/A	N/A	N/A	0.012	0.0061	0.0044	0.0078
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.0094	N/A
	9/3/2013	0.012	0.023	0.016	N/A	0.0082	0.0047	0.0082	N/A
	9/3/2013	N/A	0.02	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	0.00881	N/A	N/A	N/A	< 0.02	0.0253	0.0199	< 0.02
	3/27/2014	N/A	N/A	N/A	N/A	0.00944	N/A	N/A	N/A
	9/15/2014	0.019	N/A	N/A	N/A	0.0312	0.0359	0.00984	< 0.02
	9/15/2014	0.0109	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 0.002	N/A	N/A	N/A	0.00793	0.00638	0.00183	0.00089*
	3/10/2015	N/A	N/A	N/A	N/A	0.00707	N/A	N/A	N/A
	8/31/2015	0.00186*	N/A	N/A	N/A	0.00432	0.00461	0.00236	0.00193*
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	0.00211	N/A
	3/24/2016	< 0.005	N/A	N/A	N/A	< 0.005	0.00477*	0.0049*	< 0.005
	3/24/2016	N/A	N/A	N/A	N/A	N/A	0.00529	N/A	N/A
	7/18/2016	< 0.005	0.018	0.0315	N/A	< 0.005	0.00214*	0.0013*	< 0.005
	3/2/2017	< 0.005	N/A	N/A	N/A	< 0.005	0.00319*	< 0.005	< 0.005
	3/2/2017	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/2/2017	0.00616	0.00431*	0.0068	N/A	0.00565	0.00281*	< 0.005	0.00553
	8/2/2017	N/A	N/A	N/A	N/A	N/A	0.00287*	N/A	N/A

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
<b>Total Metals Constituents</b>									
<b>Copper, mg/L (CAS NO - 7440-50-8)</b>									
	5/1/2018	< 0.005	N/A	N/A	N/A	< 0.005	0.00199*	< 0.005	< 0.005
	9/24/2018	0.00243	0.00084*	0.000674*	N/A	0.00201	0.00393	0.00325	0.00138*
	9/24/2018	N/A	N/A	N/A	N/A	0.00157*	N/A	N/A	N/A
	1/21/2019	< 0.005	N/A	N/A	N/A	< 0.005	0.00204*	< 0.005	< 0.005
	1/21/2019	N/A	N/A	N/A	N/A	N/A	0.00174*	N/A	N/A
	8/13/2019	< 0.005	< 0.01	< 0.005	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005
	9/10/2020	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	0.0198
	9/10/2020	N/A	N/A	N/A	N/A	0.00155*	N/A	N/A	N/A
	11/25/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00753
	2/24/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005
	3/31/2021	N/A	N/A	N/A	N/A	< 0.005	< 0.005	0.00164*	< 0.005
	3/31/2021	N/A	N/A	N/A	N/A	0.00279*	N/A	N/A	N/A
	8/30/2021	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	5/24/2022	N/A	N/A	N/A	< 0.005	0.00258*	< 0.005	< 0.005	< 0.005
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	8/17/2022	N/A	N/A	< 0.005	< 0.005	0.00186*	< 0.005	< 0.005	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	2/6/2023	N/A	< 0.005	< 0.005	0.0585	< 0.005	< 0.005	< 0.005	N/A
	2/6/2023	N/A	N/A	N/A	N/A	0.0022	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	0.00235*	< 0.005	< 0.005	< 0.005	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
<b>Lead, mg/L (CAS NO - 7439-92-1)</b>									
	2/26/2008	N/A	0.0047	N/A	N/A	0.0024	0.0026	N/A	0.002
	3/20/2008	N/A	0.0073	N/A	N/A	0.0016	< 0.001	N/A	0.0013
	6/9/2008	0.022	0.029	N/A	N/A	0.0016	< 0.001	N/A	0.0064
	8/13/2008	0.033	< 0.001	N/A	N/A	0.0034	0.0012	N/A	0.019
	9/16/2008	0.043	N/A	N/A	N/A	0.0025	< 0.001	N/A	N/A
	10/31/2008	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	0.067
	3/17/2009	0.011	N/A	N/A	N/A	0.0023	0.0049	N/A	N/A
	9/15/2009	0.034	< 0.001	N/A	N/A	0.0055	0.0046	N/A	N/A
	3/16/2010	N/A	0.015	N/A	N/A	0.0022	< 0.001	N/A	N/A
	8/31/2010	0.013	N/A	N/A	N/A	N/A	N/A	0.004	N/A
	9/21/2010	0.012	< 0.001	0.0051	N/A	0.0018	0.0011	0.0018	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	0.002	N/A
	2/4/2011	N/A	0.0085	0.0099	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	0.0069	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	0.012	0.022	N/A	0.0033	0.0018	0.0019	N/A
	3/15/2011	N/A	0.0073	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	0.0021	N/A
	9/13/2011	N/A	0.021	0.0026	N/A	0.0017	0.0017	0.0013	N/A
	9/13/2011	N/A	N/A	N/A	N/A	0.0014	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	0.0031	0.0019	N/A
	3/27/2012	0.0094	0.005	< 0.001	N/A	< 0.001	0.0015	< 0.001	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	9/11/2012	0.0078	0.041	0.012	N/A	< 0.001	0.0014	< 0.001	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	3/20/2013	0.0093	N/A	N/A	N/A	0.0013	0.0012	< 0.001	< 0.001
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.0015	N/A
	9/3/2013	0.0076	0.0039	0.001	N/A	0.001	0.0011	0.0014	N/A
	9/3/2013	N/A	0.0036	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	0.0033	N/A	N/A	N/A	0.00185	< 0.004	< 0.004	< 0.004
	3/27/2014	N/A	N/A	N/A	N/A	< 0.004	N/A	N/A	N/A
	9/15/2014	0.0046	N/A	N/A	N/A	0.00418	0.00232	< 0.004	< 0.004
	9/15/2014	0.0141	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	0.000216	N/A	N/A	N/A	0.000362	0.000209	0.000133	0.000473*
	3/10/2015	N/A	N/A	N/A	N/A	0.00022	N/A	N/A	N/A
	8/31/2015	0.000097*	N/A	N/A	N/A	0.000952	< 0.0005	0.000171*	0.000367*
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0025	N/A
	3/24/2016	< 0.0005	N/A	N/A	N/A	< 0.0005	< 0.0005	< 0.0005	0.000287*
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A
	7/18/2016	< 0.0005	0.00626	0.00679	N/A	< 0.0005	< 0.0005	< 0.0005	0.000296*
	3/2/2017	< 0.0005	N/A	N/A	N/A	0.000408*	< 0.0005	< 0.0005	< 0.0005
	3/2/2017	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A
	8/2/2017	0.000342*	< 0.0005	0.000408*	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A
	5/1/2018	< 0.0005	< 0.0005	< 0.0005	N/A	0.000496*	< 0.0005	0.000262*	< 0.0005
	9/24/2018	0.000325*	< 0.0005	< 0.0005	N/A	0.000253*	0.000327*	0.000898	< 0.0005
	9/24/2018	N/A	N/A	N/A	N/A	0.000217*	N/A	N/A	N/A
	1/21/2019	< 0.0005	N/A	N/A	N/A	< 0.0005	< 0.0005	0.000639	< 0.0005
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A
	8/13/2019	< 0.0005	< 0.0005	< 0.0005	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005
	9/10/2020	N/A	0.000184*	< 0.0005	N/A	0.000148*	< 0.0005	0.000144*	0.0144
	9/10/2020	N/A	N/A	N/A	N/A	0.000152*	N/A	N/A	N/A
	11/25/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0029
	2/24/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005
	3/31/2021	N/A	N/A	N/A	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	3/31/2021	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A
	6/15/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005
	8/30/2021	N/A	< 0.0005	< 0.0005	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A
	3/29/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005
	5/24/2022	N/A	N/A	N/A	< 0.0005	< 0.0005	< 0.0005	0.000498*	< 0.0005
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A
	8/17/2022	N/A	N/A	0.000379*	< 0.0005	< 0.0005	< 0.0005	0.000366*	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	0.000366*	N/A
	2/6/2023	N/A	0.000597	< 0.0005	0.0144	0.000736	< 0.0005	< 0.0005	N/A
	2/6/2023	N/A	N/A	N/A	N/A	0.000727	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	0.00159	< 0.0005	< 0.0005	0.000257*	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A
<b>Mercury, mg/L (CAS NO - 7439-97-6)</b>									
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.0002	< 0.0002	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.0002	< 0.0002	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A
<b>Nickel, mg/L (CAS NO - 7440-02-0)</b>									
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0002	< 0.0002	N/A
	2/26/2008	N/A	0.013	N/A	N/A	0.035	0.096	N/A	0.017
	3/20/2008	N/A	0.018	N/A	N/A	0.051	0.086	N/A	0.017
	6/9/2008	0.056	0.13	N/A	N/A	0.065	0.13	N/A	0.053

# SCS ENGINEERS

Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Total Metals Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
Nickel, mg/L (CAS NO - 7440-02-0)	8/13/2008	0.069	0.006	N/A	N/A	0.051	0.092	N/A	0.057
	9/16/2008	0.079	N/A	N/A	N/A	0.05	0.096	N/A	N/A
	10/31/2008	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	0.14
	3/17/2009	0.027	N/A	N/A	N/A	0.04	0.12	N/A	N/A
	9/15/2009	0.057	0.0051	N/A	N/A	0.026	0.17	N/A	N/A
	3/16/2010	N/A	0.03	N/A	N/A	0.044	0.13	N/A	N/A
	8/31/2010	0.029	N/A	N/A	N/A	N/A	N/A	0.053	N/A
	9/21/2010	0.029	0.017	0.024	N/A	0.042	0.13	0.06	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	0.057	N/A
	2/4/2011	N/A	0.028	1.4	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	0.034	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	0.21	1.2	N/A	0.035	0.15	0.054	N/A
	3/15/2011	N/A	0.21	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	0.051	N/A
	9/13/2011	N/A	0.09	0.079	N/A	0.018	0.11	0.046	N/A
	9/13/2011	N/A	N/A	N/A	N/A	0.019	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	0.11	0.038	N/A
	3/27/2012	0.025	0.065	0.086	N/A	0.034	0.13	0.043	N/A
	3/27/2012	N/A	N/A	N/A	N/A	0.035	N/A	N/A	N/A
	9/11/2012	0.019	0.67	0.088	N/A	0.028	0.11	0.034	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	0.035	N/A
	3/20/2013	0.018	N/A	N/A	N/A	0.015	0.078	0.039	0.016
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.0067	N/A
	9/3/2013	0.011	0.012	0.069	N/A	0.016	0.088	0.0077	N/A
	9/3/2013	N/A	0.013	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	0.0128	N/A	N/A	N/A	0.0218	0.101	0.018	0.00884*
	3/27/2014	N/A	N/A	N/A	N/A	0.0181	N/A	N/A	N/A
	9/15/2014	0.0347	N/A	N/A	N/A	0.0471	0.0945	0.0125	0.0152*
	9/15/2014	0.0194	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 0.005	N/A	N/A	N/A	0.022	0.0638	0.00448	0.0135
	3/10/2015	N/A	N/A	N/A	N/A	0.0225	N/A	N/A	N/A
	8/31/2015	< 0.005	N/A	N/A	N/A	0.0233	0.019	< 0.025	< 0.025
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	0.00626	N/A
	3/24/2016	< 0.005	N/A	N/A	N/A	0.0208	0.0602	0.0104	0.00386*
	3/24/2016	N/A	N/A	N/A	N/A	N/A	0.0621	N/A	N/A
	7/18/2016	0.00354*	0.262	0.283	N/A	0.0216	0.0601	0.00876	0.00332*
	3/2/2017	0.00126*	N/A	N/A	N/A	0.00388*	0.0671	0.00439*	0.00461*
	3/2/2017	N/A	N/A	N/A	N/A	0.00647	N/A	N/A	N/A
	8/2/2017	0.00399*	0.00376*	0.0185	N/A	0.0218	0.042	0.00553	0.00608
	8/2/2017	N/A	N/A	N/A	N/A	N/A	0.0372	N/A	N/A
	5/1/2018	< 0.005	N/A	N/A	N/A	0.023	0.0449	0.00979	0.00302*
	2/24/2018	0.00536	0.00292	0.0201	N/A	0.02	0.0387	0.0104	0.00451
	9/24/2018	N/A	N/A	N/A	N/A	0.0217	N/A	N/A	N/A
	1/21/2019	< 0.005	N/A	N/A	N/A	0.0156	0.0308	0.00983	0.0029*
	1/21/2019	N/A	N/A	N/A	N/A	N/A	0.0344	N/A	N/A
	8/13/2019	< 0.005	0.00617	0.0178	N/A	0.018	0.0383	0.0111	0.00417*
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	0.0108	N/A
	3/24/2020	N/A	N/A	N/A	N/A	0.0181	0.0397	0.00879	0.00387*
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00349*
	9/10/2020	N/A	0.00365*	0.0163	N/A	0.018	0.0287	0.0113	0.0238
	9/10/2020	N/A	N/A	N/A	N/A	0.0186	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	0.0194	0.0343	0.0127	0.00649
	3/31/2021	N/A	N/A	N/A	N/A	0.0153	N/A	N/A	N/A
	8/30/2021	N/A	0.0028*	0.034	N/A	0.018	0.0382	0.0119	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	0.038	N/A	N/A
	5/24/2022	N/A	N/A	N/A	0.00227*	0.0187	0.0307	0.0101	0.00399*
	5/24/2022	N/A	N/A	N/A	N/A	N/A	0.0305	N/A	N/A
	8/17/2022	N/A	N/A	0.0272	0.00396*	0.0177	0.00833	0.0108	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	0.0105	N/A
	2/6/2023	N/A	0.019	0.0269	0.432	0.00493	0.0419	0.0116	N/A
	2/6/2023	N/A	N/A	N/A	N/A	0.00445	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	0.00229*	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	0.00572	0.00825	0.00703	0.00966	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	0.00719	N/A	N/A
Selenium, mg/L (CAS NO - 7782-49-2)	2/26/2008	N/A	0.0033	N/A	N/A	0.001	0.0012	N/A	0.0012
	3/20/2008	N/A	0.0029	N/A	N/A	0.0039	0.0066	N/A	0.0021
	6/9/2008	0.0036	0.014	N/A	N/A	0.0038	0.0034	N/A	0.0032
	8/13/2008	0.0055	0.0021	N/A	N/A	0.0036	0.0019	N/A	0.0027
	9/16/2008	0.0028	N/A	N/A	N/A	0.004	0.0064	N/A	N/A
	10/31/2008	N/A	0.0024	N/A	N/A	N/A	N/A	N/A	0.0065
	3/17/2009	0.0048	N/A	N/A	N/A	0.0033	0.0031	N/A	N/A
	9/15/2009	0.0058	< 0.001	N/A	N/A	0.0015	0.0012	N/A	N/A
	3/16/2010	N/A	0.0048	N/A	N/A	0.0019	0.0016	N/A	N/A
	8/31/2010	0.0043	N/A	N/A	N/A	N/A	N/A	0.0026	N/A
	9/21/2010	0.0054	0.0021	0.0035	N/A	0.0025	0.0028	0.0033	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	0.0022	N/A
	2/4/2011	N/A	0.0023	< 0.001	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	0.0018	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	0.005	0.0021	N/A	0.0037	0.0032	0.0031	N/A
	3/15/2011	N/A	0.0055	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	0.015	N/A
	9/13/2011	N/A	0.0075	0.0032	N/A	0.0034	0.0094	0.015	N/A
	9/13/2011	N/A	N/A	0.0032	N/A	0.0032	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	0.0078	0.015	N/A
	3/27/2012	0.0043	0.011	0.0032	N/A	0.0055	0.01	0.018	N/A
	3/27/2012	N/A	N/A	N/A	N/A	0.0059	N/A	N/A	N/A
	9/11/2012	0.012	0.0097	0.004	N/A	0.0077	0.011	0.017	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	0.015	N/A
	3/20/2013	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	9/3/2013	0.00059	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
	9/3/2013	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/27/2014	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	9/15/2014	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	9/15/2014	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/10/2015	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/31/2015	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.025
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	3/24/2016	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	7/18/2016	< 0.005	0.00389*	0.00418*	N/A	< 0.005	< 0.005	< 0.005	0.00632*

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
<b>Total Metals Constituents</b>									
<b>Selenium, mg/L (CAS NO - 7782-49-2)</b>									
	3/2/2017	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/2/2017	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/2/2017	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	5/1/2018	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	9/24/2018	< 0.0025	< 0.0025	< 0.0025	N/A	< 0.0025	< 0.0025	< 0.0025	< 0.0025
	9/24/2018	N/A	N/A	N/A	N/A	< 0.0025	N/A	N/A	N/A
	1/21/2019	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	8/13/2019	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005
	9/10/2020	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	0.00194*
	9/10/2020	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/31/2021	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/30/2021	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	5/24/2022	N/A	N/A	N/A	0.00692	< 0.005	< 0.005	0.00112*	< 0.005
	5/24/2022	N/A	N/A	N/A	N/A	N/A	0.00221*	N/A	N/A
	8/17/2022	N/A	N/A	< 0.005	0.00275*	< 0.005	< 0.005	< 0.005	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	2/6/2023	N/A	< 0.005	< 0.005	0.00421*	< 0.005	< 0.005	< 0.005	N/A
	2/6/2023	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
<b>Silver, mg/L (CAS NO - 7440-22-4)</b>									
	2/26/2008	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005
	3/20/2008	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005
	6/9/2008	< 0.005	< 0.005	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005
	8/13/2008	< 0.005	< 0.005	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005
	9/16/2008	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	10/31/2008	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	< 0.005
	3/17/2009	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	9/15/2009	< 0.005	< 0.005	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	3/16/2010	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	8/31/2010	< 0.005	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	9/21/2010	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	2/4/2011	N/A	< 0.005	< 0.005	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	3/15/2011	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	9/13/2011	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A
	3/27/2012	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	9/11/2012	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	3/20/2013	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	9/3/2013	< 0.005	< 0.005	0.00021	N/A	< 0.005	< 0.005	< 0.005	N/A
	9/3/2013	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 0.02	N/A	N/A	N/A	< 0.02	< 0.02	< 0.04	< 0.02
	3/27/2014	N/A	N/A	N/A	N/A	< 0.02	< 0.02	N/A	N/A
	9/15/2014	< 0.02	N/A	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02
	9/15/2014	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/10/2015	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/31/2015	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	3/24/2016	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
	7/18/2016	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/2/2017	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/2/2017	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/2/2017	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	8/2/2017	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A	N/A
	5/1/2018	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	9/24/2018	< 0.0005	< 0.0005	< 0.0005	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	9/24/2018	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A
	1/21/2019	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
	8/13/2019	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001
	9/10/2020	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	9/10/2020	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/31/2021	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/30/2021	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
	8/30/2021	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A	N/A
	5/24/2022	N/A	N/A	N/A	< 0.001	0.000533*	< 0.001	< 0.001	< 0.001
	5/24/2022	N/A	N/A	N/A	N/A	N/A	0.000594*	N/A	N/A
	8/17/2022	N/A	N/A	< 0.001	< 0.001	< 0.001	0.000844*	< 0.001	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	2/6/2023	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A
	2/6/2023	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
<b>Thallium, mg/L (CAS NO - 7440-28-0)</b>									
	2/26/2008	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001
	3/20/2008	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001
	6/9/2008	< 0.001	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001
	8/13/2008	0.0011	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001
	9/16/2008	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	N/A	N/A
	10/31/2008	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	0.0013
	3/17/2009	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	N/A	N/A
	9/15/2009	0.001	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	N/A
	3/16/2010	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A	N/A



# SCS ENGINEERS

Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Total Metals Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
	<b>Thallium, mg/L (CAS NO - 7440-28-0)</b>	8/31/2010	< 0.001	N/A	N/A	N/A	N/A	N/A	< 0.001
	9/21/2010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	2/4/2011	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A
	2/4/2011	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A
	3/15/2011	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	9/13/2011	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A
	3/27/2012	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	9/11/2012	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	3/20/2013	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	9/3/2013	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
	9/3/2013	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 0.002	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002
	3/27/2014	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A
	9/15/2014	0.000599	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002
	9/15/2014	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 0.001	N/A	N/A	N/A	0.000035	0.000232	< 0.001	< 0.001
	3/10/2015	N/A	N/A	N/A	N/A	0.000049	N/A	N/A	N/A
	8/31/2015	< 0.001	N/A	N/A	N/A	0.000037*	0.00008*	< 0.005	< 0.001
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	3/24/2016	< 0.001	N/A	N/A	N/A	< 0.001	0.000113*	< 0.001	< 0.001
	3/24/2016	N/A	N/A	N/A	N/A	N/A	0.000102*	N/A	N/A
	7/18/2016	< 0.001	0.000052*	0.000047*	N/A	< 0.001	0.000094*	< 0.001	< 0.001
	3/2/2017	< 0.001	N/A	N/A	N/A	< 0.001	0.00013*	< 0.001	< 0.001
	3/2/2017	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/2/2017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000089*	< 0.001	< 0.001
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
	5/1/2018	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	9/24/2018	< 0.002	< 0.002	< 0.002	N/A	< 0.002	< 0.002	< 0.002	< 0.002
	9/24/2018	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A
	1/21/2019	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
	8/13/2019	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001
	9/10/2020	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	9/10/2020	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001
	3/31/2021	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/30/2021	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
	5/24/2022	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	5/24/2022	N/A	N/A	N/A	N/A	N/A	0.000387*	N/A	N/A
	8/17/2022	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	2/6/2023	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A
	2/6/2023	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	< 0.001	0.00177	< 0.001	< 0.001	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A
<b>Tin, mg/L (CAS NO - 7440-31-5)</b>	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.06	< 0.06	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.06	< 0.06	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.06	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A
<b>Vanadium, mg/L (CAS NO - 7440-62-2)</b>	2/26/2008	N/A	0.025	N/A	N/A	< 0.005	< 0.005	N/A	0.0054
	3/20/2008	N/A	0.028	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005
	5/9/2008	0.053	0.1	N/A	N/A	< 0.005	< 0.005	N/A	0.016
	8/13/2008	0.095	< 0.005	N/A	N/A	< 0.005	< 0.005	N/A	0.043
	9/16/2008	0.11	N/A	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	10/31/2008	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	0.1
	3/17/2009	0.022	N/A	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	9/15/2009	0.073	< 0.005	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	3/16/2010	N/A	0.055	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	8/31/2010	0.044	N/A	N/A	N/A	N/A	N/A	0.0052	N/A
	9/21/2010	0.039	< 0.005	0.018	N/A	< 0.005	< 0.005	< 0.005	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	2/4/2011	N/A	< 0.005	< 0.005	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	3/15/2011	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	9/13/2011	N/A	< 0.005	< 0.005	N/A	0.0087	0.0062	< 0.005	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A
	3/27/2012	0.032	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	9/11/2012	0.017	0.14	0.0089	N/A	< 0.005	< 0.005	< 0.005	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	3/20/2013	0.025	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	9/3/2013	0.012	< 0.005	< 0.005	N/A	< 0.005	0.00045	0.0011	N/A
	9/3/2013	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	0.00575	N/A	N/A	N/A	< 0.005	< 0.005	< 0.1	< 0.005
	3/27/2014	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	9/15/2014	0.0124	N/A	N/A	N/A	0.00023	0.0103	0.00497	< 0.005
	9/15/2014	0.00858	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	0.000542	N/A	N/A	N/A	0.000915	0.00105	< 0.005	< 0.005
	3/10/2015	N/A	N/A	N/A	N/A	0.000953	N/A	N/A	N/A
	8/31/2015	0.000744*	N/A	N/A	N/A	0.001*	0.0012*	< 0.005	< 0.025
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	3/24/2016	0.000472*	N/A	N/A	N/A	0.000255*	0.00125*	< 0.005	0.000591*
	3/24/2016	N/A	N/A	N/A	N/A	N/A	0.00116*	N/A	N/A
	7/18/2016	0.000306*	0.0219	0.023	N/A	< 0.005	0.00183*	< 0.005	< 0.005
	3/2/2017	< 0.005	N/A	N/A	N/A	< 0.005	0.00101*	0.00172*	< 0.005
	3/2/2017	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A

# SCS ENGINEERS

Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
<b>Total Metals Constituents</b>									
<b>Vanadium, mg/L (CAS NO - 7440-62-2)</b>									
	8/2/2017	< 0.005	< 0.005	< 0.005	N/A	< 0.005	0.000906*	< 0.005	< 0.005
	8/2/2017	N/A	N/A	N/A	N/A	N/A	0.00133*	N/A	N/A
	5/1/2018	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	9/24/2018	0.00261*	< 0.005	< 0.005	N/A	0.00283*	0.0036*	0.00632	0.00286*
	9/24/2018	N/A	N/A	N/A	N/A	0.0029*	N/A	N/A	N/A
	1/21/2019	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	0.000776*	< 0.005
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	8/13/2019	< 0.005	< 0.005	< 0.005	N/A	< 0.005	0.00126*	< 0.005	< 0.005
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005
	9/10/2020	N/A	0.000858*	< 0.005	N/A	< 0.005	< 0.005	< 0.005	0.0196
	9/10/2020	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	3/31/2021	N/A	N/A	N/A	N/A	0.0013*	N/A	N/A	N/A
	8/30/2021	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	5/24/2022	N/A	N/A	N/A	< 0.005	0.00135*	< 0.005	< 0.005	< 0.005
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	8/17/2022	N/A	N/A	0.00153*	0.00122*	< 0.005	< 0.005	< 0.005	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	2/6/2023	N/A	< 0.005	< 0.005	0.0267	< 0.005	< 0.005	< 0.005	N/A
	2/6/2023	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	0.0027*	< 0.005	< 0.005	< 0.005	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
<b>Zinc, mg/L (CAS NO - 7440-66-6)</b>									
	2/26/2008	N/A	0.054	N/A	N/A	0.019	0.06	N/A	0.04
	3/20/2008	N/A	0.042	N/A	N/A	0.023	0.013	N/A	0.029
	6/9/2008	0.11	0.14	0.023	N/A	0.023	0.021	N/A	0.066
	8/13/2008	0.19	0.024	N/A	N/A	0.027	0.024	N/A	0.13
	9/16/2008	0.23	N/A	N/A	N/A	0.044	0.018	N/A	N/A
	10/31/2008	N/A	0.021	N/A	N/A	N/A	N/A	N/A	1.6
	3/17/2009	0.051	N/A	N/A	N/A	0.023	0.027	N/A	N/A
	9/15/2009	0.14	0.011	N/A	N/A	0.036	0.054	N/A	N/A
	3/16/2010	N/A	0.1	N/A	N/A	0.03	0.058	N/A	N/A
	8/31/2010	0.084	N/A	N/A	N/A	N/A	N/A	0.054	N/A
	9/21/2010	0.067	0.012	0.059	N/A	0.022	0.019	0.025	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	0.029	N/A
	2/4/2011	N/A	0.058	0.58	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	0.067	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	0.19	0.23	N/A	0.016	0.047	0.023	N/A
	3/15/2011	N/A	0.38	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	0.019	N/A
	9/13/2011	N/A	1.3	0.054	N/A	0.015	0.017	0.024	N/A
	9/13/2011	N/A	N/A	N/A	N/A	0.011	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	0.021	0.024	N/A
	3/27/2012	0.078	0.14	0.019	N/A	0.0071	0.015	0.014	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A
	9/11/2012	0.068	0.86	0.025	N/A	< 0.006	0.014	0.011	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	0.01	N/A
	3/20/2013	0.055	N/A	N/A	N/A	0.0092	0.016	0.013	< 0.006
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.011	N/A
	9/3/2013	0.034	0.11	0.012	N/A	0.014	0.016	0.016	N/A
	9/3/2013	N/A	0.12	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	0.0155	N/A	N/A	N/A	< 0.02	< 0.02	< 0.04	< 0.02
	3/27/2014	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	9/15/2014	0.0285	N/A	N/A	N/A	0.0307	0.048	< 0.02	< 0.02
	9/15/2014	0.0599	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 0.01	N/A	N/A	N/A	< 0.01	0.0192	0.00849	0.00897*
	3/10/2015	N/A	N/A	N/A	N/A	0.00858	N/A	N/A	N/A
	8/31/2015	0.00748*	N/A	N/A	N/A	0.0146	< 0.01	0.00847*	< 0.01
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	0.00697*	N/A
	3/24/2016	< 0.01	N/A	N/A	N/A	< 0.01	0.0103	0.0297	< 0.01
	3/24/2016	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	7/18/2016	< 0.01	0.171	0.162	N/A	< 0.01	0.00527*	0.00787*	< 0.01
	3/2/2017	< 0.02	N/A	N/A	N/A	< 0.02	< 0.02	0.0232	< 0.02
	3/2/2017	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	8/2/2017	< 0.02	< 0.02	< 0.02	N/A	< 0.02	< 0.02	0.0115*	< 0.02
	8/2/2017	N/A	N/A	N/A	N/A	N/A	0.022	N/A	N/A
	5/1/2018	< 0.02	N/A	N/A	N/A	< 0.02	< 0.02	0.0111*	< 0.02
	9/24/2018	0.0147*	0.00705*	< 0.02	N/A	0.00851*	0.0234	0.0182*	< 0.02
	9/24/2018	N/A	N/A	N/A	N/A	0.00798*	N/A	N/A	N/A
	1/21/2019	< 0.02	N/A	N/A	N/A	< 0.02	< 0.02	0.0122*	< 0.02
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A
	8/13/2019	< 0.02	< 0.02	< 0.02	N/A	< 0.02	< 0.02	< 0.02	< 0.02
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02
	9/10/2020	N/A	< 0.02	< 0.02	N/A	< 0.02	< 0.02	< 0.02	0.0655
	9/10/2020	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02
	3/31/2021	N/A	N/A	N/A	N/A	0.0121*	N/A	N/A	N/A
	8/30/2021	N/A	< 0.02	< 0.02	N/A	< 0.02	< 0.02	< 0.02	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A
	5/24/2022	N/A	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A
	8/17/2022	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A
	2/6/2023	N/A	< 0.02	< 0.02	0.077	0.0444	< 0.02	< 0.02	N/A
	2/6/2023	N/A	N/A	N/A	N/A	0.0415	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	0.0103*	< 0.02	< 0.02	< 0.02	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A
<b>Total Suspended Solids, mg/L (CAS NO - TSS)</b>									
	3/27/2014	9460	N/A	N/A	N/A	53	45.3	21.7	29.7
	3/27/2014	N/A	N/A	N/A	N/A	26.5	N/A	N/A	N/A
	9/15/2014	7850	N/A	N/A	N/A	228	47	54	14.2
	9/15/2014	5990	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	25.3	N/A	N/A	N/A	5.67	7.5	7.83	59.3
	3/10/2015	N/A	N/A	N/A	N/A	5.67	N/A	N/A	N/A
	5/15/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5
	8/31/2015	18.5	N/A	N/A	N/A	20.5	3.38	6.5	95
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	17.8	N/A
	2/23/2016	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.3

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Summary of Groundwater Chemistry  
 Great River Regional Waste Authority - 56-SDP-07-80P

Total Metals Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
Total Suspended Solids, mg/L (CAS NO - TSS)	3/24/2016	7.25	N/A	N/A	N/A	0.75*	1*	1.25*	26.5
	3/24/2016	N/A	N/A	N/A	N/A	N/A	0.875*	N/A	N/A
	7/18/2016	1.88	118	24.3	N/A	2.5	2.38	4.88	31.6
	3/2/2017	1.38*	N/A	N/A	N/A	1.38*	1.25*	10.6	4.88
	3/2/2017	N/A	N/A	N/A	N/A	0.75*	N/A	N/A	N/A
	8/2/2017	0.625*	40.6	66.1	N/A	1.25*	1.63*	16.9	1.25*
	8/2/2017	N/A	N/A	N/A	N/A	N/A	2.13	N/A	N/A
	5/1/2018	2.75	N/A	N/A	N/A	1.5*	2.25	3.63	5
	9/24/2018	19.3	68	27.3	N/A	11.4	4.88	18.5	10.7
	9/24/2018	N/A	N/A	N/A	N/A	7.62	N/A	N/A	N/A
	1/21/2019	1.38*	N/A	N/A	N/A	1.75*	2.25	3.63	19.5
	1/21/2019	N/A	N/A	N/A	N/A	N/A	1.38*	N/A	N/A
	8/13/2019	< 1.88	165	38.3	N/A	0.75*	2.63	4.13	45
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	5.88	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 1.88	1.88	12.5	12.3
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12
	9/10/2020	N/A	48	37.4	N/A	0.75*	19.5	9	221
	9/10/2020	N/A	N/A	N/A	N/A	< 1.88	N/A	N/A	N/A
	11/25/2020	N/A	N/A	N/A	N/A	N/A	10	N/A	24.8
	2/24/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30.3
	3/31/2021	N/A	N/A	N/A	N/A	< 5	2.5	4	< 1.88
	3/31/2021	N/A	N/A	N/A	N/A	< 1.88	N/A	N/A	N/A
	6/15/2021	N/A	N/A	N/A	N/A	N/A	13.1	N/A	3.13
	8/30/2021	N/A	25.4	38.1	N/A	< 1.88	3.63	8.87	10.4
	8/30/2021	N/A	N/A	N/A	N/A	N/A	2.5	N/A	N/A
	3/29/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.33
	5/24/2022	N/A	N/A	N/A	N/A	1.88	< 1.88	7	3.33
	5/24/2022	N/A	N/A	N/A	N/A	N/A	N/A	13	N/A
	8/17/2022	N/A	N/A	19.5	8.88	8.88	< 1.88	3.33*	16.5
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12
2/6/2023	N/A	52	48.5	6.67	104	6	9.33	N/A	
2/6/2023	N/A	N/A	N/A	N/A	N/A	142	N/A	N/A	
5/9/2023	N/A	N/A	N/A	N/A	11.8	N/A	N/A	N/A	
8/9/2023	N/A	N/A	N/A	N/A	167	17.3	12.5	14.7	
8/9/2023	N/A	N/A	N/A	N/A	N/A	N/A	7.88	N/A	

Note: \* indicates 'I flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.

Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
1,1,1,2-Tetrachloroethane, ug/L (CAS NO - 630-20-6)	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/13/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A
	3/27/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/20/2013	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/3/2013	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/27/2014	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/15/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/15/2014	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/10/2015	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/31/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2016	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	7/18/2016	<1	<10	<10	N/A	<1	<1	<1	<1
	3/2/2017	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/2/2017	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/2/2017	<1	<1	<1	N/A	<1	<1	<1	<1
	8/2/2017	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/1/2018	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/24/2018	<1	<1	<1	N/A	<1	<1	<1	<1
	9/24/2018	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/21/2019	<1	N/A	N/A	N/A	<1	<1	<1	<1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/13/2019	<1	<1	<1	N/A	<1	<1	<1	<1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	<1	<1
	9/10/2020	N/A	<1	<1	N/A	<1	<1	<1	<1
	9/10/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/31/2021	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/30/2021	N/A	<1	<1	N/A	<1	<1	<1	N/A
8/30/2021	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
5/24/2022	N/A	N/A	N/A	<1	<1	<1	<1	<1	
5/24/2022	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	N/A	
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
2/6/2023	N/A	<1	<1	<1	<10	<1	<1	N/A	
2/6/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
5/9/2023	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A	
8/9/2023	N/A	<1	<1	N/A	<1	<1	<1	N/A	
8/9/2023	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
1,1,1-Trichloroethane, ug/L (CAS NO - 71-55-6)	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/13/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A
	3/27/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/20/2013	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/3/2013	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/27/2014	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/15/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/15/2014	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/10/2015	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/31/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
	1,1,1-Trichloroethane, ug/L (CAS NO - 71-55-6)	3/24/2016	<1	N/A	N/A	N/A	<1	<1	<1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	7/18/2016	<1	<10	<10	N/A	<1	<1	<1	<1
	3/2/2017	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/2/2017	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/2/2017	<1	<1	<1	N/A	<1	<1	<1	<1
	8/2/2017	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/1/2018	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/24/2018	<1	<1	<1	N/A	<1	<1	<1	<1
	9/24/2018	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/21/2019	<1	N/A	N/A	N/A	<1	<1	<1	<1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/13/2019	<1	<1	<1	N/A	<1	<1	<1	<1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/10/2020	N/A	<1	<1	N/A	<1	<1	<1	<1
	9/10/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/31/2021	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/30/2021	N/A	<1	<1	N/A	<1	<1	<1	<1
	8/30/2021	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/24/2022	N/A	N/A	N/A	<1	<1	<1	<1	<1
	5/24/2022	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/6/2023	N/A	<1	<1	<1	<10	<1	<1	N/A
	2/6/2023	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	<1	<1	<1	<1	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
1,1,2,2-Tetrachloroethane, ug/L (CAS NO - 79-34-5)	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/13/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A
	3/27/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/20/2013	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/3/2013	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/27/2014	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/15/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/15/2014	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/10/2015	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/31/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2016	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	7/18/2016	<1	<10	<10	N/A	<1	<1	<1	<1
	3/2/2017	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/2/2017	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/2/2017	<1	<1	<1	N/A	<1	<1	<1	<1
	8/2/2017	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/1/2018	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/24/2018	<1	<1	<1	N/A	<1	<1	<1	<1
	9/24/2018	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/21/2019	<1	N/A	N/A	N/A	<1	<1	<1	<1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/13/2019	<1	<1	<1	N/A	<1	<1	<1	<1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1
	9/10/2020	N/A	<1	<1	N/A	<1	<1	<1	<1
	9/10/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/31/2021	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/30/2021	N/A	<1	<1	N/A	<1	<1	<1	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/24/2022	N/A	N/A	N/A	<1	<1	<1	<1	<1
	5/24/2022	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/6/2023	N/A	<1	<1	<1	<10	<1	<1	N/A
	2/6/2023	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	<1	<1	<1	<1	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
1,1,2-Trichloroethane, ug/L (CAS NO - 79-00-5)	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
1,1,2-Trichloroethane, ug/L (CAS NO - 79-00-5)	3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	9/15/2009	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
	3/16/2010	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
	8/31/2010	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	2/4/2011	N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
	2/4/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
	3/15/2011	N/A	< 1	< 1	N/A	N/A	< 1	< 1	N/A	
	3/15/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/13/2011	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	9/11/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/20/2013	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/3/2013	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/27/2014	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/15/2014	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	9/15/2014	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/10/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/31/2015	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/24/2016	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	7/18/2016	< 1	< 10	< 10	< 10	N/A	< 1	< 1	< 1	< 1
	3/2/2017	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/2/2017	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/2/2017	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	8/2/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	5/1/2018	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	9/24/2018	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	9/24/2018	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/21/2019	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	8/13/2019	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	9/10/2020	N/A	< 1	< 1	N/A	N/A	< 1	< 1	< 1	< 1
	9/10/2020	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/31/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/30/2021	N/A	< 1	< 1	N/A	N/A	< 1	< 1	< 1	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A
	5/24/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1
	5/24/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	8/17/2022	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	2/6/2023	N/A	< 1	< 1	< 1	< 1	< 10	< 1	< 1	N/A
	2/6/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A
8/9/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
1,1-Dichloroethane, ug/L (CAS NO - 75-34-3)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	
	3/17/2009	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	9/15/2009	< 1	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	3/16/2010	N/A	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	8/31/2010	< 1	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	2/4/2011	N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 1	< 1	N/A	N/A	< 1	< 1	< 1	N/A
	3/15/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/13/2011	N/A	N/A	3.5	< 1	N/A	< 1	< 1	< 1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A
	3/27/2012	< 1	1.1	1	N/A	< 1	< 1	< 1	< 1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	9/11/2012	< 1	< 1	1	N/A	< 1	< 1	< 1	< 1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/20/2013	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/3/2013	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/27/2014	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/15/2014	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	9/15/2014	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	0.226*
	3/10/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/31/2015	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/24/2016	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	7/18/2016	< 1	< 10	< 10	< 10	N/A	< 1	< 1	< 1	< 1
	3/2/2017	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
3/2/2017	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/2/2017	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
8/2/2017	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
1,1-Dichloroethane, ug/L (CAS NO - 75-34-3)	5/1/2018	<1	N/A	N/A	N/A	<1	<1	<1	<1	
	9/24/2018	<1	<1	<1	N/A	<1	<1	<1	<1	
	9/24/2018	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
	1/21/2019	<1	N/A	N/A	N/A	<1	<1	<1	<1	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
	8/13/2019	<1	<1	<1	N/A	<1	<1	<1	<1	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	<1	<1	<1	<1	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	
	9/10/2020	N/A	<1	<1	N/A	<1	<1	<1	<1	
	9/10/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	N/A	<1	<1	<1	
	3/31/2021	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
	8/30/2021	N/A	<1	<1	N/A	<1	<1	<1	<1	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	5/24/2022	N/A	N/A	N/A	N/A	<1	<1	<1	<1	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	<1	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	2/6/2023	N/A	0.226*	<1	<1	<10	<1	<1	<1	
	2/6/2023	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	<1	<1	<1	<1	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
	1,1-Dichloroethene, ug/L (CAS NO - 75-35-4)	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
		3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
		6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
8/13/2008		<1	<1	N/A	N/A	<1	<1	N/A	<1	
9/16/2008		<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
10/31/2008		N/A	<1	N/A	N/A	N/A	N/A	N/A	<1	
3/17/2009		<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
9/15/2009		<1	<1	N/A	N/A	<1	<1	N/A	N/A	
3/16/2010		N/A	<1	N/A	N/A	<1	<1	N/A	N/A	
8/31/2010		<1	N/A	N/A	N/A	N/A	N/A	<1	N/A	
9/21/2010		<1	<1	<1	N/A	<1	<1	<1	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
2/4/2011		N/A	<1	<1	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	<1	<1	N/A	<1	<1	<1	N/A	
3/15/2011		N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
9/13/2011		N/A	<1	<1	N/A	<1	<1	<1	N/A	
9/13/2011		N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	<1	<1	N/A	
3/27/2012		<1	<1	<1	N/A	<1	<1	<1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
9/11/2012		<1	<1	<1	N/A	<1	<1	<1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
3/20/2013		<1	N/A	N/A	N/A	<1	<1	<1	<1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
9/3/2013		<1	<1	<1	N/A	<1	<1	<1	N/A	
9/3/2013		N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		<2	N/A	N/A	N/A	<2	<2	<2	<2	
3/27/2014		N/A	N/A	N/A	N/A	<2	N/A	N/A	N/A	
9/15/2014		<2	N/A	N/A	N/A	<2	<2	<2	<2	
9/15/2014		<2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		<2	N/A	N/A	N/A	<2	<2	<2	<2	
3/10/2015		N/A	N/A	N/A	N/A	<2	N/A	N/A	N/A	
8/31/2015		<2	N/A	N/A	N/A	<2	<2	<2	<2	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	
3/24/2016		<2	N/A	N/A	N/A	<2	<2	<2	<2	
3/24/2016		N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	
7/18/2016		<2	<20	<20	N/A	<2	<2	<2	<2	
3/2/2017		<2	N/A	N/A	N/A	<2	<2	<2	<2	
3/2/2017		N/A	N/A	N/A	N/A	<2	N/A	N/A	N/A	
8/2/2017		<2	<2	<2	N/A	<2	<2	<2	<2	
8/2/2017		N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	
5/1/2018		<2	N/A	N/A	N/A	<2	<2	<2	<2	
9/24/2018		<2	<2	<2	N/A	<2	<2	<2	<2	
9/24/2018		N/A	N/A	N/A	N/A	<2	N/A	N/A	N/A	
1/21/2019		<2	N/A	N/A	N/A	<2	<2	<2	<2	
1/21/2019		N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	
8/13/2019		<2	<2	<2	N/A	<2	<2	<2	<2	
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	
3/24/2020		N/A	N/A	N/A	N/A	<2	<2	<2	<2	
3/24/2020		N/A	N/A	N/A	N/A	N/A	N/A	N/A	<2	
9/10/2020		N/A	<2	<2	N/A	<2	<2	<2	<2	
9/10/2020	N/A	N/A	N/A	N/A	<2	N/A	N/A	N/A		
3/31/2021	N/A	N/A	N/A	N/A	<2	<2	<2	<2		
3/31/2021	N/A	N/A	N/A	N/A	<2	N/A	N/A	N/A		
8/30/2021	N/A	<2	<2	N/A	<2	<2	<2	<2		
8/30/2021	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A		
5/24/2022	N/A	N/A	N/A	N/A	<2	<2	<2	<2		
5/24/2022	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A		
8/17/2022	N/A	N/A	<2	<2	<2	<2	<2	<2		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A		
2/6/2023	N/A	<2	<2	<2	<2	<20	<2	N/A		
2/6/2023	N/A	N/A	N/A	N/A	<20	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	N/A	<2	N/A	N/A	N/A		
8/9/2023	N/A	N/A	N/A	N/A	<2	<2	<2	N/A		
8/9/2023	N/A	N/A	N/A	N/A	<2	<2	N/A	N/A		
1,2,3-Trichloropropane, ug/L (CAS NO - 96-18-4)	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1	
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1	
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1	
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1	
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1	
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A	
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A	
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A	
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
1,2,3-Trichloropropane, ug/L (CAS NO - 96-18-4)	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/27/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/20/2013	<1	N/A	N/A	N/A	N/A	<1	<1	<1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1
	9/3/2013	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/27/2014	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/15/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/15/2014	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/10/2015	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/31/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2016	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	7/18/2016	<1	<10	<10	N/A	<1	<1	<1	<1
	3/2/2017	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/2/2017	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/2/2017	<1	<1	<1	N/A	<1	<1	<1	<1
	8/2/2017	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/1/2018	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/24/2018	<1	<1	<1	N/A	<1	<1	<1	<1
	9/24/2018	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/21/2019	<1	N/A	N/A	N/A	<1	<1	<1	<1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/13/2019	<1	<1	<1	N/A	<1	<1	<1	<1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1
	9/10/2020	N/A	<1	<1	N/A	<1	<1	<1	<1
	9/10/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/31/2021	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/30/2021	N/A	<1	<1	N/A	<1	<1	<1	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/24/2022	N/A	N/A	N/A	<1	<1	<1	<1	<1
	5/24/2022	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/6/2023	N/A	<1	<1	<1	<10	<1	<1	N/A
	2/6/2023	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	<1	<1	<1	<1	<1	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	1,2-Dibromo-3-Chloropropane, ug/L (CAS NO - 96-12-8)	2/26/2008	N/A	<5	N/A	N/A	<5	<5	N/A
3/20/2008		N/A	<5	N/A	N/A	<5	<5	N/A	<5
6/9/2008		<5	<5	N/A	N/A	<5	<5	N/A	<5
8/13/2008		<5	<5	N/A	N/A	<5	<5	N/A	<5
9/16/2008		<5	N/A	N/A	N/A	<5	<5	N/A	N/A
10/31/2008		N/A	<5	N/A	N/A	N/A	N/A	N/A	<5
3/17/2009		<5	N/A	N/A	N/A	<5	<5	N/A	N/A
9/15/2009		<5	<5	N/A	N/A	<5	<5	N/A	N/A
3/16/2010		N/A	<1	N/A	N/A	<5	<5	N/A	N/A
8/31/2010		<5	N/A	N/A	N/A	N/A	N/A	<5	N/A
9/21/2010		<5	<5	<5	N/A	<5	<5	<5	N/A
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A
2/4/2011		N/A	<5	<5	N/A	N/A	N/A	N/A	N/A
2/4/2011		N/A	<5	N/A	N/A	N/A	N/A	N/A	N/A
3/15/2011		N/A	<5	<5	N/A	<5	<5	<5	N/A
3/15/2011		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A
9/13/2011		N/A	<5	<5	N/A	<5	<5	<5	N/A
9/13/2011		N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A
1/19/2012		N/A	N/A	N/A	N/A	N/A	<1	<1	N/A
3/27/2012		<1	<1	<1	N/A	<1	<1	<1	N/A
3/27/2012		N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
9/11/2012		<1	<1	<1	N/A	<1	<1	<1	N/A
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
3/20/2013		<1	N/A	N/A	N/A	<1	<1	<1	<1
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
9/3/2013		<1	<1	<1	N/A	<1	<1	<1	N/A
9/3/2013		N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
3/27/2014		<0.12	N/A	N/A	N/A	<0.12	<0.12	<0.12	<0.12
3/27/2014		N/A	N/A	N/A	N/A	<0.12	N/A	N/A	N/A
9/15/2014		<0.12	N/A	N/A	N/A	<0.12	<0.12	<0.12	<0.12
9/15/2014		<0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3/10/2015		<0.12	N/A	N/A	N/A	<0.12	<0.12	<0.12	<0.12
3/10/2015		N/A	N/A	N/A	N/A	<0.12	N/A	N/A	N/A
8/31/2015		<0.5	N/A	N/A	N/A	<0.5	<0.5	<0.5	<0.5
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A
3/24/2016		<0.5	N/A	N/A	N/A	<0.5	<0.5	<0.5	<0.5
3/24/2016		N/A	N/A	N/A	N/A	<0.5	<0.5	N/A	N/A
7/18/2016		<0.5	<5	<5	N/A	<0.5	<0.5	<0.5	<0.5
3/2/2017		<0.5	N/A	N/A	N/A	<0.5	<0.5	<0.5	<0.5
3/2/2017		N/A	N/A	N/A	N/A	<0.5	<0.5	N/A	N/A
8/2/2017		<0.5	<0.5	<0.5	N/A	<0.5	<0.5	<0.5	<0.5
8/2/2017		N/A	N/A	N/A	N/A	<0.5	<0.5	N/A	N/A
5/1/2018		<0.5	N/A	N/A	N/A	<0.5	<0.12	<0.12	<0.5
9/24/2018		<0.5	<0.5	<0.5	N/A	<0.5	<0.5	<0.5	<0.5
9/24/2018		N/A	N/A	N/A	N/A	<0.5	N/A	N/A	N/A
1/21/2019		<1.2	N/A	N/A	N/A	<1.2	<1.2	<1.2	<1.2
1/21/2019		N/A	N/A	N/A	N/A	N/A	<1.2	N/A	N/A



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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase 2 Underdrain DNG	
1,2-Dibromo-3-Chloropropane, ug/L (CAS NO - 96-12-8)	8/13/2019	< 1.2	< 1.2	< 1.2	N/A	< 1.2	< 1.2	< 1.2	< 1.2	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	9/10/2020	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	9/10/2020	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	
	3/31/2021	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	8/30/2021	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	5/24/2022	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	8/17/2022	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	2/6/2023	N/A	< 5	< 5	< 5	< 5	< 50	< 5	< 5	
	2/6/2023	N/A	N/A	N/A	N/A	N/A	< 50	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	1,2-Dibromoethane [EDB], ug/L (CAS NO - 106-93-4)	2/26/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5
		3/20/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5
		6/9/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5
		8/13/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5
		9/16/2008	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A
		10/31/2008	N/A	< 5	N/A	N/A	N/A	N/A	N/A	< 5
		3/17/2009	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A
		9/15/2009	< 5	< 5	N/A	N/A	< 5	< 5	N/A	N/A
		3/16/2010	N/A	< 5	N/A	N/A	< 5	< 5	N/A	N/A
8/31/2010		< 5	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
9/21/2010		< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
2/4/2011		N/A	< 5	< 5	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
3/15/2011		N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
9/13/2011		N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
9/13/2011		N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	
3/27/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/11/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/20/2013		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 0.13	N/A	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	
3/27/2014		N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	
9/15/2014		< 0.13	N/A	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	
9/15/2014		< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 0.13	N/A	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	
3/10/2015		N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	
8/31/2015		< 0.13	N/A	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	
3/24/2016		< 0.13	N/A	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	
7/18/2016		< 0.13	< 1.3	< 1.3	< 1.3	< 0.13	< 0.13	< 0.13	< 0.13	
3/2/2017		< 0.13	N/A	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	
3/2/2017		N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	
8/2/2017		< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	
8/2/2017		N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	
5/1/2018		< 0.13	N/A	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	
9/24/2018		< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	
9/24/2018		N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	
1/21/2019		< 0.34	N/A	N/A	N/A	< 0.34	< 0.34	< 0.34	< 0.34	
1/21/2019		N/A	N/A	N/A	N/A	N/A	< 0.34	N/A	N/A	
8/13/2019		< 0.34	< 0.34	< 0.34	< 0.34	N/A	< 0.34	< 0.34	< 0.34	
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	< 0.34	N/A	
3/24/2020	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1		
9/10/2020	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1		
9/10/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
3/31/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
3/31/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
8/30/2021	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
5/24/2022	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1		
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
8/17/2022	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A		
2/6/2023	N/A	< 1	< 1	< 1	< 10	< 1	< 1	N/A		
2/6/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A		
8/9/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A		
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
1,2-Dichlorobenzene, ug/L (CAS NO - 95-50-1)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	
	3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	9/15/2009	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
	3/16/2010	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
	8/31/2010	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	2/4/2011	N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
	2/4/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
	3/15/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	3/15/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
1,2-Dichlorobenzene, ug/L (CAS NO - 95-50-1)	9/13/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	9/13/2011	N/A	N/A	N/A	N/A	< 1	N/A	< 1	N/A	
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	9/11/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	9/3/2013	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
	3/27/2014	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/27/2014	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	9/15/2014	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	9/15/2014	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/10/2015	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/10/2015	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	8/31/2015	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	3/24/2016	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	7/18/2016	< 1	< 10	< 10	N/A	< 1	< 1	< 1	< 1	
	3/2/2017	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/2/2017	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	8/2/2017	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	5/1/2018	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	9/24/2018	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
	9/24/2018	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	1/21/2019	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	8/13/2019	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	
	9/10/2020	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
	9/10/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/31/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	8/30/2021	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	8/17/2022	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	2/6/2023	N/A	< 1	< 1	< 1	< 10	< 1	< 1	N/A	
	2/6/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	1,2-Dichloroethane, ug/L (CAS NO - 107-06-2)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
6/9/2008		< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
8/13/2008		< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
9/16/2008		< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
10/31/2008		N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	
3/17/2009		< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
9/15/2009		< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
3/16/2010		N/A	< 1	N/A	N/A	N/A	< 1	< 1	N/A	
8/31/2010		< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/21/2010		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2/4/2011		N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/15/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/13/2011		N/A	N/A	1.2	2.4	N/A	< 1	< 1	N/A	
9/13/2011		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
3/27/2012		< 1	5	2.3	N/A	< 1	< 1	< 1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/11/2012		< 1	3.9	2.7	N/A	< 1	< 1	< 1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/20/2013		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	2.1	1.9	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	2.2	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/27/2014		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/15/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/15/2014		< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	0.795*	
3/10/2015		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/31/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	0.77*	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/24/2016		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
7/18/2016		< 1	< 10	< 10	N/A	< 1	< 1	< 1	< 1	
3/2/2017		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/2/2017		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/2/2017		< 1	0.388*	0.594*	N/A	< 1	< 1	< 1	< 1	
8/2/2017		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
5/1/2018		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/24/2018		< 1	< 1	0.5*	N/A	< 1	< 1	< 1	< 1	
9/24/2018		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
1/21/2019		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
1/21/2019		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/13/2019		< 1	< 1	0.5*	N/A	< 1	< 1	< 1	< 1	
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/24/2020		N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/24/2020		N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	
9/10/2020	N/A	< 1	0.46*	N/A	< 1	< 1	< 1	< 1		
9/10/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
<b>Appendix I VOC Constituents</b>									
<b>1,2-Dichloroethane, ug/L (CAS NO - 107-06-2)</b>									
	3/31/2021	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/31/2021	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/30/2021	N/A	<1	<1	N/A	<1	<1	<1	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/24/2022	N/A	N/A	N/A	<1	<1	<1	<1	<1
	5/24/2022	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/6/2023	N/A	<1	<1	<1	<10	<1	<1	N/A
	2/6/2023	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	<1	<1	<1	<1	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
<b>1,2-Dichloropropane, ug/L (CAS NO - 78-87-5)</b>									
	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/13/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A
	3/27/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/20/2013	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/3/2013	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/27/2014	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/15/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/15/2014	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/10/2015	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/31/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2016	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	7/18/2016	<1	<10	<10	N/A	<1	<1	<1	<1
	3/2/2017	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/2/2017	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/2/2017	<1	<1	<1	N/A	<1	<1	<1	<1
	8/2/2017	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/1/2018	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/24/2018	<1	<1	0.303*	N/A	<1	<1	<1	<1
	9/24/2018	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/21/2019	<1	N/A	N/A	N/A	<1	<1	<1	<1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/13/2019	<1	<1	<1	N/A	<1	<1	<1	<1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1
	9/10/2020	N/A	<1	<1	N/A	<1	<1	<1	<1
	9/10/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/31/2021	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/30/2021	N/A	<1	<1	N/A	<1	<1	<1	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/24/2022	N/A	N/A	N/A	<1	<1	<1	<1	<1
	5/24/2022	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/6/2023	N/A	<1	<1	<1	<10	<1	<1	N/A
	2/6/2023	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	<1	<1	<1	<1	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
<b>1,4-Dichlorobenzene, ug/L (CAS NO - 106-46-7)</b>									
	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	3/15/2011	N/A	<1	N/A	N/A	N/A	<1	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/13/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A
	3/27/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	2.4	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
	1,4-Dichlorobenzene, ug/L (CAS NO - 106-46-7)	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
9/3/2013		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/27/2014		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/15/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/15/2014		< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/10/2015		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
5/15/2015		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
8/31/2015		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	
3/24/2016		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/24/2016		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
7/18/2016		< 1	< 10	< 10	< 10	N/A	< 1	< 1	< 1	
3/2/2017		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/2/2017		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/2/2017		< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	
8/2/2017		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
5/1/2018		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
9/24/2018		< 1	< 1	0.858*	N/A	N/A	< 1	< 1	< 1	
9/24/2018		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
1/21/2019		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
1/21/2019		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
8/13/2019		< 1	1.31	0.849*	N/A	N/A	< 1	< 1	< 1	
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	
3/24/2020		N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/24/2020		N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	
9/10/2020		N/A	1.69	1.04	N/A	N/A	< 1	< 1	< 1	
9/10/2020		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
3/31/2021		N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/31/2021		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/30/2021		N/A	0.239*	< 1	N/A	N/A	< 1	< 1	< 1	
8/30/2021		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
5/24/2022		N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
5/24/2022		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
8/17/2022		N/A	N/A	N/A	0.66*	< 1	< 1	< 1	< 1	
8/17/2022		N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	
2/6/2023		N/A	2.13	0.683*	< 1	< 10	< 1	< 1	N/A	
2/6/2023		N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
5/9/2023		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/9/2023		N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	
8/9/2023		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2-Butanone, ug/L (CAS NO - 78-93-3)		2/26/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5
		3/20/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5
		6/9/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5
	8/13/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5	
	9/16/2008	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A	
	10/31/2008	N/A	< 5	N/A	N/A	N/A	N/A	N/A	< 5	
	3/17/2009	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A	
	9/15/2009	< 5	< 5	N/A	N/A	< 5	< 5	N/A	N/A	
	3/16/2010	N/A	82	N/A	N/A	< 5	< 5	N/A	N/A	
	8/31/2010	< 5	N/A	N/A	N/A	N/A	N/A	N/A	< 5	
	9/21/2010	< 5	200	190	N/A	< 5	< 5	< 5	N/A	
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	
	2/4/2011	N/A	< 5	< 5	N/A	N/A	N/A	N/A	N/A	
	2/4/2011	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
	3/15/2011	N/A	< 5	< 5	N/A	N/A	< 5	< 5	N/A	
	3/15/2011	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	
	9/13/2011	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
	9/13/2011	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A	
	3/27/2012	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
	3/27/2012	N/A	N/A	N/A	N/A	< 5	< 5	N/A	N/A	
	9/11/2012	< 5	2800	5.7	N/A	< 5	< 5	< 5	N/A	
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	3/20/2013	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/20/2013	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	
	9/3/2013	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
	9/3/2013	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
	3/27/2014	< 10	N/A	N/A	N/A	< 10	< 10	0.605*	< 10	
	3/27/2014	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	9/15/2014	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	9/15/2014	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/10/2015	< 10	N/A	N/A	N/A	< 10	< 10	< 10	1.53*	
	3/10/2015	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	8/31/2015	0.638*	N/A	N/A	N/A	< 10	1.07*	< 10	4.72*	
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
	3/24/2016	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	7/18/2016	< 10	< 100	< 100	< 100	N/A	< 10	< 10	< 10	
	3/2/2017	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10	
	3/2/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	8/2/2017	< 10	< 10	< 10	< 10	N/A	< 10	3.53*	< 10	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	5/1/2018	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10	
	9/24/2018	< 10	3.04*	3.53*	N/A	< 10	< 10	< 10	< 10	
	9/24/2018	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	1/21/2019	< 10	N/A	N/A	N/A	N/A	< 10	< 10	2.22*	
1/21/2019	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A		
8/13/2019	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10		
8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A		
3/24/2020	N/A	N/A	N/A	N/A	N/A	< 10	< 10	2.68*		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.47*		
9/10/2020	N/A	< 10	< 10	< 10	N/A	< 10	< 10	< 10		
9/10/2020	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A		
3/31/2021	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10		
3/31/2021	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A		
8/30/2021	N/A	< 10	< 10	< 10	N/A	< 10	< 10	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A		
5/24/2022	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10		
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A		

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG		
Appendix I VOC Constituents	2-Butanone, ug/L (CAS NO - 78-93-3)	8/17/2022	N/A	N/A	< 10	< 10	< 10	2.8*	< 10	N/A	
		8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
		2/6/2023	N/A	< 10	< 10	< 10	< 100	< 10	< 10	N/A	
		2/6/2023	N/A	N/A	N/A	N/A	< 100	N/A	N/A	N/A	
		5/9/2023	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	
		8/9/2023	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	
		8/9/2023	N/A	N/A	N/A	N/A	< 10	< 10	N/A	N/A	
	2-Hexanone, ug/L (CAS NO - 591-78-6)		2/26/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5
			3/20/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5
		6/9/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5	
		8/13/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5	
		9/16/2008	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A	
		10/31/2008	N/A	< 5	N/A	N/A	N/A	N/A	N/A	< 5	
		3/17/2009	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A	
		9/15/2009	< 5	< 5	N/A	N/A	< 5	< 5	N/A	N/A	
		3/16/2010	N/A	< 5	N/A	N/A	< 5	< 5	N/A	N/A	
		8/31/2010	< 5	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		9/21/2010	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		2/4/2011	N/A	< 5	< 5	N/A	N/A	N/A	N/A	N/A	
		2/4/2011	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
		3/15/2011	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		3/15/2011	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
		6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		9/13/2011	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		9/13/2011	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
		1/19/2012	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A	
		3/27/2012	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		3/27/2012	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
		9/11/2012	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		3/20/2013	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
		3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		9/3/2013	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		9/3/2013	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
		3/27/2014	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
		3/27/2014	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
		9/15/2014	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
		9/15/2014	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		3/10/2015	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
		3/10/2015	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
		8/31/2015	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
		8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
		3/24/2016	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
		3/24/2016	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
		7/18/2016	< 10	< 100	< 100	N/A	< 10	< 10	< 10	< 10	
		3/2/2017	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
		3/2/2017	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
		8/2/2017	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	
		8/2/2017	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	
		5/1/2018	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
		9/24/2018	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	
		9/24/2018	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
		1/21/2019	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
		1/21/2019	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
		8/13/2019	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	
		8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10		
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10		
	9/10/2020	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10		
	9/10/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A		
	3/31/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10		
	3/31/2021	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A		
	8/30/2021	N/A	< 10	< 10	N/A	< 10	< 10	< 10	N/A		
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A		
	5/24/2022	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10		
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A		
	8/17/2022	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A		
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A		
	2/6/2023	N/A	< 10	< 10	< 10	< 100	< 10	< 10	N/A		
	2/6/2023	N/A	N/A	N/A	N/A	< 100	N/A	N/A	N/A		
	5/9/2023	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A		
	8/9/2023	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A		
	8/9/2023	N/A	N/A	N/A	N/A	< 10	< 10	N/A	N/A		
4-Methyl-2-Pentanone, ug/L (CAS NO - 108-10-1)		2/26/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5	
		3/20/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5	
		6/9/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5	
		8/13/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5	
		9/16/2008	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A	
		10/31/2008	N/A	< 5	N/A	N/A	N/A	N/A	N/A	< 5	
		3/17/2009	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A	
		9/15/2009	< 5	< 5	N/A	N/A	< 5	< 5	N/A	N/A	
		3/16/2010	N/A	< 5	N/A	N/A	< 5	< 5	N/A	N/A	
		8/31/2010	< 5	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		9/21/2010	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		2/4/2011	N/A	< 5	< 5	N/A	N/A	N/A	N/A	N/A	
		2/4/2011	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
		3/15/2011	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		3/15/2011	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
		6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		9/13/2011	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		9/13/2011	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
		1/19/2012	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A	
		3/27/2012	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		3/27/2012	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
		9/11/2012	< 5	150	< 5	N/A	< 5	< 5	< 5	N/A	
		9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		3/20/2013	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
		3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
		9/3/2013	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
		9/3/2013	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
		3/27/2014	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
		3/27/2014	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
4-Methyl-2-Pentanone, ug/L (CAS NO - 108-10-1)	9/15/2014	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	9/15/2014	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/10/2015	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	3/10/2015	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	8/31/2015	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
	3/24/2016	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	7/18/2016	< 10	< 100	< 100	N/A	< 10	< 10	< 10	< 10	
	3/2/2017	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	3/2/2017	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	8/2/2017	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	5/1/2018	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10	
	9/24/2018	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	
	9/24/2018	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	1/21/2019	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	8/13/2019	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	
	9/10/2020	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	
	9/10/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	3/31/2021	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	8/30/2021	N/A	< 10	< 10	N/A	< 10	< 10	< 10	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	8/17/2022	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
	2/6/2023	N/A	< 10	< 10	< 10	< 100	< 10	< 10	N/A	
	2/6/2023	N/A	N/A	N/A	N/A	< 100	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	Acetone, ug/L (CAS NO - 67-64-1)	2/26/2008	N/A	< 10	N/A	N/A	< 10	< 10	N/A	< 10
		3/20/2008	N/A	23	N/A	N/A	< 10	< 10	N/A	< 10
		5/9/2008	< 10	< 10	N/A	N/A	< 10	< 10	N/A	< 10
8/13/2008		< 10	< 10	N/A	N/A	< 10	< 10	N/A	< 10	
9/16/2008		< 10	N/A	N/A	N/A	< 10	< 10	N/A	N/A	
10/31/2008		N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 10	
3/17/2009		< 10	N/A	N/A	N/A	< 10	< 10	N/A	N/A	
9/15/2009		< 10	< 10	N/A	N/A	< 10	< 10	N/A	N/A	
3/16/2010		N/A	42	N/A	N/A	< 10	< 10	N/A	N/A	
8/31/2010		< 10	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
9/21/2010		< 10	93	96	N/A	< 10	< 10	< 10	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
2/4/2011		N/A	< 10	< 10	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 10	< 10	N/A	< 10	< 10	< 10	N/A	
3/15/2011		N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
9/13/2011		N/A	< 10	< 10	N/A	< 10	< 10	< 10	N/A	
9/13/2011		N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A	
3/27/2012		< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	
3/27/2012		N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
9/11/2012		< 10	840	< 10	N/A	< 10	< 10	< 10	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
3/20/2013		< 5	N/A	N/A	N/A	N/A	< 5	< 5	N/A	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
9/3/2013		< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
9/3/2013		N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 10	< 10	< 10	N/A	< 10	< 10	< 10	N/A	
3/27/2014		N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
9/15/2014		1.98*	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
9/15/2014		< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
3/10/2015		N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
8/31/2015		< 10	N/A	N/A	N/A	< 10	< 10	< 10	2.1*	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
3/24/2016		2.93*	N/A	N/A	N/A	3.46*	< 10	< 10	2.03*	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
7/18/2016		2.01*	37.6*	45.3*	N/A	< 10	3.86*	< 10	4.42*	
3/2/2017		< 10	N/A	N/A	N/A	< 10	< 10	11	< 10	
3/2/2017		N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
8/2/2017		2.55*	3.98*	4.69*	N/A	4.15*	3.92*	4.22*	4.27*	
8/2/2017		N/A	N/A	N/A	N/A	N/A	3.78*	N/A	N/A	
5/1/2018		1.83*	N/A	N/A	N/A	2.42*	3.32*	3.83*	3.11*	
9/24/2018		< 10	< 10	3.22*	N/A	< 10	< 10	3.45*	< 10	
9/24/2018		N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
1/21/2019		< 10	N/A	N/A	N/A	3.22*	< 10	< 10	4.74*	
1/21/2019		N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
8/13/2019		< 10	< 10	3.93*	N/A	< 10	< 10	< 10	< 10	
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
3/24/2020	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10		
9/10/2020	N/A	< 10	3.45*	N/A	< 10	< 10	< 10	22.7		
9/10/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A		
11/25/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 100		
3/31/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10		
3/31/2021	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A		
8/30/2021	N/A	< 10	< 10	N/A	12.8	< 10	< 10	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A		
5/24/2022	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10		
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A		
8/17/2022	N/A	N/A	< 10	< 10	< 10	3.32*	< 10	N/A		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A		
2/6/2023	N/A	< 10	< 10	24.5	76.5*	< 10	< 10	N/A		
2/6/2023	N/A	N/A	N/A	N/A	77.1*	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A		

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
Appendix I VOC Constituents									
	Acetone, ug/L (CAS NO - 67-64-1)	8/9/2023 N/A	N/A N/A	N/A N/A	N/A N/A	3.69* N/A	11.5 < 10	< 10 < 10	N/A N/A
Acrylonitrile, ug/L (CAS NO - 107-13-1)	2/26/2008	N/A	< 50	N/A	N/A	< 50	< 50	N/A	< 50
	3/20/2008	N/A	< 50	N/A	N/A	< 50	< 50	N/A	< 50
	6/9/2008	< 50	< 50	N/A	N/A	< 50	< 50	N/A	< 50
	8/13/2008	< 50	< 50	N/A	N/A	< 50	< 50	N/A	< 50
	9/16/2008	< 50	N/A	N/A	N/A	< 50	< 50	N/A	N/A
	10/31/2008	N/A	< 50	N/A	N/A	N/A	N/A	N/A	< 50
	3/17/2009	< 50	N/A	N/A	N/A	< 50	< 50	N/A	N/A
	9/15/2009	< 50	< 50	N/A	N/A	< 50	< 50	N/A	N/A
	3/16/2010	N/A	< 50	N/A	N/A	< 50	< 50	N/A	N/A
	8/31/2010	< 50	N/A	N/A	N/A	N/A	N/A	N/A	< 50
	9/21/2010	< 50	< 50	< 50	N/A	< 50	< 50	< 50	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 50
	2/4/2011	N/A	< 50	< 50	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 50	< 50	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 50	< 50	N/A	N/A	< 50	< 50	< 50
	3/15/2011	N/A	< 50	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 50
	9/13/2011	N/A	< 50	< 50	N/A	N/A	< 50	< 50	< 50
	9/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10
	3/27/2012	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10
	3/27/2012	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	9/11/2012	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10
	3/20/2013	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10
	9/3/2013	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10
	9/3/2013	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10
	3/27/2014	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	9/15/2014	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10
	9/15/2014	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10
	3/10/2015	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	8/31/2015	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10
	3/24/2016	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10
	3/24/2016	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	7/18/2016	< 10	< 100	< 100	< 100	N/A	< 10	< 10	< 10
	3/2/2017	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10
	3/2/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	8/2/2017	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10
	8/2/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10
	9/24/2018	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10
	9/24/2018	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	1/21/2019	< 10	N/A	N/A	N/A	N/A	< 10	< 10	< 10
1/21/2019	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
8/13/2019	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	
8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	
3/24/2020	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	
3/24/2020	N/A	N/A	N/A	N/A	N/A	< 5	N/A	< 5	
9/10/2020	N/A	< 5	< 5	< 5	N/A	< 5	< 5	< 5	
9/10/2020	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
3/31/2021	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	
3/31/2021	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
8/30/2021	N/A	< 5	< 5	< 5	N/A	< 5	< 5	< 5	
8/30/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
5/24/2022	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A	
8/17/2022	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
2/6/2023	N/A	< 5	< 5	< 5	N/A	< 5	< 5	N/A	
2/6/2023	N/A	N/A	N/A	N/A	N/A	< 50	N/A	N/A	
5/9/2023	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
8/9/2023	N/A	N/A	N/A	N/A	< 5	< 5	< 5	N/A	
8/9/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
Benzene, ug/L (CAS NO - 71-43-2)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1
	3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	9/15/2009	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
	3/16/2010	N/A	< 1	N/A	N/A	N/A	< 1	< 1	N/A
	8/31/2010	< 1	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/4/2011	N/A	1.3	< 1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	1.3	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	1.2	< 1	N/A	< 1	< 1	< 1	N/A
	3/15/2011	N/A	1.1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	9/13/2011	N/A	6	2.1	N/A	< 1	< 1	< 1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/27/2012	< 1	6	4.2	N/A	< 1	< 1	< 1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/11/2012	< 1	4.5	7.1	N/A	< 1	< 1	< 1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	3/20/2013	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	9/3/2013	< 1	6	5.6	N/A	< 1	< 1	< 1	N/A
9/3/2013	N/A	5.6	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014	0.145*	N/A	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	
3/27/2014	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	
9/15/2014	< 0.5	N/A	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	
9/15/2014	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015	< 0.5	N/A	N/A	N/A	N/A	< 0.5	< 0.5	5.48	
3/10/2015	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	
5/15/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Appendix I VOC Constituents Benzene, ug/L (CAS NO - 71-43-2)	8/31/2015	< 0.5	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	5.25	
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	
	2/23/2016	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	
	3/24/2016	< 0.5	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	< 0.5	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	
	7/18/2016	< 0.5	< 5	< 5	N/A	< 0.5	< 0.5	< 0.5	< 0.5	
	3/2/2017	< 0.5	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	< 0.5	
	3/2/2017	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	
	8/2/2017	< 0.5	1.51	3.74	N/A	< 0.5	< 0.5	< 0.5	< 0.5	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	
	5/1/2018	< 0.5	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	< 0.5	
	9/24/2018	< 0.5	0.305*	3.91	N/A	< 0.5	< 0.5	< 0.5	< 0.5	
	9/24/2018	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	
	1/21/2019	< 0.5	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	< 0.5	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	
	8/13/2019	< 0.5	< 0.5	4.24	N/A	< 0.5	< 0.5	< 0.5	< 0.5	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	
	9/10/2020	N/A	0.295*	4.27	N/A	< 0.5	< 0.5	< 0.5	< 0.5	
	9/10/2020	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	< 0.5	
	3/31/2021	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	
	8/30/2021	N/A	< 0.5	3.97	N/A	< 0.5	< 0.5	< 0.5	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	
	8/17/2022	N/A	N/A	2.51	< 0.5	< 0.5	< 0.5	< 0.5	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	
	2/6/2023	N/A	1.57	3.36	< 0.5	< 5	< 0.5	< 0.5	N/A	
	2/6/2023	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	< 0.5	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	
	Bromochloromethane, ug/L (CAS NO - 74-97-5)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
		10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1
3/17/2009		< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
9/15/2009		< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
3/16/2010		N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
8/31/2010		< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/21/2010		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2/4/2011		N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/15/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/13/2011		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/13/2011		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
3/27/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/11/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/20/2013		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 5	N/A	N/A	N/A	< 5	< 5	< 5	N/A	
3/27/2014		N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
9/15/2014		< 5	N/A	N/A	N/A	< 5	< 5	< 5	N/A	
9/15/2014		< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 5	N/A	N/A	N/A	< 5	< 5	< 5	N/A	
3/10/2015		N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
8/31/2015		< 5	N/A	N/A	N/A	< 5	< 5	< 5	N/A	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
3/24/2016		< 5	N/A	N/A	N/A	< 5	< 5	< 5	N/A	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
7/18/2016		< 5	< 50	< 50	N/A	< 5	< 5	< 5	< 5	
3/2/2017		< 5	N/A	N/A	N/A	< 5	< 5	< 5	N/A	
3/2/2017	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A		
8/2/2017	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A		
8/2/2017	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A		
5/1/2018	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5		
9/24/2018	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5		
9/24/2018	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A		
1/21/2019	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5		
1/21/2019	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A		
8/13/2019	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5		
8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A		
3/24/2020	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5		
9/10/2020	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5		
9/10/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A		
3/31/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5		
3/31/2021	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A		
8/30/2021	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A		
5/24/2022	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5		
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A		
8/17/2022	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A		
2/6/2023	N/A	< 5	< 5	< 5	< 50	< 5	< 5	N/A		
2/6/2023	N/A	N/A	N/A	N/A	< 50	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A		
8/9/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A		
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A		
Bromodichloromethane, ug/L (CAS NO - 75-27-4)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	



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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
	<b>Bromodichloromethane, ug/L (CAS NO - 75-27-4)</b>	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/13/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A
	3/27/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/20/2013	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/3/2013	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/27/2014	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/15/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1
	9/15/2014	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/10/2015	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/31/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2016	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	7/18/2016	<1	<10	<10	N/A	<1	<1	<1	<1
	3/2/2017	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/2/2017	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/2/2017	<1	<1	<1	N/A	<1	<1	<1	<1
	8/2/2017	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/1/2018	<1	N/A	N/A	N/A	<1	<1	<1	<1
	8/24/2018	<1	<1	<1	N/A	<1	<1	<1	<1
	9/24/2018	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/21/2019	<1	N/A	N/A	N/A	<1	<1	<1	<1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/13/2019	<1	<1	<1	N/A	<1	<1	<1	<1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1
	9/10/2020	N/A	<1	<1	N/A	<1	<1	<1	<1
	9/10/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/31/2021	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/30/2021	N/A	<1	<1	N/A	<1	<1	<1	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	5/24/2022	N/A	N/A	N/A	<1	<1	<1	<1	<1
	5/24/2022	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/6/2023	N/A	<1	<1	<1	<10	<1	<1	N/A
	2/6/2023	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	<1	<1	<1	<1	N/A
	8/9/2023	N/A	N/A	N/A	N/A	<1	<1	N/A	N/A
<b>Bromoform, ug/L (CAS NO - 75-25-2)</b>	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/13/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A
	3/27/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/20/2013	<1	N/A	N/A	N/A	<1	<1	<1	<1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/3/2013	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	<5	N/A	N/A	N/A	<5	<5	<5	<5
	3/27/2014	N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A
	9/15/2014	<5	N/A	N/A	N/A	<5	<5	<5	<5
	9/15/2014	<5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	<5	N/A	N/A	N/A	<5	<5	<5	<5
	3/10/2015	N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A
	8/31/2015	<5	N/A	N/A	N/A	<5	<5	<5	<5
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A
	3/24/2016	<5	N/A	N/A	N/A	<5	<5	<5	<5
	3/24/2016	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A
	7/18/2016	<5	<50	<50	N/A	<5	<5	<5	<5

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Appendix I VOC Constituents Bromoform, ug/L (CAS NO - 75-25-2)	3/2/2017	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/2/2017	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	8/2/2017	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	5/1/2018	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	9/24/2018	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	9/24/2018	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	1/21/2019	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	8/13/2019	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	
	9/10/2020	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	9/10/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/31/2021	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	8/30/2021	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	
	5/24/2022	N/A	N/A	N/A	N/A	< 5	< 5	N/A	N/A	
	8/17/2022	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	2/6/2023	N/A	< 5	< 5	< 5	< 50	< 5	< 5	N/A	
	2/6/2023	N/A	N/A	N/A	N/A	< 50	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	Bromomethane, ug/L (CAS NO - 74-83-9)	2/26/2008	N/A	< 2	N/A	N/A	< 2	< 2	N/A	< 2
		3/20/2008	N/A	< 2	N/A	N/A	< 2	< 2	N/A	< 2
		6/9/2008	< 2	< 2	N/A	N/A	< 2	< 2	N/A	< 2
		8/13/2008	< 2	< 2	N/A	N/A	< 2	< 2	N/A	< 2
		9/16/2008	< 2	N/A	N/A	N/A	< 2	< 2	N/A	N/A
		10/31/2008	N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2
		3/17/2009	< 2	N/A	N/A	N/A	< 2	< 2	N/A	N/A
9/15/2009		< 2	< 2	N/A	N/A	< 2	< 2	N/A	N/A	
3/16/2010		N/A	< 2	N/A	N/A	< 2	< 2	N/A	N/A	
8/31/2010		< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
9/21/2010		< 2	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
2/4/2011		N/A	< 2	< 2	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
3/15/2011		N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
9/13/2011		N/A	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
9/13/2011		N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
3/27/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/11/2012		< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
3/20/2013		1.2	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
3/27/2014		N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
9/15/2014		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
9/15/2014		< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
3/10/2015		N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
8/31/2015		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	
3/24/2016		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
3/24/2016		N/A	N/A	N/A	N/A	N/A	0.357*	N/A	N/A	
7/18/2016		0.48*	< 40	< 40	N/A	0.291*	0.245*	0.335*	0.333*	
3/2/2017		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
3/2/2017		N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
8/2/2017		< 4	< 4	< 4	N/A	0.308*	0.234*	< 4	< 4	
8/2/2017		N/A	N/A	N/A	N/A	N/A	0.257*	N/A	N/A	
5/1/2018		< 4	N/A	N/A	N/A	< 4	< 4	0.397*	< 4	
9/24/2018		< 4	< 4	< 4	N/A	< 4	< 4	< 4	3.01*	
9/24/2018		N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
1/21/2019		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
1/21/2019		N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	
8/13/2019		< 4	< 4	< 4	N/A	< 4	< 4	< 4	< 4	
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	
3/24/2020		N/A	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
3/24/2020		N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	
9/10/2020		N/A	< 4	< 4	N/A	< 4	< 4	< 4	< 4	
9/10/2020		N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
3/31/2021	N/A	N/A	N/A	N/A	< 4	< 4	< 4	< 4		
3/31/2021	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A		
8/30/2021	N/A	< 4	< 4	N/A	< 4	< 4	< 4	< 4		
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A		
5/24/2022	N/A	N/A	N/A	< 4	< 4	< 4	< 4	< 4		
5/24/2022	N/A	N/A	N/A	N/A	< 4	< 4	N/A	N/A		
8/17/2022	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A		
2/6/2023	N/A	< 4	< 4	< 4	< 40	< 4	< 4	N/A		
2/6/2023	N/A	N/A	N/A	N/A	< 40	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A		
8/9/2023	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A		
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A		
Carbon Disulfide, ug/L (CAS NO - 75-15-0)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	
	3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	9/15/2009	< 1	< 1	N/A	N/A	< 1	1.9	N/A	N/A	
	3/16/2010	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
Carbon Disulfide, ug/L (CAS NO - 75-15-0)	8/31/2010	< 1	N/A	N/A	N/A	N/A	N/A	2	N/A
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	2/4/2011	N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/15/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/13/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/11/2012	< 1	8.6	< 1	N/A	< 1	< 1	< 1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/3/2013	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/27/2014	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/15/2014	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	9/15/2014	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/10/2015	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/31/2015	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/24/2016	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	7/18/2016	< 1	< 10	< 10	N/A	< 1	< 1	< 1	< 1
	3/2/2017	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/2/2017	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/2/2017	< 1	0.171*	0.206*	N/A	< 1	< 1	< 1	< 1
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	5/1/2018	< 1	N/A	N/A	N/A	< 1	0.468*	< 1	< 1
	9/24/2018	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	9/24/2018	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/21/2019	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	8/13/2019	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/10/2020	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	9/10/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
3/31/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/31/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/30/2021	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
5/24/2022	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/17/2022	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2/6/2023	N/A	< 1	< 1	< 1	< 10	0.479*	< 1	N/A	
2/6/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
5/9/2023	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	
8/9/2023	N/A	N/A	N/A	< 1	< 1	5.44	< 1	N/A	
8/9/2023	N/A	N/A	N/A	N/A	N/A	1.57	N/A	N/A	
Carbon Tetrachloride, ug/L (CAS NO - 56-23-5)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	10/31/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	9/15/2009	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
	3/16/2010	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A
	8/31/2010	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	2/4/2011	N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/15/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/13/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/11/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/3/2013	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	3/27/2014	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	9/15/2014	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	9/15/2014	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	3/10/2015	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/31/2015	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A
	3/24/2016	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	7/18/2016	< 2	< 20	< 20	N/A	< 2	< 2	< 2	< 2
	3/2/2017	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	3/2/2017	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/2/2017	< 2	< 2	< 2	N/A	< 2	< 2	< 2	< 2
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	5/1/2018	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	9/24/2018	< 2	< 2	< 2	N/A	< 2	< 2	< 2	< 2
9/24/2018	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
<b>Appendix I VOC Constituents</b>									
<b>Carbon Tetrachloride, ug/L (CAS NO - 56-23-5)</b>									
	1/21/2019	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	1/21/2019	N/A	N/A	N/A	N/A	< 2	< 2	N/A	N/A
	8/13/2019	< 2	< 2	< 2	N/A	< 2	< 2	< 2	< 2
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2
	9/10/2020	N/A	< 2	< 2	N/A	< 2	< 2	< 2	< 2
	9/10/2020	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	3/31/2021	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/30/2021	N/A	< 2	< 2	N/A	< 2	< 2	< 2	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	5/24/2022	N/A	N/A	N/A	< 2	< 2	< 2	< 2	< 2
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	8/17/2022	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A
	2/6/2023	N/A	< 2	< 2	< 2	< 20	< 2	< 2	N/A
	2/6/2023	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	< 2	< 2	< 2	< 2	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
<b>Chlorobenzene, ug/L (CAS NO - 108-90-7)</b>									
	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1
	3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	9/15/2009	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
	3/16/2010	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A
	8/31/2010	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	2/4/2011	N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/15/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/13/2011	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/11/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/3/2013	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/27/2014	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/15/2014	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	9/15/2014	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 1	N/A	N/A	N/A	< 1	< 1	< 1	0.429*
	3/10/2015	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/31/2015	< 1	N/A	N/A	N/A	< 1	< 1	< 1	0.46*
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/24/2016	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	7/18/2016	< 1	< 10	< 10	N/A	< 1	< 1	< 1	< 1
	3/2/2017	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/2/2017	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/2/2017	< 1	< 1	0.332*	N/A	< 1	< 1	< 1	< 1
	8/2/2017	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	5/1/2018	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	9/24/2018	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	9/24/2018	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/21/2019	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	8/13/2019	< 1	0.782*	0.467*	N/A	< 1	< 1	< 1	< 1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	9/10/2020	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	9/10/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/31/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/30/2021	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	5/24/2022	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	8/17/2022	N/A	N/A	0.51*	< 1	< 1	< 1	< 1	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	2/6/2023	N/A	1.27	0.579*	< 1	< 10	< 1	< 1	N/A
	2/6/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
<b>Chlorodibromomethane, ug/L (CAS NO - 124-48-1)</b>									
	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	< 1
	10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1
	3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	9/15/2009	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
	3/16/2010	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A
	8/31/2010	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	2/4/2011	N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/15/2011	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Chlorodibromomethane, ug/L (CAS NO - 124-48-1)	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	9/13/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	9/13/2011	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	9/11/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	9/3/2013	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	9/3/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/27/2014	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/27/2014	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	9/15/2014	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	9/15/2014	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/10/2015	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/10/2015	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	8/31/2015	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	3/24/2016	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	7/18/2016	< 5	< 50	< 50	N/A	< 5	< 5	< 5	< 5	
	3/2/2017	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/2/2017	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	8/2/2017	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	5/1/2018	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	9/24/2018	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	9/24/2018	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	1/21/2019	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	8/13/2019	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	
	9/10/2020	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	9/10/2020	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	
	3/31/2021	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	8/30/2021	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	8/17/2022	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	2/6/2023	N/A	< 5	< 5	< 5	< 50	< 5	< 5	N/A	
	2/6/2023	N/A	N/A	N/A	N/A	< 50	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	Chloroethane, ug/L (CAS NO - 75-00-3)	2/26/2008	N/A	< 2	N/A	N/A	< 2	< 2	N/A	< 2
		3/20/2008	N/A	< 2	N/A	N/A	< 2	< 2	N/A	< 2
6/9/2008		< 2	< 2	< 2	N/A	< 2	< 2	N/A	< 2	
8/13/2008		< 2	< 2	< 2	N/A	< 2	< 2	N/A	< 2	
9/16/2008		< 2	N/A	N/A	N/A	< 2	< 2	N/A	N/A	
10/31/2008		N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2	
3/17/2009		< 2	N/A	N/A	N/A	< 2	< 2	N/A	N/A	
9/15/2009		< 2	< 2	N/A	N/A	< 2	< 2	N/A	N/A	
3/16/2010		N/A	< 2	N/A	N/A	< 2	< 2	N/A	N/A	
8/31/2010		< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
9/21/2010		< 2	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
2/4/2011		N/A	< 2	< 2	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
3/15/2011		N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
9/13/2011		N/A	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
9/13/2011		N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
3/27/2012		< 1	1.7	2.3	N/A	< 1	< 1	< 1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/11/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/20/2013		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
3/27/2014		N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
9/15/2014		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
9/15/2014		< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
3/10/2015		N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
8/31/2015		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	
3/24/2016		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	
7/18/2016		< 4	< 40	< 40	N/A	< 4	< 4	< 4	< 4	
3/2/2017		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
3/2/2017		N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
8/2/2017		< 4	0.696*	< 4	N/A	< 4	< 4	< 4	< 4	
8/2/2017		N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	
5/1/2018		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
9/24/2018		< 4	1.24*	1.11*	N/A	< 4	< 4	< 4	< 4	
9/24/2018		N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
1/21/2019		< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
1/21/2019	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A		
8/13/2019	< 4	< 4	0.839*	N/A	< 4	< 4	< 4	< 4		
8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A		
3/24/2020	N/A	N/A	N/A	N/A	< 4	< 4	< 4	< 4		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4		

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Appendix I VOC Constituents	Chloroethane, ug/L (CAS NO - 75-00-3)									
	9/10/2020	N/A	< 4	0.854*	N/A	< 4	< 4	< 4	< 4	
	9/10/2020	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	< 4	< 4	< 4	< 4	
	3/31/2021	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	
	8/30/2021	N/A	< 4	< 4	N/A	< 4	< 4	< 4	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	< 4	< 4	< 4	< 4	< 4	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	
	8/17/2022	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	
	2/6/2023	N/A	< 4	< 4	< 4	< 40	< 4	< 4	N/A	
	2/6/2023	N/A	N/A	N/A	N/A	< 40	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	< 4	< 4	6.59	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	
	Chloroform, ug/L (CAS NO - 67-66-3)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
9/16/2008		< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
10/31/2008		N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	
3/17/2009		< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
9/15/2009		< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
3/16/2010		N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
8/31/2010		< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/21/2010		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2/4/2011		N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	2.4	< 1	N/A	< 1	< 1	< 1	N/A	
3/15/2011		N/A	2.3	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/13/2011		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/13/2011		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
3/27/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/11/2012		< 1	1.9	< 1	N/A	< 1	< 1	< 1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/20/2013		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/27/2014		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/15/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/15/2014		< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/10/2015		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/31/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/24/2016		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
7/18/2016		< 1	9.5*	9.02*	N/A	< 1	< 1	< 1	< 1	
3/2/2017		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/2/2017		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/2/2017		< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
8/2/2017		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
5/1/2018		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/24/2018		< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
9/24/2018		N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
1/21/2019		< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
1/21/2019		N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
8/13/2019		< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	
3/24/2020	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3		
9/10/2020	N/A	< 3	< 3	N/A	< 3	< 3	< 3	< 3		
9/10/2020	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A		
3/31/2021	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3		
3/31/2021	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A		
8/30/2021	N/A	< 3	< 3	N/A	< 3	< 3	< 3	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A		
5/24/2022	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3		
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A		
8/17/2022	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A		
2/6/2023	N/A	< 3	< 3	< 3	< 30	< 3	< 3	N/A		
2/6/2023	N/A	N/A	N/A	N/A	< 30	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A		
8/9/2023	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A		
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A		
Chloromethane, ug/L (CAS NO - 74-87-3)	2/26/2008	N/A	< 2	N/A	N/A	< 2	< 2	N/A	< 2	
	3/20/2008	N/A	< 2	N/A	N/A	< 2	< 2	N/A	< 2	
	6/9/2008	< 2	< 2	N/A	N/A	< 2	< 2	N/A	< 2	
	8/13/2008	< 2	< 2	N/A	N/A	< 2	< 2	N/A	< 2	
	9/16/2008	< 2	N/A	N/A	N/A	< 2	< 2	N/A	N/A	
	10/31/2008	N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2	
	3/17/2009	< 2	N/A	N/A	N/A	< 2	< 2	N/A	N/A	
	9/15/2009	< 2	< 2	N/A	N/A	< 2	< 2	N/A	N/A	
	3/16/2010	N/A	< 2	N/A	N/A	< 2	< 2	N/A	N/A	
	8/31/2010	< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
	9/21/2010	< 2	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
	2/4/2011	N/A	< 2	< 2	N/A	N/A	N/A	N/A	N/A	
	2/4/2011	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	
	3/15/2011	N/A	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
	3/15/2011	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
	9/13/2011	N/A	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
	9/13/2011	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Chloromethane, ug/L (CAS NO - 74-87-3)	9/11/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	9/3/2013	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
	3/27/2014	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/27/2014	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	9/15/2014	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	9/15/2014	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/10/2015	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/10/2015	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	8/31/2015	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	
	3/24/2016	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	7/18/2016	< 3	< 30	< 30	N/A	< 3	< 3	< 3	< 3	
	3/2/2017	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/2/2017	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	8/2/2017	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	5/1/2018	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	9/24/2018	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
	9/24/2018	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	1/21/2019	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	8/13/2019	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	
	9/10/2020	N/A	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
	9/10/2020	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/31/2021	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	8/30/2021	N/A	< 3	< 3	N/A	< 3	< 3	< 3	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	8/17/2022	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	
	2/6/2023	N/A	< 3	< 3	< 3	< 30	< 3	< 3	< 3	
	2/6/2023	N/A	N/A	N/A	N/A	< 30	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	< 3	< 3	< 3	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	cis-1,2-Dichloroethene, ug/L (CAS NO - 156-59-2)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
6/9/2008		< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
8/13/2008		< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
9/16/2008		< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
10/31/2008		N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	
3/17/2009		< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
9/15/2009		< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
3/16/2010		N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
8/31/2010		< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/21/2010		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2/4/2011		N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/15/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/13/2011		N/A	6.1	2.1	N/A	< 1	< 1	< 1	N/A	
9/13/2011		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
3/27/2012		< 1	19	8.4	N/A	< 1	< 1	< 1	N/A	
3/27/2012		N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	
9/11/2012		< 1	< 1	18	N/A	< 1	< 1	< 1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/20/2013		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	4.5	4.2	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	4.9	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/27/2014		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/15/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/15/2014		< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	0.982*	
3/10/2015		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/31/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	1.3	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2/23/2016		N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	
3/24/2016		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
7/18/2016		< 1	< 10	< 10	N/A	< 1	< 1	< 1	< 1	
3/2/2017		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/2/2017		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/2/2017		< 1	0.245*	0.746*	N/A	< 1	< 1	< 1	< 1	
8/2/2017		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
5/1/2018		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/24/2018		< 1	< 1	0.508*	N/A	< 1	< 1	< 1	< 1	
9/24/2018		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
1/21/2019	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
1/21/2019	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
8/13/2019	< 1	< 1	0.433*	N/A	< 1	< 1	< 1	< 1		
8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A		
3/24/2020	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1		
9/10/2020	N/A	< 1	0.37*	N/A	< 1	< 1	< 1	< 1		
9/10/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
3/31/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
3/31/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
8/30/2021	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG		
Appendix I VOC Constituents	cis-1,2-Dichloroethene, ug/L (CAS NO - 156-59-2)										
	5/24/2022	N/A	N/A	N/A	<1	<1	<1	<1	<1		
	5/24/2022	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A		
	8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	N/A		
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1		
	2/6/2023	N/A	<1	<1	<1	<10	<1	<1	N/A		
	2/6/2023	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A		
	5/9/2023	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A		
	8/9/2023	N/A	N/A	N/A	<1	<1	<1	<1	N/A		
	8/9/2023	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A		
	cis-1,3-Dichloropropene, ug/L (CAS NO - 10061-01-5)	cis-1,3-Dichloropropene, ug/L (CAS NO - 10061-01-5)									
		2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1	
3/20/2008		N/A	<1	N/A	N/A	<1	<1	N/A	<1		
6/9/2008		<1	<1	N/A	N/A	<1	<1	N/A	<1		
8/13/2008		<1	<1	N/A	N/A	<1	<1	N/A	<1		
9/16/2008		<1	N/A	N/A	N/A	<1	<1	N/A	N/A		
10/31/2008		N/A	<1	N/A	N/A	N/A	N/A	N/A	<1		
3/17/2009		<1	N/A	N/A	N/A	<1	<1	N/A	N/A		
9/15/2009		<1	<1	N/A	N/A	<1	<1	N/A	N/A		
3/16/2010		N/A	<1	N/A	N/A	<1	<1	N/A	N/A		
8/31/2010		<1	N/A	N/A	N/A	N/A	N/A	<1	N/A		
9/21/2010		<1	<1	<1	N/A	<1	<1	<1	N/A		
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A		
2/4/2011		N/A	<1	<1	N/A	N/A	N/A	N/A	N/A		
2/4/2011		N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A		
3/15/2011		N/A	<1	<1	N/A	<1	<1	<1	N/A		
3/15/2011		N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A		
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A		
9/13/2011		N/A	<1	<1	N/A	<1	<1	<1	N/A		
9/13/2011		N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A		
1/19/2012		N/A	N/A	N/A	N/A	N/A	<1	<1	N/A		
3/27/2012		<1	<1	<1	N/A	<1	<1	<1	N/A		
3/27/2012		N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A		
9/11/2012		<1	<1	<1	N/A	<1	<1	<1	N/A		
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A		
3/20/2013		<1	N/A	N/A	N/A	<1	<1	<1	<1		
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A		
9/3/2013		<1	<1	<1	N/A	<1	<1	<1	N/A		
9/3/2013		N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A		
3/27/2014		<5	N/A	N/A	N/A	<5	<5	<5	N/A		
3/27/2014		N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A		
9/15/2014		<5	N/A	N/A	N/A	<5	<5	<5	N/A		
9/15/2014		<5	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
3/10/2015		<5	N/A	N/A	N/A	<5	<5	<5	N/A		
3/10/2015		N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A		
8/31/2015		<5	N/A	N/A	N/A	<5	<5	<5	N/A		
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A		
3/24/2016		<5	N/A	N/A	N/A	<5	<5	<5	N/A		
3/24/2016		N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A		
7/18/2016		<5	<50	<50	N/A	<5	<5	<5	N/A		
3/2/2017		<5	N/A	N/A	N/A	<5	<5	<5	N/A		
3/2/2017		N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A		
8/2/2017		<5	<5	<5	N/A	<5	<5	<5	N/A		
8/2/2017		N/A	N/A	N/A	N/A	<5	<5	<5	N/A		
5/1/2018		<5	N/A	N/A	N/A	<5	<5	<5	N/A		
9/24/2018		<5	<5	<5	N/A	<5	<5	<5	N/A		
9/24/2018		N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A		
1/21/2019		<5	N/A	N/A	N/A	<5	<5	<5	N/A		
1/21/2019		N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A		
8/13/2019		<5	<5	<5	N/A	<5	<5	<5	N/A		
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A		
3/24/2020		N/A	N/A	N/A	N/A	<5	<5	<5	N/A		
3/24/2020		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
9/10/2020		N/A	<5	<5	N/A	<5	<5	<5	N/A		
9/10/2020		N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A		
3/31/2021		N/A	N/A	N/A	N/A	<5	<5	<5	N/A		
3/31/2021		N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A		
8/30/2021		N/A	<5	<5	N/A	<5	<5	<5	N/A		
8/30/2021		N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A		
5/24/2022		N/A	N/A	N/A	N/A	<5	<5	<5	N/A		
5/24/2022		N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A		
8/17/2022		N/A	N/A	<5	<5	<5	<5	<5	N/A		
8/17/2022		N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A		
2/6/2023		N/A	<5	<5	<5	<50	<5	<5	N/A		
2/6/2023		N/A	N/A	N/A	N/A	<50	N/A	N/A	N/A		
5/9/2023		N/A	N/A	N/A	<5	N/A	N/A	N/A	N/A		
8/9/2023		N/A	N/A	N/A	<5	<5	<5	<5	N/A		
8/9/2023	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A			
Ethylbenzene, ug/L (CAS NO - 100-41-4)	Ethylbenzene, ug/L (CAS NO - 100-41-4)										
	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1		
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1		
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1		
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1		
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	<1		
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1		
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A		
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A		
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A		
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A		
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A		
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A		
	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A		
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A		
	3/15/2011	N/A	<1	<1	N/A	<1	<1	<1	N/A		
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A		
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A		
	9/13/2011	N/A	11	<1	N/A	<1	<1	<1	N/A		
	9/13/2011	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A		
	1/19/2012	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A		
	3/27/2012	<1	<1	<1	N/A	<1	<1	<1	N/A		
	3/27/2012	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A		
	9/11/2012	<1	6.7	<1	N/A	<1	<1	<1	N/A		
	9/11/2012	N/A	N/A	N/A	N/A	<1	N/A	<1	N/A		
	3/20/2013	<1	N/A	N/A	N/A	<1	<1	<1	<1		
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A		
	9/3/2013	<1	<1	<1	N/A	<1	<1	<1	N/A		
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A		



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Summary of Groundwater Chemistry  
 Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Ethylbenzene, ug/L (CAS NO - 100-41-4)	3/27/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1	
	3/27/2014	N/A	N/A	N/A	N/A	0.344*	N/A	N/A	N/A	
	9/15/2014	<1	N/A	N/A	N/A	<1	<1	<1	<1	
	9/15/2014	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/10/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1	
	3/10/2015	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
	8/31/2015	<1	N/A	N/A	N/A	<1	<1	<1	<1	
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	3/24/2016	<1	N/A	N/A	N/A	<1	<1	<1	<1	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
	7/18/2016	<1	<10	<10	N/A	<1	<1	<1	<1	
	3/2/2017	<1	N/A	N/A	N/A	<1	<1	<1	<1	
	3/2/2017	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
	8/2/2017	<1	<1	<1	N/A	<1	<1	<1	<1	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
	5/1/2018	<1	N/A	N/A	N/A	<1	<1	<1	<1	
	9/24/2018	<1	<1	<1	N/A	<1	<1	<1	<1	
	9/24/2018	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
	1/21/2019	<1	N/A	N/A	N/A	<1	<1	<1	<1	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
	8/13/2019	0.403*	<1	<1	N/A	0.351*	0.379*	0.36*	<1	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	<1	<1	<1	<1	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	
	9/10/2020	N/A	<1	<1	N/A	<1	<1	<1	<1	
	9/10/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	<1	<1	<1	<1	
	3/31/2021	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
	8/30/2021	N/A	<1	<1	N/A	<1	<1	<1	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	<1	<1	<1	<1	<1	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
	8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	2/6/2023	N/A	<1	<1	<1	<10	<1	<1	N/A	
	2/6/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	<1	<1	<1	<1	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
	Iodomethane, ug/L (CAS NO - 74-88-4)	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
		3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1
		6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
		8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1
9/16/2008		<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
10/31/2008		N/A	<1	N/A	N/A	N/A	N/A	N/A	<1	
3/17/2009		<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
9/15/2009		<1	<1	N/A	N/A	<1	<1	N/A	N/A	
3/16/2010		N/A	<1	N/A	N/A	<1	<1	N/A	N/A	
8/31/2010		<1	N/A	N/A	N/A	N/A	N/A	<1	N/A	
9/21/2010		<1	<1	<1	N/A	<1	<1	<1	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
2/4/2011		N/A	<1	<1	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	<1	<1	N/A	<1	<1	<1	N/A	
3/15/2011		N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
9/13/2011		N/A	<1	<1	N/A	<1	<1	<1	N/A	
9/13/2011		N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	<1	<1	N/A	
3/27/2012		<1	<1	<1	N/A	<1	<1	<1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
9/11/2012		<1	<1	<1	N/A	<1	<1	<1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
3/20/2013		<1	N/A	N/A	N/A	<1	<1	<1	<1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
9/3/2013		<1	<1	<1	N/A	<1	<1	<1	N/A	
9/3/2013		N/A	<1	<1	N/A	N/A	N/A	N/A	N/A	
3/27/2014		<10	N/A	N/A	N/A	<10	<10	<10	<10	
3/27/2014		N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A	
9/15/2014		<10	N/A	N/A	N/A	<10	<10	<10	<10	
9/15/2014		<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		<10	N/A	N/A	N/A	<10	<10	<10	<10	
3/10/2015		N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A	
8/31/2015		<10	N/A	N/A	N/A	<10	<10	<10	<10	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	<10	N/A	
3/24/2016		<10	N/A	N/A	N/A	<10	<10	<10	<10	
3/24/2016		N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A	
7/18/2016		0.979*	<100	<100	N/A	0.904*	<10	<10	<10	
3/2/2017		<10	N/A	N/A	N/A	<10	<10	<10	<10	
3/2/2017		N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A	
8/2/2017		<10	<10	<10	N/A	<10	<10	<10	<10	
8/2/2017		N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A	
5/1/2018	<10	N/A	N/A	N/A	<10	<10	<10	<10		
9/24/2018	<10	<10	<10	N/A	<10	<10	<10	<10		
9/24/2018	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A		
1/21/2019	<10	N/A	N/A	N/A	<10	<10	<10	<10		
1/21/2019	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A		
8/13/2019	<10	<10	<10	N/A	<10	<10	<10	<10		
8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	<10	N/A		
3/24/2020	N/A	N/A	N/A	N/A	<10	<10	<10	<10		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<10		
9/10/2020	N/A	<10	<10	N/A	<10	<10	<10	<10		
9/10/2020	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A		
3/31/2021	N/A	N/A	N/A	N/A	<10	<10	<10	<10		
3/31/2021	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A		
8/30/2021	N/A	<10	<10	N/A	<10	<10	<10	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A		
5/24/2022	N/A	N/A	N/A	<10	<10	<10	<10	<10		
5/24/2022	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A		
8/17/2022	N/A	N/A	<10	<10	<10	<10	<10	N/A		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	<10	N/A		
2/6/2023	N/A	<10	<10	<10	<100	<10	<10	N/A		
2/6/2023	N/A	N/A	N/A	N/A	<100	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A		

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
Iodomethane, ug/L (CAS NO - 74-88-4)	8/9/2023	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
Methylene Bromide, ug/L (CAS NO - 74-95-3)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
	9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1
	3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
	9/15/2009	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
	3/16/2010	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A
	8/31/2010	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	2/4/2011	N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/15/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/13/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/11/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/3/2013	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/27/2014	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/15/2014	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	9/15/2014	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/10/2015	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/31/2015	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/24/2016	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	7/18/2016	< 1	< 10	< 10	N/A	< 1	< 1	< 1	< 1
	3/2/2017	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/2/2017	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/2/2017	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	5/1/2018	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	9/24/2018	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	9/24/2018	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/21/2019	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	8/13/2019	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	9/10/2020	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1
9/10/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
3/31/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/31/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/30/2021	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
5/24/2022	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/17/2022	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	
8/17/2022	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
2/6/2023	N/A	< 1	< 1	< 1	< 10	< 1	< 1	< 1	
2/6/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
5/9/2023	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	
8/9/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
Methylene Chloride, ug/L (CAS NO - 75-09-2)	2/26/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5
	3/20/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5
	6/9/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5
	8/13/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5
	9/16/2008	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A
	10/31/2008	N/A	< 5	N/A	N/A	N/A	N/A	N/A	< 5
	3/17/2009	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A
	9/15/2009	< 5	< 5	N/A	N/A	< 5	< 5	N/A	N/A
	3/16/2010	N/A	< 5	N/A	N/A	< 5	< 5	N/A	N/A
	8/31/2010	< 5	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	9/21/2010	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	2/4/2011	N/A	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A
	3/15/2011	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	9/13/2011	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/11/2012	< 1	2.3	< 1	N/A	< 1	< 1	< 1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/3/2013	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	
3/27/2014	< 5	N/A	N/A	N/A	< 5	< 5	0.212*	0.324*	
3/27/2014	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
9/15/2014	< 5	N/A	N/A	N/A	< 5	0.203*	< 5	< 5	
9/15/2014	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
3/10/2015	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Appendix I VOC Constituents Methylene Chloride, ug/L (CAS NO - 75-09-2)	8/31/2015	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	3/24/2016	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	7/18/2016	0.208*	< 50	< 50	N/A	< 5	< 5	< 5	0.277*	
	3/2/2017	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/2/2017	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	8/2/2017	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	5/1/2018	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	9/24/2018	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	9/24/2018	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	1/21/2019	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	8/13/2019	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	
	9/10/2020	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	9/10/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	3/31/2021	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	8/30/2021	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	8/17/2022	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	
	2/6/2023	N/A	< 5	< 5	< 5	< 50	< 5	< 5	< 5	
	2/6/2023	N/A	N/A	N/A	N/A	< 50	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	
	Styrene, ug/L (CAS NO - 100-42-5)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
		10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1
3/17/2009		< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
9/15/2009		< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
3/16/2010		N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
8/31/2010		< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/21/2010		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2/4/2011		N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/15/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/13/2011		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/13/2011		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
3/27/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/11/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/20/2013		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/27/2014		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/15/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/15/2014		< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/10/2015		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/31/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/24/2016		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
7/18/2016		< 1	< 10	< 10	N/A	< 1	< 1	< 1	< 1	
3/2/2017	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
3/2/2017	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
8/2/2017	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1		
8/2/2017	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
5/1/2018	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
9/24/2018	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1		
9/24/2018	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
1/21/2019	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
1/21/2019	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
8/13/2019	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1		
8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A		
3/24/2020	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1		
9/10/2020	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1		
9/10/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
3/31/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
3/31/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
8/30/2021	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
5/24/2022	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1		
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
8/17/2022	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A		
2/6/2023	N/A	< 1	< 1	< 1	< 10	< 1	< 1	N/A		
2/6/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
8/9/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A		
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
Tetrachloroethene, ug/L (CAS NO - 127-18-4)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample	MW-10R	GU-1	GU-2	GU-3A	MW-26	MW-28	MW-29	Phase2Underdrain	
	Date	UPG	DNG	DNG	DNG	DNG	DNG	DNG	DNG	
Tetrachloroethene, ug/L (CAS NO - 127-18-4)	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1	
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A	
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A	
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A	
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	2/4/2011	N/A	<1	2.7	N/A	N/A	N/A	N/A	N/A	
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
	3/15/2011	N/A	<1	1.8	N/A	<1	<1	<1	N/A	
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	9/13/2011	N/A	N/A	2.5	<1	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	<1	<1	<1	N/A
	3/27/2012	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/20/2013	<1	N/A	N/A	N/A	N/A	<1	<1	<1	11
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/3/2013	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/27/2014	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/15/2014	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	9/15/2014	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/10/2015	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/31/2015	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2016	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2016	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	7/18/2016	<1	<10	<10	<10	N/A	<1	<1	<1	<1
	3/2/2017	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/2/2017	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	8/2/2017	<1	<1	<1	<1	N/A	<1	<1	<1	<1
	8/2/2017	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A	N/A
	5/1/2018	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	9/24/2018	<1	<1	<1	<1	N/A	<1	<1	<1	<1
	9/24/2018	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/21/2019	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	1/21/2019	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	8/13/2019	<1	<1	<1	<1	N/A	<1	<1	<1	<1
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/24/2020	N/A	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1
	9/10/2020	N/A	<1	<1	<1	N/A	<1	<1	<1	<1
	9/10/2020	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
3/31/2021	N/A	N/A	N/A	N/A	N/A	<1	<1	<1	<1	
3/31/2021	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
8/30/2021	N/A	<1	<1	<1	N/A	<1	<1	<1	N/A	
8/30/2021	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
5/24/2022	N/A	N/A	N/A	N/A	<1	<1	<1	<1	<1	
5/24/2022	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A	N/A	
8/17/2022	N/A	N/A	<1	<1	<1	<1	<1	<1	N/A	
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
2/6/2023	N/A	<1	<1	<1	<1	<10	<1	<1	N/A	
2/6/2023	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A	
5/9/2023	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A	
8/9/2023	N/A	N/A	N/A	N/A	<1	<1	<1	<1	N/A	
8/9/2023	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
Toluene, ug/L (CAS NO - 108-88-3)	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1	
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1	
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1	
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1	
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1	
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
	9/15/2009	<1	<1	<1	<1	N/A	<1	N/A	N/A	
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A	
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	9/21/2010	<1	<1	<1	<1	N/A	<1	<1	N/A	
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	2/4/2011	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
	3/15/2011	N/A	<1	<1	<1	N/A	<1	<1	N/A	
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	9/13/2011	N/A	N/A	1.6	<1	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	<1	<1	<1	N/A
	3/27/2012	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	17	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A
	3/20/2013	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/3/2013	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	0.15*	N/A	N/A	N/A	N/A	0.207*	0.64*	0.484*	0.352*
	3/27/2014	N/A	N/A	N/A	N/A	N/A	1.28	N/A	N/A	N/A
9/15/2014	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1	
9/15/2014	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1	
3/10/2015	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	
8/31/2015	<1	N/A	N/A	N/A	N/A	<1	<1	<1	0.15*	
8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
3/24/2016	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1	
3/24/2016	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	
7/18/2016	<1	<10	<10	<10	N/A	<1	<1	<1	<1	
3/2/2017	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1	
3/2/2017	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Appendix I VOC Constituents Toluene, ug/L (CAS NO - 108-88-3)	8/2/2017	0.151*	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
	8/2/2017	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	5/1/2018	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	9/24/2018	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
	9/24/2018	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	1/21/2019	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	8/13/2019	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	
	9/10/2020	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
	9/10/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	3/31/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
	8/30/2021	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	8/17/2022	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	2/6/2023	N/A	< 1	< 1	< 1	< 10	< 1	< 1	N/A	
	2/6/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	trans-1,2-Dichloroethene, ug/L (CAS NO - 156-60-5)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
		10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1
		3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
9/15/2009		< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
3/16/2010		N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
8/31/2010		< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/21/2010		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2/4/2011		N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/15/2011		N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/13/2011		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/13/2011		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
3/27/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/11/2012		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/20/2013		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/27/2014		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/15/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/15/2014		< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/10/2015		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/31/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/24/2016		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
7/18/2016		< 1	< 10	< 10	N/A	< 1	< 1	< 1	< 1	
3/2/2017		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/2/2017		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/2/2017		< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
8/2/2017		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
5/1/2018		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/24/2018		< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
9/24/2018		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
1/21/2019		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
1/21/2019		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/13/2019		< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/24/2020		N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/24/2020		N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	
9/10/2020		N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
9/10/2020		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
3/31/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
3/31/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
8/30/2021	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
5/24/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
8/17/2022	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A		
2/6/2023	N/A	< 1	< 1	< 1	< 10	< 1	< 1	N/A		
2/6/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A		
8/9/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A		
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
trans-1,3-Dichloropropene, ug/L (CAS NO - 10061-02-6)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	
	3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	9/15/2009	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
	3/16/2010	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
	8/31/2010	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
trans-1,3-Dichloropropene, ug/L (CAS NO - 10061-02-6)	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A	
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
	3/15/2011	N/A	<1	<1	N/A	N/A	<1	<1	N/A	
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/13/2011	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A
	3/27/2012	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/20/2013	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/3/2013	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	<5	N/A	N/A	N/A	N/A	<5	<5	<5	<5
	3/27/2014	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A
	9/15/2014	<5	N/A	N/A	N/A	N/A	<5	<5	<5	<5
	9/15/2014	<5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	<5	N/A	N/A	N/A	N/A	<5	<5	<5	<5
	3/10/2015	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A
	8/31/2015	<5	N/A	N/A	N/A	N/A	<5	<5	<5	<5
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A
	3/24/2016	<5	N/A	N/A	N/A	N/A	<5	<5	<5	<5
	3/24/2016	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A
	7/18/2016	<5	<50	<50	N/A	N/A	<5	<5	<5	<5
	3/2/2017	<5	N/A	N/A	N/A	N/A	<5	<5	<5	<5
	3/2/2017	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A
	8/2/2017	<5	<5	<5	<5	N/A	<5	<5	<5	<5
	8/2/2017	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A
	5/1/2018	<5	N/A	N/A	N/A	N/A	<5	<5	<5	<5
	9/24/2018	<5	<5	<5	<5	N/A	<5	<5	<5	<5
	9/24/2018	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A
	1/21/2019	<5	N/A	N/A	N/A	N/A	<5	<5	<5	<5
	1/21/2019	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A
	8/13/2019	<5	<5	<5	<5	N/A	<5	<5	<5	<5
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A
	3/24/2020	N/A	N/A	N/A	N/A	N/A	<5	<5	<5	<5
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<5
	8/10/2020	N/A	<5	<5	<5	N/A	<5	<5	<5	<5
	9/10/2020	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	N/A	<5	<5	<5	<5
	3/31/2021	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A
	8/30/2021	N/A	<5	<5	<5	N/A	<5	<5	<5	N/A
	8/30/2021	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A
	5/24/2022	N/A	N/A	N/A	N/A	<5	<5	<5	<5	<5
	5/24/2022	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A
	8/17/2022	N/A	N/A	<5	<5	<5	<5	<5	<5	N/A
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A
	2/6/2023	N/A	<5	<5	<5	<5	<50	<5	<5	N/A
	2/6/2023	N/A	N/A	N/A	N/A	N/A	<50	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	N/A	<5	<5	<5	<5	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A
trans-1,4-Dichloro-2-Butene, ug/L (CAS NO - 110-57-6)	2/26/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1	
	3/20/2008	N/A	<1	N/A	N/A	<1	<1	N/A	<1	
	6/9/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1	
	8/13/2008	<1	<1	N/A	N/A	<1	<1	N/A	<1	
	9/16/2008	<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
	10/31/2008	N/A	<1	N/A	N/A	N/A	N/A	N/A	<1	
	3/17/2009	<1	N/A	N/A	N/A	<1	<1	N/A	N/A	
	9/15/2009	<1	<1	N/A	N/A	<1	<1	N/A	N/A	
	3/16/2010	N/A	<1	N/A	N/A	<1	<1	N/A	N/A	
	8/31/2010	<1	N/A	N/A	N/A	N/A	N/A	<1	N/A	
	9/21/2010	<1	<1	<1	N/A	<1	<1	<1	N/A	
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	2/4/2011	N/A	<1	<1	N/A	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A
	3/15/2011	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/13/2011	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	N/A	<1	<1	N/A
	3/27/2012	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A
	9/11/2012	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	3/20/2013	<1	N/A	N/A	N/A	N/A	<1	<1	<1	<1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
	9/3/2013	<1	<1	<1	<1	N/A	<1	<1	<1	N/A
	9/3/2013	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	<10	N/A	N/A	N/A	N/A	<10	<10	<10	<10
	3/27/2014	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A
9/15/2014	<10	N/A	N/A	N/A	N/A	<10	<10	<10	<10	
9/15/2014	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015	<10	N/A	N/A	N/A	N/A	<10	<10	<10	<10	
3/10/2015	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A	
8/31/2015	<10	N/A	N/A	N/A	N/A	<10	<10	<10	<10	
8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<10	N/A	
3/24/2016	<10	N/A	N/A	N/A	N/A	<10	<10	<10	<10	
3/24/2016	N/A	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A	
7/18/2016	<10	<100	<100	N/A	N/A	<10	<10	<10	<10	
3/2/2017	<10	N/A	N/A	N/A	N/A	<10	<10	<10	<10	
3/2/2017	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A	
8/2/2017	<10	<10	<10	<10	N/A	<10	<10	<10	<10	
8/2/2017	N/A	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A	
5/1/2018	<10	N/A	N/A	N/A	N/A	<10	<10	<10	<10	
9/24/2018	<10	<10	<10	<10	N/A	<10	<10	<10	<10	
9/24/2018	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A	N/A	
1/21/2019	<10	N/A	N/A	N/A	N/A	<10	<10	<10	<10	
1/21/2019	N/A	N/A	N/A	N/A	N/A	N/A	<10	N/A	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase 2 Underdrain DNG	
trans-1,4-Dichloro-2-Butene, ug/L (CAS NO - 110-57-6)	8/13/2019	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	9/10/2020	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	
	9/10/2020	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	
	3/31/2021	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	8/30/2021	N/A	< 10	< 10	N/A	< 10	< 10	< 10	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
	5/24/2022	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
	8/17/2022	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	
	2/6/2023	N/A	< 10	< 10	< 10	< 100	< 10	< 10	N/A	
	2/6/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	Trichloroethene, ug/L (CAS NO - 79-01-6)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1
		9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
		10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1
		3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A
		9/15/2009	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
		3/16/2010	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A
8/31/2010		< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/21/2010		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2/4/2011		N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
3/15/2011		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/13/2011		N/A	N/A	5.6	2.5	N/A	< 1	< 1	N/A	
9/13/2011		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
3/27/2012		< 1	N/A	2.6	1.2	N/A	< 1	< 1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/11/2012		< 1	< 1	N/A	2.1	N/A	< 1	< 1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/20/2013		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/27/2014		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
9/15/2014		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
9/15/2014		< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/10/2015		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/31/2015		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/24/2016		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
7/18/2016		< 1	< 10	< 10	< 10	N/A	< 1	< 1	< 1	
3/2/2017		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/2/2017		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/2/2017		< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	
8/2/2017		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
5/1/2018		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
9/24/2018		< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	
9/24/2018		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
1/21/2019		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
1/21/2019		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/13/2019		< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/24/2020		N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/24/2020		N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	
9/10/2020		N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
9/10/2020		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
3/31/2021		N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/31/2021		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/30/2021		N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
8/30/2021		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
5/24/2022		N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
5/24/2022		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
8/17/2022		N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	
8/17/2022		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
2/6/2023	N/A	< 1	< 1	< 1	< 10	< 1	< 1	N/A		
2/6/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A		
5/9/2023	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
8/9/2023	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A		
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
Trichlorofluoromethane, ug/L (CAS NO - 75-69-4)	2/26/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	3/20/2008	N/A	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	6/9/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	8/13/2008	< 1	< 1	N/A	N/A	< 1	< 1	N/A	< 1	
	9/16/2008	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	10/31/2008	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	
	3/17/2009	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	
	9/15/2009	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
	3/16/2010	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	
	8/31/2010	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	9/21/2010	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	2/4/2011	N/A	< 1	< 1	N/A	N/A	N/A	N/A	N/A	
	2/4/2011	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	
	3/15/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A	
	3/15/2011	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
Appendix I VOC Constituents Trichlorofluoromethane, ug/L (CAS NO - 75-69-4)	9/13/2011	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/11/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/3/2013	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4
	3/27/2014	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	9/15/2014	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4
	9/15/2014	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4
	3/10/2015	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	8/31/2015	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A
	3/24/2016	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
	7/18/2016	< 4	< 40	< 40	N/A	< 4	< 4	< 4	< 4
	3/2/2017	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4
	3/2/2017	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	8/2/2017	< 4	< 4	< 4	N/A	< 4	< 4	< 4	< 4
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
	5/1/2018	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4
	9/24/2018	< 4	< 4	< 4	N/A	< 4	< 4	< 4	< 4
	9/24/2018	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	1/21/2019	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
	8/13/2019	< 4	< 4	< 4	N/A	< 4	< 4	< 4	< 4
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A
	3/24/2020	N/A	N/A	N/A	N/A	< 4	< 4	< 4	< 4
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4
	9/10/2020	N/A	< 4	< 4	N/A	< 4	< 4	< 4	< 4
	9/10/2020	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	3/31/2021	N/A	N/A	N/A	N/A	< 4	< 4	< 4	< 4
	3/31/2021	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
	8/30/2021	N/A	< 4	< 4	N/A	< 4	< 4	< 4	< 4
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
	5/24/2022	N/A	N/A	N/A	< 4	< 4	< 4	< 4	< 4
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
	8/17/2022	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A
	2/6/2023	N/A	< 4	< 4	< 4	< 40	< 4	< 4	< 4
	2/6/2023	N/A	N/A	N/A	N/A	< 40	N/A	N/A	N/A
	5/9/2023	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	8/9/2023	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
Vinyl Acetate, ug/L (CAS NO - 108-05-4)	2/26/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5
	3/20/2008	N/A	< 5	N/A	N/A	< 5	< 5	N/A	< 5
	6/9/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5
	8/13/2008	< 5	< 5	N/A	N/A	< 5	< 5	N/A	< 5
	9/16/2008	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A
	10/31/2008	N/A	< 5	N/A	N/A	N/A	N/A	N/A	< 5
	3/17/2009	< 5	N/A	N/A	N/A	< 5	< 5	N/A	N/A
	9/15/2009	< 5	< 5	N/A	N/A	< 5	< 5	N/A	N/A
	3/16/2010	N/A	< 5	N/A	N/A	< 5	< 5	N/A	N/A
	8/31/2010	< 5	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	9/21/2010	< 5	< 5	< 5	N/A	< 5	< 5	< 5	N/A
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	2/4/2011	N/A	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	2/4/2011	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	3/15/2011	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A
	3/15/2011	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	9/13/2011	N/A	< 5	< 5	N/A	< 5	< 5	< 5	N/A
	9/13/2011	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/27/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	3/27/2012	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/11/2012	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	9/3/2013	< 1	< 1	< 1	N/A	< 1	< 1	< 1	N/A
	9/3/2013	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	3/27/2014	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	3/27/2014	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	9/15/2014	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2
	9/15/2014	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/10/2015	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10
	3/10/2015	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/31/2015	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	3/24/2016	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	7/18/2016	< 10	< 100	< 100	N/A	< 10	< 10	< 10	< 10
	3/2/2017	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10
	3/2/2017	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/2/2017	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	5/1/2018	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10
	9/24/2018	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10
	9/24/2018	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	1/21/2019	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	8/13/2019	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
3/24/2020	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
9/10/2020	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	
9/10/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	



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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Appendix I VOC Constituents	Vinyl Acetate, ug/L (CAS NO - 108-05-4)									
	3/31/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	
	3/31/2021	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	
	8/30/2021	N/A	< 10	< 10	N/A	< 10	< 10	< 10	N/A	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A	
	5/24/2022	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A	
	8/17/2022	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
	2/6/2023	N/A	< 10	< 10	< 10	< 100	< 10	< 10	N/A	
	2/6/2023	N/A	N/A	N/A	N/A	< 100	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	
	Vinyl Chloride, ug/L (CAS NO - 75-01-4)	2/26/2008	N/A	< 2	N/A	N/A	< 2	< 2	N/A	< 2
		3/20/2008	N/A	< 2	N/A	N/A	< 2	< 2	N/A	< 2
		6/9/2008	< 2	< 2	N/A	N/A	< 2	< 2	N/A	< 2
		8/13/2008	< 2	< 2	N/A	N/A	< 2	< 2	N/A	< 2
		9/16/2008	< 2	N/A	N/A	N/A	< 2	< 2	N/A	N/A
		10/31/2008	N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2
3/17/2009		< 2	N/A	N/A	N/A	< 2	< 2	N/A	N/A	
9/15/2009		< 2	< 2	N/A	N/A	< 2	< 2	N/A	N/A	
3/16/2010		N/A	< 2	N/A	N/A	< 2	< 2	N/A	N/A	
8/31/2010		< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
9/21/2010		< 2	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
12/14/2010		N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
2/4/2011		N/A	< 2	< 2	N/A	N/A	N/A	N/A	N/A	
2/4/2011		N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	
3/15/2011		N/A	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
3/15/2011		N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	
6/20/2011		N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
9/13/2011		N/A		3.7	3	N/A	< 2	< 2	N/A	
9/13/2011		N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	
1/19/2012		N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
3/27/2012		< 1	1.4	1.2	N/A	< 1	< 1	< 1	N/A	
3/27/2012		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/11/2012		< 1	< 1	1.5	N/A	< 1	< 1	< 1	N/A	
9/11/2012		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/20/2013		< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
9/3/2013		< 1	2.3	1.8	N/A	< 1	< 1	< 1	N/A	
9/3/2013		N/A	2.2	N/A	N/A	N/A	N/A	N/A	N/A	
3/27/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/27/2014		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
9/15/2014		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/15/2014		< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3/10/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	0.411*	
3/10/2015		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/31/2015		< 1	N/A	N/A	N/A	< 1	< 1	< 1	0.42*	
8/31/2015		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/24/2016		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/24/2016		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
7/18/2016		< 1	< 10	< 10	N/A	< 1	< 1	< 1	< 1	
3/2/2017		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/2/2017		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
8/2/2017		< 1	0.109*	< 1	N/A	< 1	< 1	< 1	< 1	
8/2/2017		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
5/1/2018		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
9/24/2018		< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
9/24/2018		N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	
1/21/2019		< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
1/21/2019		N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
8/13/2019		< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	
8/13/2019		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
3/24/2020	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1		
9/10/2020	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1		
9/10/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
3/31/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1		
3/31/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A		
8/30/2021	N/A	< 1	< 1	N/A	< 1	< 1	< 1	N/A		
8/30/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
5/24/2022	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1		
5/24/2022	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
8/17/2022	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A		
8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A		
2/6/2023	N/A	< 1	< 1	< 1	< 10	< 1	< 1	N/A		
2/6/2023	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A		
5/9/2023	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A		
8/9/2023	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A		
8/9/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A		
Xylenes, total, ug/L (CAS NO - 1330-20-7)	2/26/2008	N/A	< 2	N/A	N/A	< 2	< 2	N/A	< 2	
	3/20/2008	N/A	< 2	N/A	N/A	< 2	< 2	N/A	< 2	
	6/9/2008	< 2	< 2	N/A	N/A	< 2	< 2	N/A	< 2	
	8/13/2008	< 2	< 2	N/A	N/A	< 2	< 2	N/A	< 2	
	9/16/2008	< 2	N/A	N/A	N/A	< 2	< 2	N/A	N/A	
	10/31/2008	N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2	
	3/17/2009	< 2	N/A	N/A	N/A	< 2	< 2	N/A	N/A	
	9/15/2009	< 2	< 2	N/A	N/A	< 2	< 2	N/A	N/A	
	3/16/2010	N/A	< 2	N/A	N/A	< 2	< 2	N/A	N/A	
	8/31/2010	< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
	9/21/2010	< 2	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
	12/14/2010	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
	2/4/2011	N/A	< 2	< 2	N/A	N/A	N/A	N/A	N/A	
	2/4/2011	N/A	< 2	< 2	N/A	N/A	N/A	N/A	N/A	
	3/15/2011	N/A	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
	3/15/2011	N/A	< 2	N/A	N/A	N/A	< 1	N/A	N/A	
	6/20/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
	9/13/2011	N/A		3.1	< 2	N/A	< 2	< 2	N/A	
	9/13/2011	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 2	< 2	N/A	
	3/27/2012	< 2	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
	3/27/2012	N/A	N/A	< 2	N/A	< 2	< 2	< 2	N/A	
	9/11/2012	< 2	57	< 2	N/A	< 2	< 2	< 2	N/A	
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Appendix I VOC Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Xylenes, total, ug/L (CAS NO - 1330-20-7)	3/20/2013	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	
	9/3/2013	< 2	< 2	< 2	N/A	< 2	< 2	< 2	N/A	
	9/3/2013	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	
	3/27/2014	< 3	N/A	N/A	N/A	1.61*	0.984*	0.73*	0.481*	
	3/27/2014	N/A	N/A	N/A	N/A	0.302*	N/A	N/A	N/A	
	9/15/2014	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	9/15/2014	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	3/10/2015	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/10/2015	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	8/31/2015	1.22*	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	
	3/24/2016	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	7/18/2016	< 3	< 30	< 30	N/A	< 3	< 3	< 3	< 3	
	3/2/2017	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/2/2017	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	8/2/2017	< 3	< 3	< 3	N/A	0.141*	0.171*	0.139*	< 3	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	0.139*	N/A	N/A	
	5/1/2018	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	9/24/2018	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
	9/24/2018	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	1/21/2019	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	8/13/2019	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	
	9/10/2020	N/A	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
	9/10/2020	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3	
	3/31/2021	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	8/30/2021	N/A	< 3	< 3	N/A	< 3	< 3	< 3	< 3	
	8/30/2021	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	5/24/2022	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3	
	5/24/2022	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	8/17/2022	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	
	8/17/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	
	2/6/2023	N/A	< 3	< 3	< 3	< 30	< 3	< 3	< 3	
	2/6/2023	N/A	N/A	N/A	N/A	< 30	N/A	N/A	N/A	
	5/9/2023	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	
	8/9/2023	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	
	M&P-Xylene, ug/L (CAS NO - 179601-23-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A
		9/11/2012	< 1	42	< 1	N/A	< 1	< 1	< 1	N/A
		9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
		3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
O-Xylene, ug/L (CAS NO - 95-47-6)	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 2	< 2	N/A	
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A	
	9/11/2012	< 1	15	< 1	N/A	< 1	< 1	< 1	N/A	
	9/11/2012	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	3/20/2013	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	
3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A		
5/1/2018	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A		

Note: \* indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.

Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Other Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
1,1-Dichloropropene, ug/L (CAS NO - 563-58-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
1,2,4,5-Tetrachlorobenzene, ug/L (CAS NO - 95-94-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
1,2,4-Trichlorobenzene, ug/L (CAS NO - 120-82-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A
1,3,5-Trinitrobenzene, ug/L (CAS NO - 99-35-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
1,3-Dichlorobenzene, ug/L (CAS NO - 541-73-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
1,3-Dichloropropane, ug/L (CAS NO - 142-28-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
1,3-Dinitrobenzene, ug/L (CAS NO - 99-65-0)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
1,4-Naphthoquinone, ug/L (CAS NO - 130-15-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
1,4-Phenylenediamine, ug/L (CAS NO - 106-50-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
1-Naphthylamine, ug/L (CAS NO - 134-32-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2,2-Dichloropropane, ug/L (CAS NO - 594-20-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2,3,4,6-Tetrachlorophenol, ug/L (CAS NO - 58-90-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 4	< 4	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2,4,5-T [2C], ug/L (CAS NO - 93-76-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 1.08	< 1.13	N/A
2,4,5-TP [Silvex] [2C], ug/L (CAS NO - 93-72-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 1.08	< 1.13	N/A
2,4,5-Trichlorophenol, ug/L (CAS NO - 95-95-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2,4,6-Trichlorophenol, ug/L (CAS NO - 88-06-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2,4-D [2C], ug/L (CAS NO - 94-75-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 1.08	< 1.13	N/A
2,4-Dichlorophenol, ug/L (CAS NO - 120-83-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2,4-Dimethylphenol, ug/L (CAS NO - 105-67-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2,4-Dinitrophenol, ug/L (CAS NO - 51-28-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 21.7	< 20	N/A
2,4-Dinitrotoluene, ug/L (CAS NO - 121-14-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2,6-Dichlorophenol, ug/L (CAS NO - 87-65-0)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2,6-Dinitrotoluene, ug/L (CAS NO - 606-20-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2-Acetylaminofluorene, ug/L (CAS NO - 53-96-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2-Chloronaphthalene, ug/L (CAS NO - 91-58-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2-Chlorophenol, ug/L (CAS NO - 95-57-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Other Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
2-Methylnaphthalene, ug/L (CAS NO - 91-57-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2-Methylphenol, ug/L (CAS NO - 95-48-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2-Naphthylamine, ug/L (CAS NO - 91-59-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2-Nitroaniline, ug/L (CAS NO - 88-74-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
2-Nitrophenol, ug/L (CAS NO - 88-75-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
3,3-Dichlorobenzidine, ug/L (CAS NO - 91-94-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
3,3-Dimethylbenzidine, ug/L (CAS NO - 119-93-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
3/4-Methylphenol, ug/L (CAS NO - T-34MP)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
3-Chloropropene, ug/L (CAS NO - 107-05-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 2	< 2	N/A
3-Methylcholanthrene, ug/L (CAS NO - 56-49-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
3-Nitroaniline, ug/L (CAS NO - 99-09-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
4,4'-DDD, ug/L (CAS NO - 72-54-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	0.00311*	< 0.032	N/A
4,4'-DDE, ug/L (CAS NO - 72-55-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
4,4'-DDT, ug/L (CAS NO - 50-29-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
4,6-Dinitro-2-methylphenol, ug/L (CAS NO - 534-52-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
4-Aminobiphenyl, ug/L (CAS NO - 92-67-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
4-Bromophenyl phenyl ether, ug/L (CAS NO - 101-55-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
4-Chloro-3-methylphenol, ug/L (CAS NO - 59-50-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
4-Chloroaniline, ug/L (CAS NO - 106-47-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
4-Chlorophenyl phenyl ether, ug/L (CAS NO - 7005-72-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
4-Nitroaniline, ug/L (CAS NO - 100-01-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
4-Nitrophenol, ug/L (CAS NO - 100-02-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
5-Nitro-o-toluidine, ug/L (CAS NO - 99-55-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
7,12-Dimethylbenz [a] anthracene, ug/L (CAS NO - 57-97-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Acenaphthene, ug/L (CAS NO - 83-32-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Acenaphthylene, ug/L (CAS NO - 208-96-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Other Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
Acetonitrile, ug/L (CAS NO - 75-05-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10000	< 10000	N/A
Acetophenone, ug/L (CAS NO - 98-86-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Acrolein, ug/L (CAS NO - 107-02-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
Aldrin, ug/L (CAS NO - 309-00-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Anthracene, ug/L (CAS NO - 120-12-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Benzo [a] anthracene, ug/L (CAS NO - 56-55-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Benzo [a] pyrene, ug/L (CAS NO - 50-32-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Benzo [b] fluoranthene, ug/L (CAS NO - 205-99-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Benzo [g,h,i] perylene, ug/L (CAS NO - 191-24-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Benzo [k] fluoranthene, ug/L (CAS NO - 207-08-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Benzyl alcohol, ug/L (CAS NO - 100-51-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Alpha-BHC, ug/L (CAS NO - 319-84-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Beta-BHC, ug/L (CAS NO - 319-85-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Delta-BHC, ug/L (CAS NO - 319-86-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Gamma-BHC (Lindane), ug/L (CAS NO - 58-89-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Bis[2-chloroethoxy]methane, ug/L (CAS NO - 111-91-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Bis[2-chloroethyl]ether, ug/L (CAS NO - 111-44-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Bis[2-chloroisopropyl]ether, ug/L (CAS NO - 108-60-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Bis[2-ethylhexyl]phthalate, ug/L (CAS NO - 117-81-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Butyl benzyl phthalate, ug/L (CAS NO - 85-68-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Chlordane, ug/L (CAS NO - 57-74-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 2.11	< 2	N/A
Alpha-Chlordane, ug/L (CAS NO - 5103-71-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
Gamma-Chlordane, ug/L (CAS NO - 5566-34-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
Chlorobenzilate, ug/L (CAS NO - 510-15-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Chloroprene, ug/L (CAS NO - 126-99-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
Chrysene, ug/L (CAS NO - 218-01-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Other Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
Cyanide, mg/L (CAS NO - 57-12-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.01	0.00434*	N/A
Diallate [cis or trans], ug/L (CAS NO - 2303-16-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Dibenz [a,h] anthracene, ug/L (CAS NO - 53-70-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Dibenzofuran, ug/L (CAS NO - 132-64-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Dichlorodifluoromethane, ug/L (CAS NO - 75-71-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 3	< 3	N/A
Diieldrin, ug/L (CAS NO - 60-57-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Diethyl phthalate, ug/L (CAS NO - 84-66-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Dimethoate, ug/L (CAS NO - 60-51-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Dimethyl phthalate, ug/L (CAS NO - 131-11-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Dimethylaminoazobenzene, ug/L (CAS NO - 60-11-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Di-n-butyl phthalate, ug/L (CAS NO - 84-74-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Di-n-octyl phthalate, ug/L (CAS NO - 117-84-0)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 21.7	< 20	N/A
Dinoseb, ug/L (CAS NO - 88-85-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Diphenylamine, ug/L (CAS NO - 122-39-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Disulfoton, ug/L (CAS NO - 298-04-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 8	< 8	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 8	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Endosulfan I, ug/L (CAS NO - 959-98-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Endosulfan II, ug/L (CAS NO - 33213-65-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Endosulfan sulfate, ug/L (CAS NO - 1031-07-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Endrin, ug/L (CAS NO - 72-20-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Endrin aldehyde, ug/L (CAS NO - 7421-93-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Ethyl Methacrylate, ug/L (CAS NO - 97-63-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 2	< 2	N/A
Ethyl Methanesulfonate, ug/L (CAS NO - 62-50-0)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Famphur, ug/L (CAS NO - 52-85-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.4	< 0.4	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.4	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Fluoranthene, ug/L (CAS NO - 206-44-0)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Fluorene, ug/L (CAS NO - 86-73-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Heptachlor, ug/L (CAS NO - 76-44-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A

# SCS ENGINEERS

Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Other Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
Heptachlor Epoxide, ug/L (CAS NO - 1024-57-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Hexachlorobenzene, ug/L (CAS NO - 118-74-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Hexachlorobutadiene, ug/L (CAS NO - 87-68-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Hexachlorocyclopentadiene, ug/L (CAS NO - 77-47-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Hexachloroethane, ug/L (CAS NO - 67-72-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Hexachloropropene, ug/L (CAS NO - 1888-71-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Indeno [1,2,3-cd] pyrene, ug/L (CAS NO - 193-39-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Isobutanol, mg/L (CAS NO - 78-83-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
Isodrin, ug/L (CAS NO - 465-73-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Isophorone, ug/L (CAS NO - 78-59-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Isosafrole, ug/L (CAS NO - 120-58-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Kepone, ug/L (CAS NO - 143-50-0)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Methacrylonitrile, ug/L (CAS NO - 126-98-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
Methacrylene, ug/L (CAS NO - 91-80-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Methoxychlor, ug/L (CAS NO - 72-43-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.0337	< 0.032	N/A
Methyl Methacrylate, ug/L (CAS NO - 80-62-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 2	< 2	N/A
Methyl Methanesulfonate, ug/L (CAS NO - 66-27-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Naphthalene, ug/L (CAS NO - 91-20-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 5	< 5	N/A
Nitrobenzene, ug/L (CAS NO - 98-95-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
N-Nitrosodiethylamine, ug/L (CAS NO - 55-18-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
N-Nitrosodimethylamine, ug/L (CAS NO - 62-75-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 2	< 2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
N-Nitrosodi-n-butylamine, ug/L (CAS NO - 924-16-3)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
N-Nitrosodi-n-propylamine, ug/L (CAS NO - 621-64-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
N-Nitrosodiphenylamine, ug/L (CAS NO - 86-30-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
N-Nitrosomethylethylamine, ug/L (CAS NO - 10595-95-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
N-Nitrosopiperidine, ug/L (CAS NO - 100-75-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A

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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Other Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG
N-Nitrosopyrrolidine, ug/L (CAS NO - 930-55-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
O,O,O-Triethyl Phosphorothioate, ug/L (CAS NO - 126-68-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
O-Toluidine, ug/L (CAS NO - 95-53-4)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Parathion-Ethyl, ug/L (CAS NO - 56-38-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Parathion-Methyl, ug/L (CAS NO - 298-00-0)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
PCB-1016, ug/L (CAS NO - 12674-11-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.851	< 0.808	N/A
PCB-1221, ug/L (CAS NO - 11104-28-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.851	< 0.808	N/A
PCB-1232, ug/L (CAS NO - 11141-16-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.851	< 0.808	N/A
PCB-1242, ug/L (CAS NO - 53469-21-9)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.851	< 0.808	N/A
PCB-1248, ug/L (CAS NO - 12672-29-6)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.851	< 0.808	N/A
PCB-1254, ug/L (CAS NO - 11097-69-1)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.851	< 0.808	N/A
PCB-1260, ug/L (CAS NO - 11096-82-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 0.851	< 0.808	N/A
Pentachlorobenzene, ug/L (CAS NO - 608-93-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Pentachloronitrobenzene, ug/L (CAS NO - 82-68-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Pentachlorophenol [2C], ug/L (CAS NO - 87-86-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.04	< 0.04	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.04	< 0.04	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.04	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Phenacetin, ug/L (CAS NO - 62-44-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Phenanthrene, ug/L (CAS NO - 85-01-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Phenol, ug/L (CAS NO - 108-95-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Phorate, ug/L (CAS NO - 298-02-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Pronamide, ug/L (CAS NO - 23950-58-5)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 50	< 50	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Propionitrile, ug/L (CAS NO - 107-12-0)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 25	< 25	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 25	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
Pyrene, ug/L (CAS NO - 129-00-0)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Safrole, ug/L (CAS NO - 94-59-7)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 10	< 10	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A
Sulfide, mg/L (CAS NO - 18496-25-8)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 2	< 2	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	4.7	3.5	N/A
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	3.1	N/A
	9/3/2013	N/A	N/A	N/A	N/A	N/A	< 2	< 2	N/A
	2/19/2014	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/27/2014	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	8/7/2014	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	9/15/2014	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	3/10/2015	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A
	8/31/2015	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A
8/31/2015	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	



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Summary of Groundwater Chemistry  
Great River Regional Waste Authority - 56-SDP-07-80P

Other Constituents	Sample Date	MW-10R UPG	GU-1 DNG	GU-2 DNG	GU-3A DNG	MW-26 DNG	MW-28 DNG	MW-29 DNG	Phase2Underdrain DNG	
Sulfide, mg/L (CAS NO - 18496-25-8)	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	3/24/2016	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	7/18/2016	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	3/2/2017	N/A	N/A	N/A	N/A	N/A	< 1	1.7	N/A	
	8/2/2017	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	9/24/2018	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	1/21/2019	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	8/13/2019	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	
	3/24/2020	N/A	N/A	N/A	N/A	N/A	< 1	< 1	N/A	
	9/10/2020	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
	3/31/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	
	8/9/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	
	Thionazin, ug/L (CAS NO - 297-97-2)	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.2	< 0.2	N/A
		3/20/2013	N/A	N/A	N/A	N/A	N/A	< 20	< 20	N/A
3/20/2013		N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A	
Toxaphene, ug/L (CAS NO - 8001-35-2)	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 10.9	< 10	N/A	
	1/19/2012	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A	
	3/20/2013	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A	
	3/20/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	
	5/1/2018	N/A	N/A	N/A	N/A	N/A	< 2.11	< 2	N/A	

Note: \* indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.

Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.



**Appendix D**  
**Statistical Method and Output**



## Statistical Method and Output

### Purpose

The purpose of this document is to provide the statistical evaluation of groundwater analytical data collected from the groundwater monitoring network of the Phase 2 municipal solid waste landfill unit (Phase 2 MSWLF unit) at the Great River Regional Waste Authority Sanitary Landfill.

### ***Diagnostic and Exploratory Evaluations and Tests of Assumptions***

The detection and assessment monitoring statistical programs include diagnostic and exploratory evaluations and statistical tests of assumptions, as appropriate, including the following:

- Time Series Plots
- Shapiro-Wilk test for normality
- Ohio Environmental Protection Agency (EPA) Method for outliers
- Mann-Kendall/Sen's Slope trend test

### ***Management of Non-Detect Data***

Non-detect values in the dataset are managed using simple substitution or the Kaplan-Meier estimator. If less than 15% of the data were non-detects, simple substitution is used, where non-detect values are assigned a concentration of one-half ( $\frac{1}{2}$ ) of the practical quantification limit (PQL). If greater than 15% but less than 50% of the data are non-detects, the Kaplan-Meier estimator is used to define the distribution for the dataset. If non-detects comprise greater than 50% of the available data, non-parametric statistical methods are used.

### ***Management of Outliers***

Background datasets are evaluated for outliers using the Ohio EPA Method as included in the Sanitas™ statistical software program and described below, which includes the use of Dixon's, Rosner's, and Tukey's outlier tests, as appropriate based on the diagnostic tests, for the datasets that contain less than 75% of the measured concentrations below the PQL. Outliers are not confirmed unless a physical cause or explanation for the outlier is determined.

### ***Management of Data (ND data < 75%)***

If less than 75% of the background dataset is below the PQL, outliers are statistically evaluated using the following guidelines.

- A parametric dataset with  $n < 20$  was evaluated with the Dixon's outlier test.
- A parametric dataset with  $n \geq 20$  was evaluated with the Rosner's outlier test.
- A non-parametric dataset was evaluated with the Tukey's outlier test.

In accordance with the Ohio EPA Method, if a statistically significant outlier is not found using the above tests, but the highest value data point exceeds the second highest data point by an order of magnitude, the highest point is considered an outlier.

### ***Management of Data (ND data $\geq$ 75%)***

If greater than or equal to 75% of the background dataset is less than the PQL, outliers are statistically evaluated using the following guidelines.

- Single detection  $\geq$  the PQL:
  - If  $\geq 50\%$  of the background dataset has detections  $\geq$  the method detection limit (MDL), any value  $\geq$  two times the PQL of background is considered an outlier.
  - If  $< 50\%$  of the background dataset has detections  $\geq$  the MDL, any value  $\geq$  the PQL of background is considered an outlier.
- Two or more detections  $\geq$  the PQL:
  - If  $\geq 50\%$  of the background dataset has detections  $\geq$  the MDL, any value  $\geq$  three times the PQL of background is considered an outlier.
  - If  $< 50\%$  of the background dataset has detections  $\geq$  the MDL, any value  $\geq$  two times the PQL of background is considered an outlier.

Confirmed outliers, if any, are shown in the Summary of Groundwater Chemistry included in the Annual Water Quality Report.

### **Detection Monitoring Statistical Program**

The detection monitoring statistical program for the Phase 2 MSWLF unit is defined by Iowa Administrative Code (IAC) 567-113.10(4)“g.” Intrawell prediction limits with retesting were selected as the appropriate statistical method for the determination of statistically significant increases (SSIs) over background for inorganic constituents with historical detections in the background dataset. Prediction limits are established using the process below. Data from the most recent sampling event is compared to the prediction limits for the determination of SSIs.

### **Intrawell Prediction Limits with Retesting**

- If the dataset has a normal distribution (or can be transformed to a normal distribution using Ladder of Powers), parametric intrawell prediction limits are calculated if at least six datasets have been collected.
- If the dataset does not have a normal distribution (and cannot be transformed to a normal distribution using Ladder of Powers) or has greater than 50% non-detects, nonparametric intrawell prediction limits are calculated if at least six datasets have been collected.
- If an SSI above the prediction limit is indicated, retesting samples using the 1-of-3 retesting scheme should be collected prior to the next regularly scheduled sampling event with temporal sample spacing consideration to provide samples with greater independence. If the retesting results are both above the prediction limit, the SSI is confirmed, and the monitoring well should be placed into the assessment monitoring program or discharge from the monitoring point should be treated with the leachate for groundwater underdrains. If any retesting sample concentration is below the prediction limit, the SSI is not confirmed, and the monitoring point continues in the detection monitoring program.

### **Updating the Background Dataset for Intrawell Prediction Limits**

If no SSI is confirmed for any two-year period, the intrawell background dataset will be updated using the following procedure:

- Test for normality (normal distribution) of the dataset either outright or through a transformation using Ladder of Powers:
  - Shapiro-Wilk test
- Test for statistically significant trends:
  - Mann-Kendall/Sen’s Slope trend test

If an increasing trend is detected, the monitoring point will be placed into the assessment monitoring program or the discharge treated with the leachate for groundwater underdrain discharge points.

- If the dataset has a normal distribution and no trend is present, conduct a two-sample Welch's t-test at a 0.01 significance level to compare current background to the most recent two years of detection monitoring data.

If Welch's t-test test is significant and shows that the most recent two years of concentration data appear to be increasing, the background will not be updated.

- If the dataset does not have a normal distribution and no trend is present, conduct a two-sample non-parametric Wilcoxon rank-sum test (also known as the Mann-Whitney test) at a 0.01 significance level to compare current background to the most recent two years of detection monitoring data.

If the Wilcoxon rank-sum test is significant and shows that the most recent two years of concentration data appear to be increasing, the background will not be updated.

- If the Welch's t-test and the Wilcoxon rank-sum test are not significant, the most recent two years of detection monitoring data will be added to the intrawell background dataset.
- Establish prediction limits based on the updated intrawell background dataset.

The process will repeat every two years in which an SSI is not confirmed.

#### ***Double Quantification Method***

The quasi-statistical "double quantification" method is used for constituents not detected in the associated background data set. If a constituent is detected in the compliance dataset that has not been historically detected in the background dataset, that constituent must be retested before the next regularly scheduled sampling event. If the retesting results confirm the original detection with a quantifiable detection, the SSI is confirmed, and the monitoring point must be placed into the assessment monitoring program.

#### ***Assessment Monitoring Statistical Program***

Confidence intervals or confidence bands, as appropriate, were selected as the appropriate statistical methods for comparison of the groundwater analytical data against a fixed groundwater protection standard (GWPS). The assessment monitoring statistical evaluations are performed using the most recent eight samples or all samples if less than eight samples were available. The confidence intervals or confidence bands used for the assessment monitoring statistical evaluation are established using the process below. Transformation of the distribution is not considered.

#### ***Confidence Intervals or Confidence Bands***

- A parametric confidence interval around a normal mean is calculated if the dataset has a normal distribution and no statistically significant trend is present.
- A non-parametric confidence interval around a median is calculated if the dataset does not have a normal distribution and no statistically significant trend is present.
- Non-parametric confidence bands around a Theil-Sen trend line are calculated if the dataset has a statistically significant trend.

In the event that the lower confidence limit or any part of the lower confidence band, as appropriate, exceeds the GWPS, then the monitoring point is declared out of compliance, and an assessment of corrective measures (ACM) is required.

**Statistical Software Output**

Sanitas™ statistical software was used to perform the statistical evaluations. The statistical output for the 1<sup>st</sup> and 2<sup>nd</sup> 2023 statistical evaluations are included in Attachments A and B of this appendix, respectively.



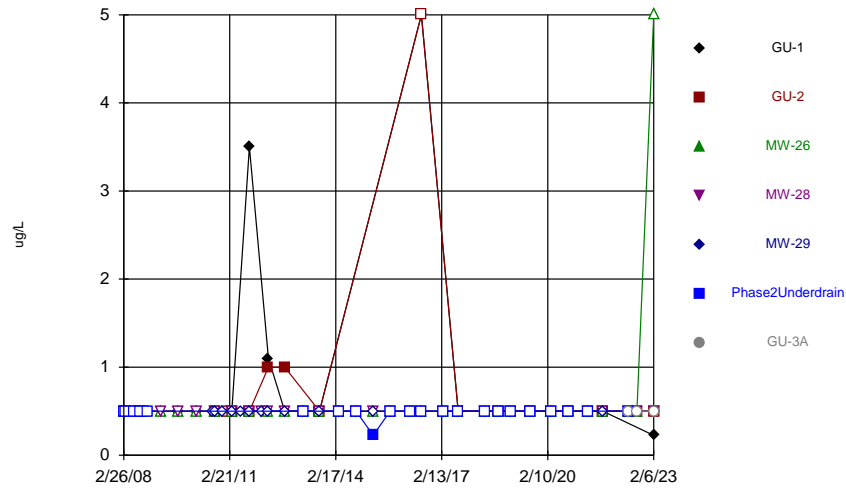
**Attachment A**  
**1<sup>st</sup> 2023 Statistical Evaluation Output**



## Time Series Plots

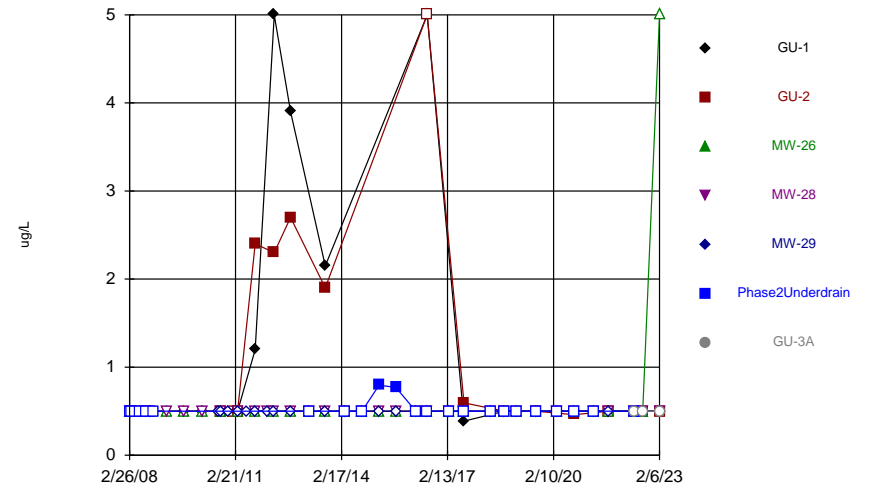


Time Series



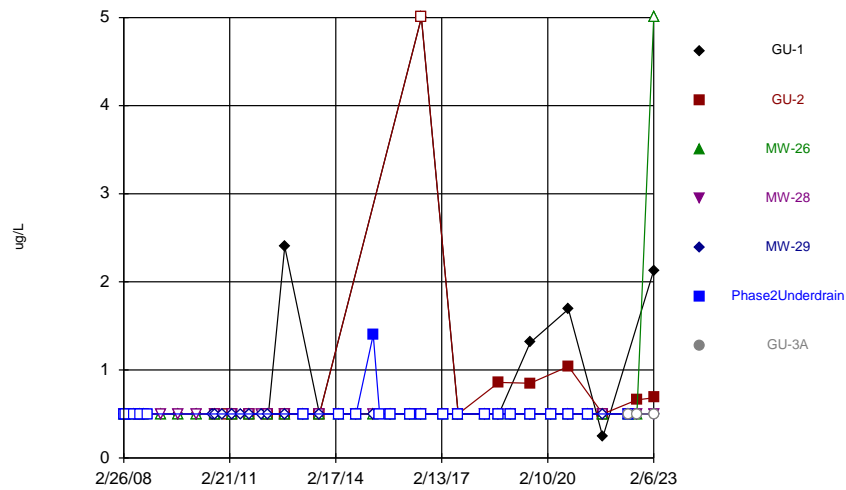
Constituent: 1,1-Dichloroethane Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



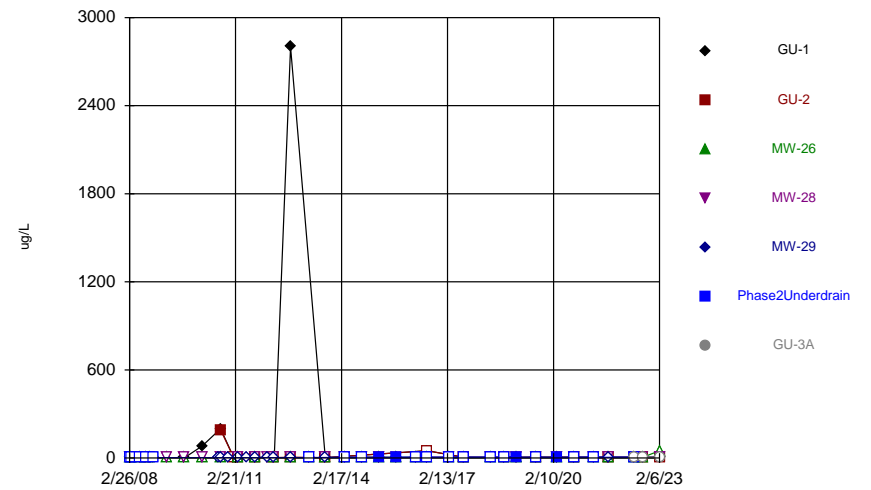
Constituent: 1,2-Dichloroethane Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



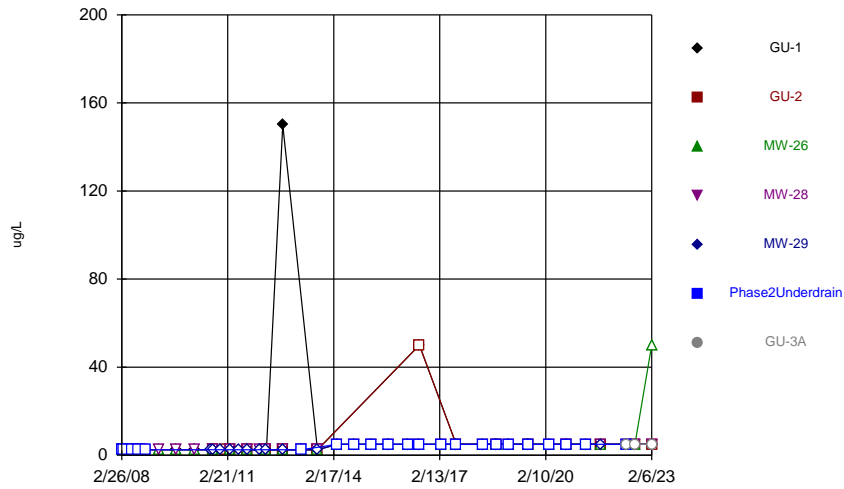
Constituent: 1,4-Dichlorobenzene Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



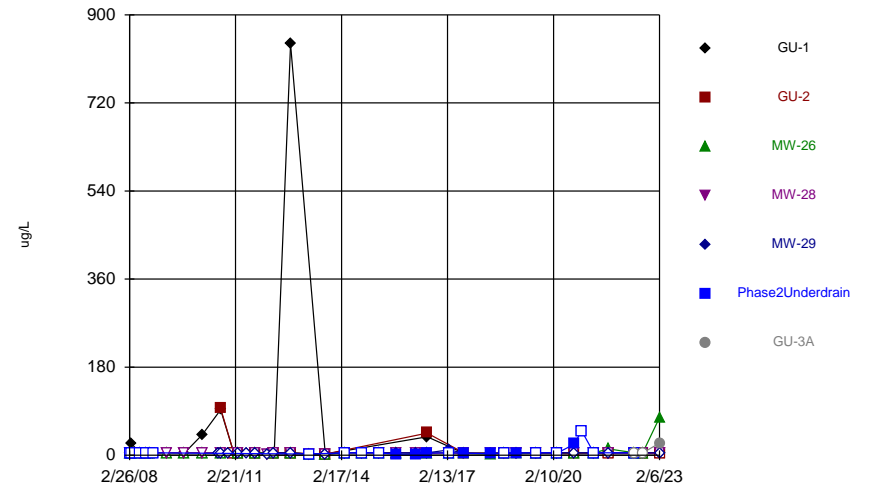
Constituent: 2-Butanone Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



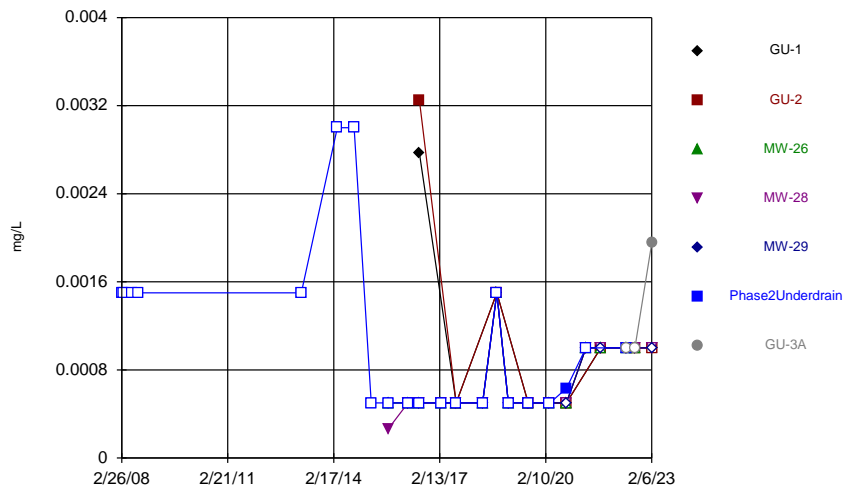
Constituent: 4-Methyl-2-pentanone Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



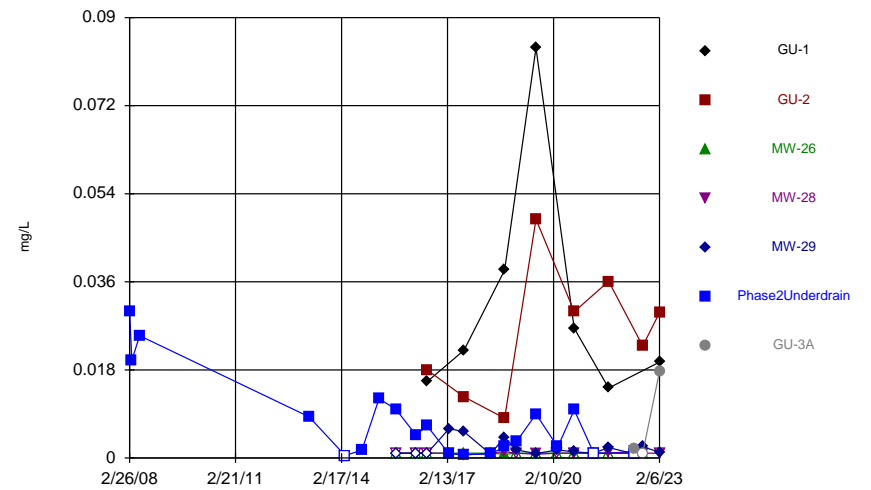
Constituent: Acetone Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



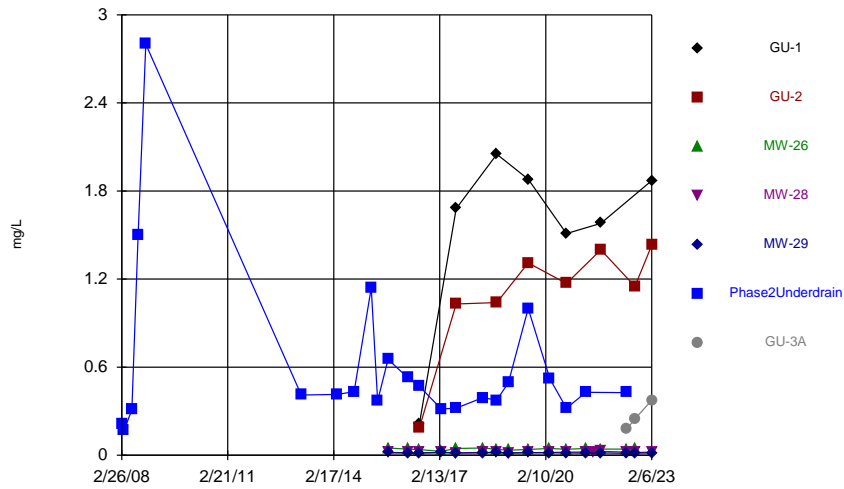
Constituent: Antimony Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



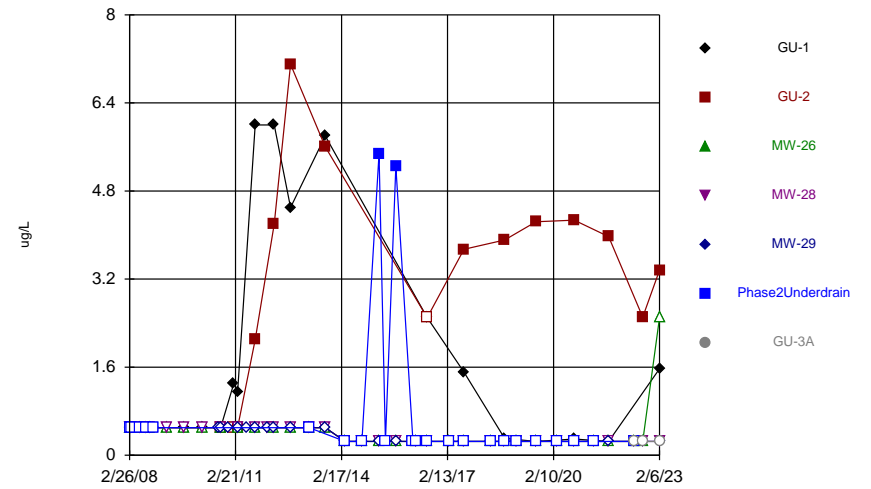
Constituent: Arsenic Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



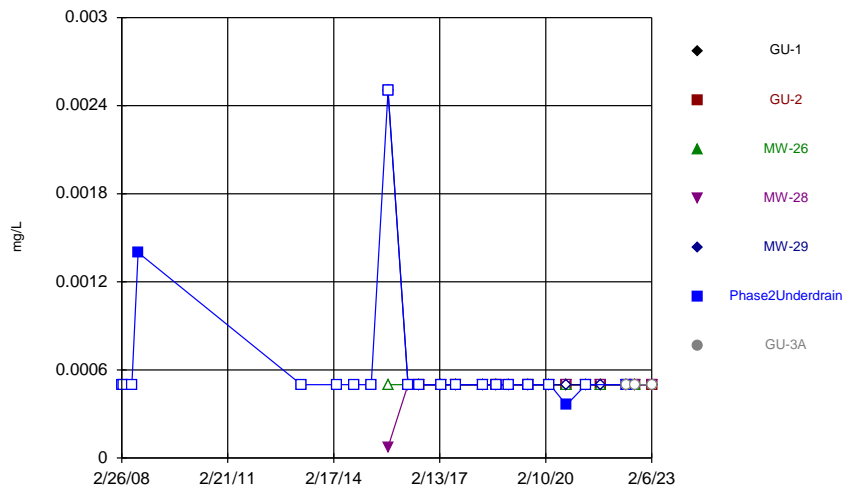
Constituent: Barium Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



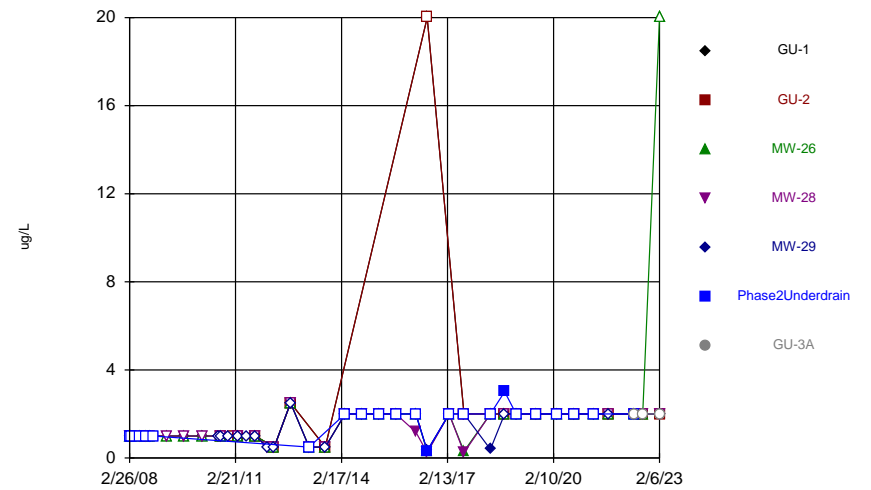
Constituent: Benzene Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



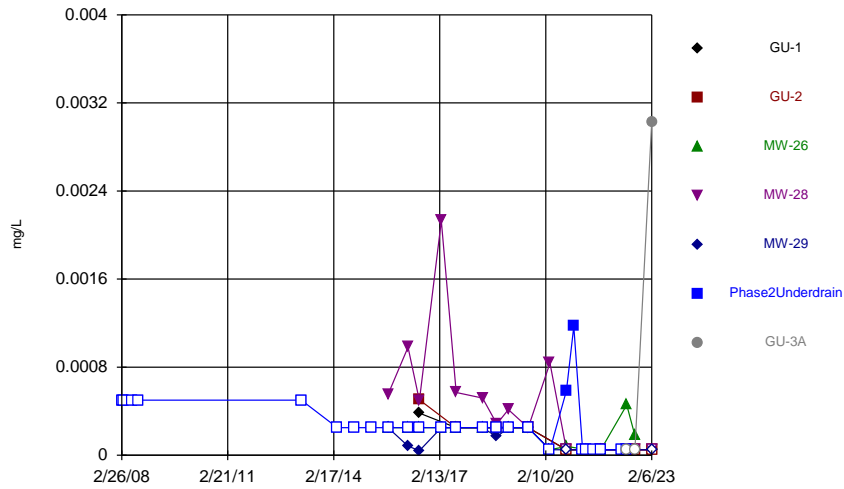
Constituent: Beryllium Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



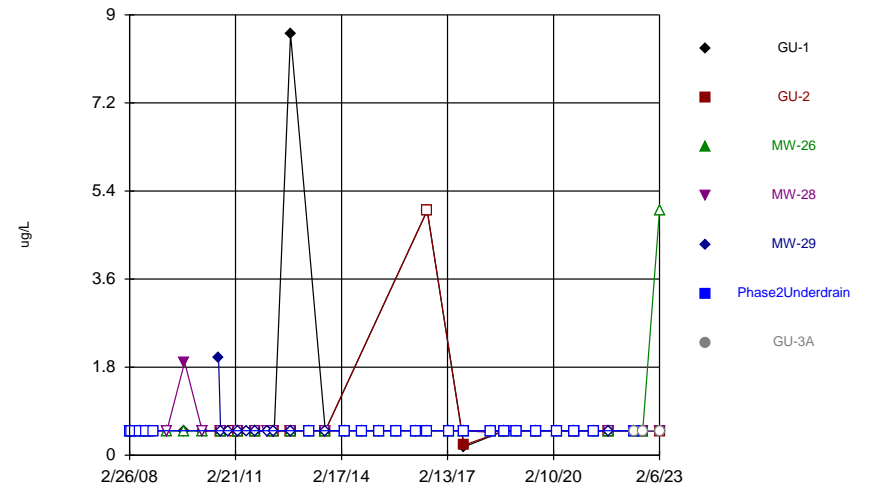
Constituent: Bromomethane Analysis Run 3/24/2023 10:21 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



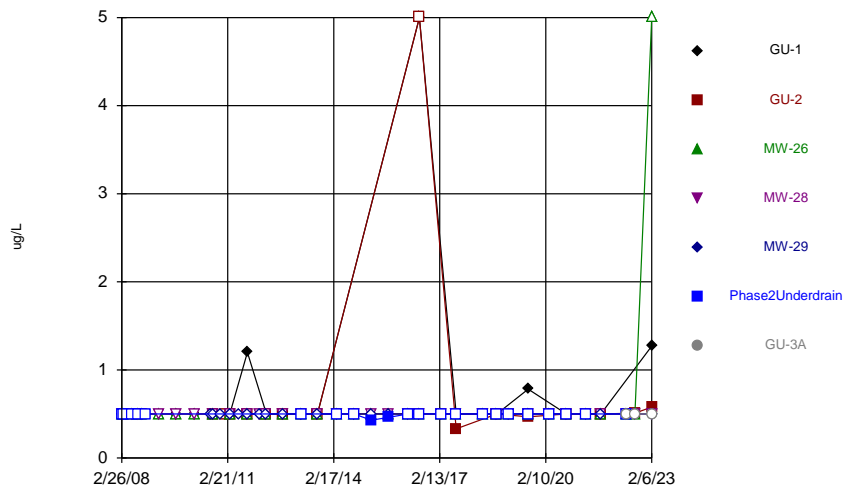
Constituent: Cadmium Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



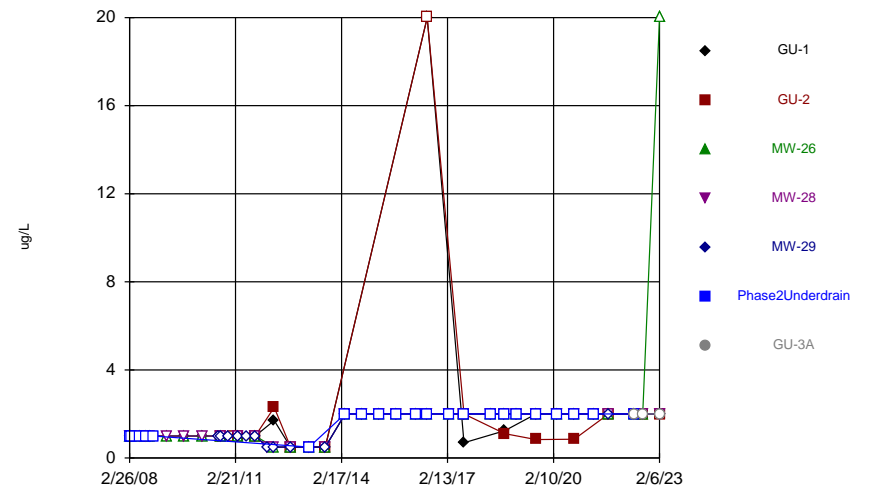
Constituent: Carbon disulfide Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



Constituent: Chlorobenzene Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

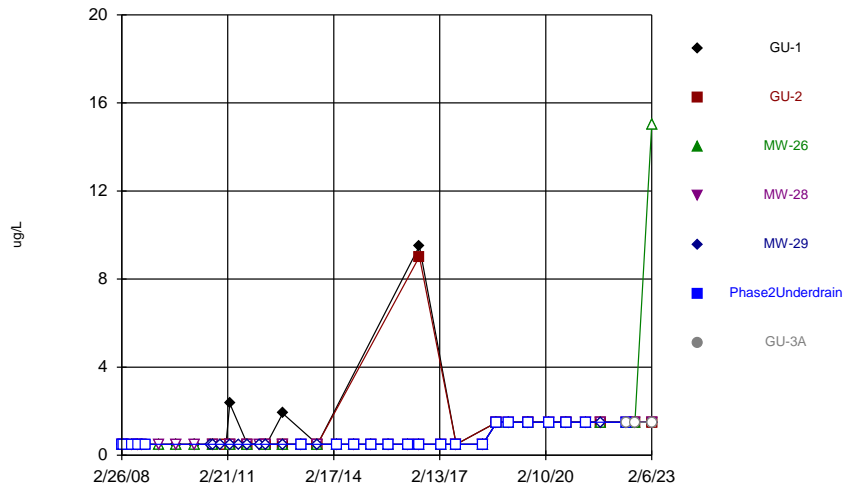
Time Series



Constituent: Chloroethane Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

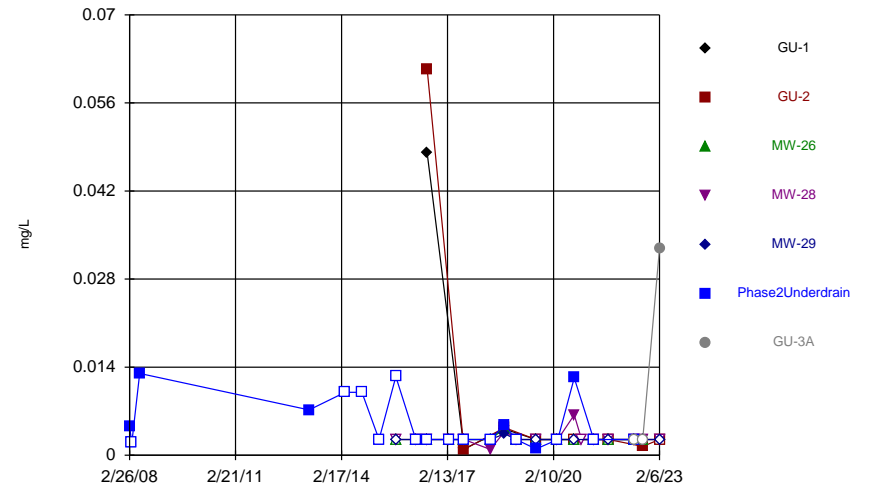


Time Series



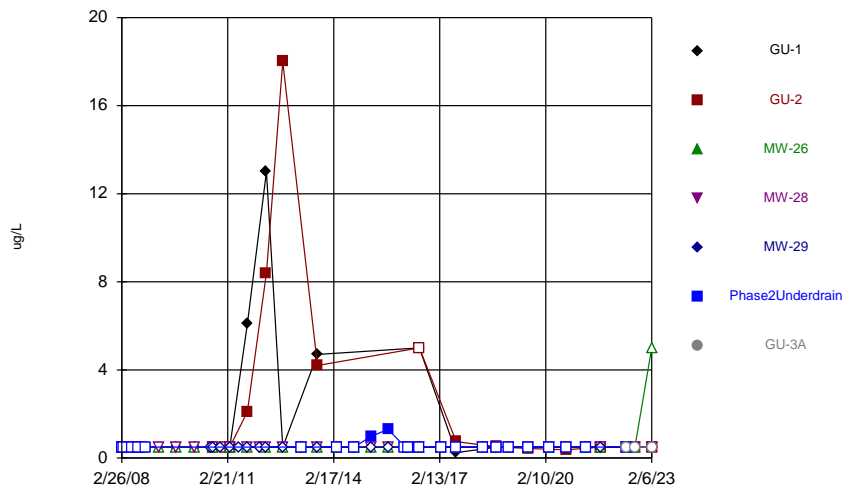
Constituent: Chloroform Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



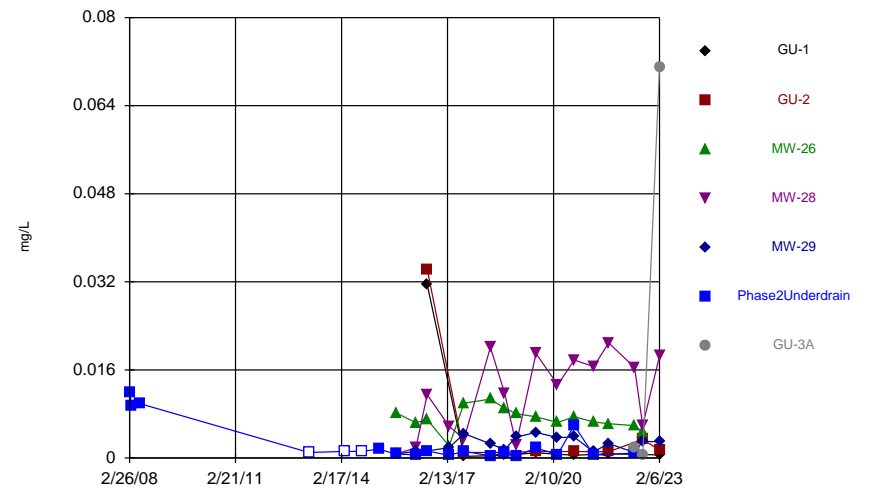
Constituent: Chromium Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



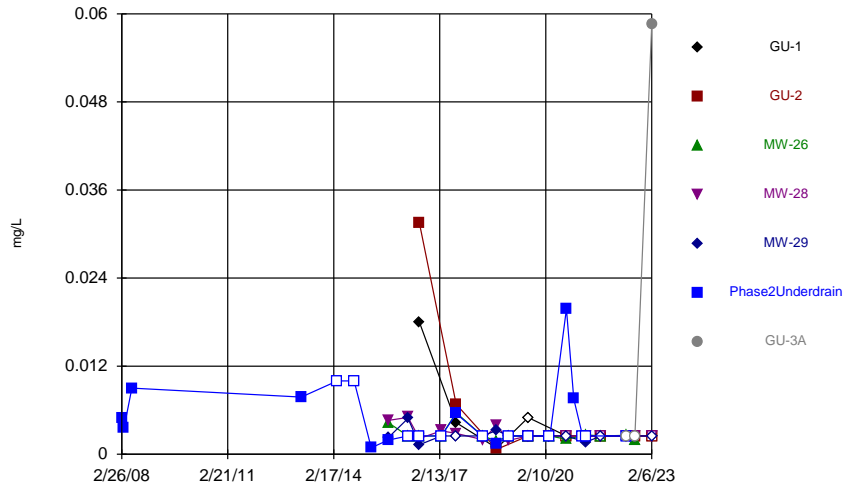
Constituent: cis-1,2-Dichloroethene Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



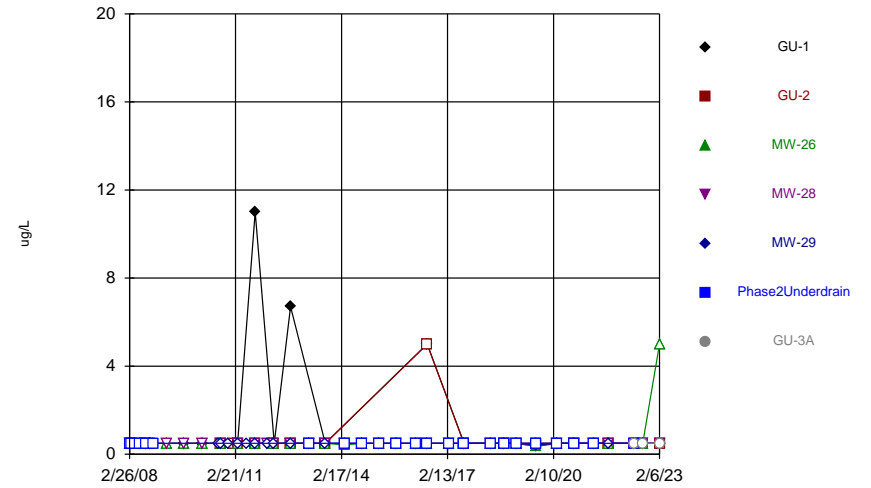
Constituent: Cobalt Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



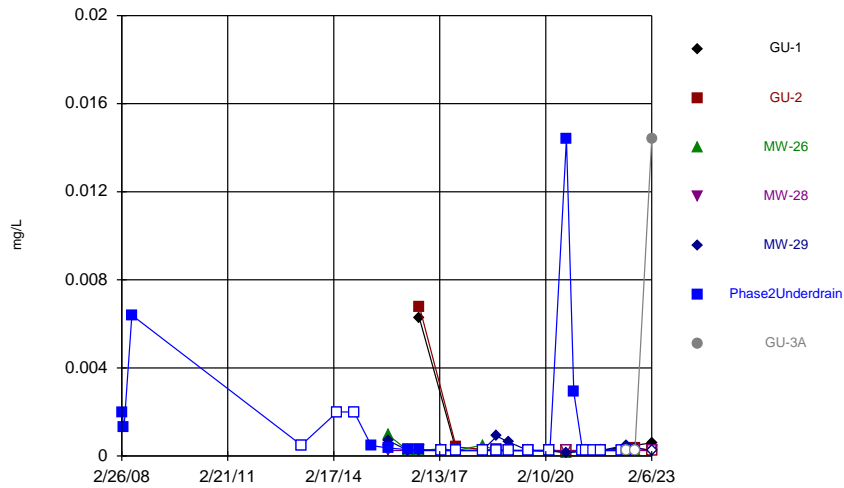
Constituent: Copper Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



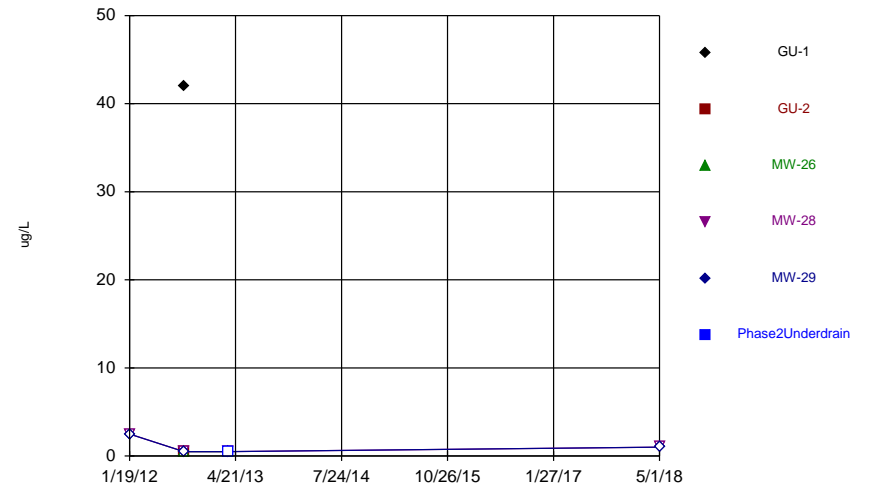
Constituent: Ethylbenzene Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



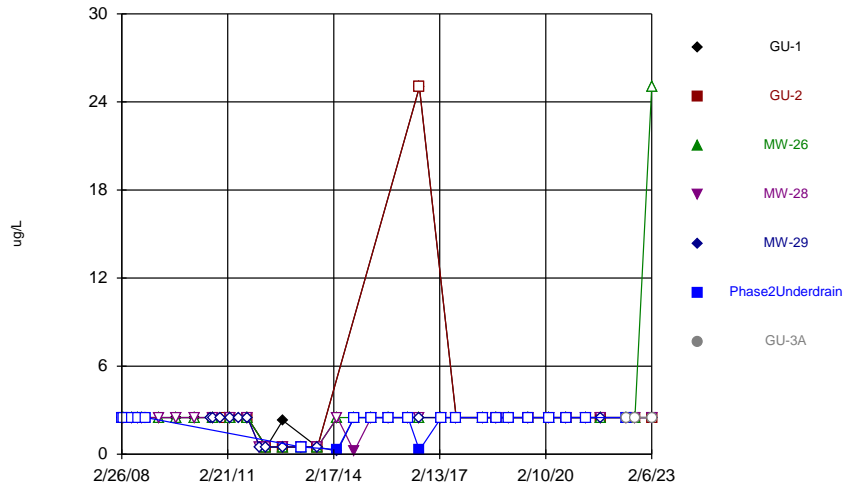
Constituent: Lead Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



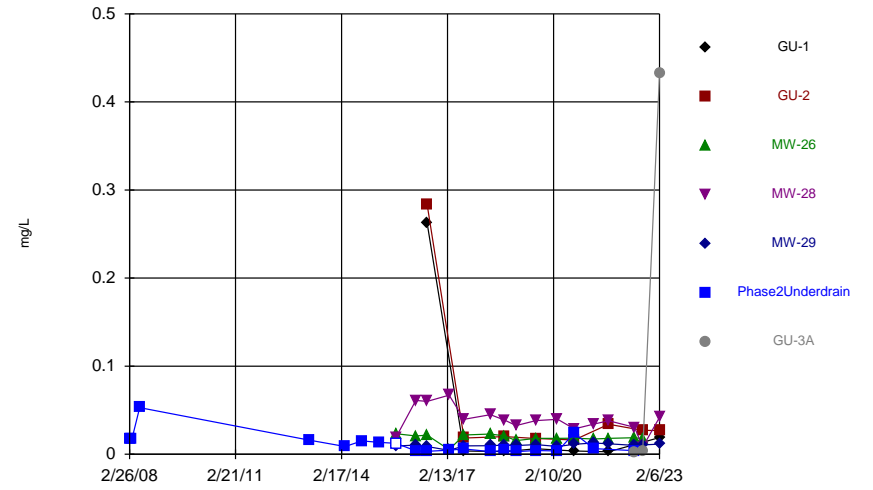
Constituent: M&P-Xylene Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



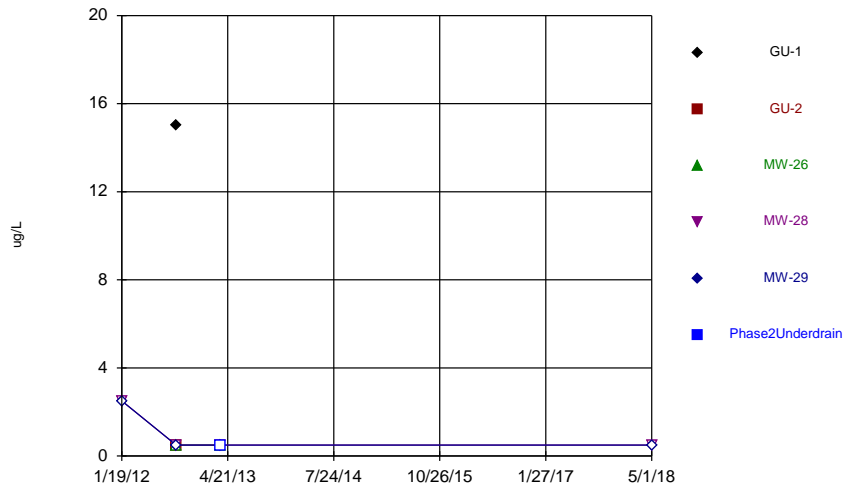
Constituent: Methylene Chloride Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



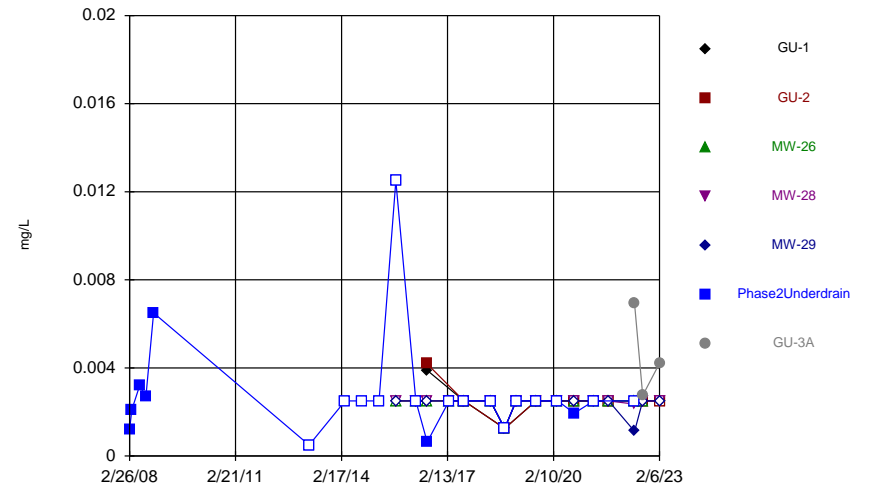
Constituent: Nickel Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



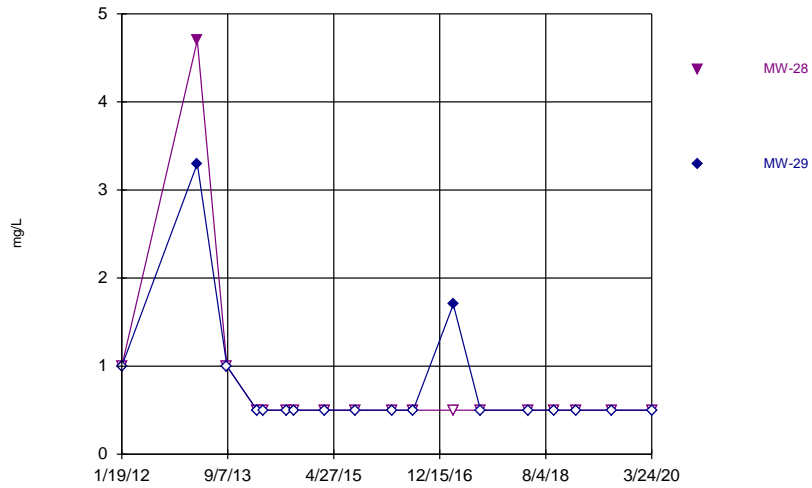
Constituent: O-Xylene Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



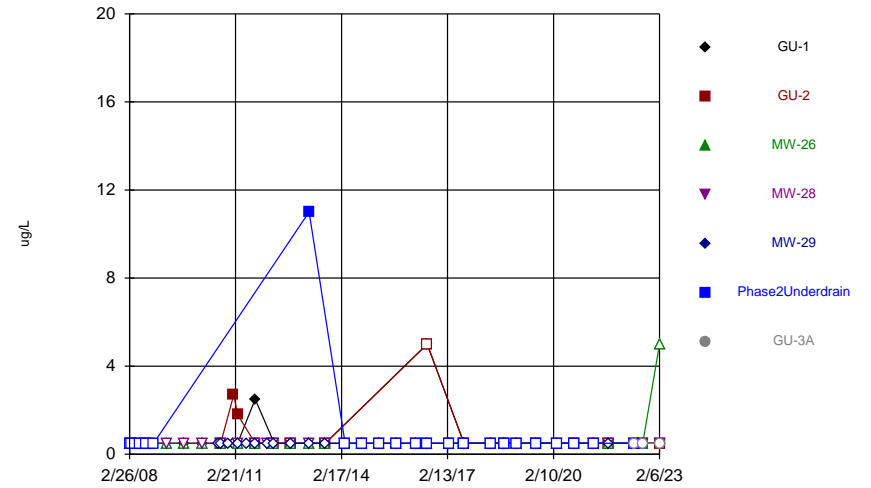
Constituent: Selenium Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



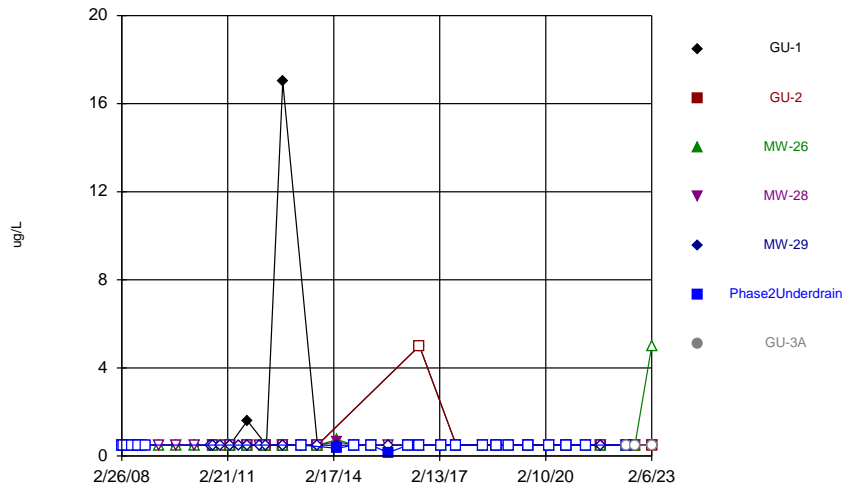
Constituent: Sulfide Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



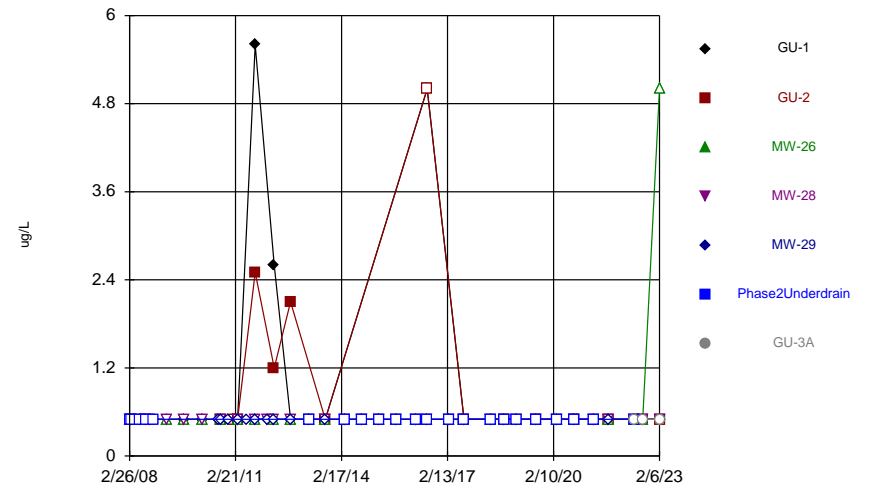
Constituent: Tetrachloroethene Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



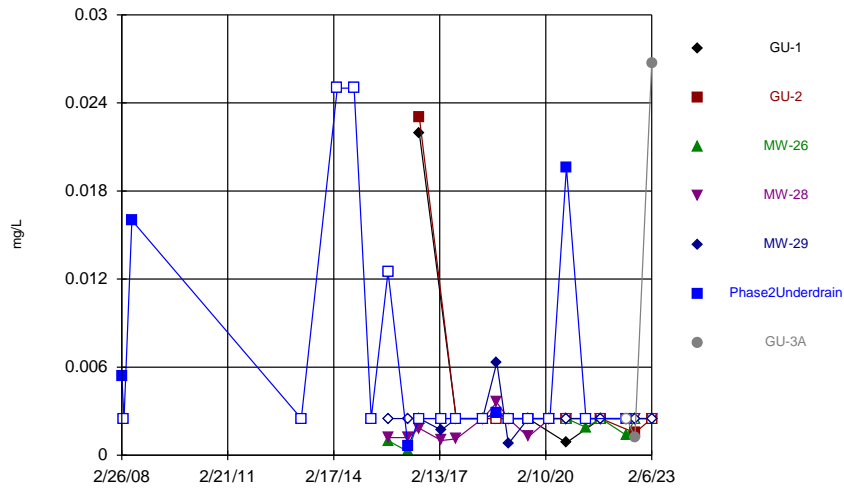
Constituent: Toluene Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



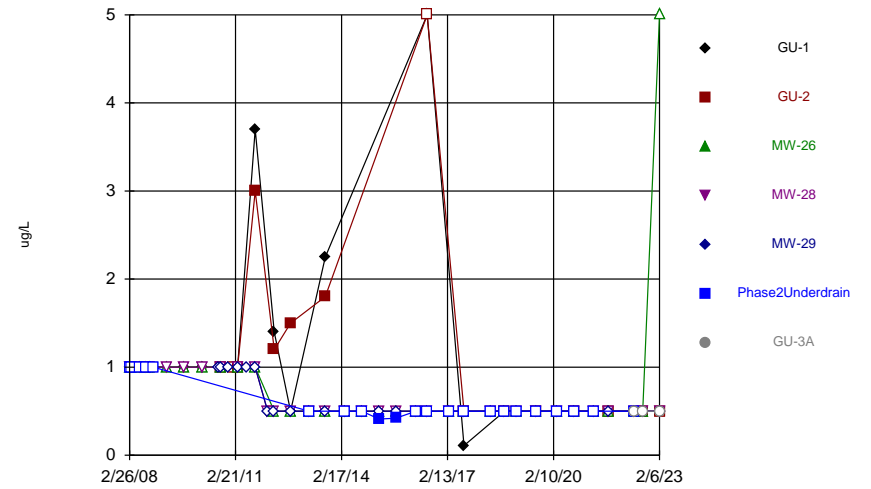
Constituent: Trichloroethene Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



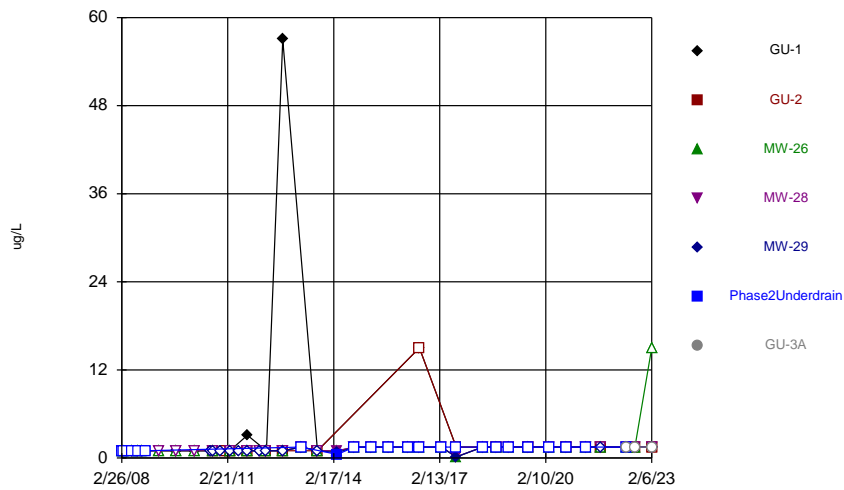
Constituent: Vanadium Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



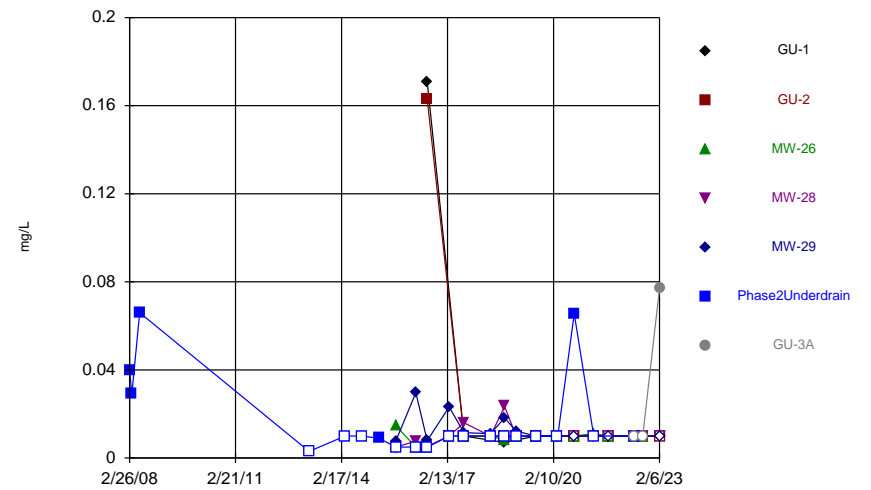
Constituent: Vinyl chloride Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



Constituent: Xylenes, total Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



Constituent: Zinc Analysis Run 3/24/2023 10:22 AM View: 2023SSN - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



## **Outlier Tests Summary Table and Graphs**





# Outlier Analysis

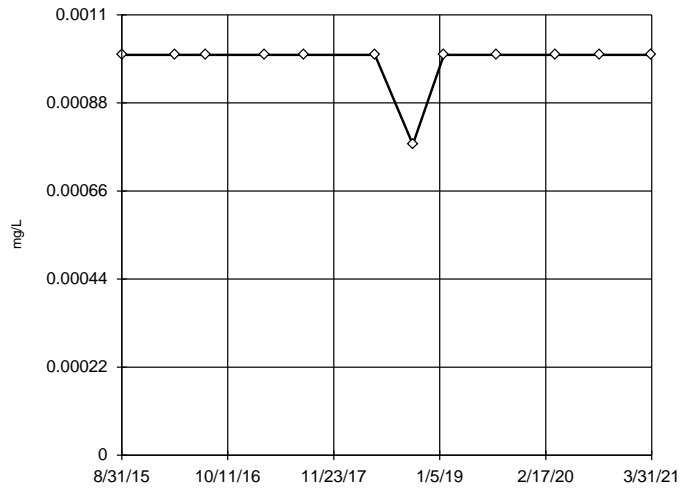
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 3/10/2023, 10:17 AM

<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>Normality...</u>
Arsenic (mg/L)	MW-26	No	n/a	n/a	OH	NaN	12	0.0009813	0.00006466	n/a
Barium (mg/L)	MW-26	No	n/a	n/a	Dixon/OH	0.01	12	0.04171	0.006536	ShapiroWilk
Cadmium (mg/L)	MW-26	No	n/a	n/a	OH	NaN	12	0.0002028	0.00008577	n/a
Chromium (mg/L)	MW-26	No	n/a	n/a	OH	NaN	12	0.002651	0.0005225	n/a
Cobalt (mg/L)	MW-26	No	n/a	n/a	Dixon/OH	0.01	12	0.007463	0.002157	ShapiroWilk
<b>Copper (mg/L)</b>	<b>MW-26</b>	<b>Yes</b>	<b>0.00432,0.00565,0.00179,0.002025</b>	<b>8/31/2015,8/2/2017,9/24/2018,9/10/2020</b>	<b>NP (nrm)/OH</b>	<b>NaN</b>	<b>12</b>	<b>0.002827</b>	<b>0.001074</b>	<b>ShapiroWilk</b>
<b>Lead (mg/L)</b>	<b>MW-26</b>	<b>Yes</b>	<b>0.000952,0.000496</b>	<b>8/31/2015,5/1/2018</b>	<b>NP (nrm)/OH</b>	<b>NaN</b>	<b>12</b>	<b>0.000326</b>	<b>0.0002133</b>	<b>ShapiroWilk</b>
<b>Nickel (mg/L)</b>	<b>MW-26</b>	<b>Yes</b>	<b>0.005175</b>	<b>3/2/2017</b>	<b>Dixon/OH</b>	<b>0.01</b>	<b>12</b>	<b>0.01866</b>	<b>0.004881</b>	<b>ShapiroWilk</b>
<b>Thallium (mg/L)</b>	<b>MW-26</b>	<b>Yes</b>	<b>0.001</b>	<b>9/24/2018</b>	<b>OH</b>	<b>NaN</b>	<b>12</b>	<b>0.0005031</b>	<b>0.0002054</b>	<b>n/a</b>
<b>Vanadium (mg/L)</b>	<b>MW-26</b>	<b>Yes</b>	<b>0.001,0.000255</b>	<b>8/31/2015,3/24/2016</b>	<b>NP (nrm)/OH</b>	<b>NaN</b>	<b>12</b>	<b>0.002168</b>	<b>0.0007665</b>	<b>ShapiroWilk</b>
Zinc (mg/L)	MW-26	No	n/a	n/a	OH	NaN	12	0.009491	0.002563	n/a



### Ohio EPA 0715 Outlier Algorithm

MW-26

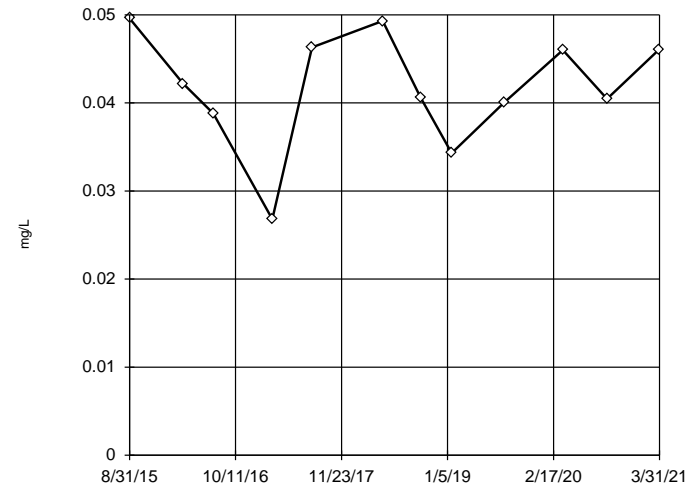


n = 12  
No statistical outliers.

Constituent: Arsenic Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm

MW-26

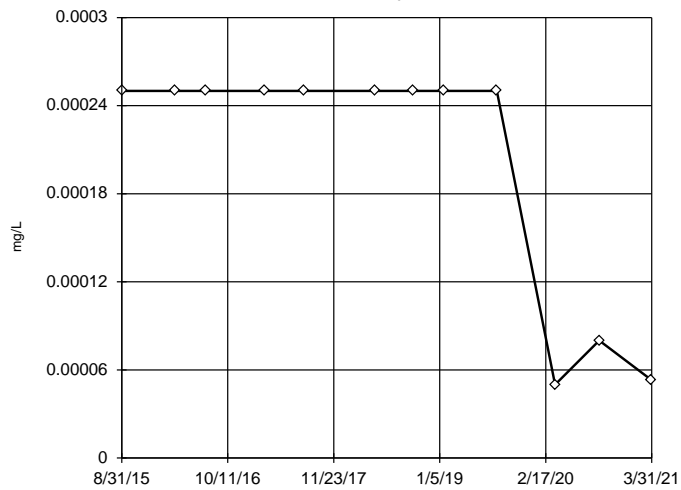


n = 12  
No statistical outliers.  
Testing for 1 low outlier.  
Mean = 0.04171  
Std. Dev. = 0.006536  
0.0268 (D); c = 0.5333  
tab1 = 0.642  
Alpha = 0.01.  
Normality test used:  
Shapiro Wilk @ alpha = 0.01  
Calculated = 0.942  
Critical = 0.732  
The distribution was found to be normally distributed.

Constituent: Barium Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

MW-26

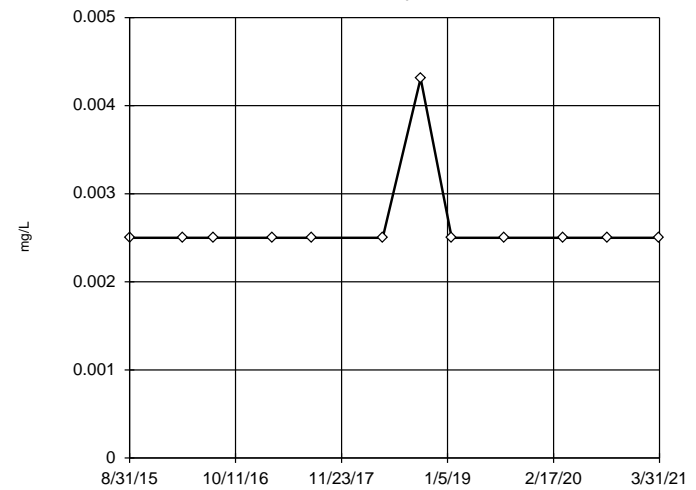


n = 12  
No statistical outliers.

Constituent: Cadmium Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

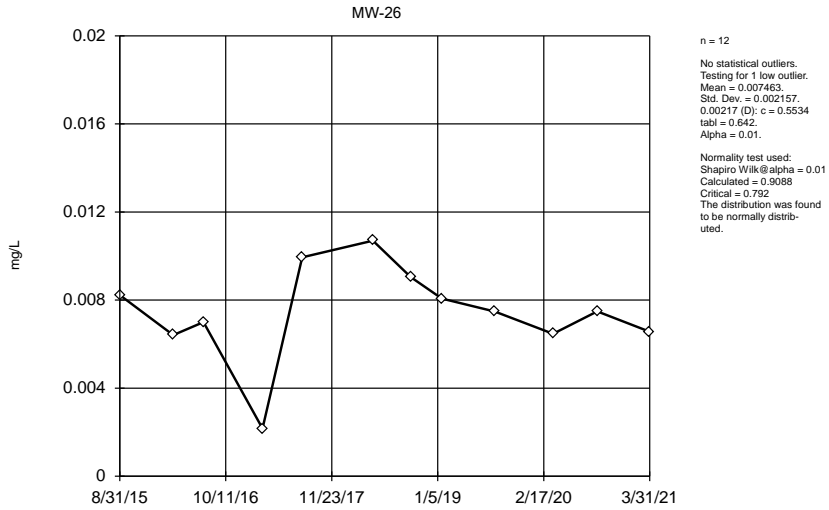
MW-26



n = 12  
No statistical outliers.

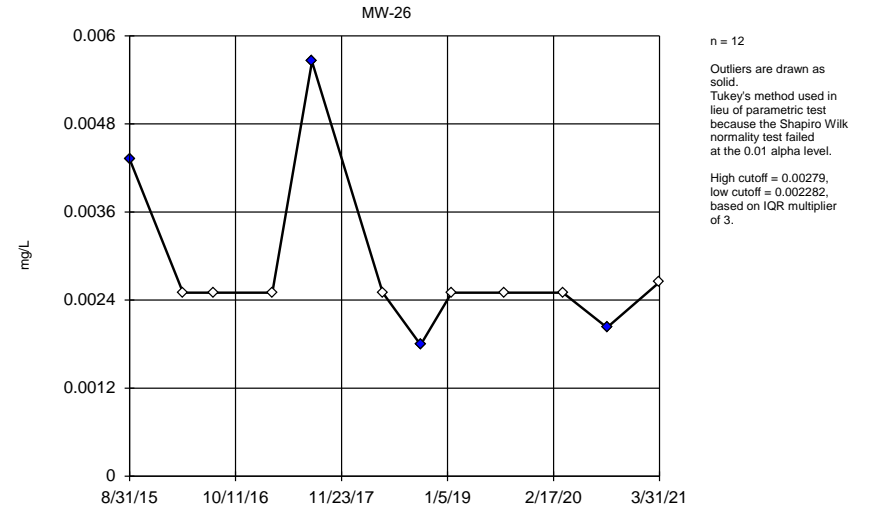
Constituent: Chromium Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm



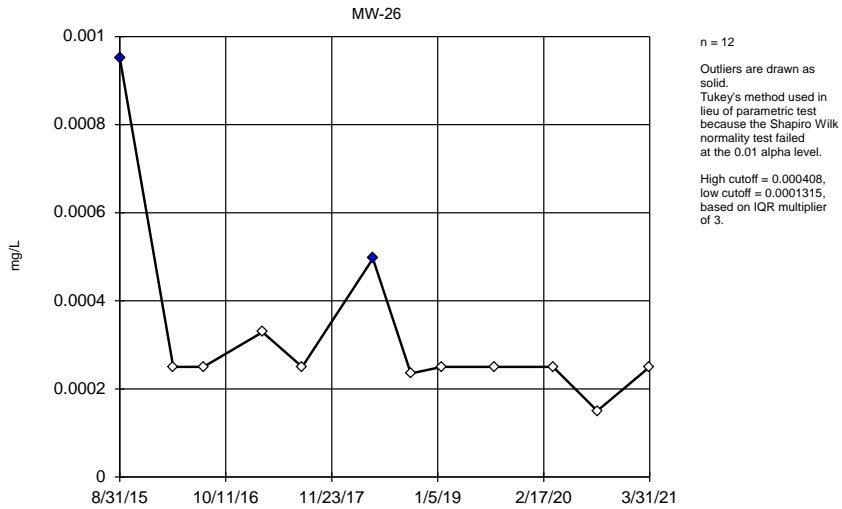
Constituent: Cobalt Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



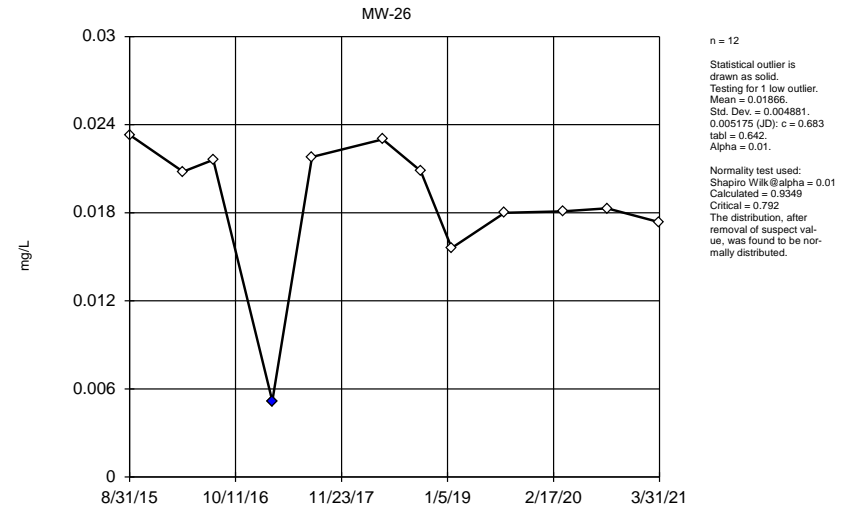
Constituent: Copper Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



Constituent: Lead Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

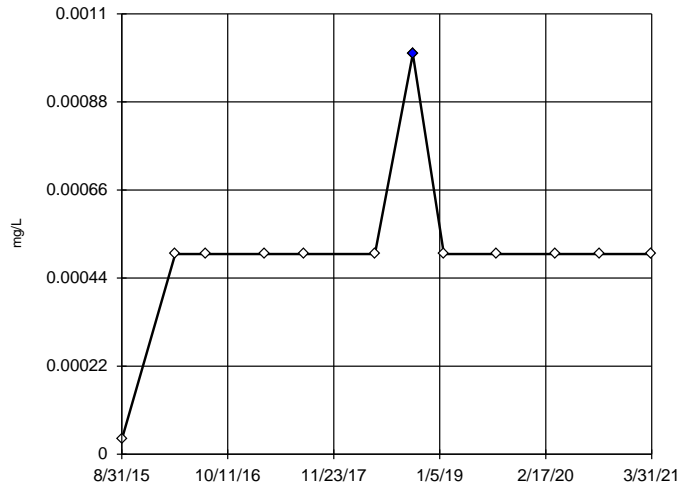
Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm



Constituent: Nickel Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

MW-26

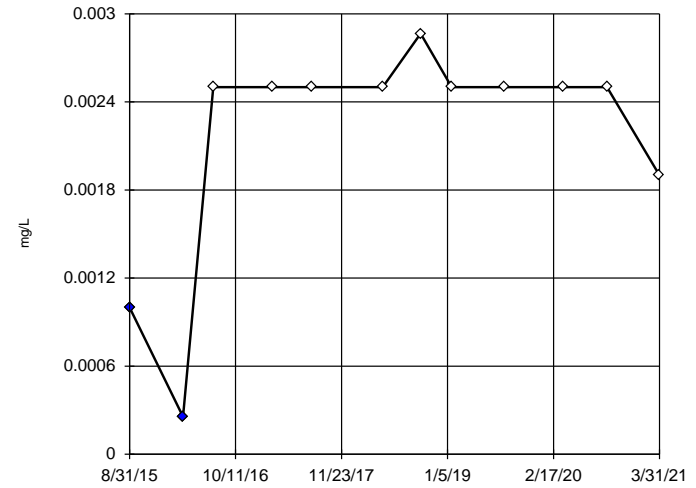


n = 12  
 Statistical outlier is drawn as solid.  
 Outlier per Ohio method.

Constituent: Thallium Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

MW-26

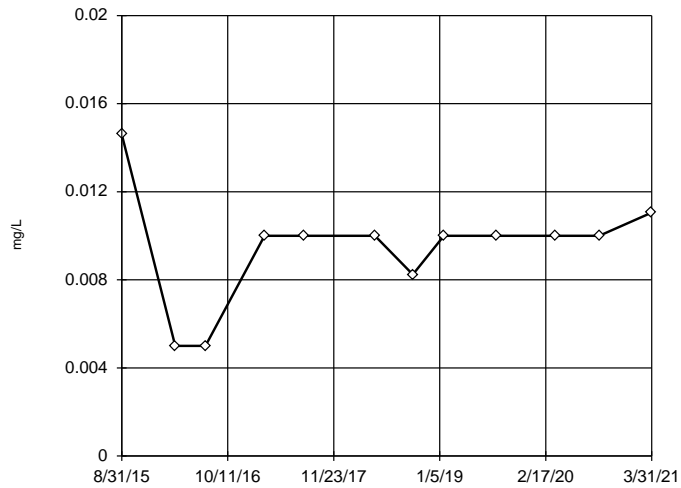


n = 12  
 Outliers are drawn as solid.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.  
 High cutoff = 0.0034,  
 low cutoff = 0.0013, based on IQR multiplier of 3.

Constituent: Vanadium Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

MW-26



n = 12  
 No statistical outliers.  
 Normality test used:  
 Shapiro Wilk @ alpha = 0.01  
 Calculated = 0.5498  
 Critical = 0.805  
 The distribution was found to be normally distributed.

Constituent: Zinc Analysis Run 3/10/2023 10:15 AM View: 2023SSN - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



# Outlier Analysis

Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 3/10/2023, 10:19 AM

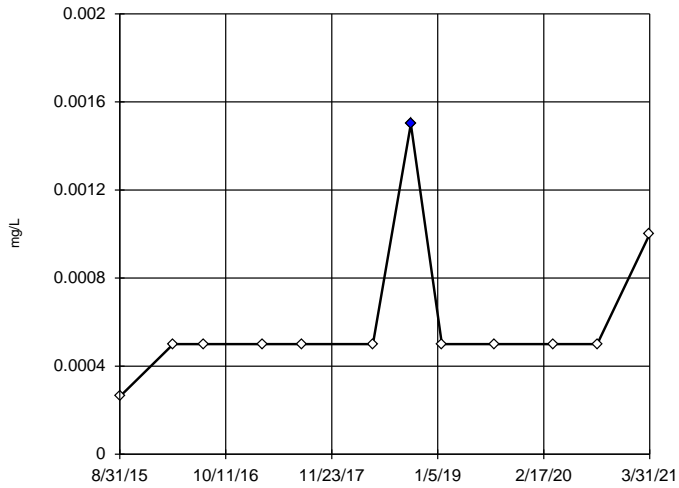
<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>Value(s)</u>	<u>Date(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Normality...</u>
<b>Antimony (mg/L)</b>	<b>MW-28</b>	<b>Yes</b>	<b>0.0015</b>	<b>9/24/2018</b>	<b>OH</b>	<b>NaN</b>	<b>12</b>	<b>0.0006052</b>	<b>0.0003267</b>	<b>n/a</b>
Arsenic (mg/L)	MW-28	No	n/a	n/a	OH	NaN	12	0.0009717	0.000162	n/a
Barium (mg/L)	MW-28	No	n/a	n/a	EPA/OH	0.05	12	0.01834	0.00213	ShapiroWilk
Beryllium (mg/L)	MW-28	No	n/a	n/a	OH	NaN	12	0.0004646	0.0001227	n/a
Cadmium (mg/L)	MW-28	No	n/a	n/a	EPA/OH	0.05	12	0.0005948	0.0005577	ShapiroWilk
Chromium (mg/L)	MW-28	No	n/a	n/a	OH	NaN	13	0.002781	0.001242	n/a
Cobalt (mg/L)	MW-28	No	n/a	n/a	EPA/OH	0.05	12	0.01036	0.007212	ShapiroWilk
Copper (mg/L)	MW-28	No	n/a	n/a	EPA/OH	0.05	12	0.002968	0.001028	ShapiroWilk
Lead (mg/L)	MW-28	No	n/a	n/a	OH	NaN	12	0.0002564	0.00002223	n/a
Nickel (mg/L)	MW-28	No	n/a	n/a	EPA/OH	0.05	12	0.04202	0.01421	ShapiroWilk
Thallium (mg/L)	MW-28	No	n/a	n/a	EPA/OH	0.05	12	0.0003922	0.0002671	ShapiroWilk
Vanadium (mg/L)	MW-28	No	n/a	n/a	EPA/OH	0.05	12	0.001977	0.0008208	ShapiroWilk
Zinc (mg/L)	MW-28	No	n/a	n/a	EPA/OH	0.05	12	0.01061	0.004899	ShapiroWilk





### Ohio EPA 0715 Outlier Algorithm

MW-28

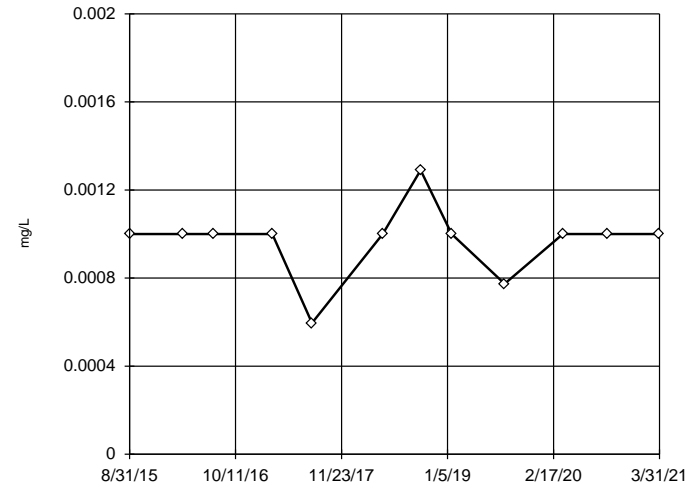


n = 12  
 Statistical outlier is drawn as solid.  
 Outlier per Ohio method.

Constituent: Antimony Analysis Run 3/10/2023 10:17 AM View: 2023SSN - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

MW-28

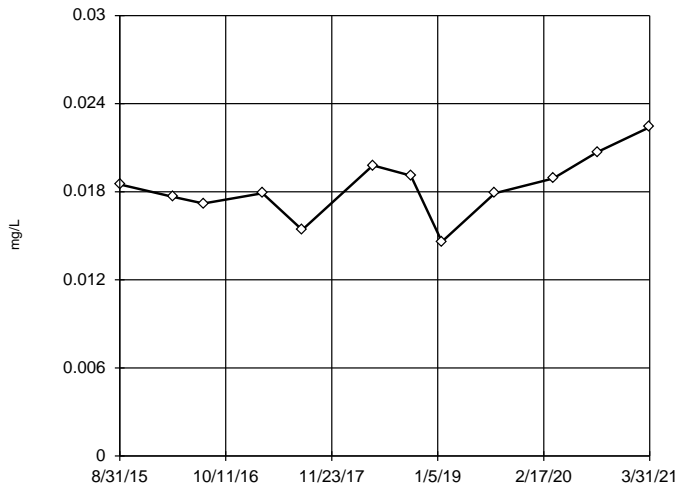


n = 12  
 No statistical outliers.  
 Normality test used:  
 Shapiro Wilk @ alpha = 0.01  
 Calculated = 0.5498  
 Critical = 0.805  
 The distribution was found to be normally distributed.

Constituent: Arsenic Analysis Run 3/10/2023 10:17 AM View: 2023SSN - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### EPA Screening (suspected outliers for Dixon's Test)

MW-28

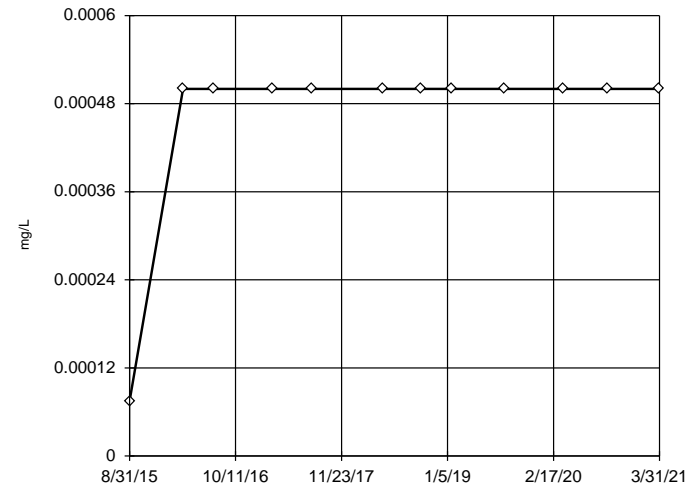


n = 12  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Ohio method in use.  
 Mean 0.01834; std. dev. 0.00213; critical Tn 2.285  
 Normality test used:  
 Shapiro Wilk @ alpha = 0.01  
 Calculated = 0.9774  
 Critical = 0.805  
 The distribution was found to be normally distributed.

Constituent: Barium Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

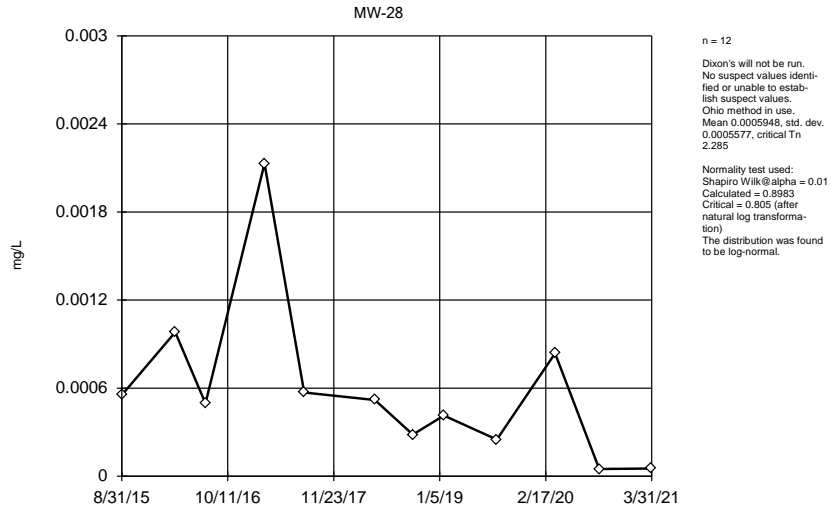
MW-28



n = 12  
 No statistical outliers.

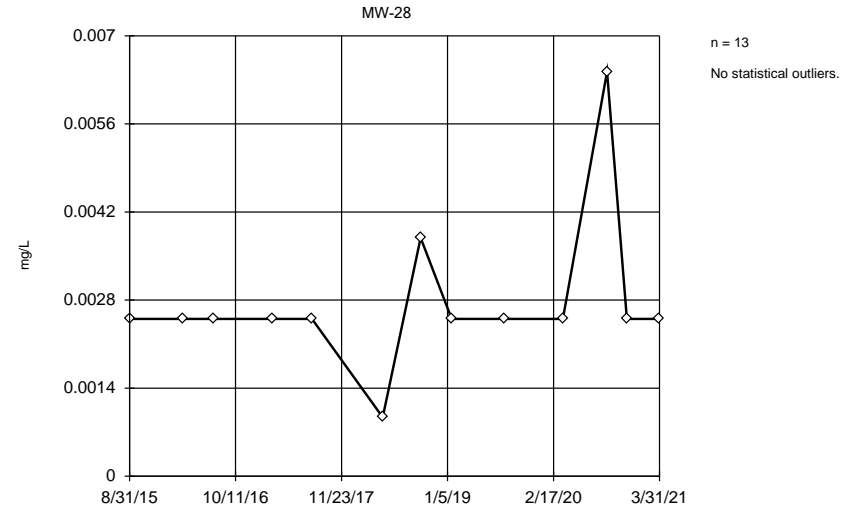
Constituent: Beryllium Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

EPA Screening (suspected outliers for Dixon's Test)



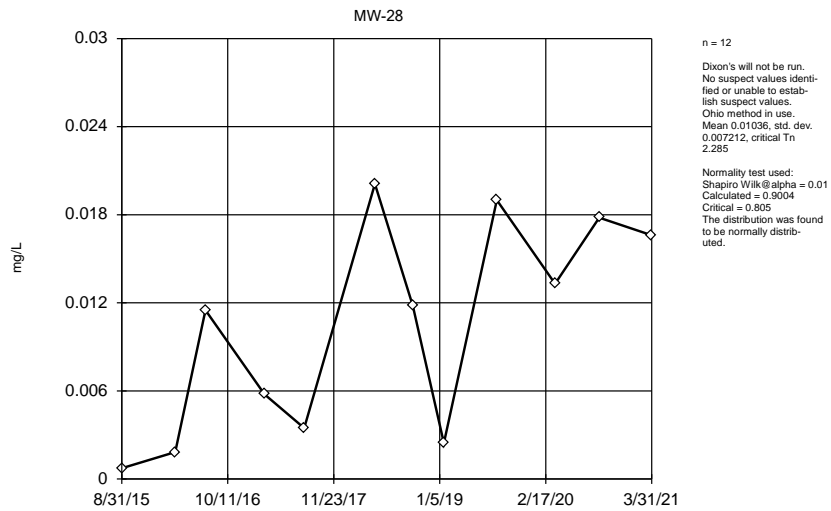
Constituent: Cadmium Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Ohio EPA 0715 Outlier Algorithm



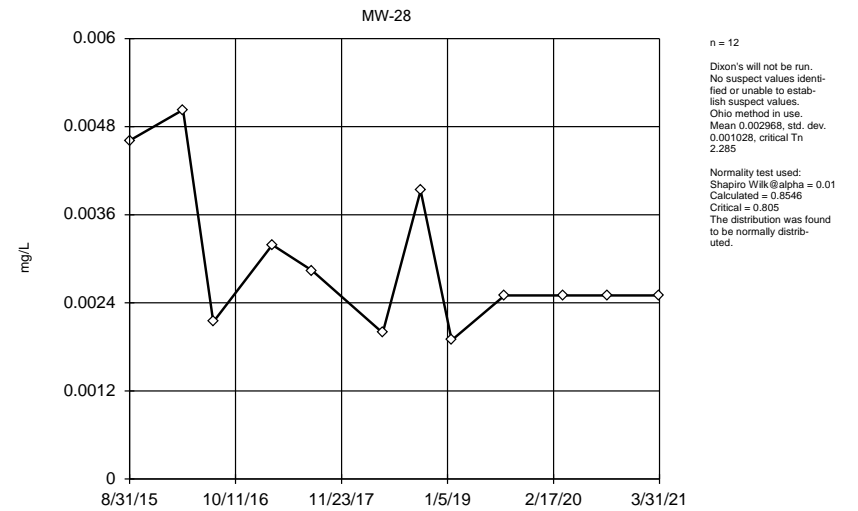
Constituent: Chromium Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

EPA Screening (suspected outliers for Dixon's Test)



Constituent: Cobalt Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

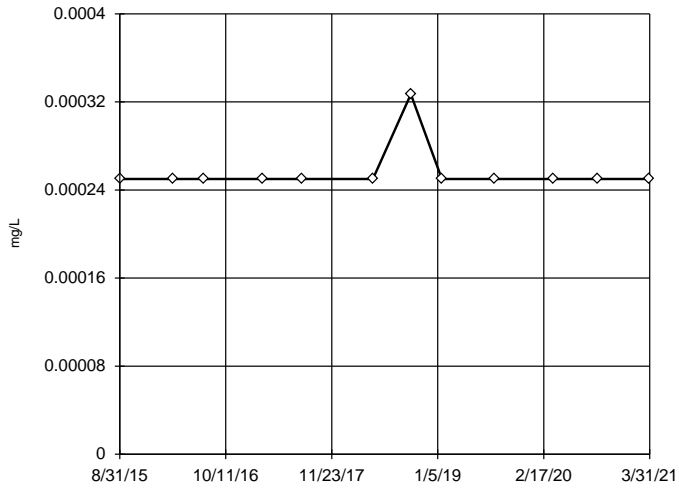
EPA Screening (suspected outliers for Dixon's Test)



Constituent: Copper Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

MW-28

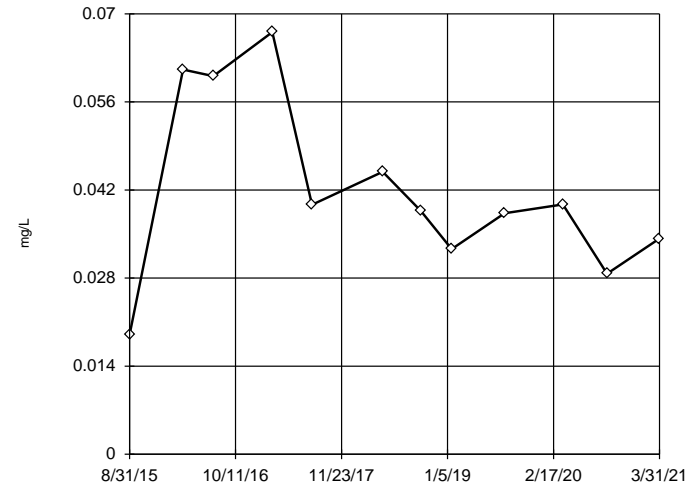


n = 12  
No statistical outliers.

Constituent: Lead Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### EPA Screening (suspected outliers for Dixon's Test)

MW-28

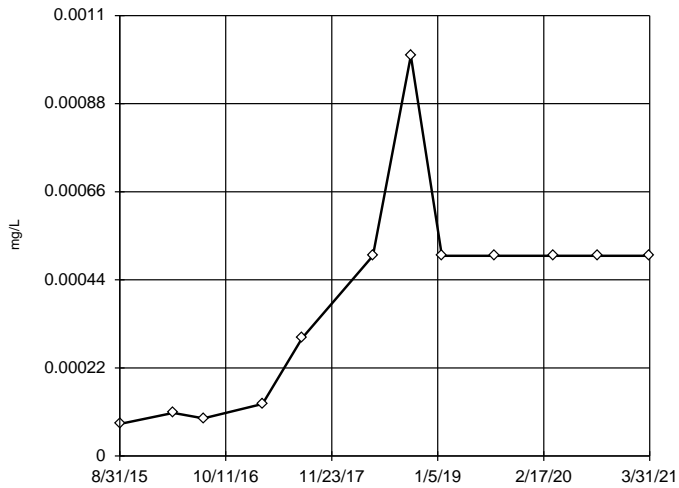


n = 12  
Dixon's will not be run.  
No suspect values identified or unable to establish suspect values.  
Ohio method in use.  
Mean 0.04202, std. dev. 0.01421, critical Tn 2.285  
Normality test used:  
Shapiro Wilk @alpha = 0.01  
Calculated = 0.9285  
Critical = 0.905  
The distribution was found to be normally distributed.

Constituent: Nickel Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### EPA Screening (suspected outliers for Dixon's Test)

MW-28

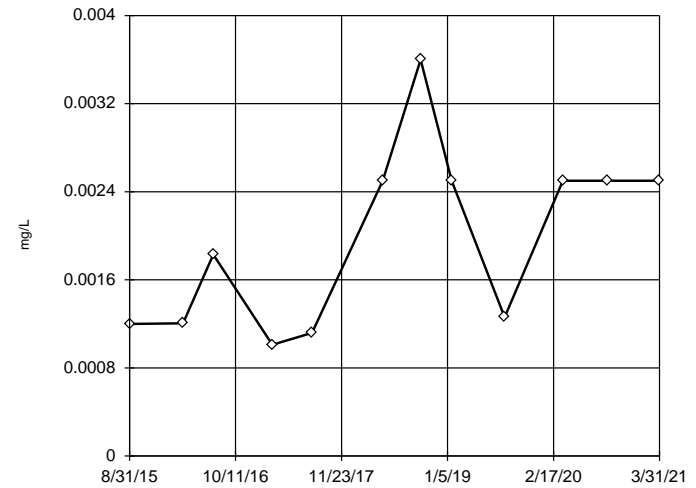


n = 12  
Dixon's will not be run.  
No suspect values identified or unable to establish suspect values.  
Ohio method in use.  
Mean 0.0003922, std. dev. 0.0002671, critical Tn 2.285  
Normality test used:  
Shapiro Wilk @alpha = 0.01  
Calculated = 0.8327  
Critical = 0.805  
The distribution was found to be normally distributed.

Constituent: Thallium Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### EPA Screening (suspected outliers for Dixon's Test)

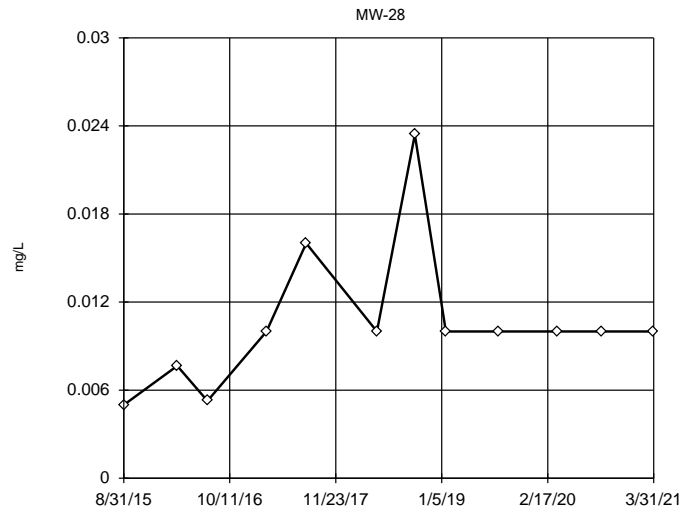
MW-28



n = 12  
Dixon's will not be run.  
No suspect values identified or unable to establish suspect values.  
Ohio method in use.  
Mean 0.001977, std. dev. 0.0008208, critical Tn 2.285  
Normality test used:  
Shapiro Wilk @alpha = 0.01  
Calculated = 0.8588  
Critical = 0.805  
The distribution was found to be normally distributed.

Constituent: Vanadium Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### 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.  
Ohio method in use.  
Mean 0.01061, std. dev. 0.004890, critical Tn 2.285  
Normality test used:  
Shapiro Wilk @ alpha = 0.01  
Calculated = 0.8586  
Critical = 0.805 (after natural log transformation)  
The distribution was found to be log-normal.

Constituent: Zinc Analysis Run 3/10/2023 10:18 AM View: 2023SSN - Outliers MW-28

Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

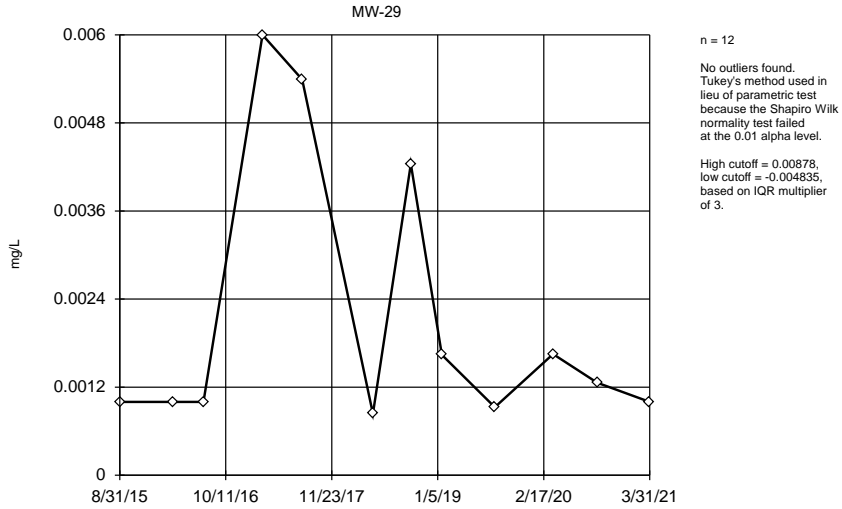
# Outlier Analysis

Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 3/10/2023, 10:22 AM

<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>Normality...</u>
Arsenic (mg/L)	MW-29	No	n/a	n/a	NP (nrm)/OH	NaN	12	0.002162	0.001895	ShapiroWilk
Barium (mg/L)	MW-29	No	n/a	n/a	EPA/OH	0.05	12	0.01636	0.001266	ShapiroWilk
Cadmium (mg/L)	MW-29	No	n/a	n/a	OH	NaN	12	0.0001618	0.00009771	n/a
Chromium (mg/L)	MW-29	No	n/a	n/a	OH	NaN	12	0.002576	0.0002627	n/a
Cobalt (mg/L)	MW-29	No	n/a	n/a	EPA/OH	0.05	12	0.002559	0.00144	ShapiroWilk
Copper (mg/L)	MW-29	No	n/a	n/a	EPA/OH	0.05	12	0.002569	0.0008799	ShapiroWilk
Lead (mg/L)	MW-29	No	n/a	n/a	NP (nrm)/OH	NaN	12	0.000367	0.0002394	ShapiroWilk
Nickel (mg/L)	MW-29	No	n/a	n/a	Dixon/OH	0.01	12	0.009685	0.002004	ShapiroWilk
Vanadium (mg/L)	MW-29	No	n/a	n/a	OH	NaN	12	0.00261	0.00128	n/a
Zinc (mg/L)	MW-29	No	n/a	n/a	EPA/OH	0.05	12	0.01346	0.00677	ShapiroWilk

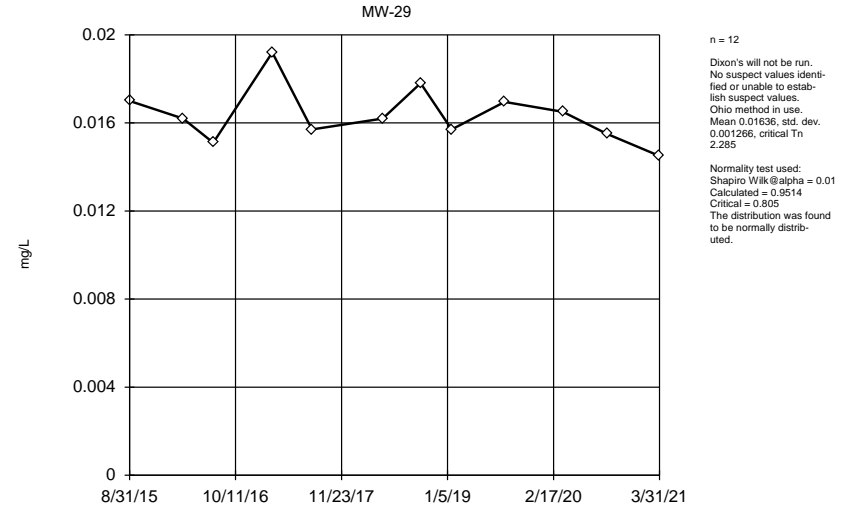


Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



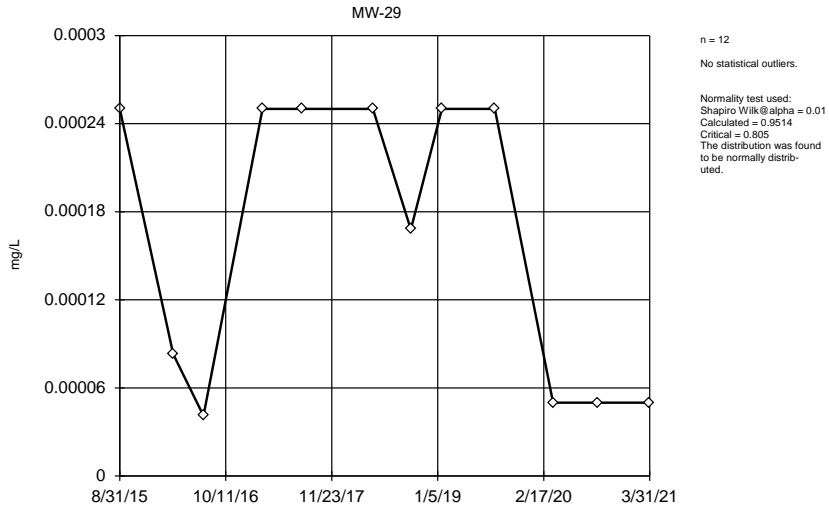
Constituent: Arsenic Analysis Run 3/10/2023 10:20 AM View: 2023SSN - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

EPA Screening (suspected outliers for Dixon's Test)



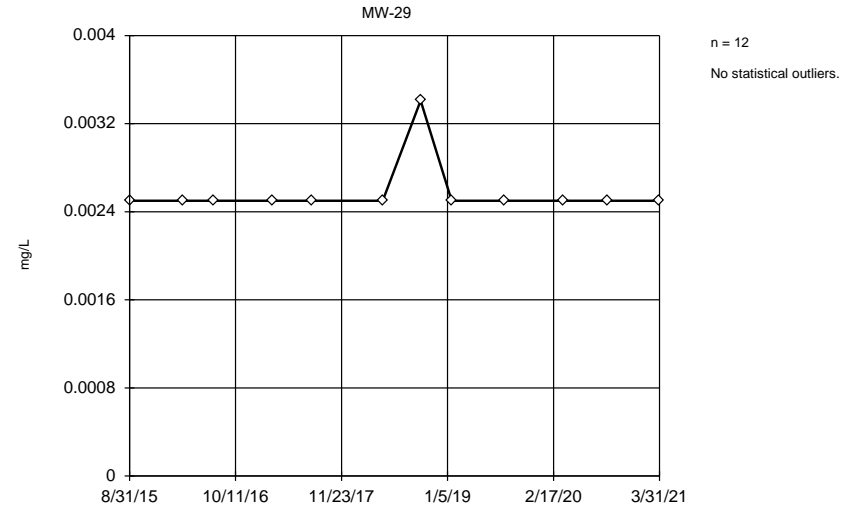
Constituent: Barium Analysis Run 3/10/2023 10:20 AM View: 2023SSN - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Ohio EPA 0715 Outlier Algorithm



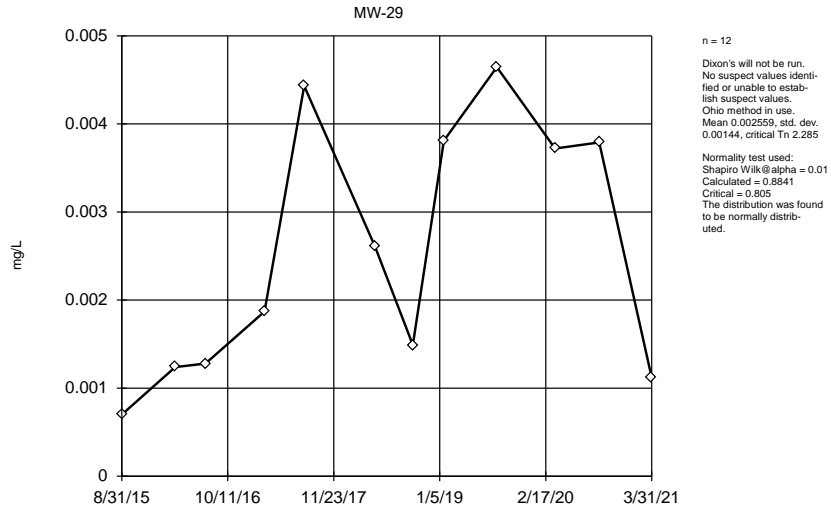
Constituent: Cadmium Analysis Run 3/10/2023 10:20 AM View: 2023SSN - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Ohio EPA 0715 Outlier Algorithm



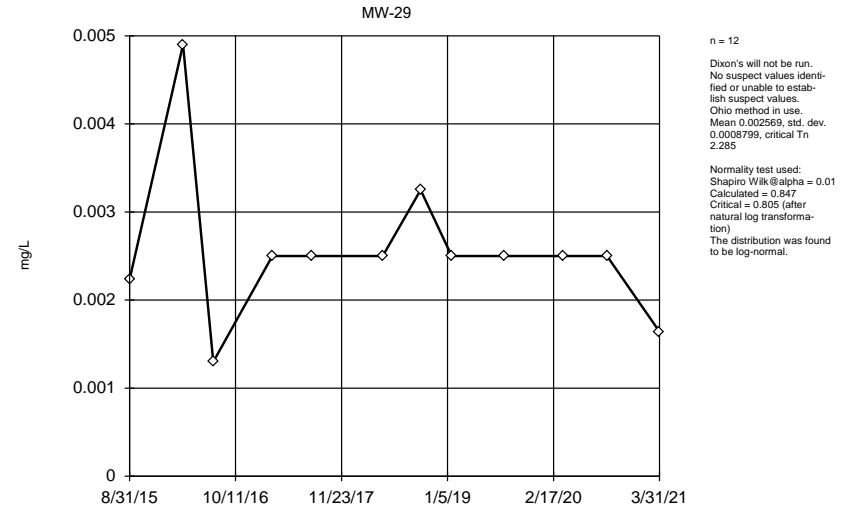
Constituent: Chromium Analysis Run 3/10/2023 10:20 AM View: 2023SSN - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

EPA Screening (suspected outliers for Dixon's Test)



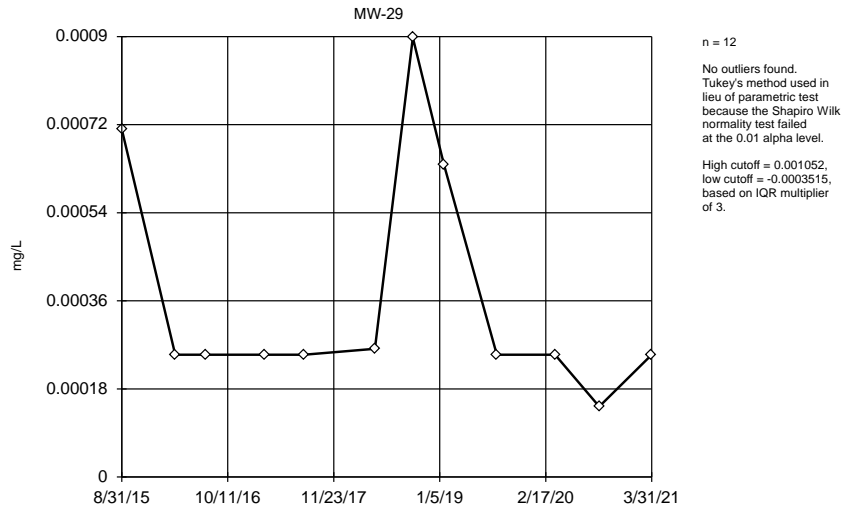
Constituent: Cobalt Analysis Run 3/10/2023 10:20 AM View: 2023SSN - Outliers MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

EPA Screening (suspected outliers for Dixon's Test)



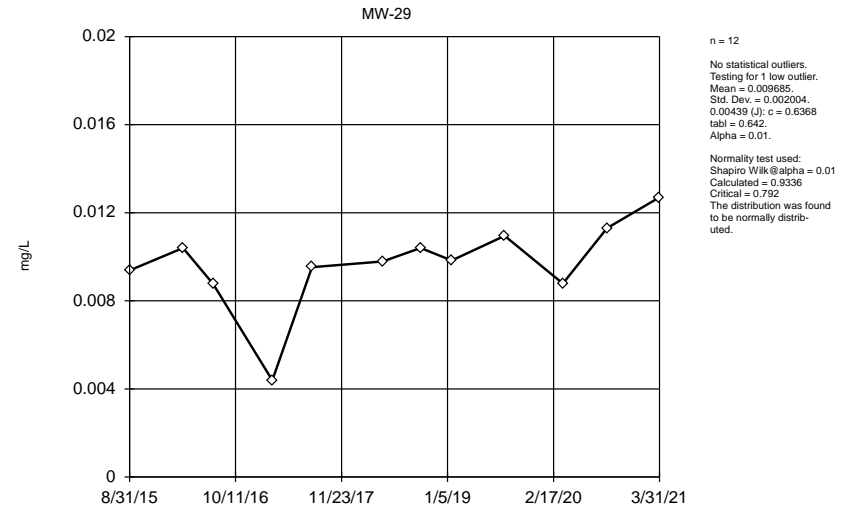
Constituent: Copper Analysis Run 3/10/2023 10:20 AM View: 2023SSN - Outliers MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



Constituent: Lead Analysis Run 3/10/2023 10:20 AM View: 2023SSN - Outliers MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm

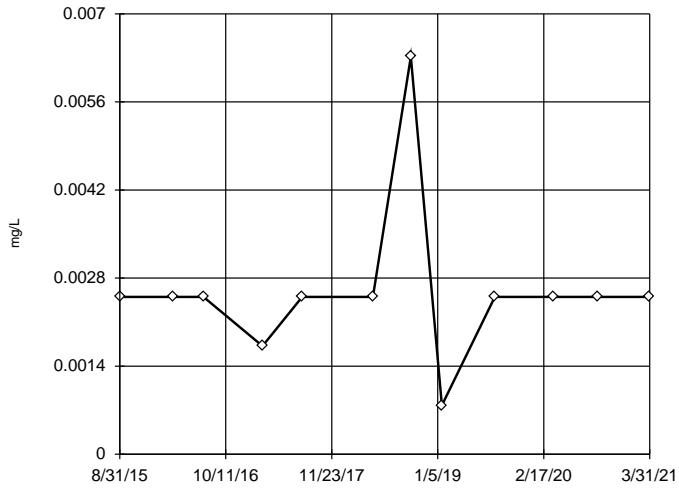


Constituent: Nickel Analysis Run 3/10/2023 10:20 AM View: 2023SSN - Outliers MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



### Ohio EPA 0715 Outlier Algorithm

MW-29

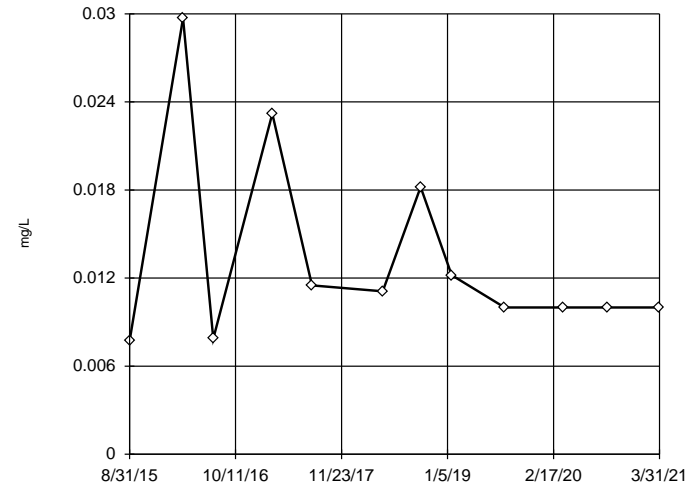


n = 12  
No statistical outliers.  
Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.9336  
Critical = 0.792  
The distribution was found to be normally distributed.

Constituent: Vanadium Analysis Run 3/10/2023 10:20 AM View: 2023SSN - Outliers MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### EPA Screening (suspected outliers for Dixon's Test)

MW-29



n = 12  
Dixon's will not be run.  
No suspect values identified or unable to establish suspect values.  
Ohio method in use.  
Mean 0.01346, std. dev. 0.00677, critical Tn 2.285  
Normality test used:  
Shapiro Wilk@alpha = 0.01  
Calculated = 0.8532  
Critical = 0.805 (after natural log transformation)  
The distribution was found to be log-normal.

Constituent: Zinc Analysis Run 3/10/2023 10:20 AM View: 2023SSN - Outliers MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



## **Intrawell Prediction Limit Summary Tables and Graphs**



# Prediction Limit

Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 3/10/2023, 10:27 AM

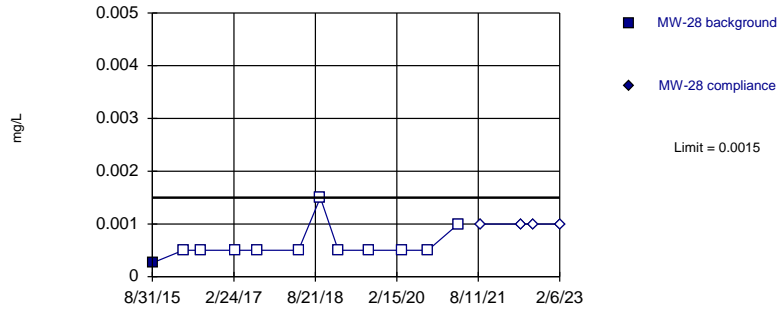
<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	MW-28	0.0015	n/a	2/6/2023	0.001ND	No	12	91.67	n/a	0.002173	NP Intra (NDs) 1 of 3
Arsenic (mg/L)	MW-28	0.00129	n/a	2/6/2023	0.001ND	No	12	75	n/a	0.002173	NP Intra (NDs) 1 of 3
Barium (mg/L)	MW-28	0.02206	n/a	2/6/2023	0.0211	No	12	0	No	0.001013	Param Intra 1 of 3
Beryllium (mg/L)	MW-28	0.0005	n/a	2/6/2023	0.0005ND	No	12	91.67	n/a	0.002173	NP Intra (NDs) 1 of 3
Cadmium (mg/L)	MW-28	0.001612	n/a	2/6/2023	0.00005ND	No	12	16.67	sqrt(x)	0.001013	Param Intra 1 of 3
Chromium (mg/L)	MW-28	0.00643	n/a	2/6/2023	0.0025ND	No	13	76.92	n/a	0.001886	NP Intra (NDs) 1 of 3
Cobalt (mg/L)	MW-28	0.02296	n/a	2/6/2023	0.0185	No	12	0	No	0.001013	Param Intra 1 of 3
Copper (mg/L)	MW-28	0.005014	n/a	2/6/2023	0.0025ND	No	12	33.33	No	0.001013	Param Intra 1 of 3
Lead (mg/L)	MW-28	0.000327	n/a	2/6/2023	0.00025ND	No	12	91.67	n/a	0.002173	NP Intra (NDs) 1 of 3
Nickel (mg/L)	MW-28	0.06683	n/a	2/6/2023	0.0419	No	12	0	No	0.001013	Param Intra 1 of 3
Thallium (mg/L)	MW-28	0.001	n/a	2/6/2023	0.0005ND	No	12	58.33	n/a	0.002173	NP Intra (NDs) 1 of 3
Vanadium (mg/L)	MW-28	0.003088	n/a	2/6/2023	0.0025ND	No	12	41.67	No	0.001013	Param Intra 1 of 3
Zinc (mg/L)	MW-28	0.0234	n/a	2/6/2023	0.01ND	No	12	66.67	n/a	0.002173	NP Intra (NDs) 1 of 3



Within Limit

Prediction Limit

Intrawell Non-parametric



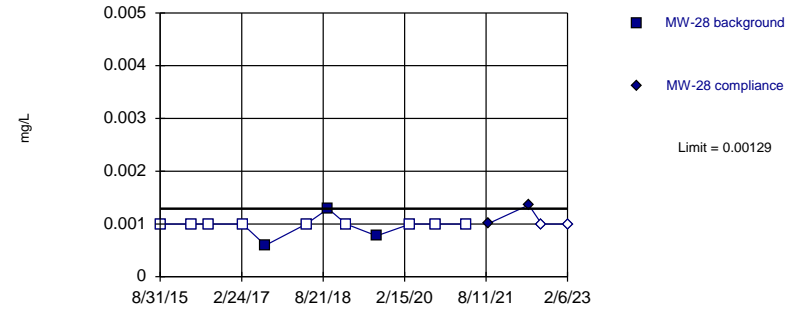
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Antimony Analysis Run 3/10/2023 10:26 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit

Intrawell Non-parametric



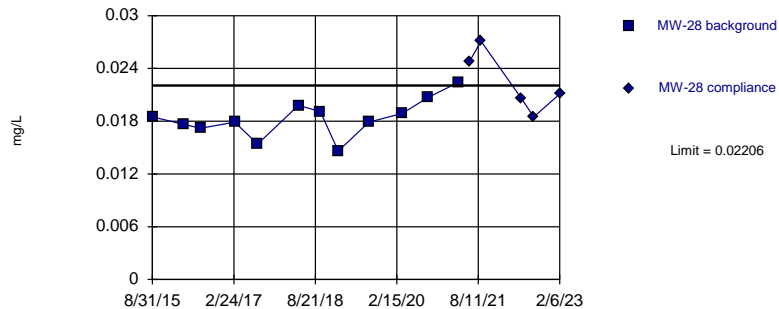
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Arsenic Analysis Run 3/10/2023 10:26 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit

Intrawell Parametric



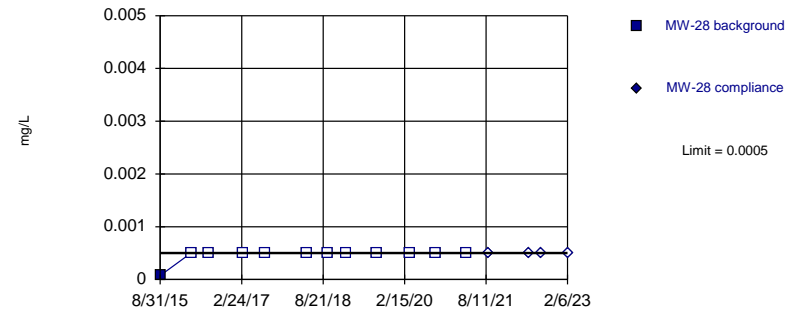
Background Data Summary: Mean=0.01834, Std. Dev.=0.00213, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9774, critical = 0.805. Kappa = 1.746 (c=13, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001013.

Constituent: Barium Analysis Run 3/10/2023 10:26 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit

Intrawell Non-parametric

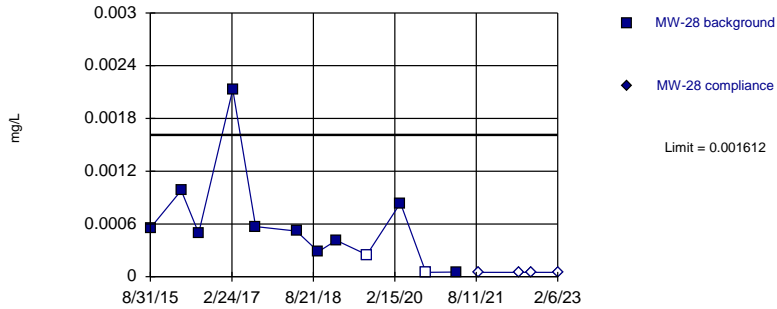


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Beryllium Analysis Run 3/10/2023 10:26 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric

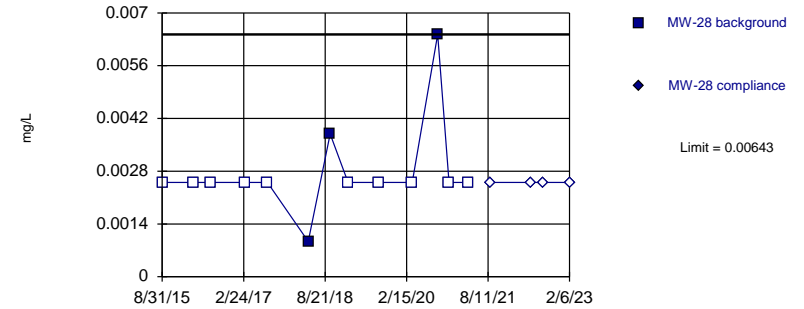


Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.02212, Std. Dev.=0.01033, n=12, 16.67% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9329, critical = 0.805. Kappa = 1.746 (c=13, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001013.

Constituent: Cadmium Analysis Run 3/10/2023 10:26 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

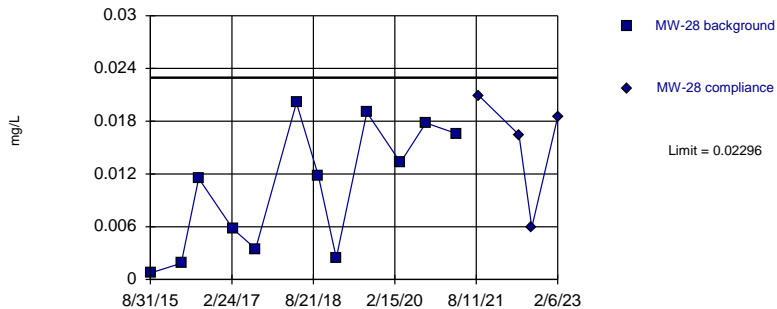


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 76.92% NDs. Well-constituent pair annual alpha = 0.003769. Individual comparison alpha = 0.001886 (1 of 3).

Constituent: Chromium Analysis Run 3/10/2023 10:26 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric

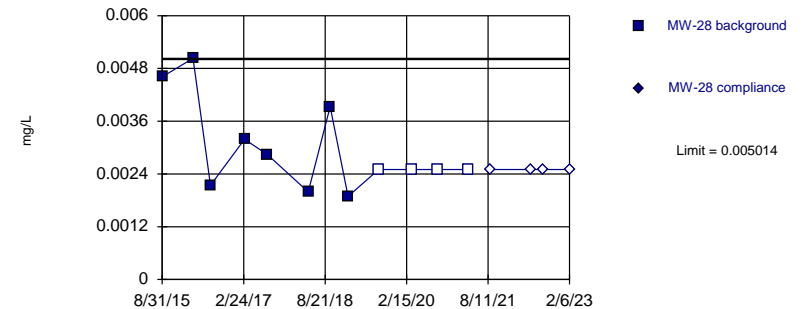


Background Data Summary: Mean=0.01036, Std. Dev.=0.007212, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9004, critical = 0.805. Kappa = 1.746 (c=13, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001013.

Constituent: Cobalt Analysis Run 3/10/2023 10:26 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.003115, Std. Dev.=0.001087, n=12, 33.33% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8546, critical = 0.805. Kappa = 1.746 (c=13, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001013.

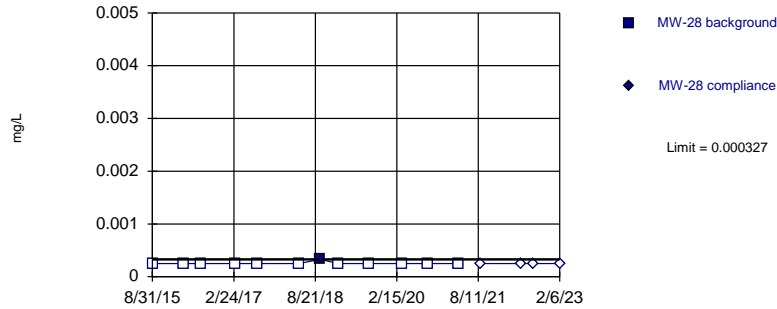
Constituent: Copper Analysis Run 3/10/2023 10:26 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



Within Limit

Prediction Limit

Intrawell Non-parametric



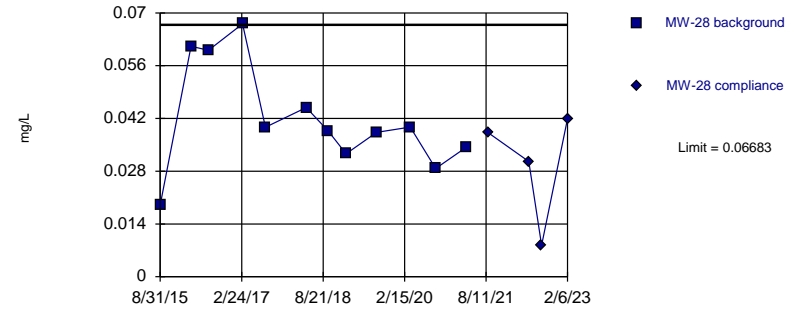
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Lead Analysis Run 3/10/2023 10:26 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit

Intrawell Parametric



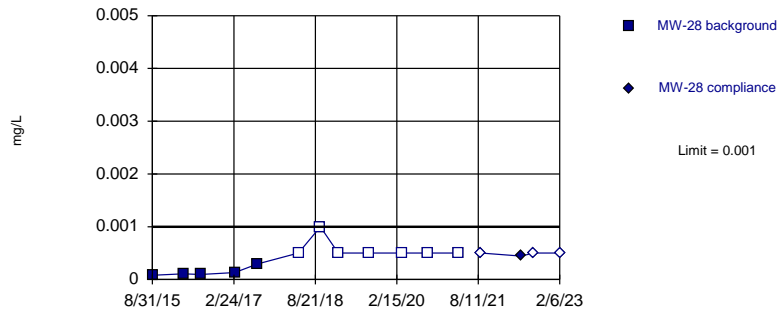
Background Data Summary: Mean=0.04202, Std. Dev.=0.01421, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9285, critical = 0.805. Kappa = 1.746 (c=13, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001013.

Constituent: Nickel Analysis Run 3/10/2023 10:27 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit

Intrawell Non-parametric



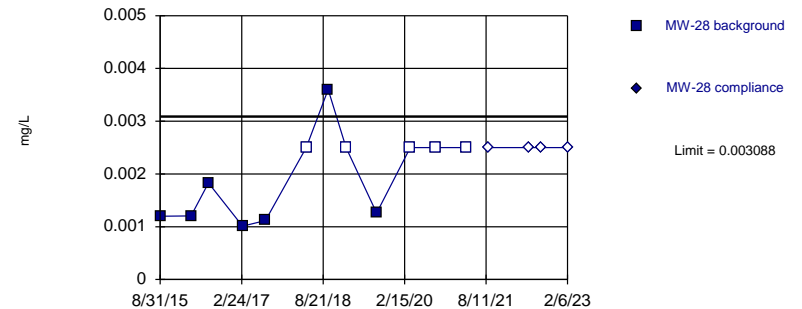
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 58.33% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Thallium Analysis Run 3/10/2023 10:27 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit

Intrawell Parametric



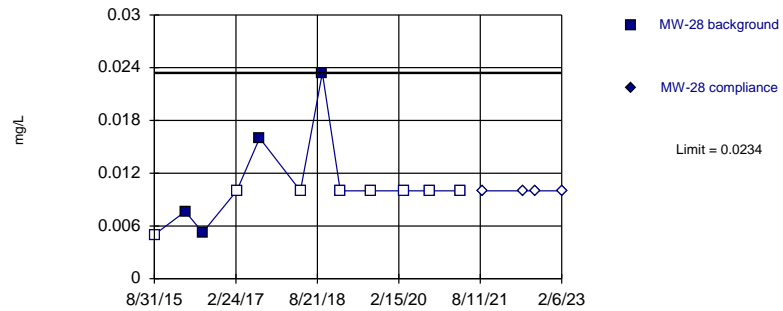
Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.001603, Std. Dev.=0.0008506, n=12, 41.67% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8588, critical = 0.805. Kappa = 1.746 (c=13, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001013.

Constituent: Vanadium Analysis Run 3/10/2023 10:27 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

### Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Zinc Analysis Run 3/10/2023 10:27 AM View: 2023SSN - Prediction Limit MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

# Prediction Limit

Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 3/10/2023, 10:28 AM

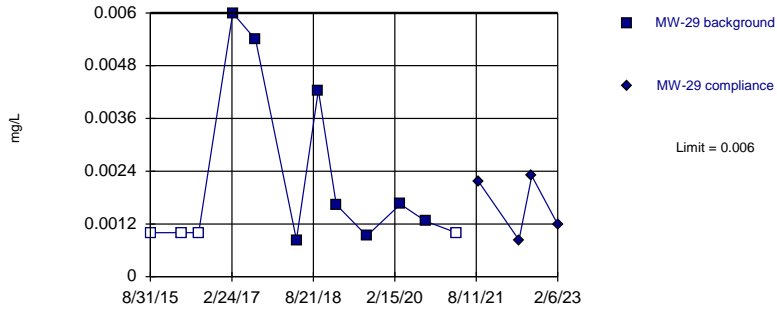
<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MW-29	0.006	n/a	2/6/2023	0.00119J	No	12	33.33	n/a	0.002173	NP Intra (normality) ...
Barium (mg/L)	MW-29	0.01849	n/a	2/6/2023	0.0158	No	12	0	No	0.001316	Param Intra 1 of 3
Cadmium (mg/L)	MW-29	0.00025	n/a	2/6/2023	0.00005ND	No	12	75	n/a	0.002173	NP Intra (NDs) 1 of 3
Chromium (mg/L)	MW-29	0.00341	n/a	2/6/2023	0.0025ND	No	12	91.67	n/a	0.002173	NP Intra (NDs) 1 of 3
Cobalt (mg/L)	MW-29	0.004978	n/a	2/6/2023	0.00295	No	12	0	No	0.001316	Param Intra 1 of 3
Copper (mg/L)	MW-29	0.0049	n/a	2/6/2023	0.0025ND	No	12	58.33	n/a	0.002173	NP Intra (NDs) 1 of 3
Lead (mg/L)	MW-29	0.000898	n/a	2/6/2023	0.00025ND	No	12	58.33	n/a	0.002173	NP Intra (NDs) 1 of 3
Nickel (mg/L)	MW-29	0.01305	n/a	2/6/2023	0.0116	No	12	0	No	0.001316	Param Intra 1 of 3
Vanadium (mg/L)	MW-29	0.00632	n/a	2/6/2023	0.0025ND	No	12	75	n/a	0.002173	NP Intra (NDs) 1 of 3
Zinc (mg/L)	MW-29	0.02515	n/a	2/6/2023	0.01ND	No	12	33.33	sqrt(x)	0.001316	Param Intra 1 of 3



Within Limit

### Prediction Limit

Intrawell Non-parametric



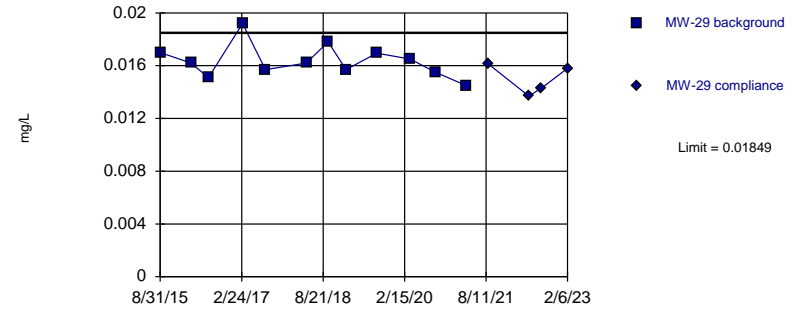
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 12 background values. 33.33% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Arsenic Analysis Run 3/10/2023 10:28 AM View: 2023SSN - Prediction Limit MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

### Prediction Limit

Intrawell Parametric



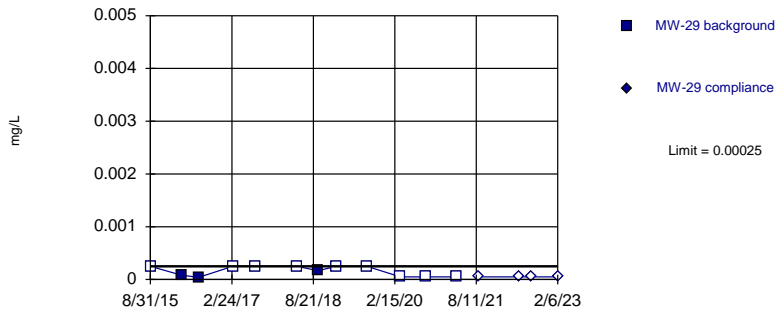
Background Data Summary: Mean=0.01636, Std. Dev.=0.001266, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9514, critical = 0.805. Kappa = 1.68 (c=10, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001316.

Constituent: Barium Analysis Run 3/10/2023 10:28 AM View: 2023SSN - Prediction Limit MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

### Prediction Limit

Intrawell Non-parametric



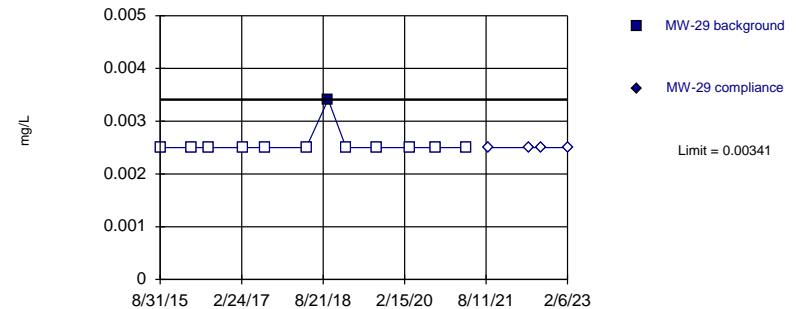
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Cadmium Analysis Run 3/10/2023 10:28 AM View: 2023SSN - Prediction Limit MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

### Prediction Limit

Intrawell Non-parametric

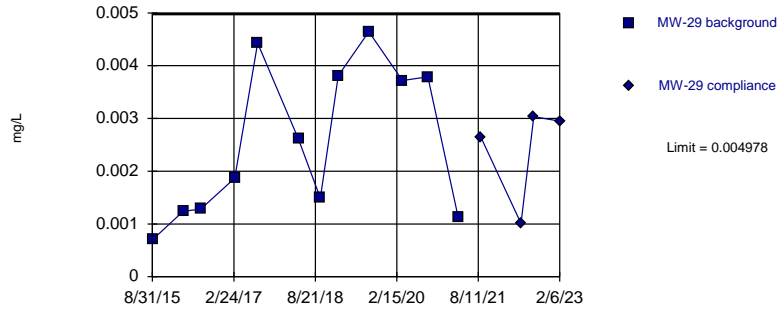


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Chromium Analysis Run 3/10/2023 10:28 AM View: 2023SSN - Prediction Limit MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric



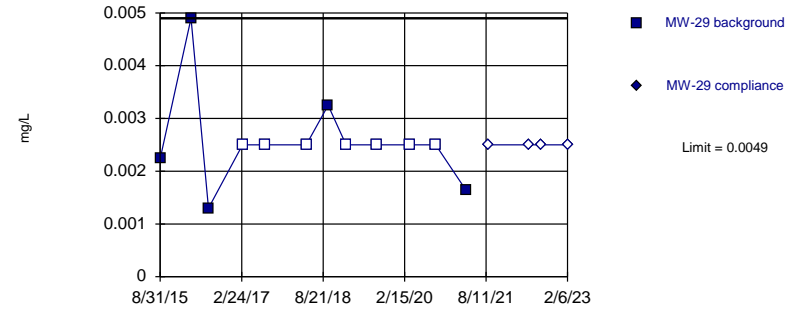
Background Data Summary: Mean=0.002559, Std. Dev.=0.00144, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8841, critical = 0.805. Kappa = 1.68 (c=10, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001316.

Constituent: Cobalt Analysis Run 3/10/2023 10:28 AM View: 2023SSN - Prediction Limit MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Hollow symbols indicate censored values.

Within Limit

Prediction Limit  
Intrawell Non-parametric



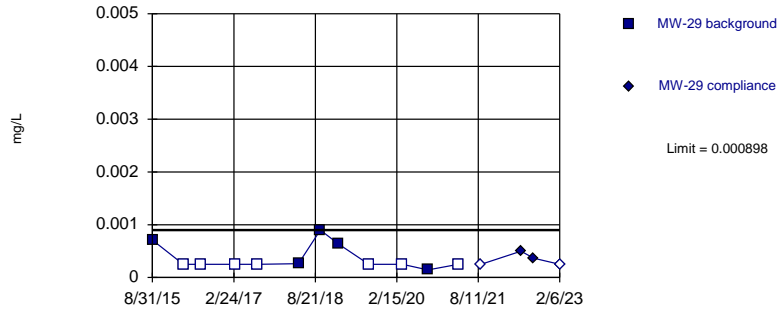
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 58.33% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Copper Analysis Run 3/10/2023 10:28 AM View: 2023SSN - Prediction Limit MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Hollow symbols indicate censored values.

Within Limit

Prediction Limit  
Intrawell Non-parametric

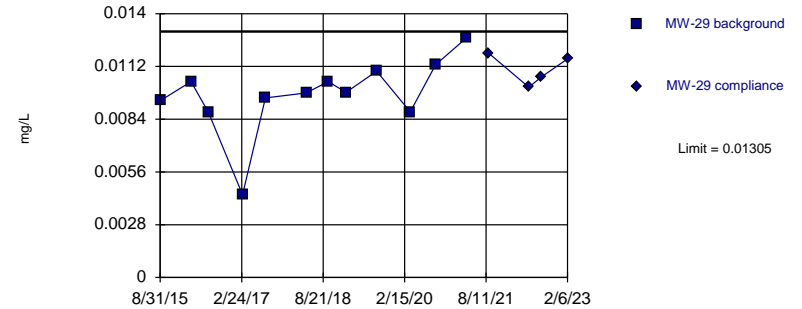


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 58.33% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Lead Analysis Run 3/10/2023 10:28 AM View: 2023SSN - Prediction Limit MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric



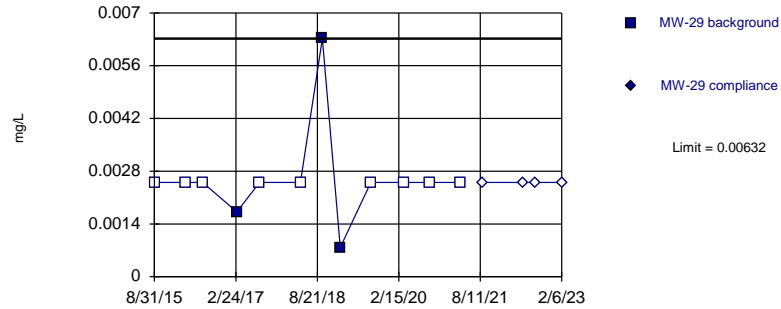
Background Data Summary: Mean=0.009685, Std. Dev.=0.002004, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8549, critical = 0.805. Kappa = 1.68 (c=10, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001316.

Constituent: Nickel Analysis Run 3/10/2023 10:28 AM View: 2023SSN - Prediction Limit MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

### Prediction Limit

Intrawell Non-parametric



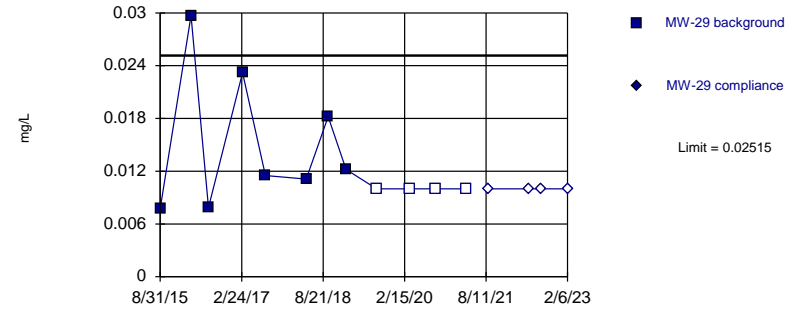
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3).

Constituent: Vanadium Analysis Run 3/10/2023 10:28 AM View: 2023SSN - Prediction Limit MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

### Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.1152, Std. Dev.=0.02583, n=12, 33.33% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8083, critical = 0.805. Kappa = 1.68 (c=10, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001316.

Constituent: Zinc Analysis Run 3/10/2023 10:28 AM View: 2023SSN - Prediction Limit MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master





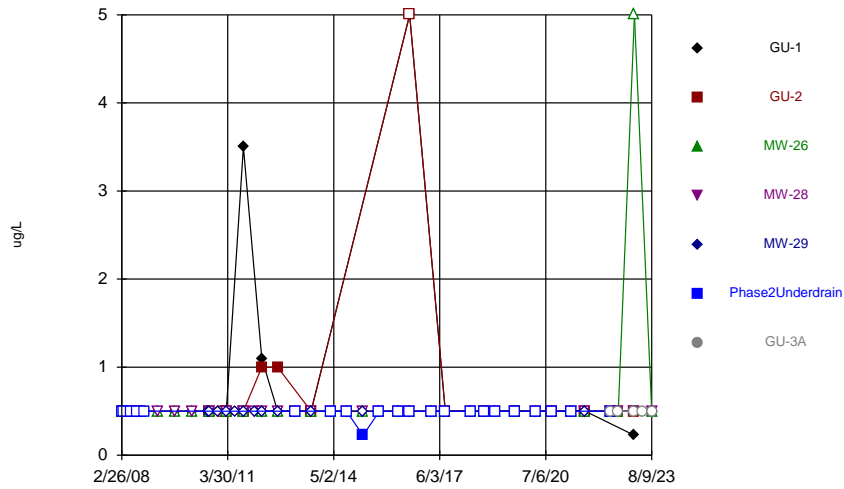
**Attachment B**  
**2<sup>nd</sup> 2023 Statistical Evaluation Output**



## Time Series Plots

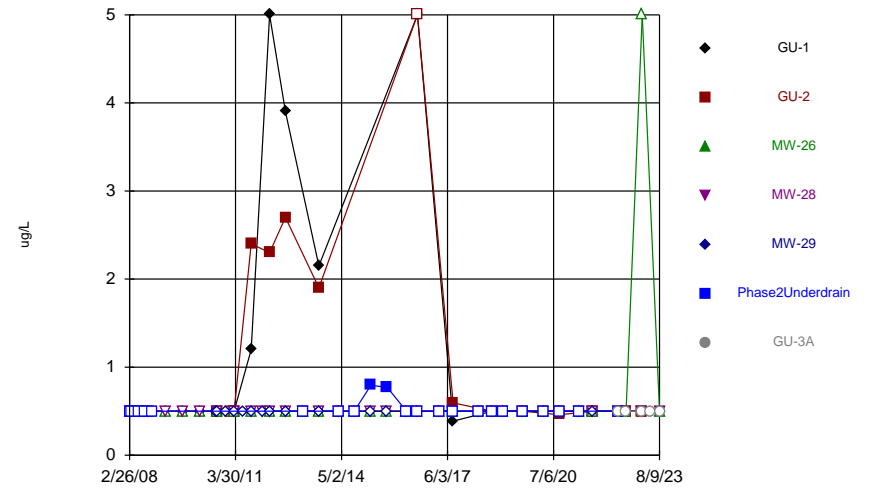


Time Series



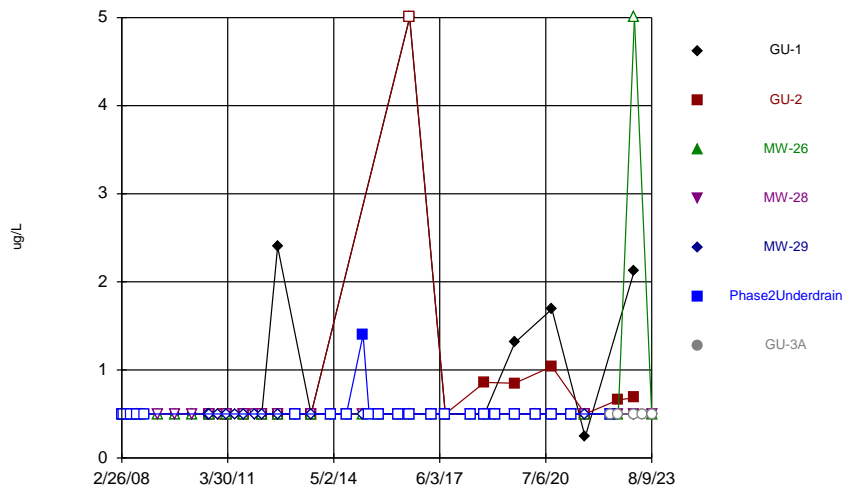
Constituent: 1,1-Dichloroethane Analysis Run 9/12/2023 2:09 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



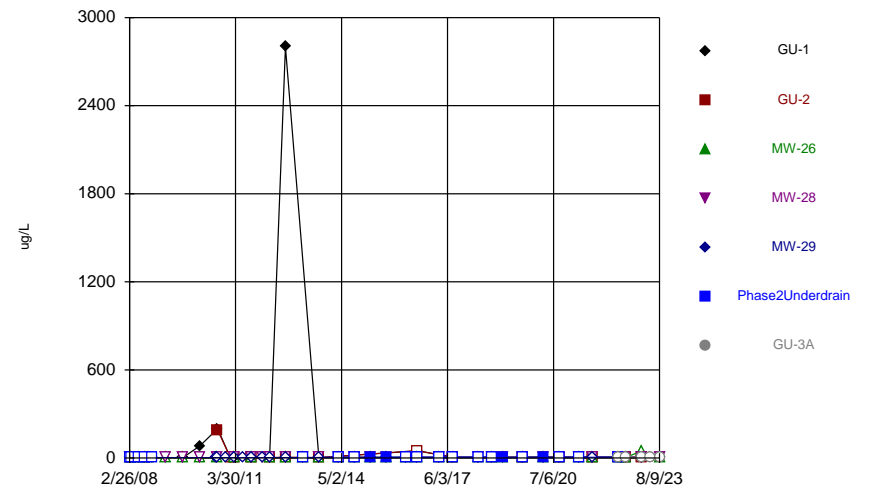
Constituent: 1,2-Dichloroethane Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



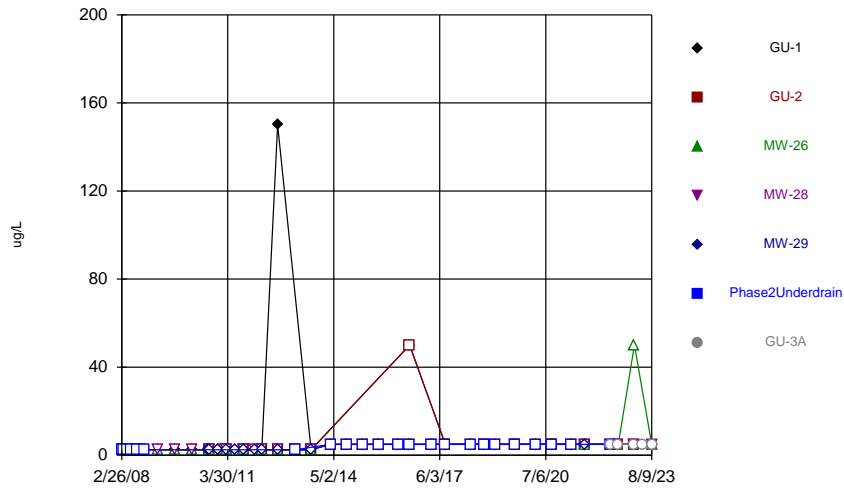
Constituent: 1,4-Dichlorobenzene Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



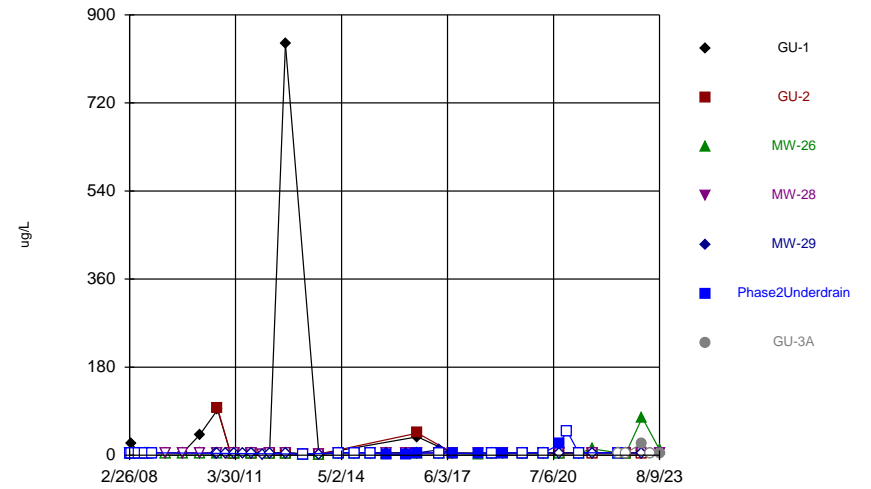
Constituent: 2-Butanone Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



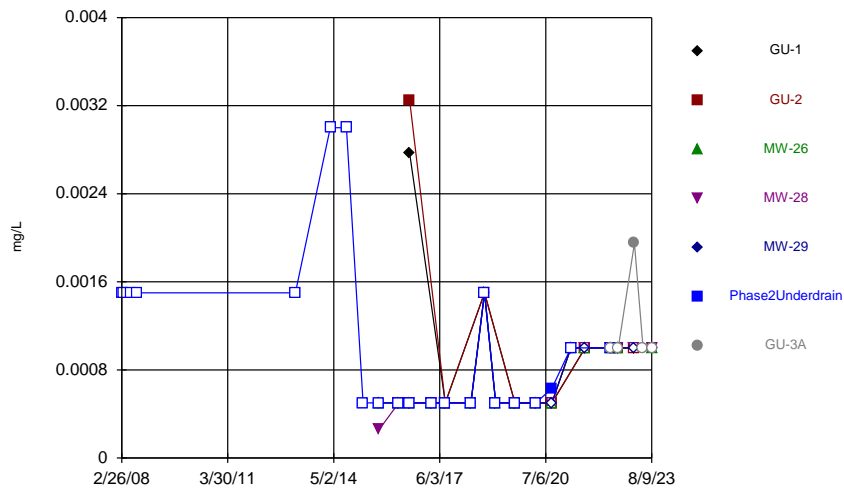
Constituent: 4-Methyl-2-pentanone Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



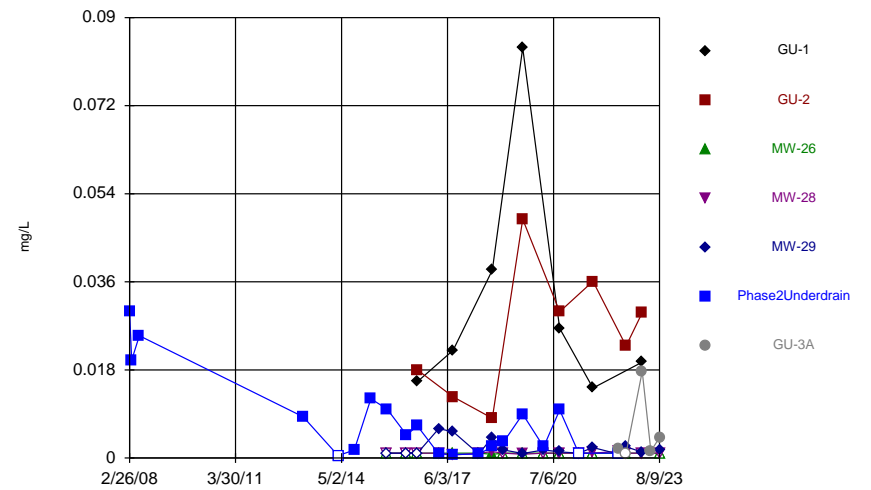
Constituent: Acetone Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



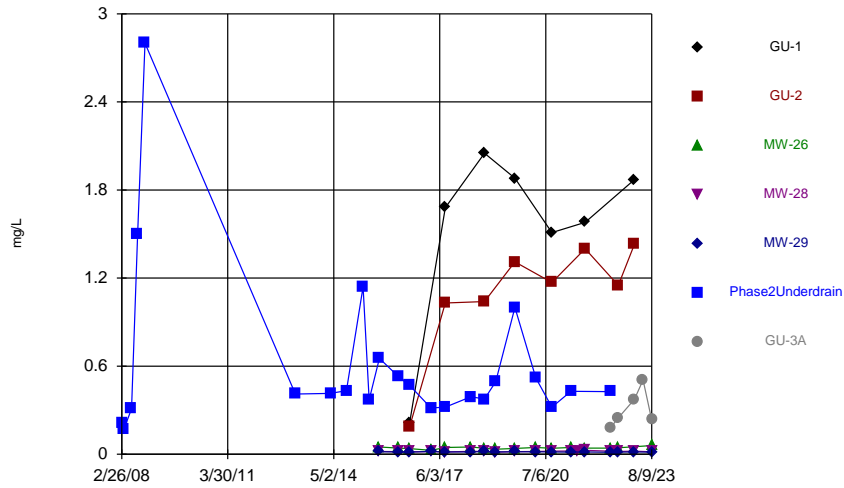
Constituent: Antimony Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



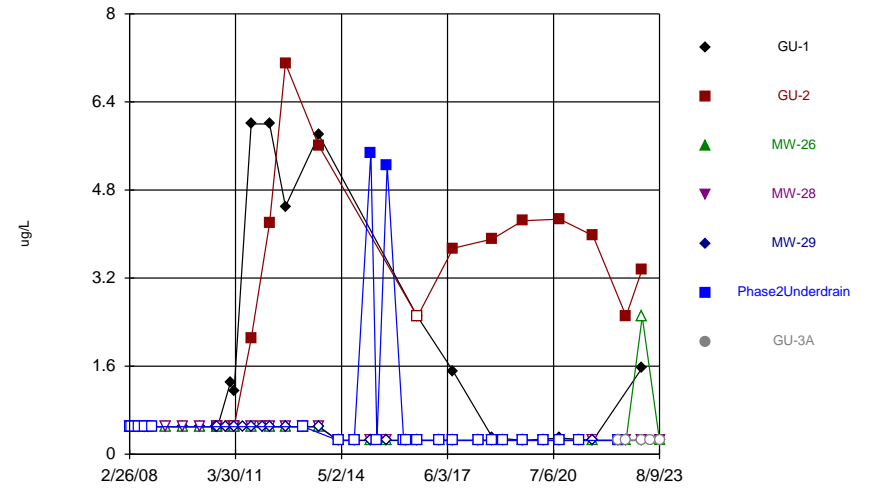
Constituent: Arsenic Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



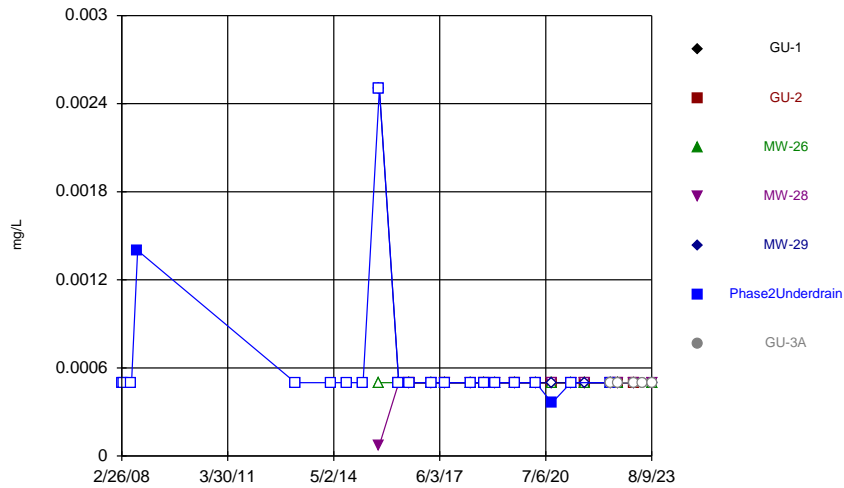
Constituent: Barium Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



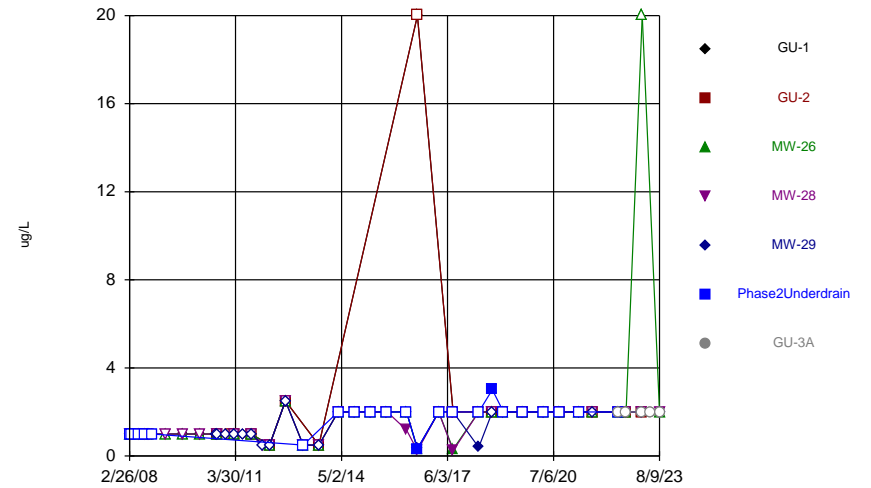
Constituent: Benzene Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



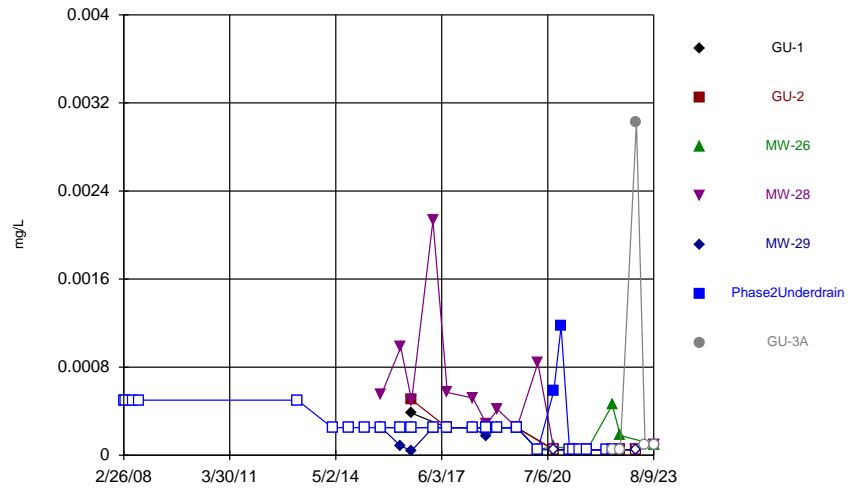
Constituent: Beryllium Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



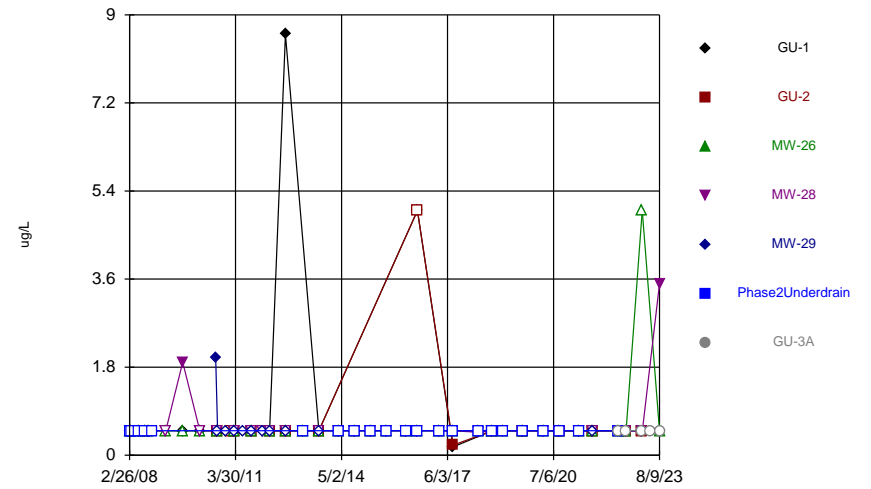
Constituent: Bromomethane Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



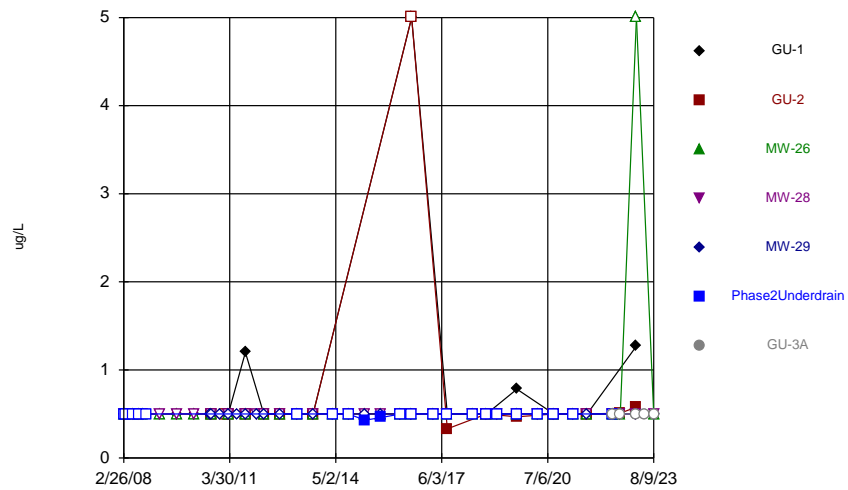
Constituent: Cadmium Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



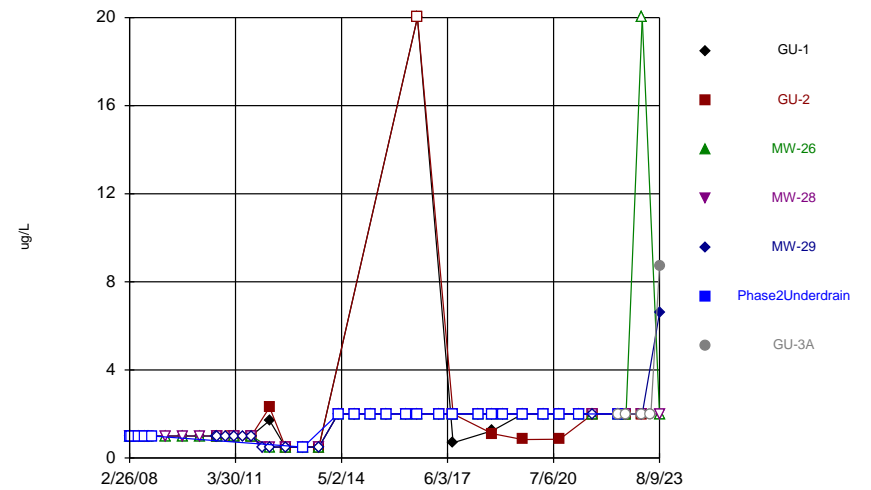
Constituent: Carbon disulfide Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



Constituent: Chlorobenzene Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

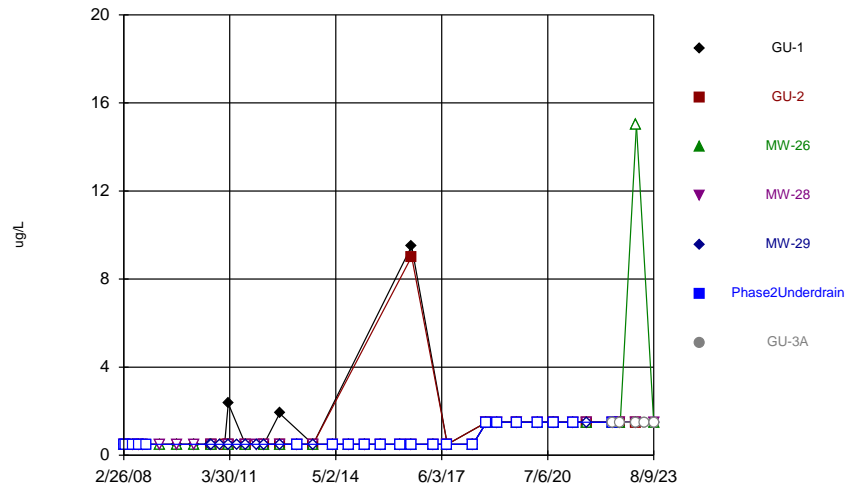
Time Series



Constituent: Chloroethane Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

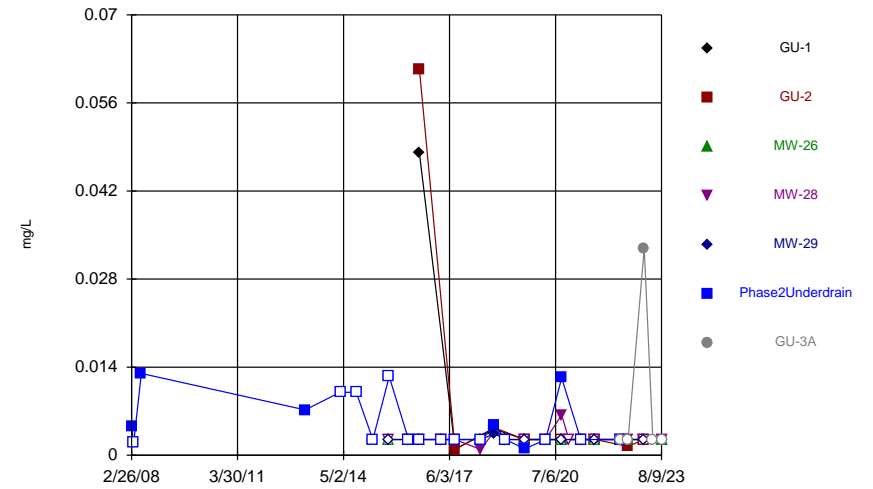


Time Series



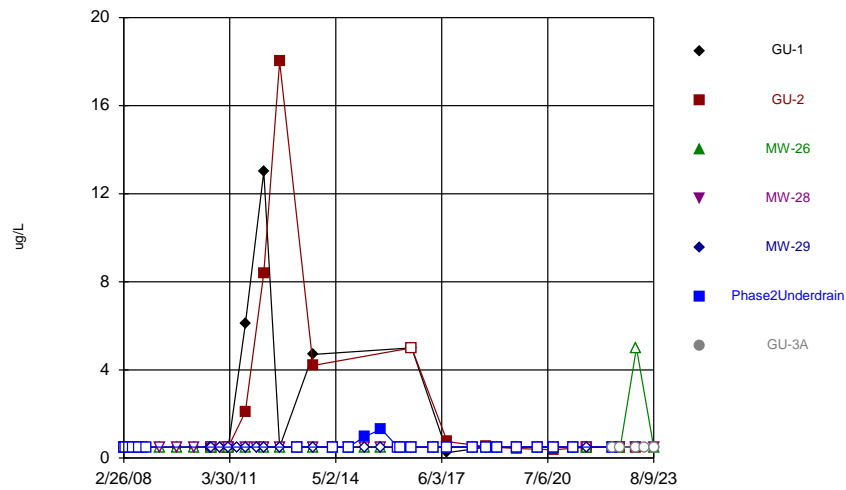
Constituent: Chloroform Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



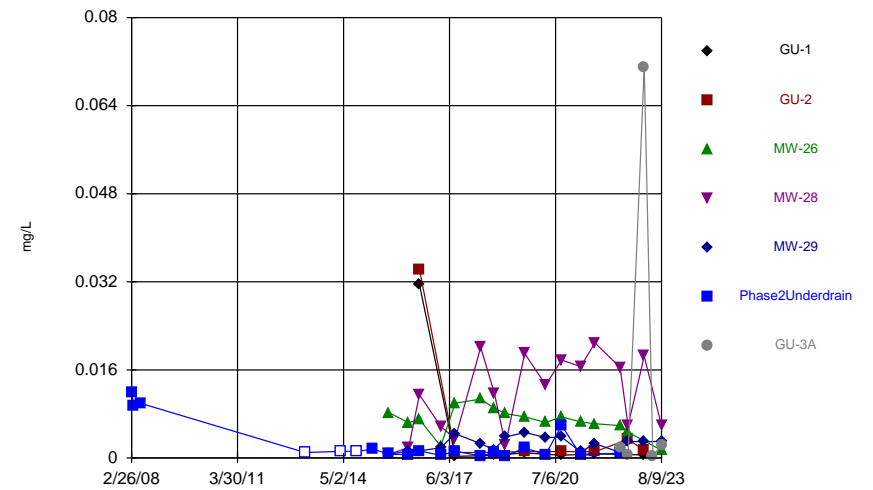
Constituent: Chromium Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



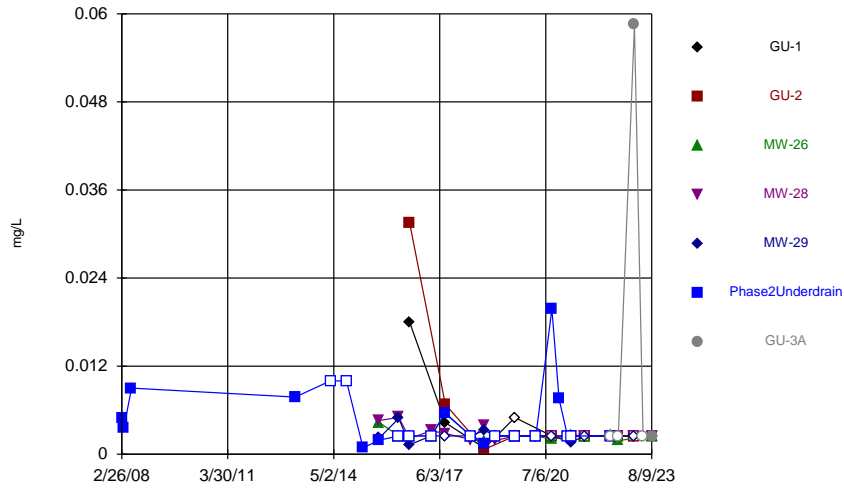
Constituent: cis-1,2-Dichloroethene Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



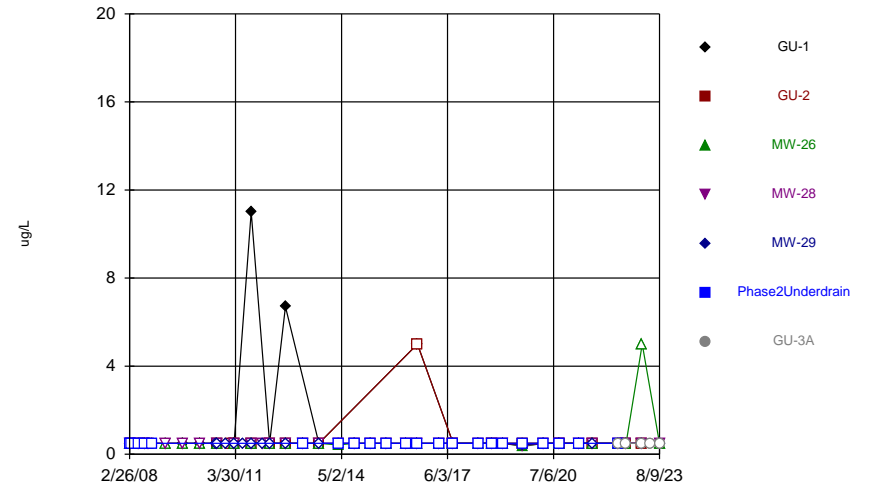
Constituent: Cobalt Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



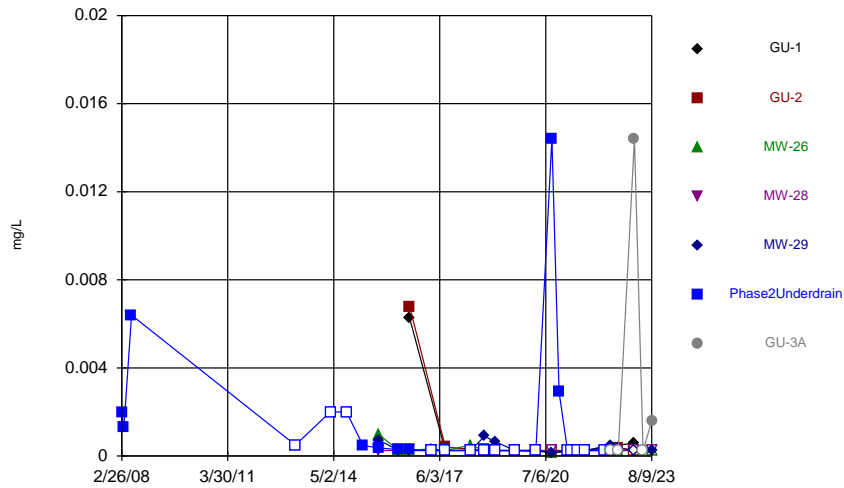
Constituent: Copper Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



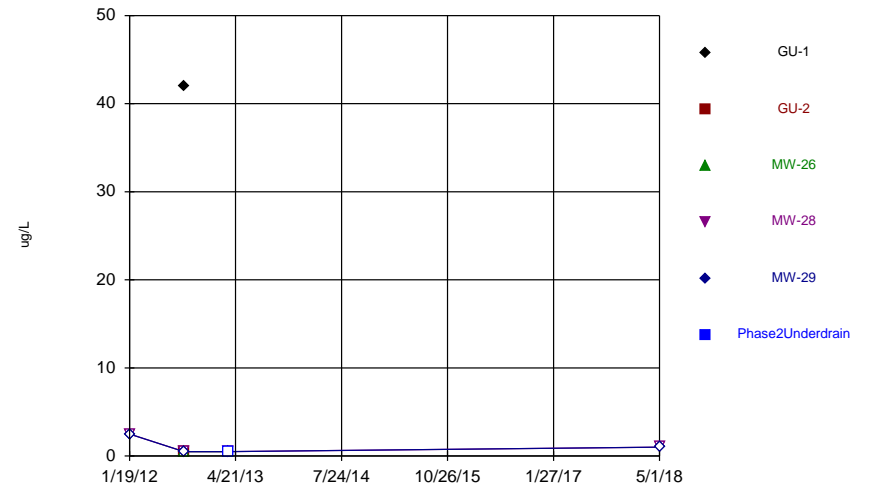
Constituent: Ethylbenzene Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



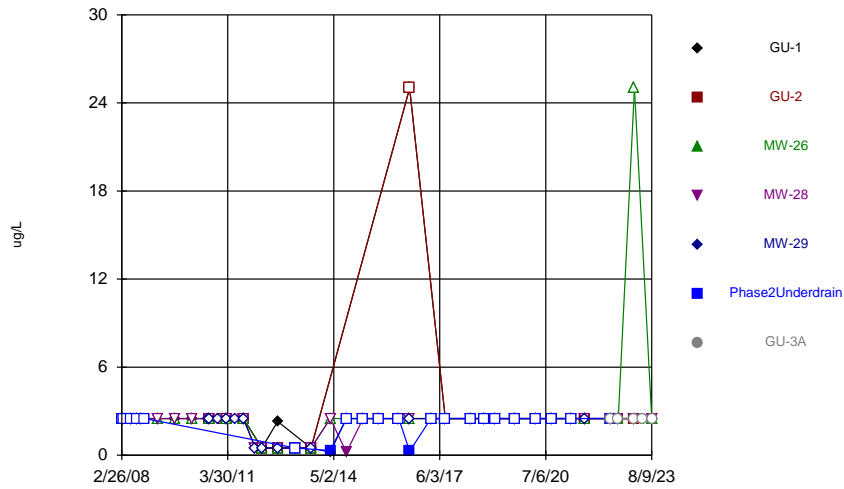
Constituent: Lead Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



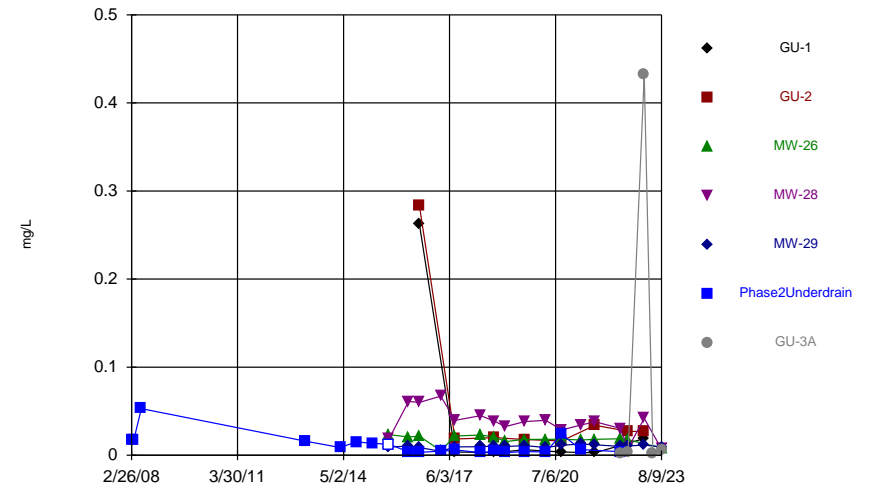
Constituent: M&P-Xylene Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



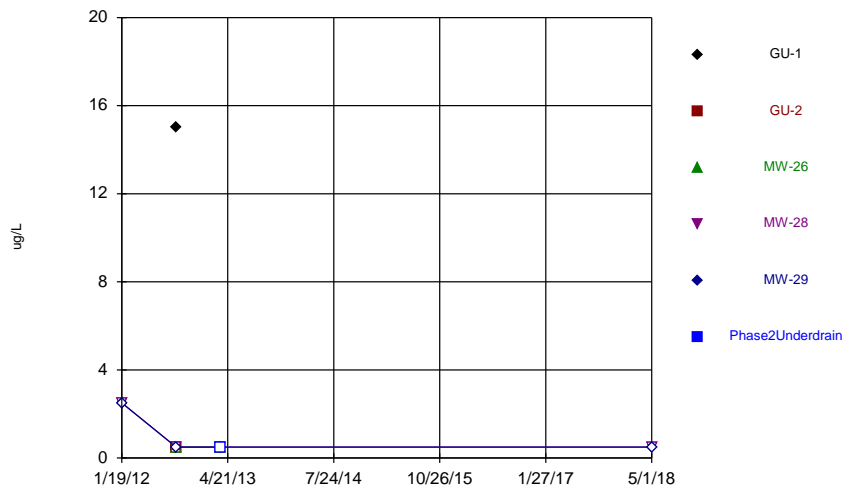
Constituent: Methylene Chloride Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



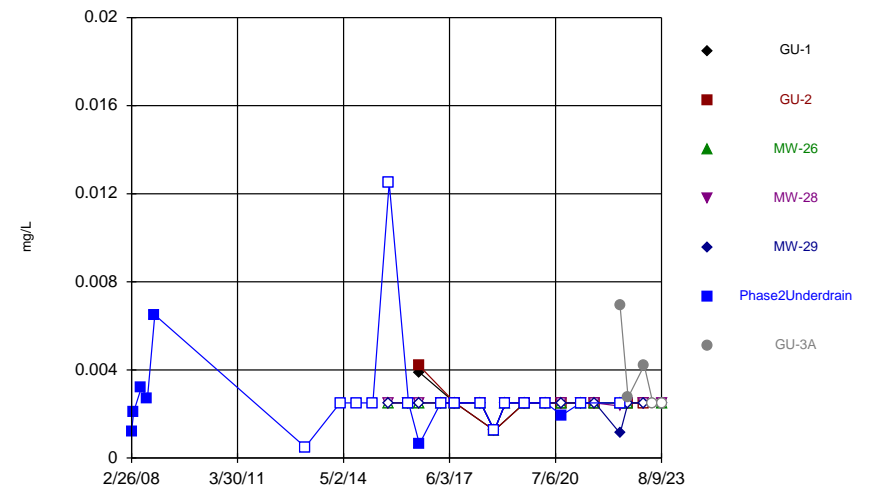
Constituent: Nickel Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



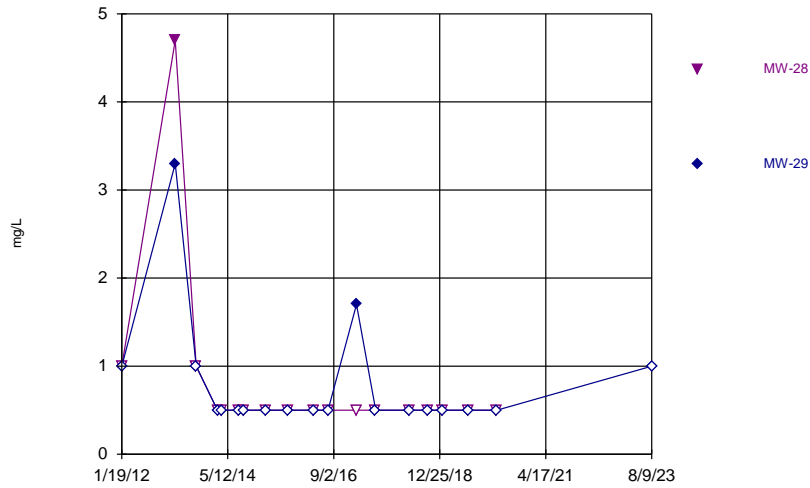
Constituent: O-Xylene Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



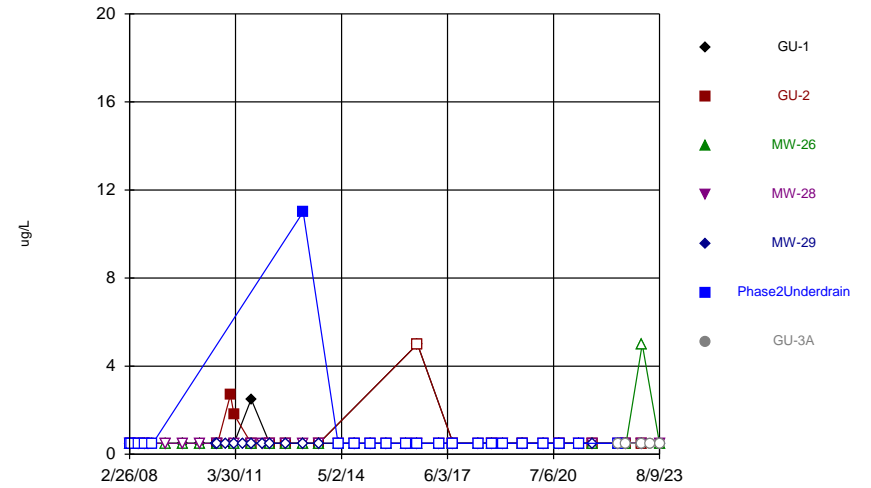
Constituent: Selenium Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



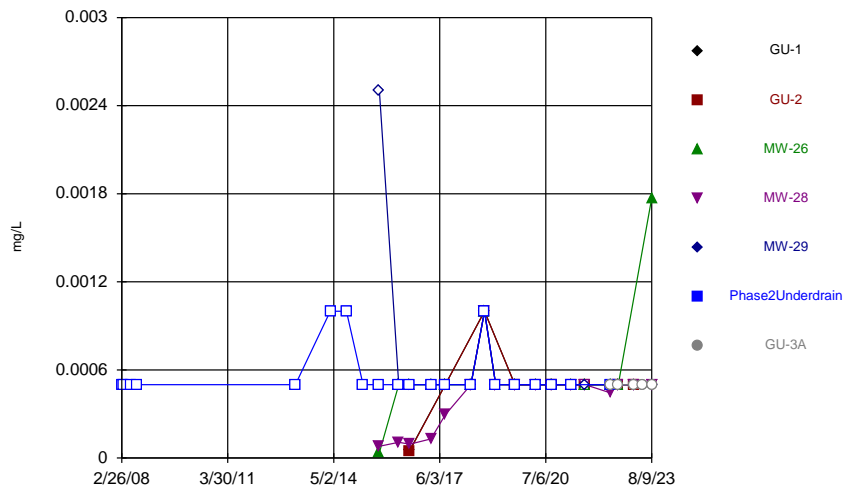
Constituent: Sulfide Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



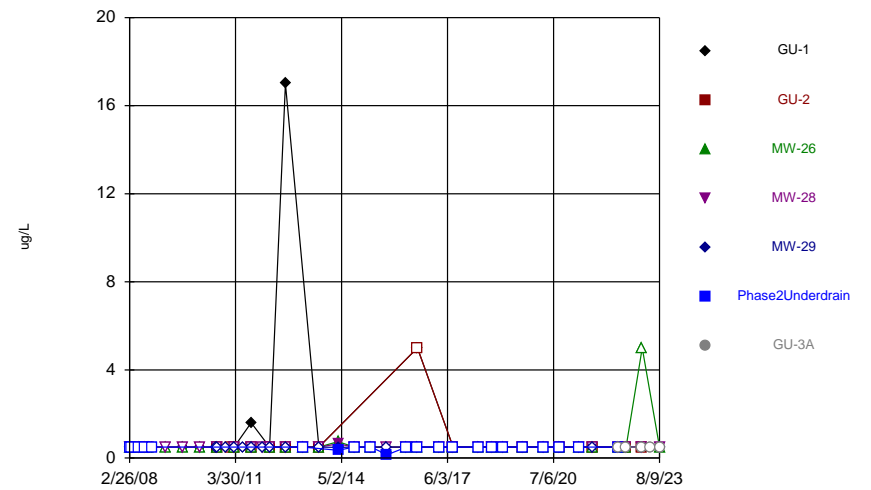
Constituent: Tetrachloroethene Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



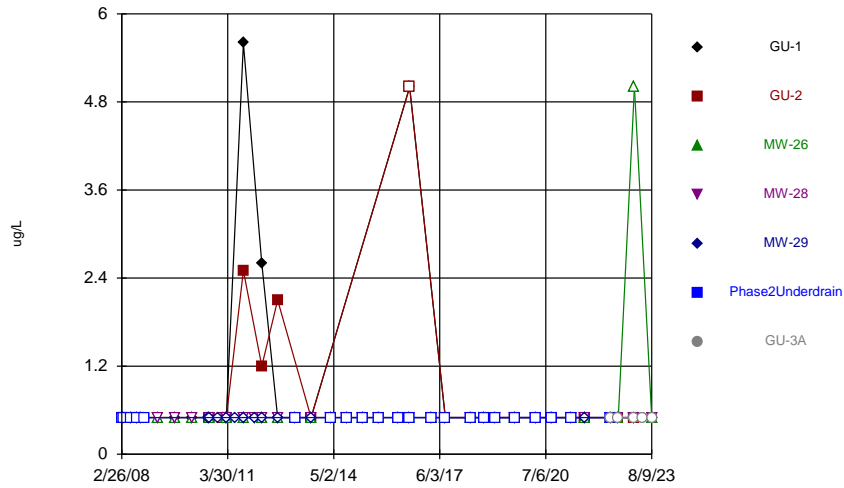
Constituent: Thallium Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



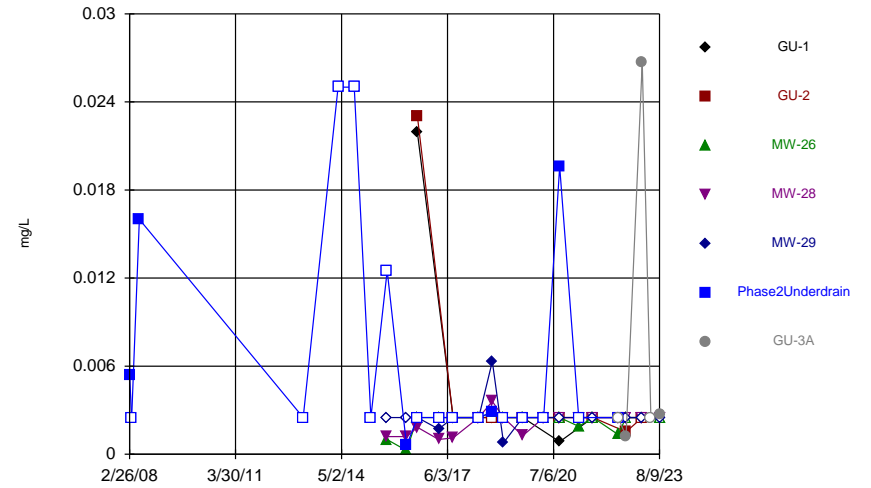
Constituent: Toluene Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



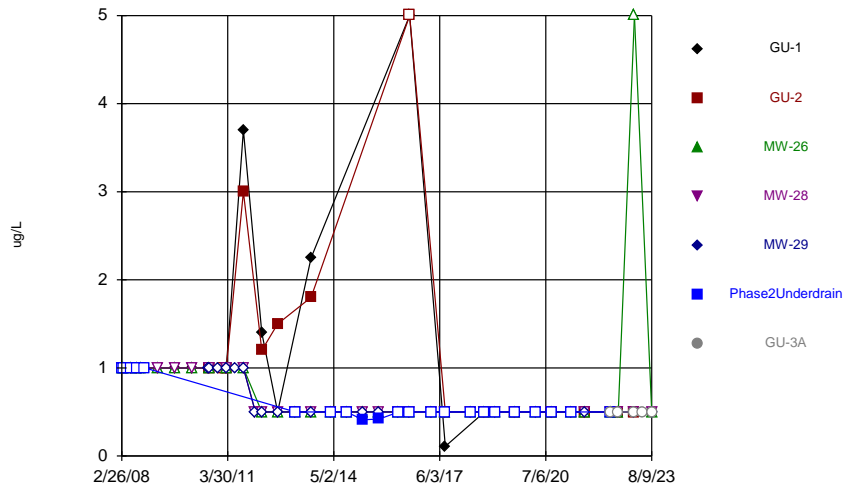
Constituent: Trichloroethene Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



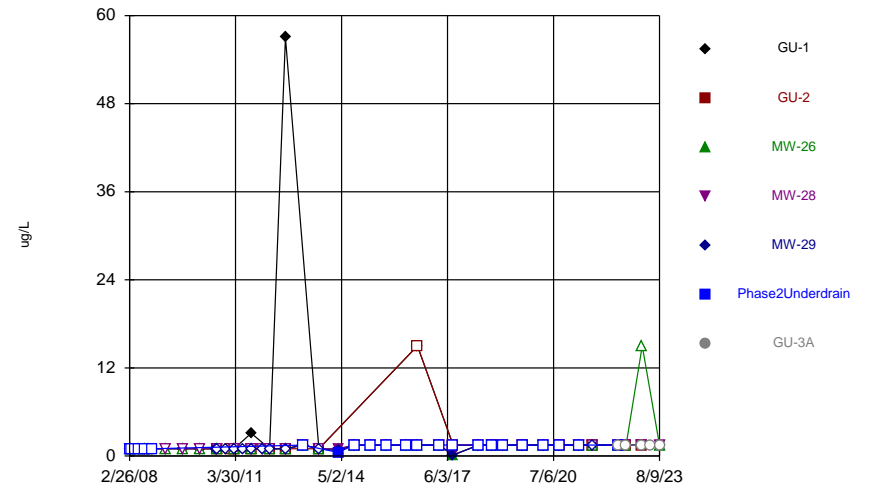
Constituent: Vanadium Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



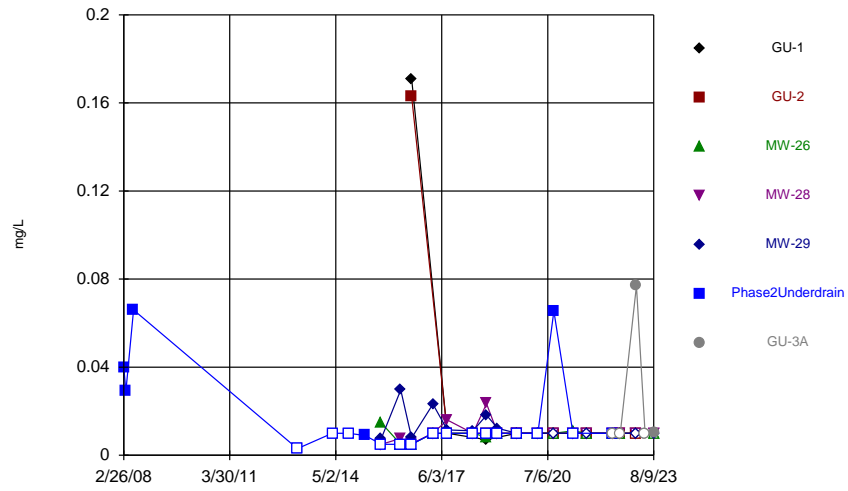
Constituent: Vinyl chloride Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Time Series



Constituent: Xylenes, total Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Time Series



Constituent: Zinc Analysis Run 9/12/2023 2:10 PM View: 2023AWQR - Time Series  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

## **Outlier Tests Summary Table and Graphs**





# Outlier Analysis

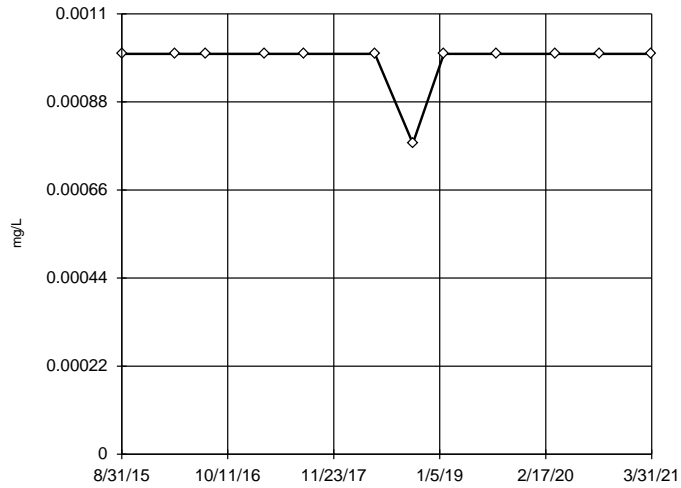
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 9/13/2023, 10:34 AM

<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>Normality Test</u>
Arsenic (mg/L)	MW-26	No	n/a	n/a	OH	NaN	12	0.0009813	0.00006466	n/a
Barium (mg/L)	MW-26	No	n/a	n/a	Dixon/OH	0.05	12	0.04171	0.006536	ShapiroWilk
Cadmium (mg/L)	MW-26	No	n/a	n/a	OH	NaN	12	0.0002028	0.00008577	n/a
Chromium (mg/L)	MW-26	No	n/a	n/a	OH	NaN	12	0.002651	0.0005225	n/a
<b>Cobalt (mg/L)</b>	<b>MW-26</b>	<b>Yes</b>	<b>0.00217</b>	<b>3/2/2017</b>	<b>Dixon/OH</b>	<b>0.05</b>	<b>12</b>	<b>0.007463</b>	<b>0.002157</b>	<b>ShapiroWilk</b>
<b>Copper (mg/L)</b>	<b>MW-26</b>	<b>Yes</b>	<b>0.00432,0.00565,0.00179,0.002025</b>	<b>8/31/2015,8/2/2017,9/24/2018,9/10/2020</b>	<b>NP (nrm)/OH</b>	<b>NaN</b>	<b>12</b>	<b>0.002827</b>	<b>0.001074</b>	<b>ShapiroWilk</b>
<b>Lead (mg/L)</b>	<b>MW-26</b>	<b>Yes</b>	<b>0.000952,0.000496,0.00015</b>	<b>8/31/2015,5/1/2018,9/10/2020</b>	<b>NP (nrm)/OH</b>	<b>NaN</b>	<b>12</b>	<b>0.000326</b>	<b>0.0002133</b>	<b>ShapiroWilk</b>
<b>Nickel (mg/L)</b>	<b>MW-26</b>	<b>Yes</b>	<b>0.005175</b>	<b>3/2/2017</b>	<b>Dixon/OH</b>	<b>0.05</b>	<b>12</b>	<b>0.01866</b>	<b>0.004881</b>	<b>ShapiroWilk</b>
<b>Thallium (mg/L)</b>	<b>MW-26</b>	<b>Yes</b>	<b>0.001</b>	<b>9/24/2018</b>	<b>OH</b>	<b>NaN</b>	<b>12</b>	<b>0.0005031</b>	<b>0.0002054</b>	<b>n/a</b>
Vanadium (mg/L)	MW-26	No	n/a	n/a	NP (nrm)/OH	NaN	12	0.002168	0.0007665	ShapiroWilk
Zinc (mg/L)	MW-26	No	n/a	n/a	OH	NaN	12	0.009491	0.002563	n/a



Ohio EPA 0715 Outlier Algorithm

MW-26

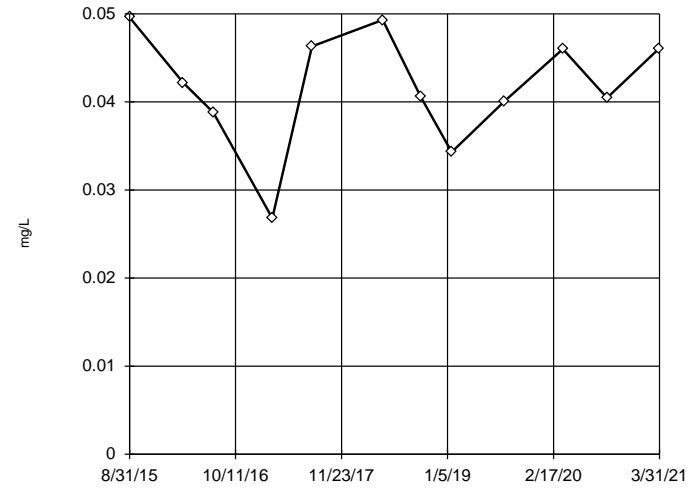


n = 12  
No statistical outliers.

Constituent: Arsenic Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm

MW-26

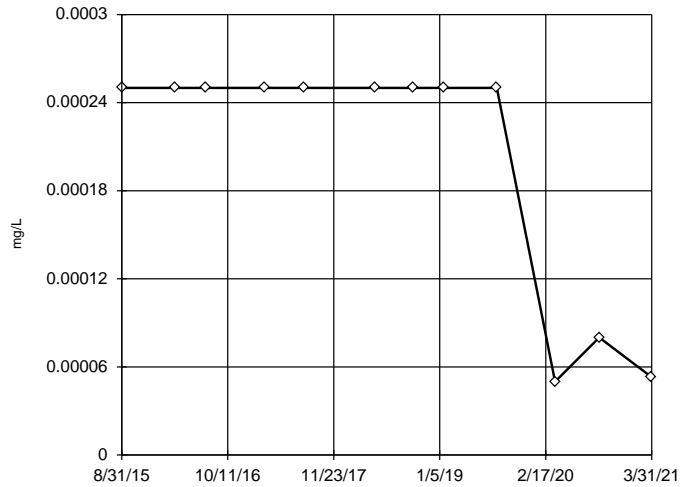


n = 12  
No statistical outliers.  
Testing for 1 low outlier.  
Mean = 0.04171  
Std. Dev. = 0.006536  
0.0268 (D); c = 0.5333  
tab1 = 0.546.  
Alpha = 0.05.  
  
Normality test used:  
Shapiro Wilk @ alpha = 0.1  
Calculated = 0.942  
Critical = 0.876  
The distribution was found to be normally distributed.

Constituent: Barium Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Ohio EPA 0715 Outlier Algorithm

MW-26

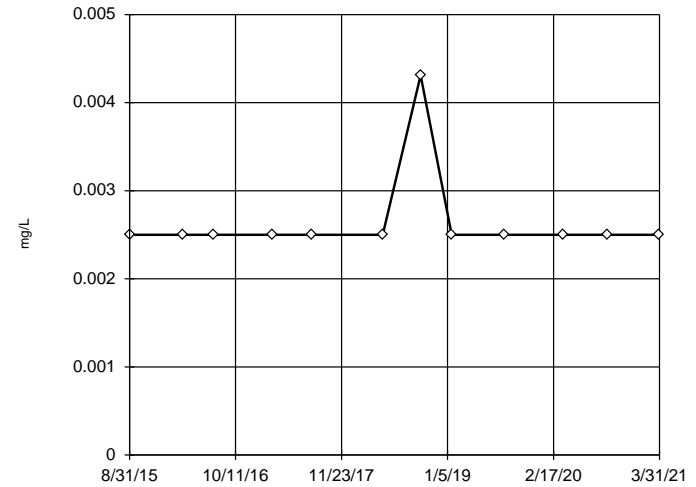


n = 12  
No statistical outliers.

Constituent: Cadmium Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Ohio EPA 0715 Outlier Algorithm

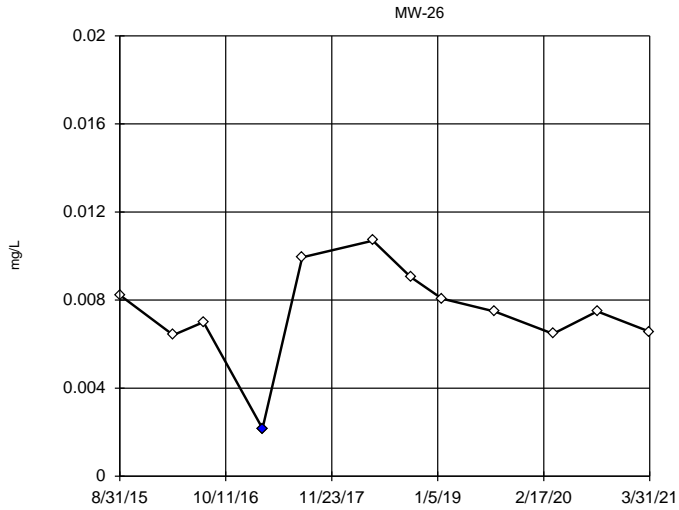
MW-26



n = 12  
No statistical outliers.

Constituent: Chromium Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

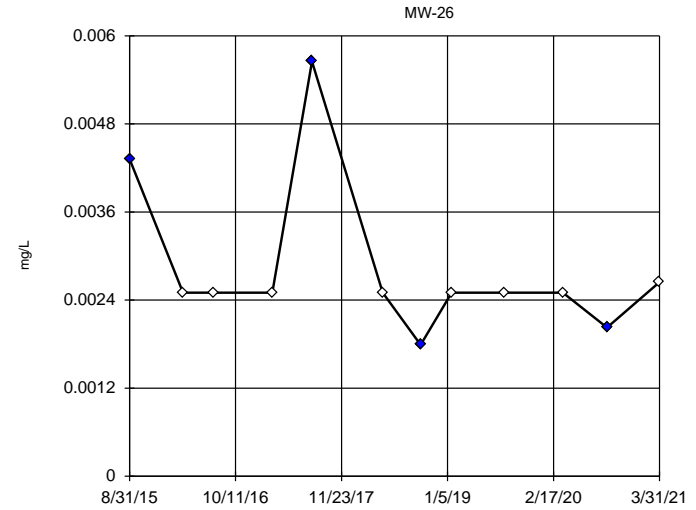
Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm



n = 12  
 Statistical outlier is drawn as solid.  
 Testing for 1 low outlier.  
 Mean = 0.007463.  
 Std. Dev. = 0.002157.  
 0.00217 (D); c = 0.5534  
 tab1 = 0.546.  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk @ alpha = 0.1  
 Calculated = 0.9088  
 Critical = 0.876  
 The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Cobalt Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

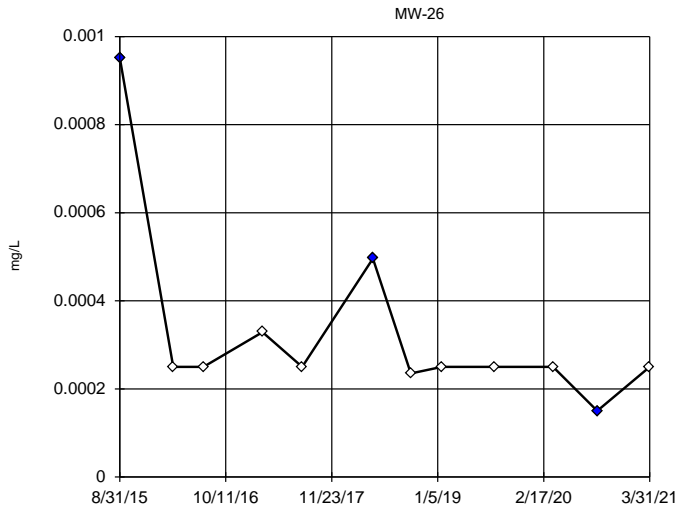
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



n = 12  
 Outliers are drawn as solid.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.002798, low cutoff = 0.002297, based on IQR multiplier of 3.

Constituent: Copper Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

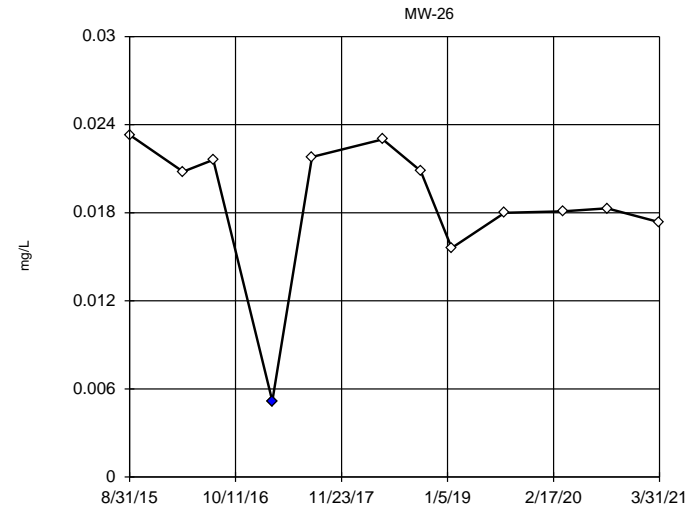
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



n = 12  
 Outliers are drawn as solid.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.000433, low cutoff = 0.0001656, based on IQR multiplier of 3.

Constituent: Lead Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm

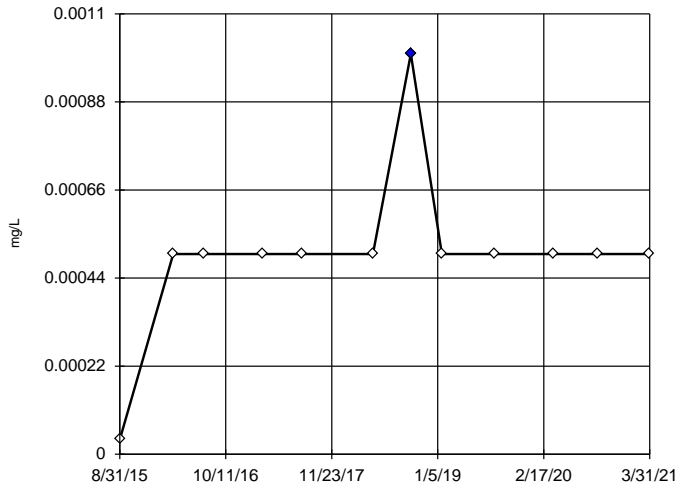


n = 12  
 Statistical outlier is drawn as solid.  
 Testing for 1 low outlier.  
 Mean = 0.01866.  
 Std. Dev. = 0.004881.  
 0.005175 (D); c = 0.683  
 tab1 = 0.546.  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk @ alpha = 0.1  
 Calculated = 0.9349  
 Critical = 0.876  
 The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Nickel Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Ohio EPA 0715 Outlier Algorithm

MW-26

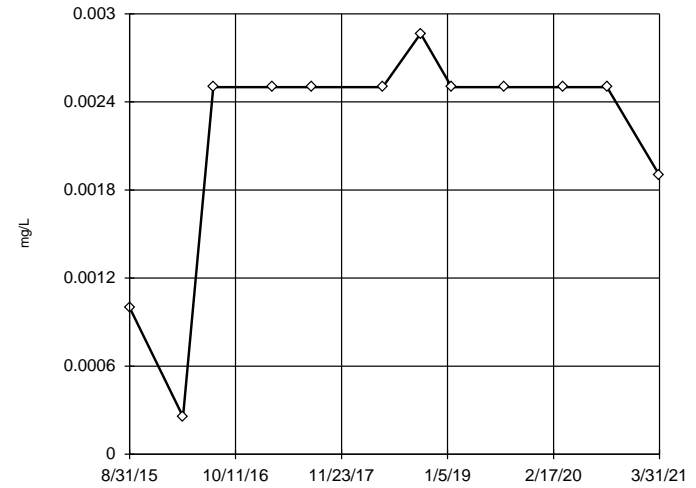


n = 12  
 Statistical outlier is drawn as solid.  
 Outlier per Ohio method.

Constituent: Thallium Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

MW-26

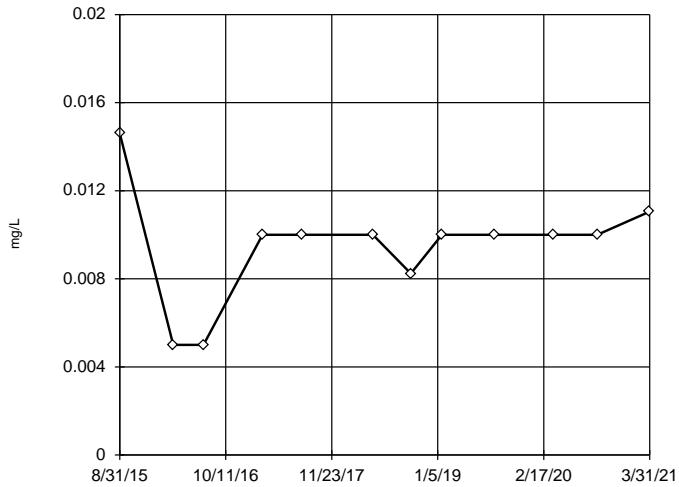


n = 12  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were x\*5 transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because both the lower and upper quartiles represent reporting limits.

Constituent: Vanadium Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Ohio EPA 0715 Outlier Algorithm

MW-26



n = 12  
 No statistical outliers.  
 Normality test used: Shapiro Wilk @ alpha = 0.05  
 Calculated = 0.7786  
 Critical = 0.859 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Zinc Analysis Run 9/13/2023 10:27 AM View: 2023AWQR - Outliers MW-26  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



# Outlier Analysis

Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 9/13/2023, 12:51 PM

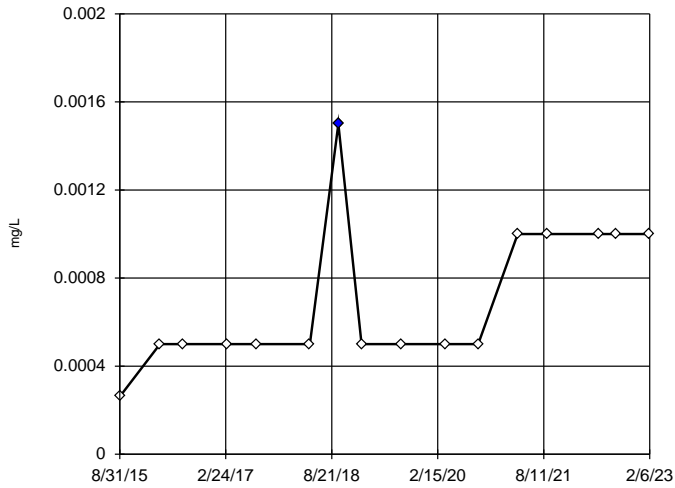
<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>Value(s)</u>	<u>Date(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Normality Test</u>
<b>Antimony (mg/L)</b>	<b>MW-28</b>	<b>Yes</b>	<b>0.0015</b>	<b>9/24/2018</b>	<b>OH</b>	<b>NaN</b>	<b>16</b>	<b>0.0007039</b>	<b>0.0003308</b>	<b>n/a</b>
Arsenic (mg/L)	MW-28	No	n/a	n/a	NP (nrm)/OH	NaN	16	0.001002	0.0001689	ShapiroWilk
Barium (mg/L)	MW-28	No	n/a	n/a	EPA/OH	0.05	17	0.01954	0.003131	ShapiroWilk
Beryllium (mg/L)	MW-28	No	n/a	n/a	OH	NaN	16	0.0004734	0.0001063	n/a
Cadmium (mg/L)	MW-28	No	n/a	n/a	NP (nrm)/OH	NaN	16	0.0004586	0.0005362	ShapiroWilk
Chromium (mg/L)	MW-28	No	n/a	n/a	OH	NaN	17	0.002715	0.001083	n/a
Cobalt (mg/L)	MW-28	No	n/a	n/a	NP (nrm)/OH	NaN	16	0.01163	0.007214	ShapiroWilk
Copper (mg/L)	MW-28	No	n/a	n/a	NP (nrm)/OH	NaN	16	0.002851	0.0009047	ShapiroWilk
Lead (mg/L)	MW-28	No	n/a	n/a	OH	NaN	16	0.0002548	0.00001925	n/a
Nickel (mg/L)	MW-28	No	n/a	n/a	Dixon/OH	0.05	16	0.03895	0.01495	ShapiroWilk
Selenium (mg/L)	MW-28	No	n/a	n/a	OH	NaN	16	0.002413	0.0003122	n/a
Silver (mg/L)	MW-28	No	n/a	n/a	OH	NaN	16	0.0005088	0.0001101	n/a
Thallium (mg/L)	MW-28	No	n/a	n/a	NP (nrm)/OH	NaN	16	0.0004156	0.0002329	ShapiroWilk
Vanadium (mg/L)	MW-28	No	n/a	n/a	NP (nrm)/OH	NaN	16	0.002108	0.0007408	ShapiroWilk
Zinc (mg/L)	MW-28	No	n/a	n/a	OH	NaN	16	0.01046	0.004204	n/a





### Ohio EPA 0715 Outlier Algorithm

MW-28

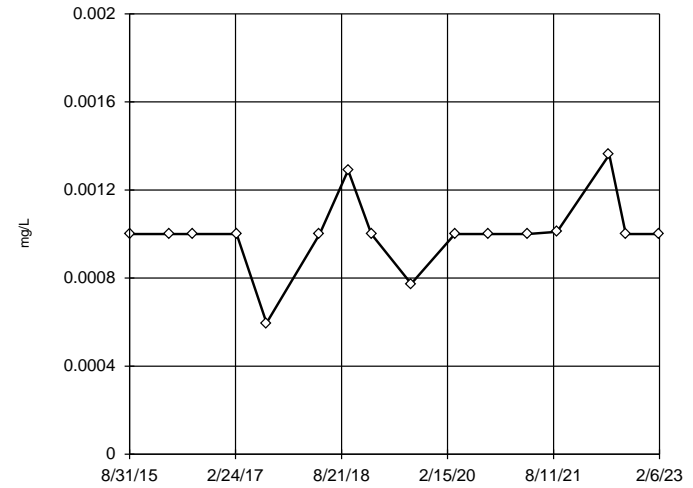


n = 16  
 Statistical outlier is drawn as solid.  
 Outlier per Ohio method.

Constituent: Antimony Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

MW-28

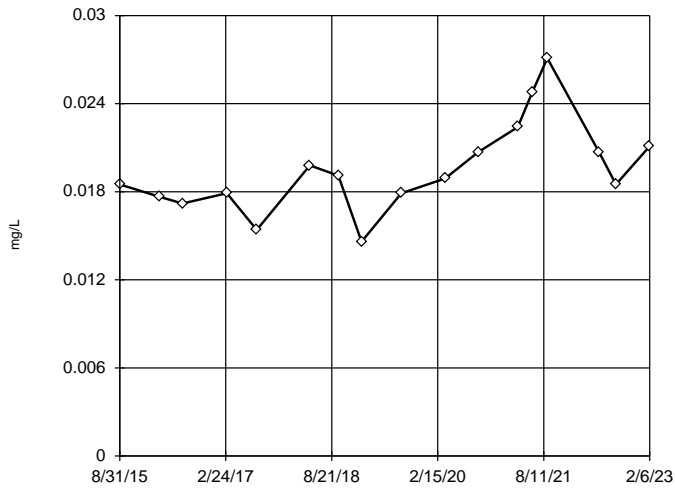


n = 16  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Ladder of Powers transformations did not improve normality; analysis run on raw data.  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Arsenic Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### EPA Screening (suspected outliers for Dixon's Test)

MW-28

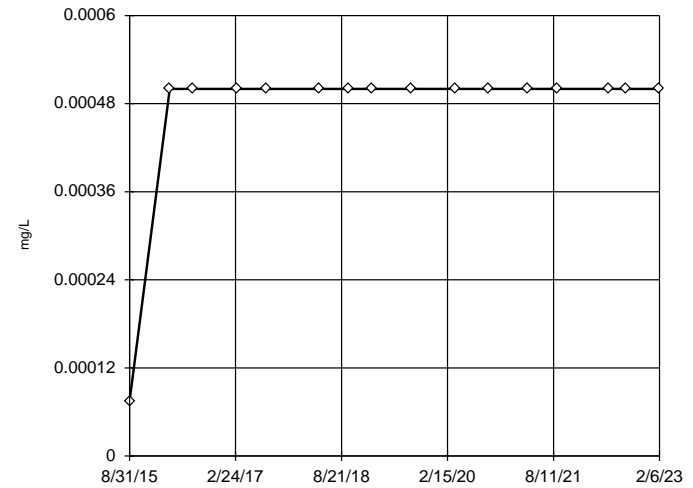


n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Ohio method in use.  
 Mean 0.01954, std. dev. 0.003131, critical Tn 2.475  
 Normality test used: Shapiro Wilk @ alpha = 0.1  
 Calculated = 0.9399  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Barium Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

MW-28

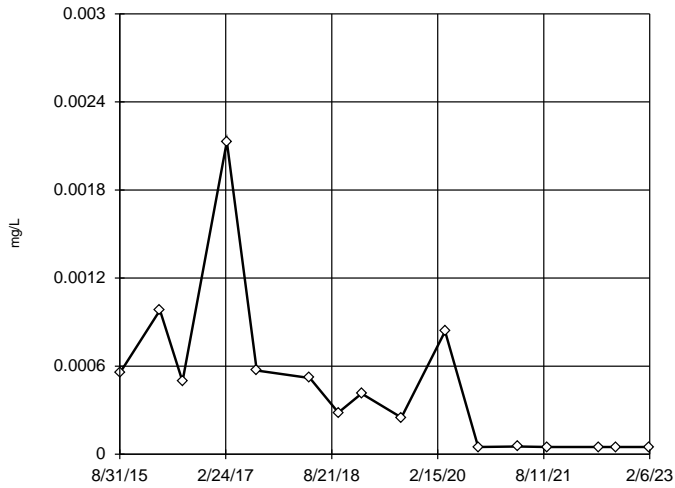


n = 16  
 No statistical outliers.

Constituent: Beryllium Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

MW-28

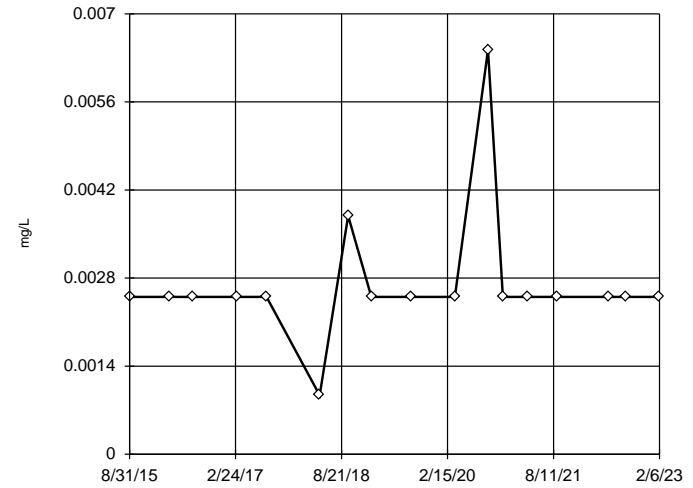


n = 16  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were cube root transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.01058, low cutoff = -0.001005, based on IQR multiplier of 3.

Constituent: Cadmium Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Ohio EPA 0715 Outlier Algorithm

MW-28

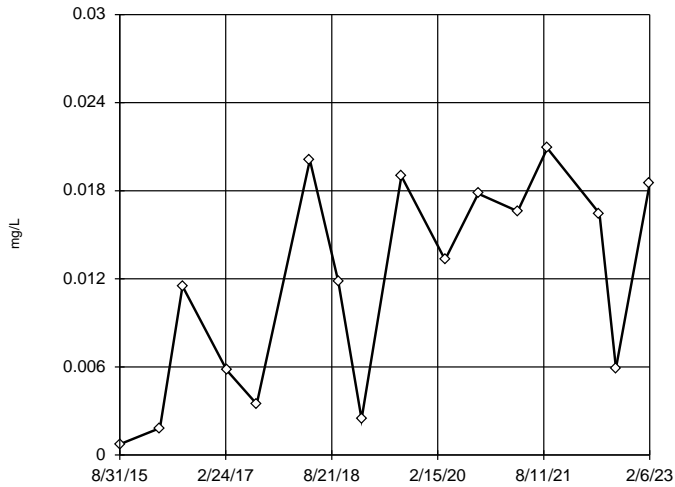


n = 17  
 No statistical outliers.

Constituent: Chromium Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

MW-28

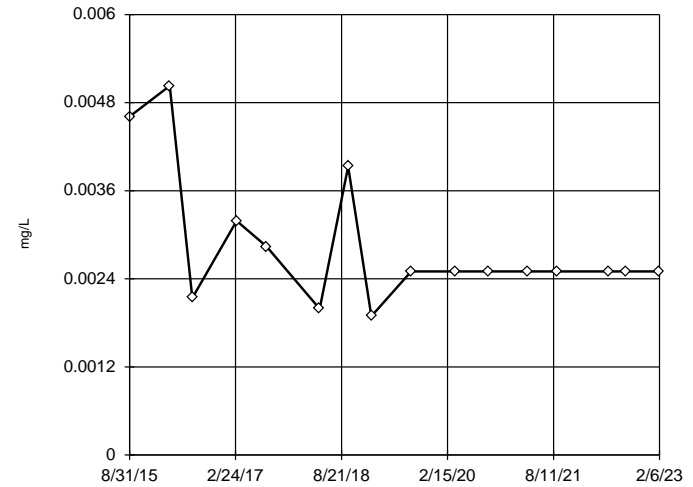


n = 16  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Ladder of Powers transformations did not improve normality; analysis run on raw data.  
 High cutoff = 0.05873, low cutoff = -0.03596, based on IQR multiplier of 3.

Constituent: Cobalt Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

MW-28

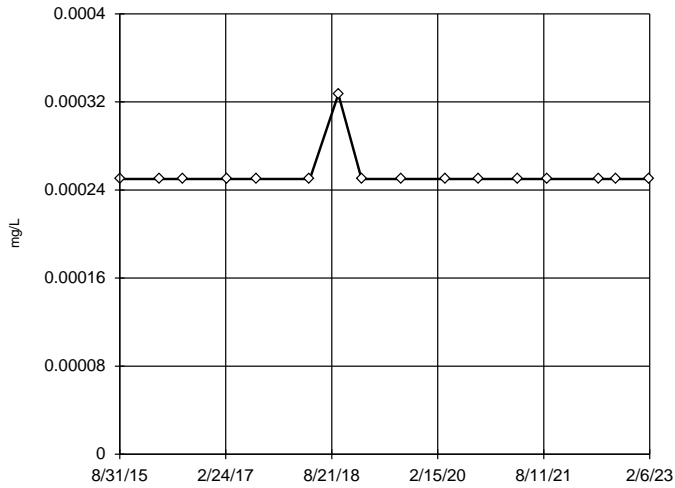


n = 16  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.005253, low cutoff = 0.001433, based on IQR multiplier of 3.

Constituent: Copper Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

MW-28

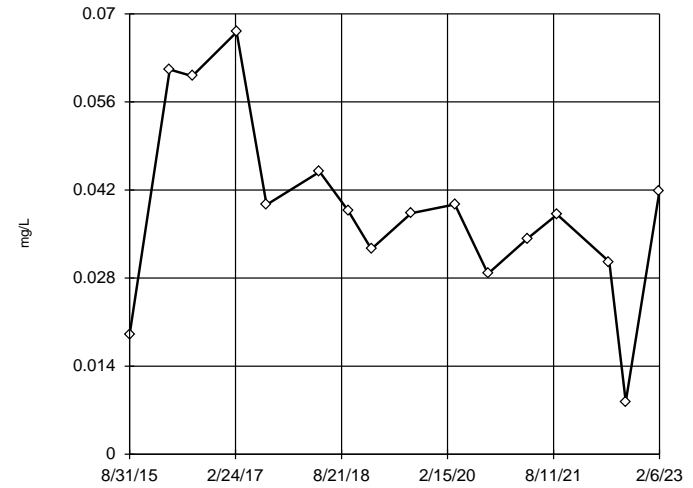


n = 16  
No statistical outliers.

Constituent: Lead Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm

MW-28

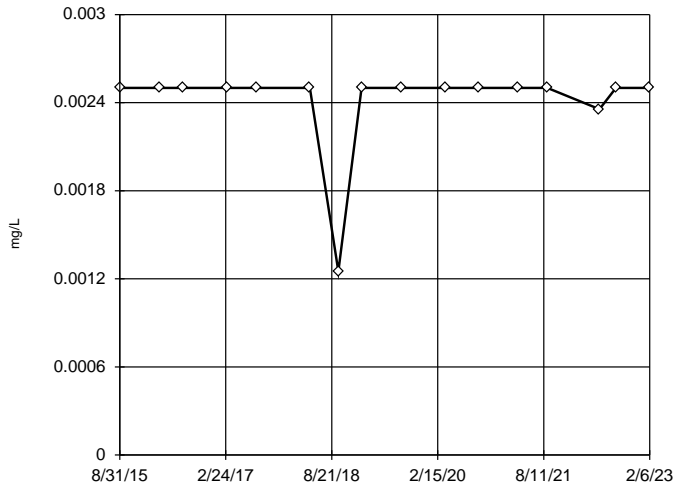


n = 16  
No statistical outliers.  
Testing for 1 low outlier.  
Mean = 0.03895.  
Std. Dev. = 0.01495.  
0.00833; c = 0.3935  
tab1 = 0.507.  
Alpha = 0.05.  
  
Normality test used:  
Shapiro Wilk @ alpha = 0.1  
Calculated = 0.9155  
Critical = 0.901  
The distribution was found  
to be normally distrib-  
uted.

Constituent: Nickel Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

MW-28

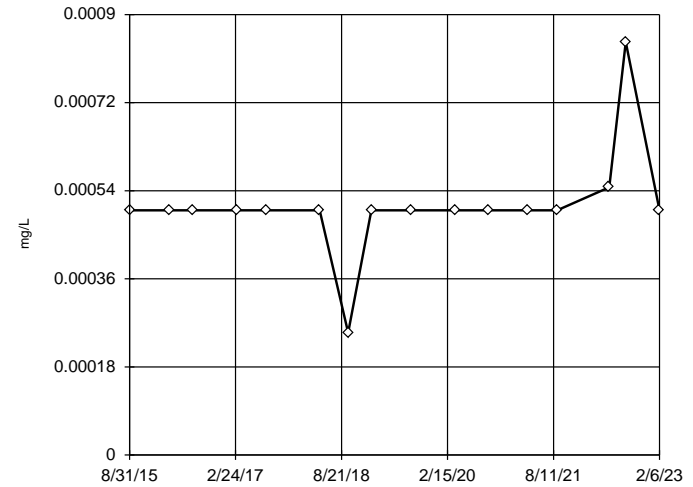


n = 16  
No statistical outliers.

Constituent: Selenium Analysis Run 9/13/2023 12:48 PM View: 2023AWQR - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

MW-28

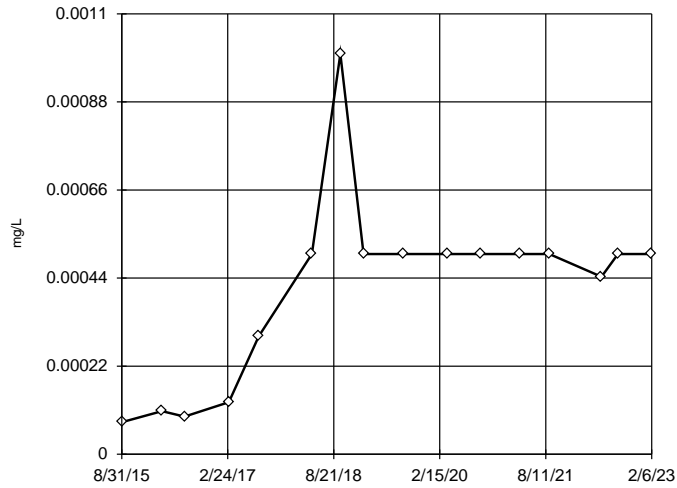


n = 16  
No statistical outliers.

Constituent: Silver Analysis Run 9/13/2023 12:49 PM View: 2023AWQR - Outliers MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

MW-28

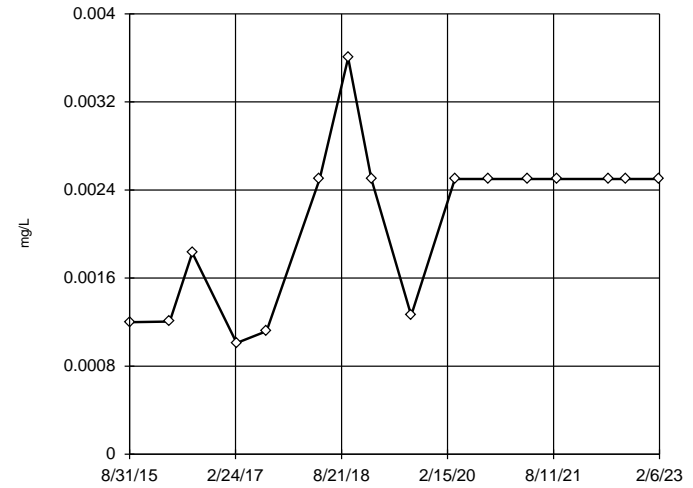


n = 16  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.002171, low cutoff = -0.00009913, based on IQR multiplier of 3.

Constituent: Thallium Analysis Run 9/13/2023 12:49 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

MW-28

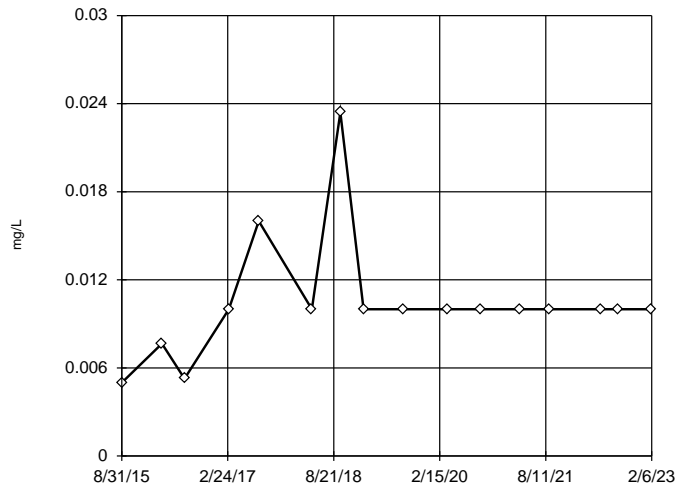


n = 16  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Ladder of Powers transformations did not improve normality; analysis run on raw data.  
 High cutoff = 0.006302, low cutoff = -0.00257, based on IQR multiplier of 3.

Constituent: Vanadium Analysis Run 9/13/2023 12:49 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Ohio EPA 0715 Outlier Algorithm

MW-28



n = 16  
 No statistical outliers.  
 Normality test used:  
 Shapiro Wilk @ alpha = 0.05  
 Calculated = 0.8148  
 Critical = 0.887  
 The distribution was found to be normally distributed.

Constituent: Zinc Analysis Run 9/13/2023 12:49 PM View: 2023AWQR - Outliers MW-28  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

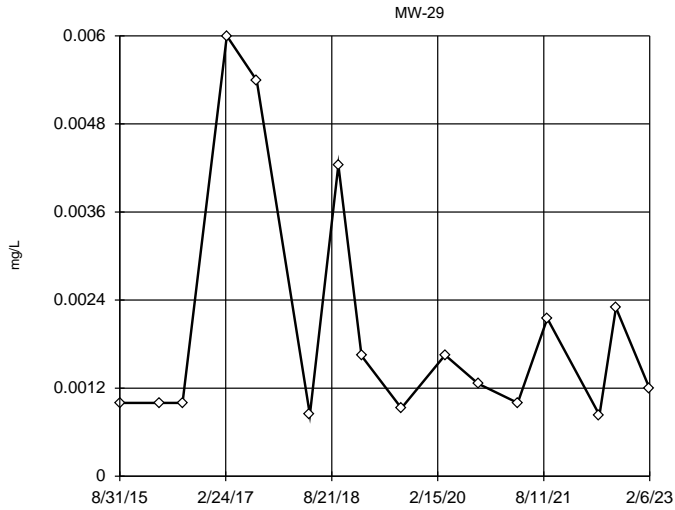
# Outlier Analysis

Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 9/13/2023, 1:07 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>Normality Test</u>
Arsenic (mg/L)	MW-29	No	n/a	n/a	NP (nrm)/OH	NaN	16	0.002026	0.001672	ShapiroWilk
Barium (mg/L)	MW-29	No	n/a	n/a	EPA/OH	0.05	16	0.01602	0.001352	ShapiroWilk
Cadmium (mg/L)	MW-29	No	n/a	n/a	OH	NaN	16	0.0001339	0.00009748	n/a
Chromium (mg/L)	MW-29	No	n/a	n/a	OH	NaN	16	0.002557	0.0002275	n/a
Cobalt (mg/L)	MW-29	No	n/a	n/a	EPA/OH	0.05	16	0.002521	0.001306	ShapiroWilk
Copper (mg/L)	MW-29	No	n/a	n/a	NP (nrm)/OH	NaN	16	0.002552	0.0007541	ShapiroWilk
Lead (mg/L)	MW-29	No	n/a	n/a	NP (nrm)/OH	NaN	16	0.0003605	0.000212	ShapiroWilk
<b>Nickel (mg/L)</b>	<b>MW-29</b>	<b>Yes</b>	<b>0.00439</b>	<b>3/2/2017</b>	<b>Dixon/OH</b>	<b>0.05</b>	<b>16</b>	<b>0.01003</b>	<b>0.001861</b>	<b>ShapiroWilk</b>
Selenium (mg/L)	MW-29	No	n/a	n/a	OH	NaN	16	0.002336	0.0004498	n/a
Vanadium (mg/L)	MW-29	No	n/a	n/a	OH	NaN	16	0.002582	0.001097	n/a
<b>Zinc (mg/L)</b>	<b>MW-29</b>	<b>Yes</b>	<b>0.0297,0.0232</b>	<b>3/24/2016,3/2/2017</b>	<b>NP (nrm)/OH</b>	<b>NaN</b>	<b>16</b>	<b>0.01259</b>	<b>0.006</b>	<b>ShapiroWilk</b>



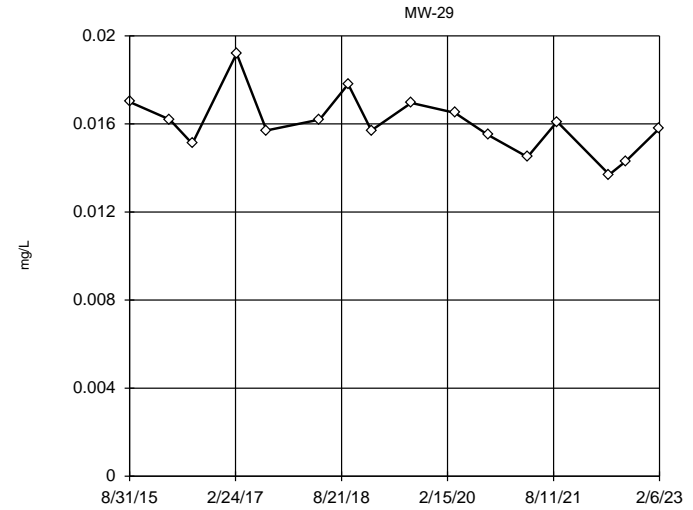
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



n = 16  
 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 natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.02435, low cutoff = 0.00009124, based on IQR multiplier of 3.

Constituent: Arsenic Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

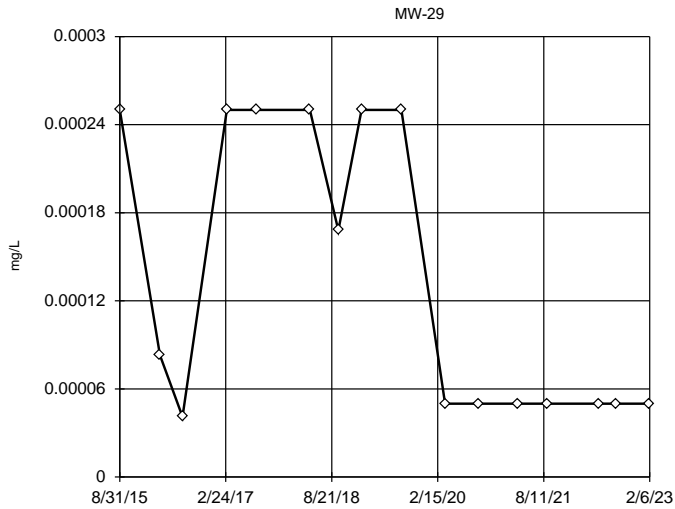
EPA Screening (suspected outliers for Dixon's Test)



n = 16  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Ohio method in use. Mean 0.01602, std. dev. 0.001352, critical Tn 2.443  
 Normality test used: Shapiro Wilk @ alpha = 0.1 Calculated = 0.9676 Critical = 0.906 The distribution was found to be normally distributed.

Constituent: Barium Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

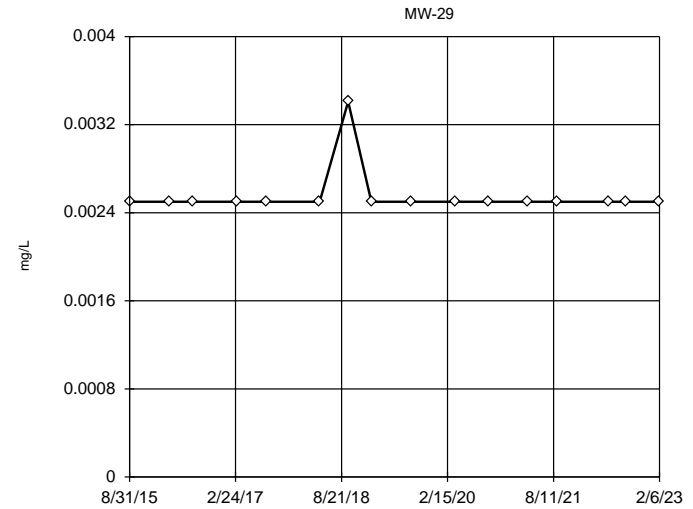
Ohio EPA 0715 Outlier Algorithm



n = 16  
 No statistical outliers.

Constituent: Cadmium Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

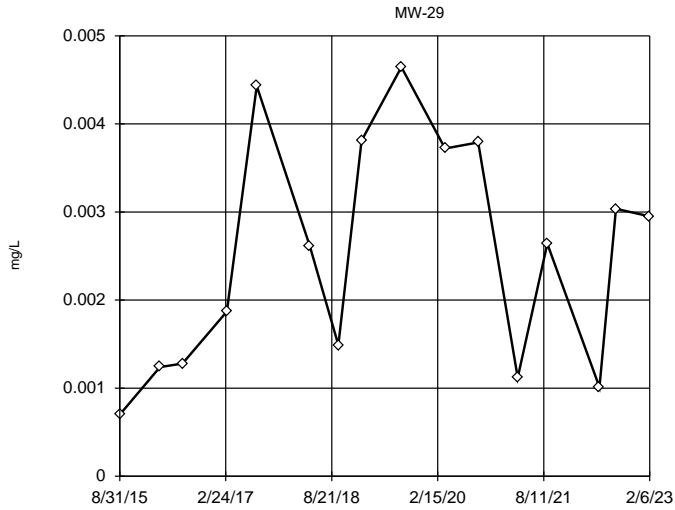
Ohio EPA 0715 Outlier Algorithm



n = 16  
 No statistical outliers.

Constituent: Chromium Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

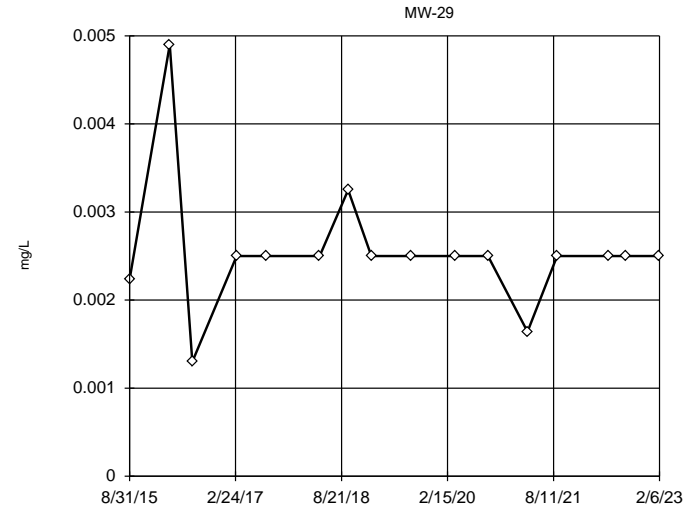
EPA Screening (suspected outliers for Dixon's Test)



n = 16  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Ohio method in use.  
 Mean 0.002521, std. dev. 0.001306, critical Tn 2.443  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.926  
 Critical = 0.906  
 The distribution was found to be normally distributed.

Constituent: Cobalt Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

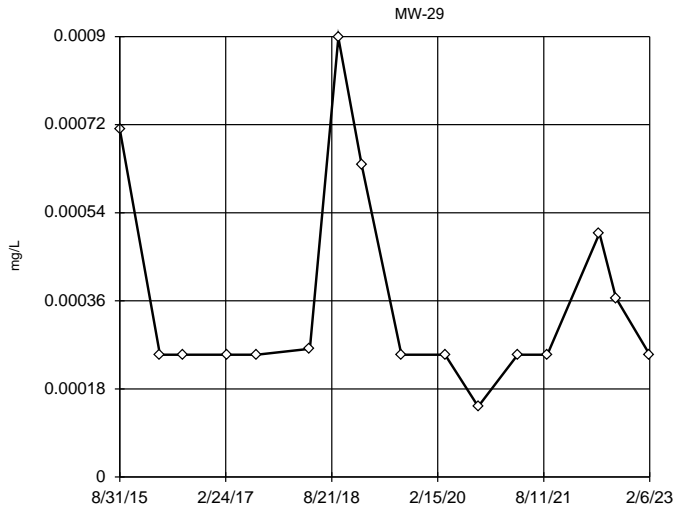
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



n = 16  
 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 natural log transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Copper Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

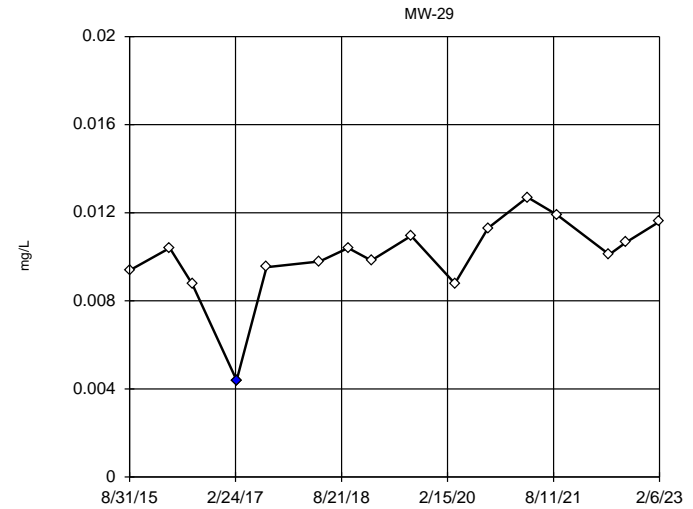
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm



n = 16  
 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 natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.002126, low cutoff = 0.0000502, based on IQR multiplier of 3.

Constituent: Lead Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm



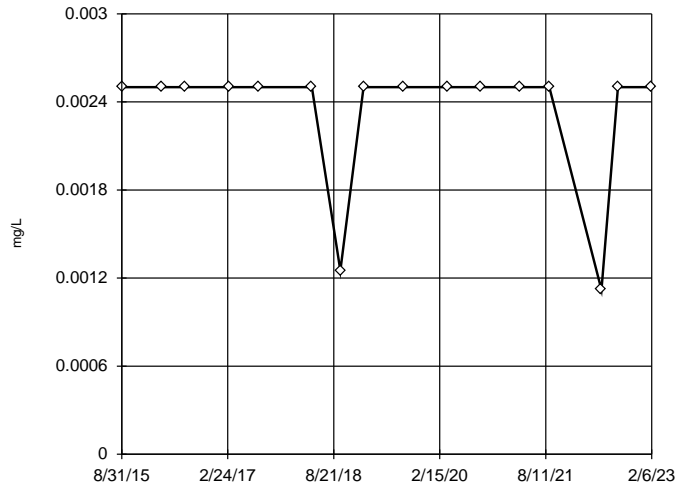
n = 16  
 Statistical outlier is drawn as solid.  
 Testing for 1 low outlier.  
 Mean = 0.01003,  
 Std. Dev. = 0.001861,  
 0.00439 (L); c = 0.6103  
 tab1 = 0.507,  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk @alpha = 0.1  
 Calculated = 0.9722  
 Critical = 0.901  
 The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Nickel Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
 Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



### Ohio EPA 0715 Outlier Algorithm

MW-29

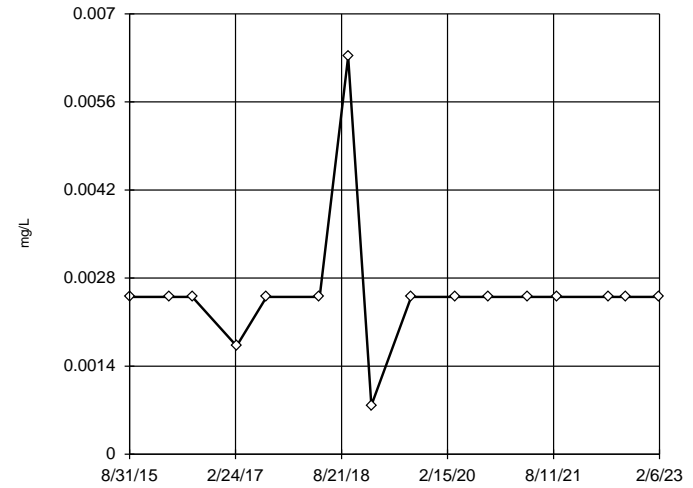


n = 16  
No statistical outliers.

Constituent: Selenium Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Ohio EPA 0715 Outlier Algorithm

MW-29

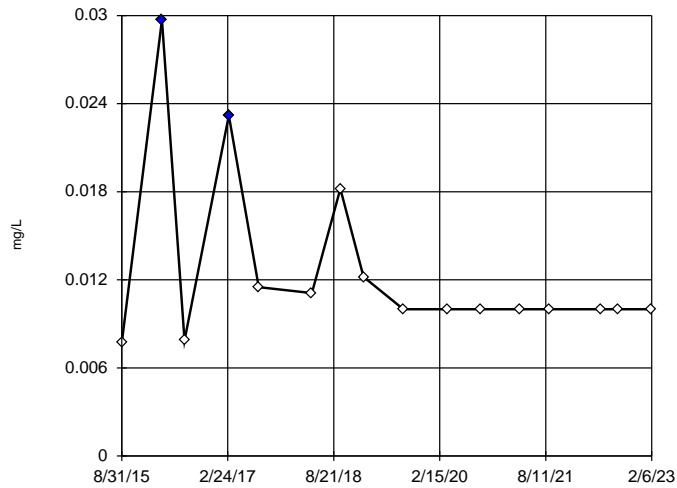


n = 16  
No statistical outliers.

Constituent: Vanadium Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

### Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

MW-29



n = 16  
Outliers are drawn as solid.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 0.01968, low cutoff = 0.006017, based on IQR multiplier of 3.

Constituent: Zinc Analysis Run 9/13/2023 1:06 PM View: 2023AWQR - Outliers MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



## **Intrawell Prediction Limit Summary Tables and Graphs**



# Prediction Limit

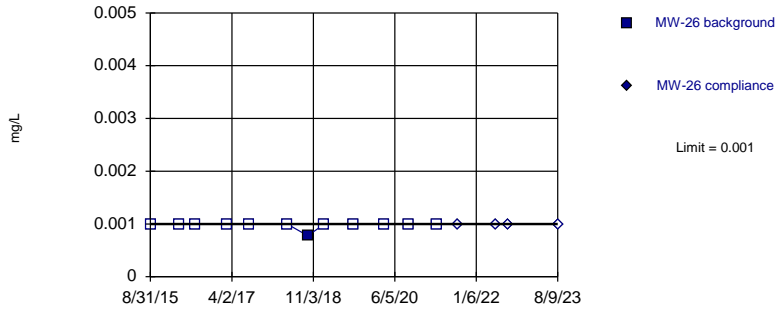
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 9/13/2023, 6:40 PM

<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>Trans...</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MW-26	0.001	n/a	8/9/2023	0.001ND	No	12	91.67	n/a	0.002173	NP Intra (NDs) 1 of 3
<b>Barium (mg/L)</b>	<b>MW-26</b>	<b>0.05284</b>	<b>n/a</b>	<b>8/9/2023</b>	<b>0.059</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>No</b>	<b>0.001197</b>	<b>Param Intra 1 of 3</b>
Cadmium (mg/L)	MW-26	0.00025	n/a	8/9/2023	0.0001ND	No	12	83.33	n/a	0.002173	NP Intra (NDs) 1 of 3
Chromium (mg/L)	MW-26	0.00431	n/a	8/9/2023	0.0025ND	No	12	91.67	n/a	0.002173	NP Intra (NDs) 1 of 3
Cobalt (mg/L)	MW-26	0.01113	n/a	8/9/2023	0.0014	No	12	0	No	0.001197	Param Intra 1 of 3
Copper (mg/L)	MW-26	0.00565	n/a	8/9/2023	0.0025ND	No	12	58.33	n/a	0.002173	NP Intra (NDs) 1 of 3
Lead (mg/L)	MW-26	0.000952	n/a	8/9/2023	0.00025ND	No	12	58.33	n/a	0.002173	NP Intra (NDs) 1 of 3
Nickel (mg/L)	MW-26	0.02479	n/a	8/9/2023	0.00825	No	12	0	x^2	0.001197	Param Intra 1 of 3
<b>Thallium (mg/L)</b>	<b>MW-26</b>	<b>0.001</b>	<b>n/a</b>	<b>8/9/2023</b>	<b>0.00177</b>	<b>Yes</b>	<b>12</b>	<b>91.67</b>	<b>n/a</b>	<b>0.002173</b>	<b>NP Intra (NDs) 1 of 3</b>
Vanadium (mg/L)	MW-26	0.002865	n/a	8/9/2023	0.0025ND	No	12	66.67	n/a	0.002173	NP Intra (NDs) 1 of 3
Zinc (mg/L)	MW-26	0.0146	n/a	8/9/2023	0.01ND	No	12	75	n/a	0.002173	NP Intra (NDs) 1 of 3



Within Limit

Prediction Limit  
Intrawell Non-parametric

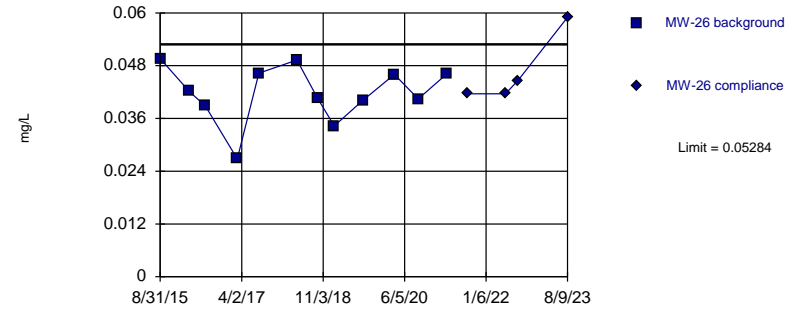


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Arsenic Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Exceeds Limit

Prediction Limit  
Intrawell Parametric

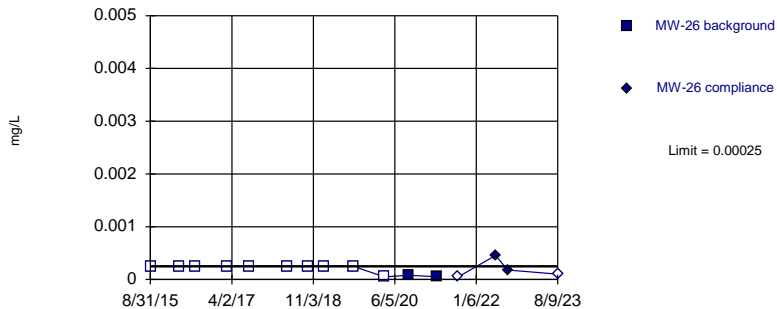


Background Data Summary: Mean=0.04171, Std. Dev.=0.006536, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9155, critical = 0.805. Kappa = 1.702 (c=11, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001197.

Constituent: Barium Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

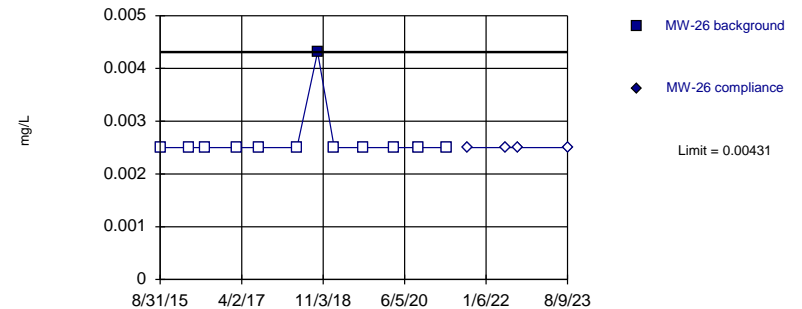


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Cadmium Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

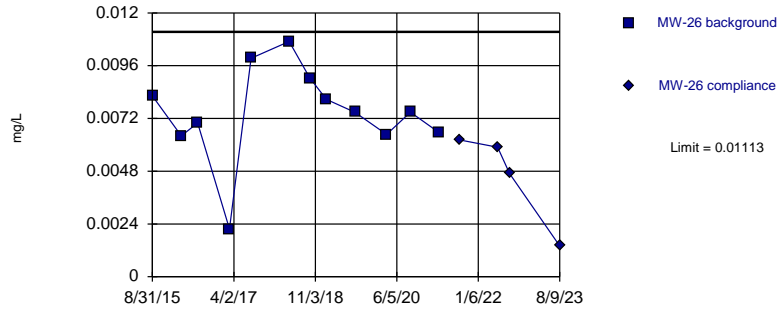


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chromium Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric

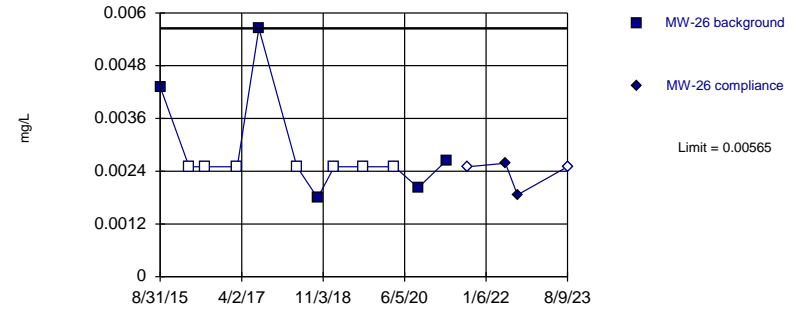


Background Data Summary: Mean=0.007463, Std. Dev.=0.002157, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.906, critical = 0.805. Kappa = 1.702 (c=11, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001197.

Constituent: Cobalt Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

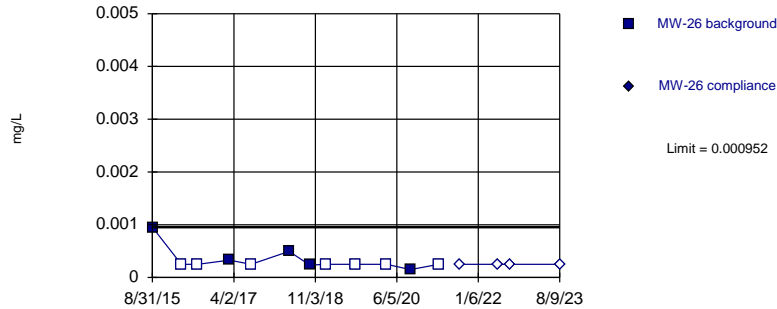


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 58.33% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Copper Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

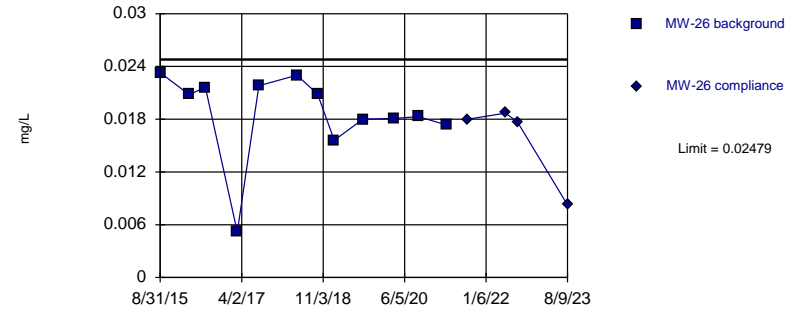


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 58.33% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Lead Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric



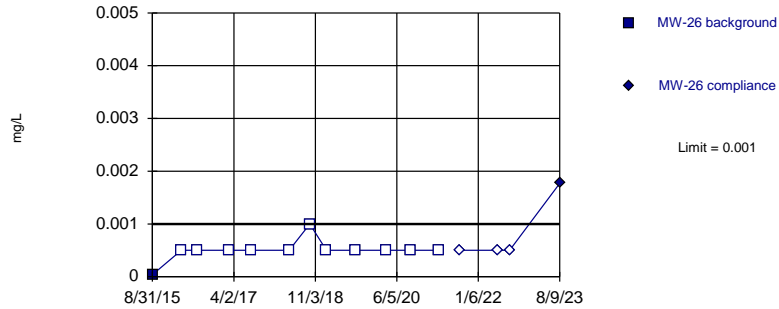
Background Data Summary (based on square transformation): Mean=0.0003699, Std. Dev.=0.0001438, n=12. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9058, critical = 0.805. Kappa = 1.702 (c=11, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001197.

Constituent: Nickel Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



Exceeds Limit

Prediction Limit  
Intrawell Non-parametric

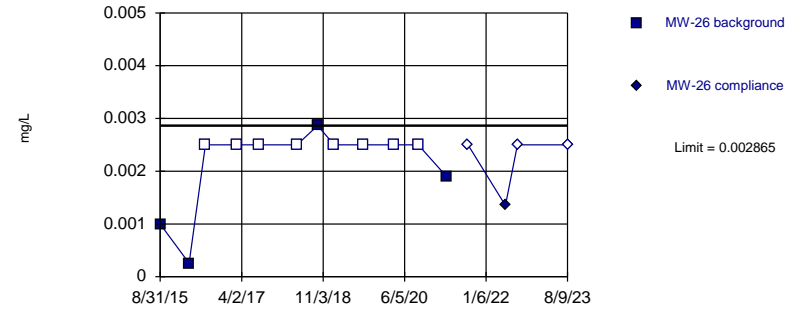


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Thallium Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

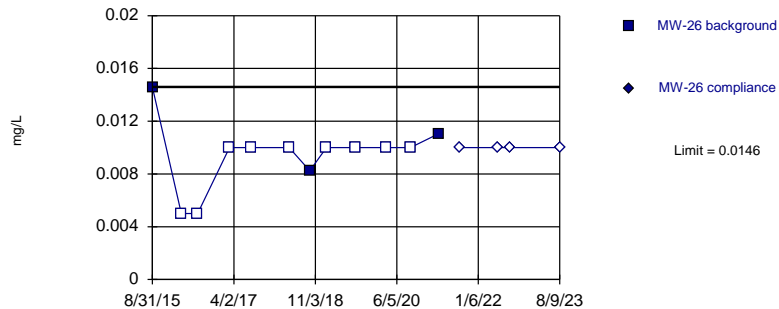


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Vanadium Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.004342. Individual comparison alpha = 0.002173 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Zinc Analysis Run 9/13/2023 6:39 PM View: 2023AWQR - Intrawell PL MW-26  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



# Prediction Limit

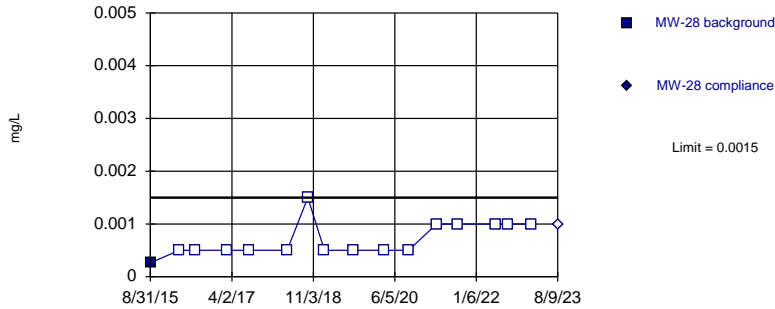
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 9/13/2023, 6:44 PM

<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>Trans...</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	MW-28	0.0015	n/a	8/9/2023	0.001ND	No	16	93.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Arsenic (mg/L)	MW-28	0.00136	n/a	8/9/2023	0.001ND	No	16	68.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Barium (mg/L)	MW-28	0.02462	n/a	8/9/2023	0.01695	No	17	0	No	0.0008776	Param Intra 1 of 3
Beryllium (mg/L)	MW-28	0.0005	n/a	8/9/2023	0.0005ND	No	16	93.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Cadmium (mg/L)	MW-28	0.001521	n/a	8/9/2023	0.0001ND	No	16	37.5	sqrt(x)	0.0008776	Param Intra 1 of 3
Chromium (mg/L)	MW-28	0.00643	n/a	8/9/2023	0.0025ND	No	17	82.35	n/a	0.0009102	NP Intra (NDs) 1 of 3
Cobalt (mg/L)	MW-28	0.0235	n/a	8/9/2023	0.005875	No	16	0	No	0.0008776	Param Intra 1 of 3
Copper (mg/L)	MW-28	0.00503	n/a	8/9/2023	0.0025ND	No	16	50	n/a	0.001026	NP Intra (normality) 1 of 3
Lead (mg/L)	MW-28	0.000327	n/a	8/9/2023	0.00025ND	No	16	93.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Nickel (mg/L)	MW-28	0.06353	n/a	8/9/2023	0.00711	No	16	0	No	0.0008776	Param Intra 1 of 3
Selenium (mg/L)	MW-28	0.0025	n/a	8/9/2023	0.0025ND	No	16	93.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Silver (mg/L)	MW-28	0.000844	n/a	8/9/2023	0.0005ND	No	16	87.5	n/a	0.001026	NP Intra (NDs) 1 of 3
Thallium (mg/L)	MW-28	0.001	n/a	8/9/2023	0.0005ND	No	16	62.5	n/a	0.001026	NP Intra (NDs) 1 of 3
Vanadium (mg/L)	MW-28	0.0036	n/a	8/9/2023	0.0025ND	No	16	56.25	n/a	0.001026	NP Intra (NDs) 1 of 3
Zinc (mg/L)	MW-28	0.0234	n/a	8/9/2023	0.01ND	No	16	75	n/a	0.001026	NP Intra (NDs) 1 of 3



Within Limit

Prediction Limit  
Intrawell Non-parametric

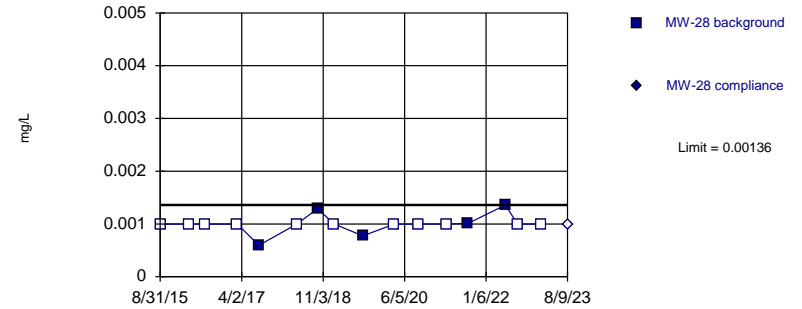


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 93.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Antimony Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

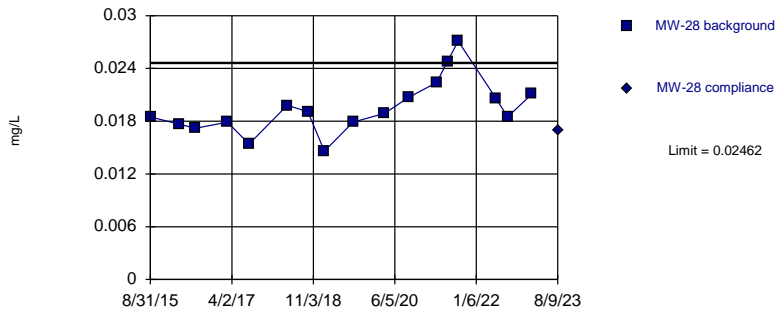


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 68.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Arsenic Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric

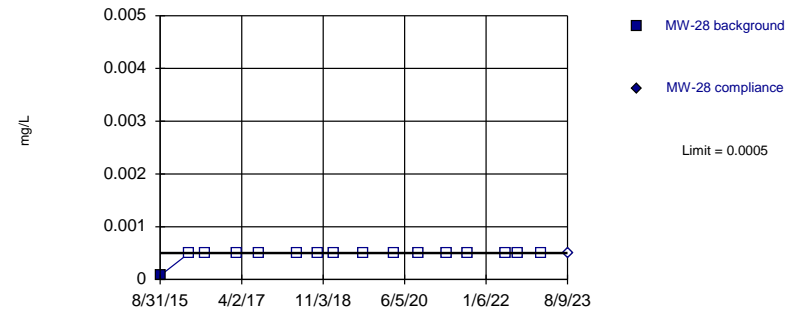


Background Data Summary: Mean=0.01954, Std. Dev.=0.003131, n=17. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9399, critical = 0.851. Kappa = 1.624 (c=15, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.0008776.

Constituent: Barium Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

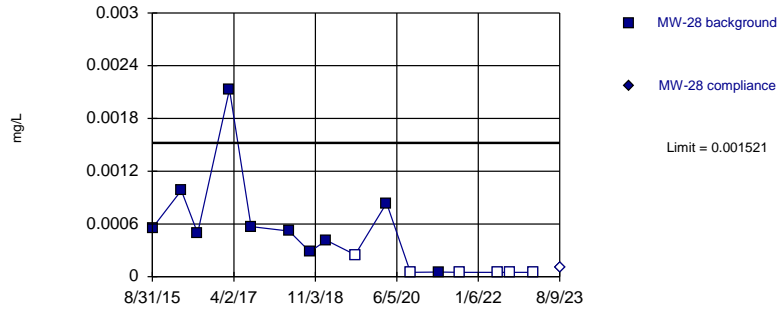


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 93.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Beryllium Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric

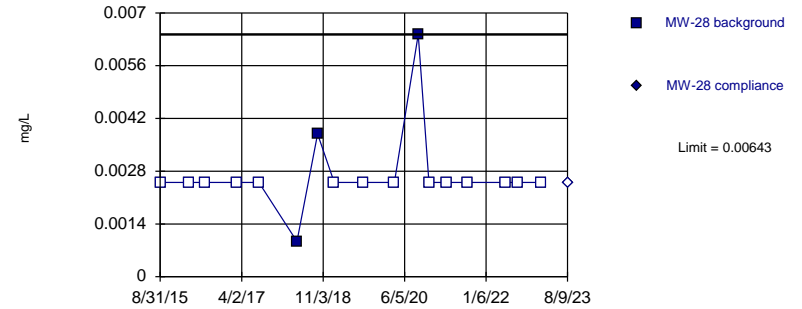


Background Data Summary (based on square root transformation) (after Aitchison's Adjustment): Mean=0.01521, Std. Dev.=0.01446, n=16, 37.5% NDs. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8727, critical = 0.844. Kappa = 1.645 (c=15, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.0008776.

Constituent: Cadmium Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

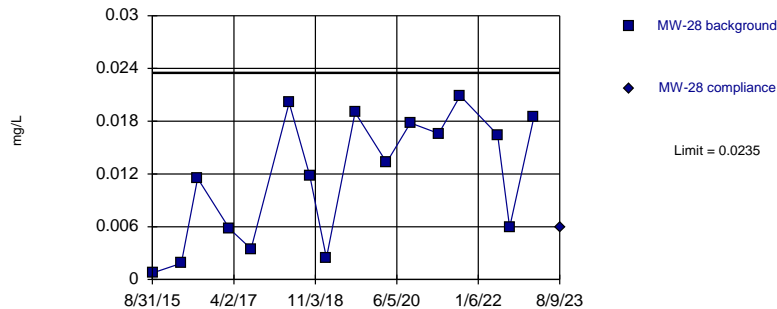


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 82.35% NDs. Well-constituent pair annual alpha = 0.00182. Individual comparison alpha = 0.0009102 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chromium Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric

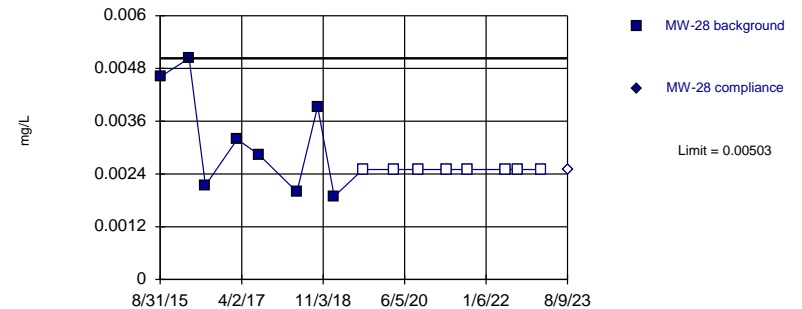


Background Data Summary: Mean=0.01163, Std. Dev.=0.007214, n=16. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8949, critical = 0.844. Kappa = 1.645 (c=15, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.0008776.

Constituent: Cobalt Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

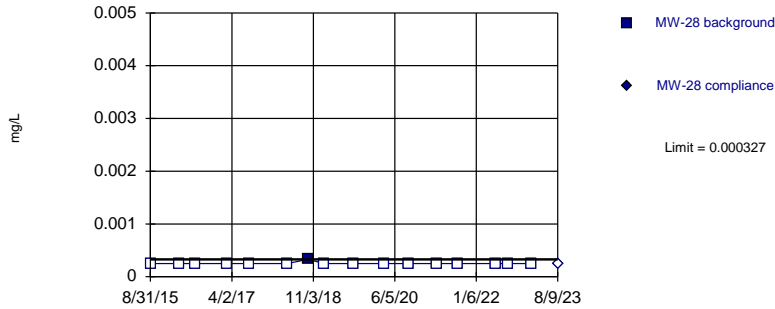


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 16 background values. 50% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Copper Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

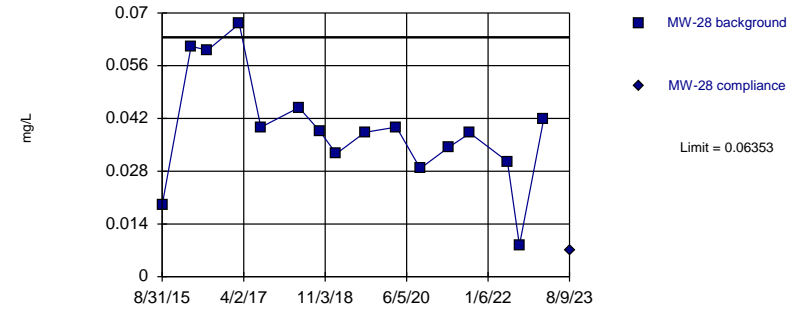


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 93.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Lead Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric

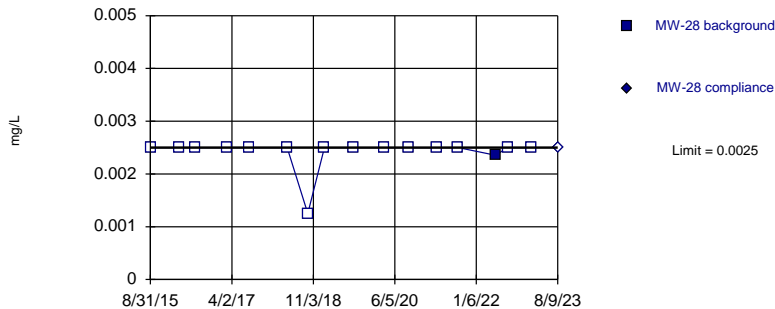


Background Data Summary: Mean=0.03895, Std. Dev.=0.01495, n=16. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9444, critical = 0.844. Kappa = 1.645 (c=15, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.0008776.

Constituent: Nickel Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

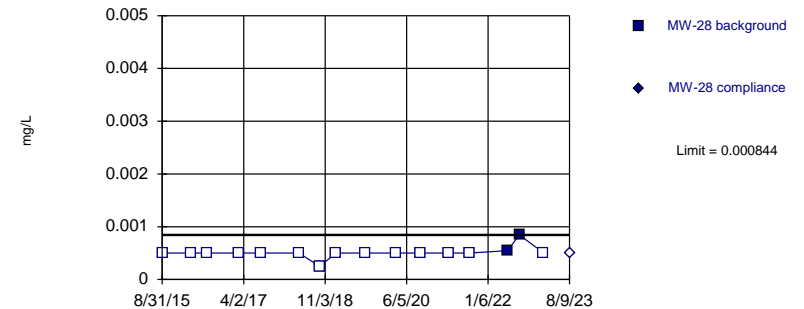


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 93.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Selenium Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

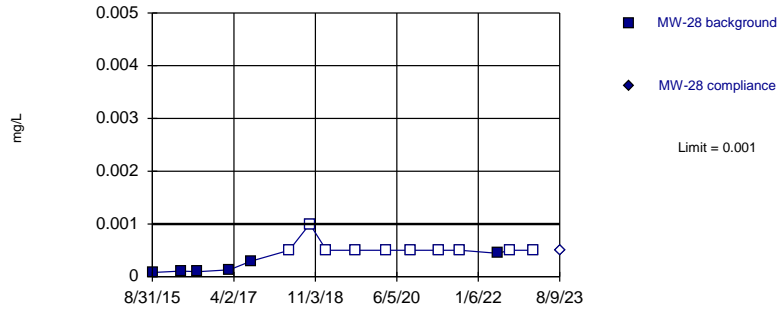


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 87.5% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Silver Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

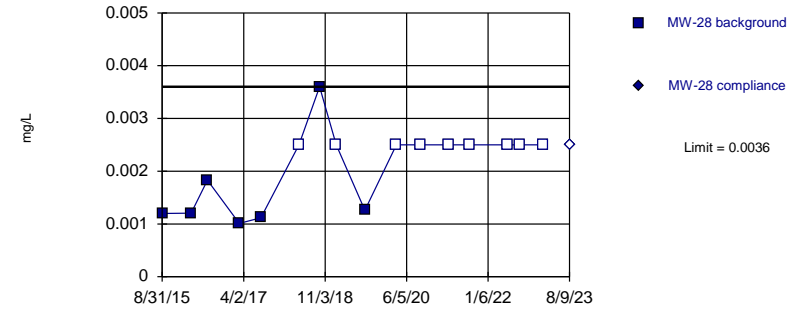


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 62.5% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Thallium Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

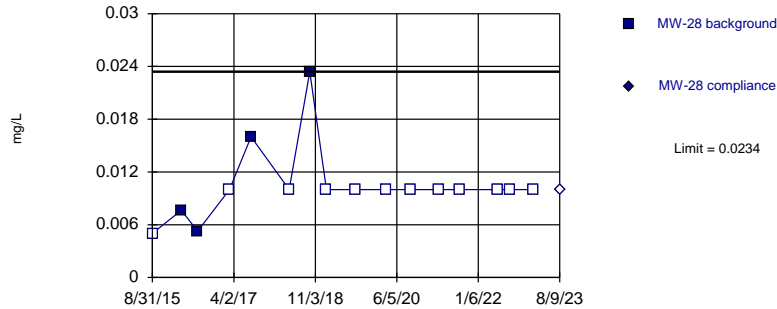


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 56.25% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Vanadium Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Zinc Analysis Run 9/13/2023 6:43 PM View: 2023AWQR - Intrawell PL MW-28  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



# Prediction Limit

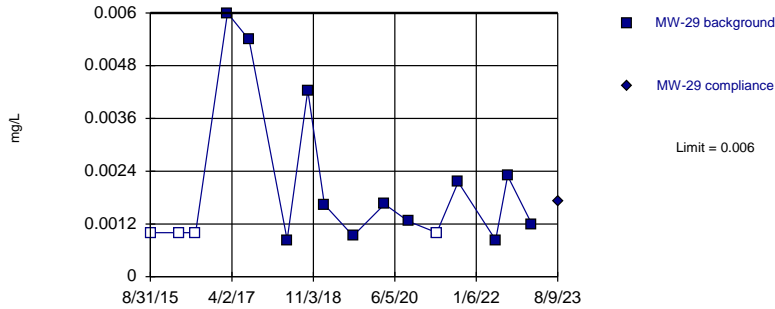
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master Printed 9/13/2023, 6:48 PM

<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>Trans...</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	MW-29	0.006	n/a	8/9/2023	0.00172J	No	16	25	n/a	0.001026	NP Intra (normality) 1 of 3
Barium (mg/L)	MW-29	0.01814	n/a	8/9/2023	0.0144	No	16	0	No	0.001197	Param Intra 1 of 3
Cadmium (mg/L)	MW-29	0.00025	n/a	8/9/2023	0.0001ND	No	16	81.25	n/a	0.001026	NP Intra (NDs) 1 of 3
Chromium (mg/L)	MW-29	0.00341	n/a	8/9/2023	0.0025ND	No	16	93.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Cobalt (mg/L)	MW-29	0.00457	n/a	8/9/2023	0.00304	No	16	0	No	0.001197	Param Intra 1 of 3
Copper (mg/L)	MW-29	0.0049	n/a	8/9/2023	0.0025ND	No	16	68.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Lead (mg/L)	MW-29	0.000898	n/a	8/9/2023	0.000257J	No	16	56.25	n/a	0.001026	NP Intra (NDs) 1 of 3
Nickel (mg/L)	MW-29	0.01295	n/a	8/9/2023	0.00966	No	16	0	No	0.001197	Param Intra 1 of 3
Selenium (mg/L)	MW-29	0.0025	n/a	8/9/2023	0.0025ND	No	16	93.75	n/a	0.001026	NP Intra (NDs) 1 of 3
Vanadium (mg/L)	MW-29	0.00632	n/a	8/9/2023	0.0025ND	No	16	81.25	n/a	0.001026	NP Intra (NDs) 1 of 3
Zinc (mg/L)	MW-29	0.0297	n/a	8/9/2023	0.01ND	No	16	50	n/a	0.001026	NP Intra (normality) 1 of 3



Within Limit

Prediction Limit  
Intrawell Non-parametric

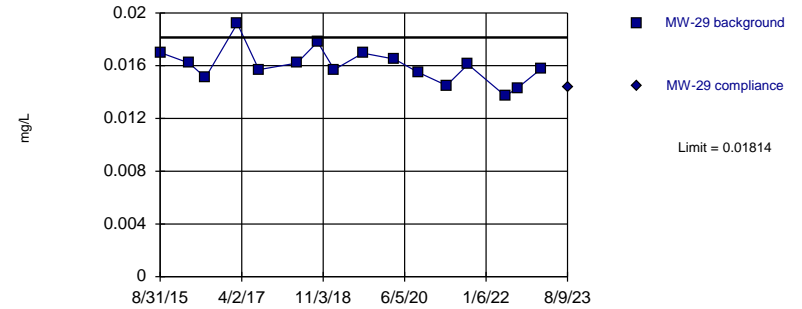


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 16 background values. 25% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Arsenic Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric

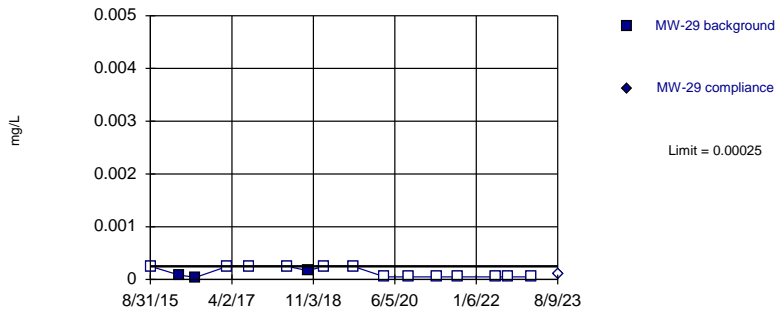


Background Data Summary: Mean=0.01602, Std. Dev.=0.001352, n=16. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9676, critical = 0.844. Kappa = 1.569 (c=11, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001197.

Constituent: Barium Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

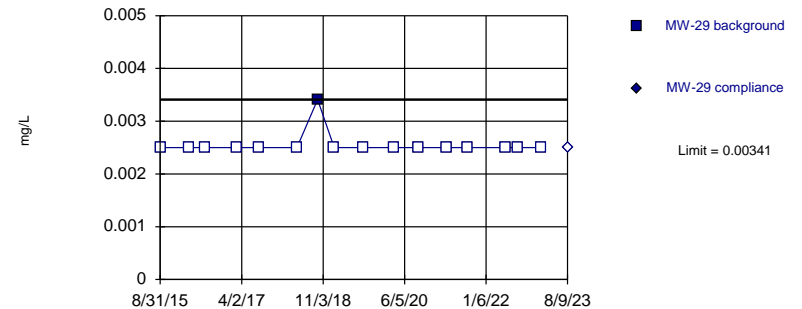


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 81.25% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Cadmium Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

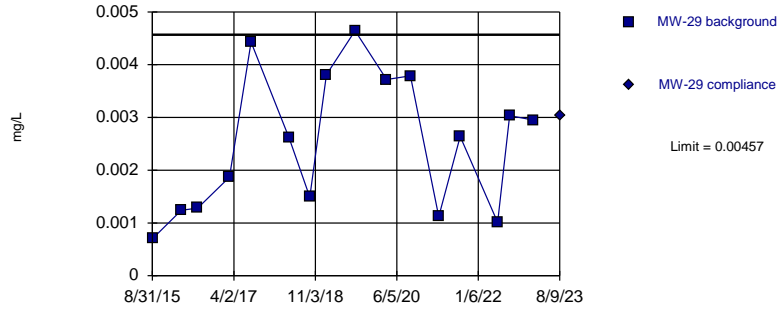


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 93.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Chromium Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric



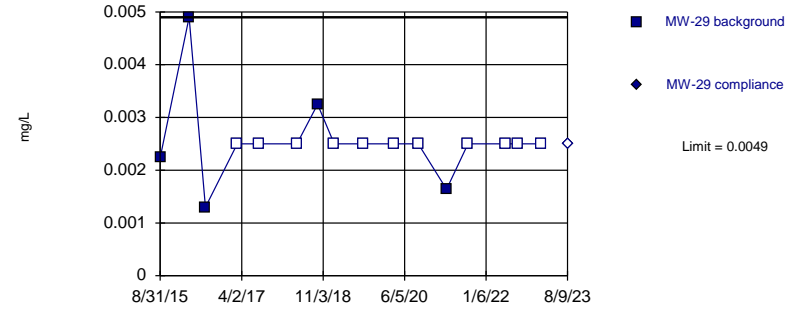
Background Data Summary: Mean=0.002521, Std. Dev.=0.001306, n=16. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.926, critical = 0.844. Kappa = 1.569 (c=11, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001197.

Constituent: Cobalt Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Hollow symbols indicate censored values.

Within Limit

Prediction Limit  
Intrawell Non-parametric



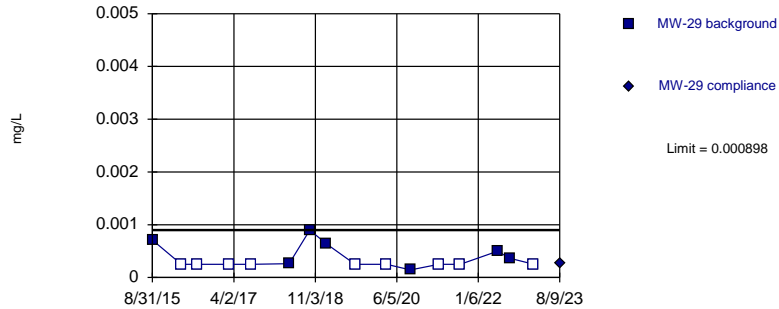
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 68.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Copper Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Hollow symbols indicate censored values.

Within Limit

Prediction Limit  
Intrawell Non-parametric

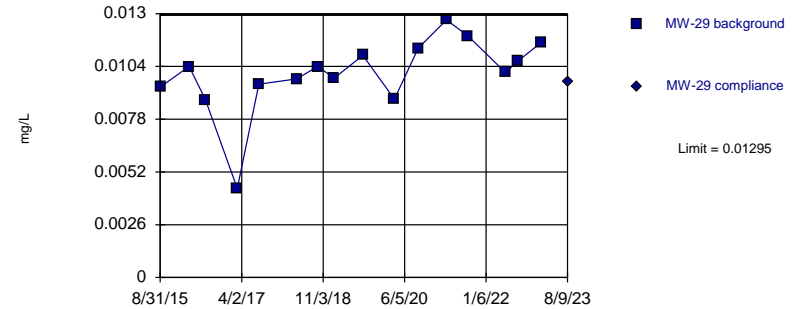


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 56.25% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Lead Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Parametric

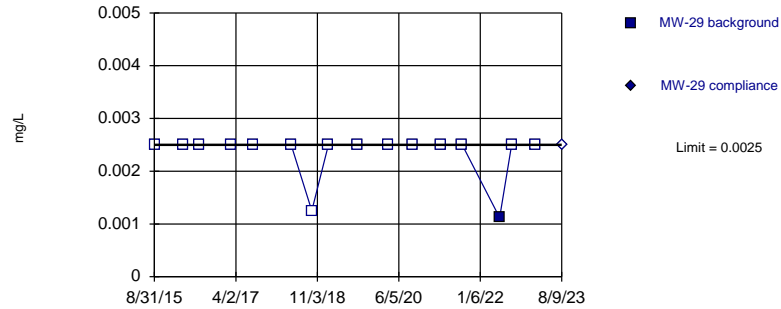


Background Data Summary: Mean=0.01003, Std. Dev.=0.001861, n=16. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8506, critical = 0.844. Kappa = 1.569 (c=11, w=4, 1 of 3, event alpha = 0.05132). Report alpha = 0.001197.

Constituent: Nickel Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

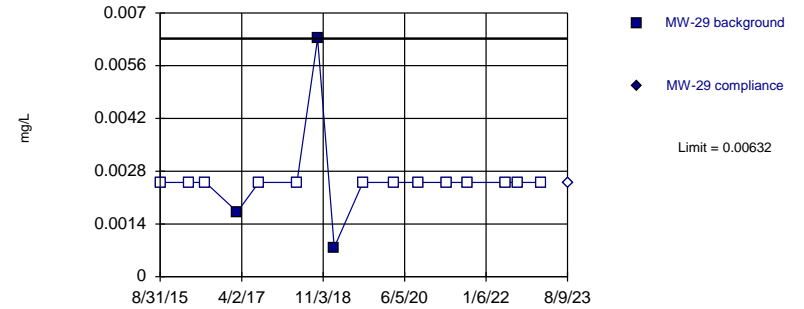


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 93.75% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Selenium Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric

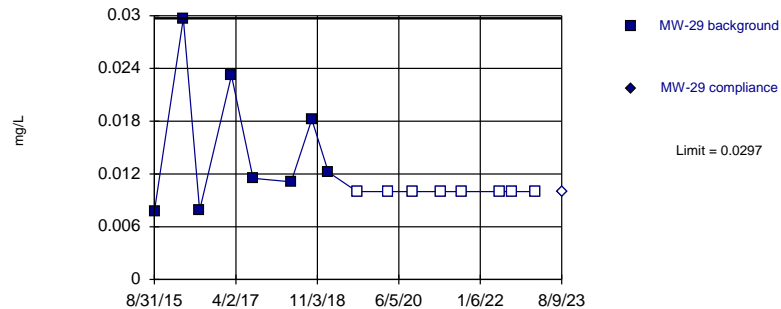


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 81.25% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Vanadium Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master

Within Limit

Prediction Limit  
Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 16 background values. 50% NDs. Well-constituent pair annual alpha = 0.002051. Individual comparison alpha = 0.001026 (1 of 3). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: Zinc Analysis Run 9/13/2023 6:47 PM View: 2023AWQR - Intrawell PL MW-29  
Great River SLF Client: SCS Engineers Data: Sanitas GRRWA Ph2-master



**Appendix E**

**2023 Leachate Control System Performance Evaluation Report**





**2023 LEACHATE CONTROL SYSTEM PERFORMANCE EVALUATION REPORT**

**FOR**

**GREAT RIVER REGIONAL WASTE AUTHORITY SANITARY LANDFILL**

**FORT MADISON, IOWA**

**SUBMITTAL DATE: DECEMBER 2023**

**PREPARED FOR:**

**GREAT RIVER REGIONAL WASTE AUTHORITY**

**PREPARED BY:**

**SCS ENGINEERS**



## Table of Contents

<b>SECTION 1.0 DESCRIPTION OF EXISTING LEACHATE CONTROL SYSTEM</b> .....	<b>1-1</b>
1.1 LOCATION OF CONTROL SYSTEM.....	1-1
Phase 1 MSWLF Unit.....	1-1
Phase 2 MSWLF unit.....	1-1
1.2 EFFECTIVENESS OF THE LEACHATE CONTROL SYSTEM.....	1-2
Phase 1 MSWLF Unit.....	1-2
Phase 2 MSWLF Unit, Region 1 .....	1-2
Phase 2 MSWLF Unit, Region 2 .....	1-3
Phase 2 MSWLF Unit, Region 3 .....	1-4
1.3 APPROVED CHANGES TO SYSTEM .....	1-4
1.4 PROPOSED CHANGES TO SYSTEM.....	1-4

### Figures

FIGURE 1 LEACHATE CONTROL SYSTEM

### Attachments

ATTACHMENT A LEACHATE MANAGEMENT SUMMARY TABLE

ATTACHMENT B HISTORICAL LEACHATE COLUMN THICKNESS TABLES AND GRAPHS

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## Section 1.0

# Description of Existing Leachate Control System

SCS Engineers (SCS), on behalf of the Great River Regional Waste Authority (GRRWA), has prepared this Leachate Control System Performance Evaluation Report (LCSPER) for the closed Phase 1 (unlined) and active Phase 2 (lined) municipal solid waste landfill (MSWLF) units at the GRRWA Sanitary Landfill (Landfill). This LCSPER was prepared to comply with the requirements of the 2002 Iowa Administrative Code (IAC) 567-113.26(2)"I", current 567-113.7(5)"b"(14), and additional Iowa Department of Natural Resources (DNR) requirements specified in the operating permit, most recently revised on July 19, 2023 (Doc #107272). This LCSPER describes the leachate control system, discusses maintenance activities, provides an evaluation of the effectiveness of the system, and, if necessary, provides recommendations for additional control measures. The reporting period for this LCSPER is from January through September 2023.

### 1.1 Location of Control System

The leachate control system of the Landfill is depicted in Figure 1, Leachate Control System. The Landfill property consists of approximately 221 acres generally located within the NW  $\frac{1}{4}$  and SW  $\frac{1}{4}$  of Section 27 and the NW  $\frac{1}{4}$  of Section 34, T68N, R4W in Lee County, Iowa.

#### Phase 1 MSWLF Unit

The monitoring system for the Phase 1 MSWLF unit consists of twelve piezometers (PZ-1, PZ-2, PZ-3, PZ-6R, PZ-7, PZ-7R, PZ-8, PZ-9, PZ-10, PZ-10R, PZ-11, and LW-5). Remote data collection telemetry systems (SCADA) were previously installed in leachate piezometers PZ-1, PZ-2, and LW-5. The Phase 1 MSWLF unit leachate collection system consists of leachate extraction pumps installed in eight leachate piezometers (PZ-1, PZ-2, PZ-6R, PZ-7R, PZ-8, PZ-9, PZ-10R, and LW-5). A subsurface piping system connects the leachate extraction wells to the leachate storage lagoon. The extraction pumps in the Phase 1 MSWLF unit were turned off on December 2, 2015 in accordance with Permit Amendment #3 (Doc #84749), dated December 1, 2015. Hand measurements replaced SCADA measurements in December 2015 in conjunction with the extraction pump shutdown. A leachate toe drain was installed at the southern toe-of-slope in the summer of 2019 (Doc #95656).

#### Phase 2 MSWLF unit

The Phase 2 MSWLF unit, which is comprised of Regions 1, 2, and 3, began accepting waste on April 20, 1993 and has been actively receiving waste since that time. Leachate piezometers/extraction wells LEW-08-1, LPZ-5R, LPZ-6, LPZ-7, LW-6, LEW-7, LEW-8, LEW-9, LEW-10, and LEW-11 were installed to monitor and/or manage leachate head in Region 1. Leachate sumps are used to monitor leachate head in Region 2, which is comprised of cells R2-1, R2-2, and R2-3. Leachate levels in sumps, as well as the levels in lift station L-1 on the south side of Phase 2, Region 1, are monitored by transducers and the SCADA system. Leachate piezometer LPZ-R3-1, installed to monitor leachate head in Cell R3-1 of Region 3, is also monitored by a transducer and the SCADA system.

The leachate collection system in Region 1 of the Phase 2 MSWLF unit consists of a leachate collection layer and collection pipes located above the liner constructed in 1993. In addition, leachate extraction pumps were installed in extraction wells LW-6, LEW-08-1, LEW-7, LEW-8, LEW-9, LEW-10, and LEW-11. Leachate extraction wells LEW-7, LEW-8, LEW-9, LEW-10, and LEW-11, as well as leachate piezometers LPZ-6 and LPZ-7, were installed in Region 1 in June 2015. Extracted leachate from Region 1 is gravity-drained to lift station L-1. Leachate is then pumped to the storage lagoon from lift station L-1.

Segment A-1 of the Leachate Seep Tie-in Line (Doc #51682) was installed in the northwest corner of the Region 1 area in 2005. In March 2020, a toe drain was installed on the south side of the Phase 2 MSWLF unit Region 1 (Doc #97832).

Telemetry systems were installed in leachate extraction wells LEW-08-1R, LEW-7R, LEW-8, LEW-9, LEW-10, and LEW-11 as well as lift station L-1. In November 2020, extraction wells LEW-08-1, LEW-7, and LW-6 were replaced with leachate extraction wells LEW-08-1R, LEW-7R, and LW-6R, respectively. Piping was installed from LEW-7R to LEW-08-1R to LW-6R and attached to the existing conveyance line to the storage lagoon.

The leachate collection system in Region 2 of the Phase 2 MSWLF unit consists of a leachate collection layer and collection pipes located above the liners in Cells R2-1 (constructed in 2007), R2-2 (constructed in 2010), and R2-3 (constructed in 2012). Extracted leachate from the Region 2 cells is collected in sumps located on the south end of Region 2 Cells R2-1 and R2-2, where leachate is pumped to lift station L-1.

The leachate collection system in Region 3 of the Phase 2 MSWLF unit consists of a leachate collection layer and collection pipes located above the liner in Cell R3-1, constructed in 2021. Extracted leachate from Cell R3-1 discharges to a lift station located east of Cell R3-1. The leachate is then conveyed to a lift station located southeast of Cell R2-2, and finally to lift station L-1.

## **1.2 Effectiveness of the Leachate Control System**

### **Phase 1 MSWLF Unit**

Table 12 in Attachment A provides monthly leachate column thicknesses for the Phase 1 MSWLF unit for the reporting period. Table B-1 in Attachment B provides a summary of leachate column thicknesses for the period of record. Leachate extraction pumps were turned off on December 2, 2015 in accordance with Permit Amendment #3 dated December 1, 2015. Beginning in December 2015, hand measurements were recorded for each of the Phase 1 MSWLF unit leachate monitoring points, including those with SCADA installed (PZ-1, PZ-2, and LW-5). As shown in the graphs included in Attachment B, leachate thicknesses generally increased following the pumps being turned off, but have generally stabilized, in numerous cases near pre-pumping levels.

Special Provision XI.5. requires monthly inspections of the Phase 1 MSWLF unit to check for the presence of leachate seeps. The inspections are performed in conjunction with the monthly leachate level measurement events. During this reporting period, no seeps were noted. Maintenance performed on the cap included the removal of one small pine tree and the filling and seeding of two small washouts that started on the terraces. The landfill operator who performed the inspections, Mr. Trenton Burgess, stated that the washouts began with deer trails.

### **Phase 2 MSWLF Unit, Region 1**

Table 12 in Attachment A provides leachate level measurements and column thicknesses for the Region 1 portion of the Phase 2 MSWLF unit for this reporting period. Table B-2 in Attachment B provides a summary of leachate column thicknesses for the period of record. Leachate levels at the Phase 2 MSWLF unit were hand measured during this reporting period. Graphs in Attachment B show the trends in leachate column thickness.

The pump in lift station L-1 on the south side of Phase 2, Region 1 turns on automatically when the leachate level reaches a pre-determined elevation set to maintain free draining of the leachate collection pipes in the bottom of the cells. The SCADA system is capable of signaling an alarm if the pre-set elevations are exceeded. If alarms are signaled, GRRWA and SCS staff are notified so that the alarm condition can be evaluated and corrected. The table on the following page summarizes leachate thickness measurements in each of the monitoring/extraction points.

Leachate Point	Actively Pumped (Y/N)	Comments
LEW-08-1R	Y	Generally stable levels throughout the reporting period.
LPZ-5R	N	Generally stable to slightly decreasing levels throughout the reporting period.
LPZ-6	N	Levels were unable to be measured during this reporting period as the monitoring point is damaged (see note below).
LW-6R	Y	Generally stable levels throughout the reporting period.
LPZ-7	N	Generally stable to slightly decreasing levels throughout the reporting period. Levels at the end of the reporting were consistent with typical historical levels.
LEW-7R	Y	Generally stable levels throughout the reporting period.
LEW-8	Y	Generally stable levels throughout the reporting period.
LEW-9	Y	Generally stable levels throughout the reporting period with one slightly elevated measurement in April 2023.
LEW-10	Y	Generally stable to slightly decreasing levels throughout the reporting period. Levels at the end of the reporting were consistent with typical historical levels.
LEW-11	Y	Generally stable levels throughout the reporting period.

Note:

Leachate piezometer LPZ-6 appears to be kinked and the level is unable to be measured using the electronic water level indicator. The Landfill staff intends to check the piezometer each month during the routine level measurements. If the piezometer remains unable to be measured, a repair will be attempted in the spring of 2024.

The table above indicates generally stable leachate levels in Phase 2, Region 1. It should be noted that the leachate levels in leachate extraction wells LEW-8, LEW-9, LEW-10, and LEW-11 remain below the pre-pumping levels as illustrated by the significant reduction in leachate thicknesses since the beginning of leachate extraction in the Phase 2 MSWLF unit Region 1 based on a comparison to the levels on the far left side of the graphs. Pumps are set above the bottom of the well and are turned on automatically when head levels reach a preset level in each well. To decrease the risk of damaging the liner, wells were installed approximately 10 feet above the recorded liner elevations. Leachate sump L-1 for the Phase 2 MSWLF unit Region 1 remained below the compliance elevation of 21 feet during this reporting period. A summary of leachate column thicknesses for the period of record is provided in Table B-3 in Attachment B.

### **Phase 2 MSWLF Unit, Region 2**

Table 12 in Attachment A provides leachate level measurements and column thicknesses for the Region 2 portion of the Phase 2 MSWLF unit for the reporting period. Table B-3 in Attachment B provides a summary of leachate column thicknesses for the period of record.

The side slope riser pumps on the south side of Phase 2, Region 2 turn on automatically when the leachate levels reach a pre-determined elevation set to maintain less than 12 inches of head over the liner. The SCADA system is capable of signaling an alarm if the pre-determined elevations are exceeded. If alarms are signaled, GRRWA and SCS staff are notified so that the alarm conditions can be evaluated and corrected.

The leachate level measurements for the Phase 2 MSWLF unit Region 2 leachate sumps are provided in Attachment B, Table B-3 and graphs included in Attachment B. The leachate sump for the R2-2 Cell (R2-2) was below the compliance elevation of 4 feet during this reporting period.

The leachate sump for the R2-1 Cell (R2-1) was below the compliance level of 4 feet through June 2023 but above the compliance level during the July and August 2023 measurements. The pump and control panel were damaged in an electrical storm and replaced, after which levels returned to compliance levels during the September 2023 measurement.

### **Phase 2 MSWLF Unit, Region 3**

Leachate head riser LPZ-R3-1 was installed during the construction of Cell R3-1 in 2021. Leachate thicknesses were below the compliance level during this reporting period.

### **1.3 Approved Changes to System**

Approved changes to the Phase 2 MSWLF leachate control system during this reporting period are listed below.

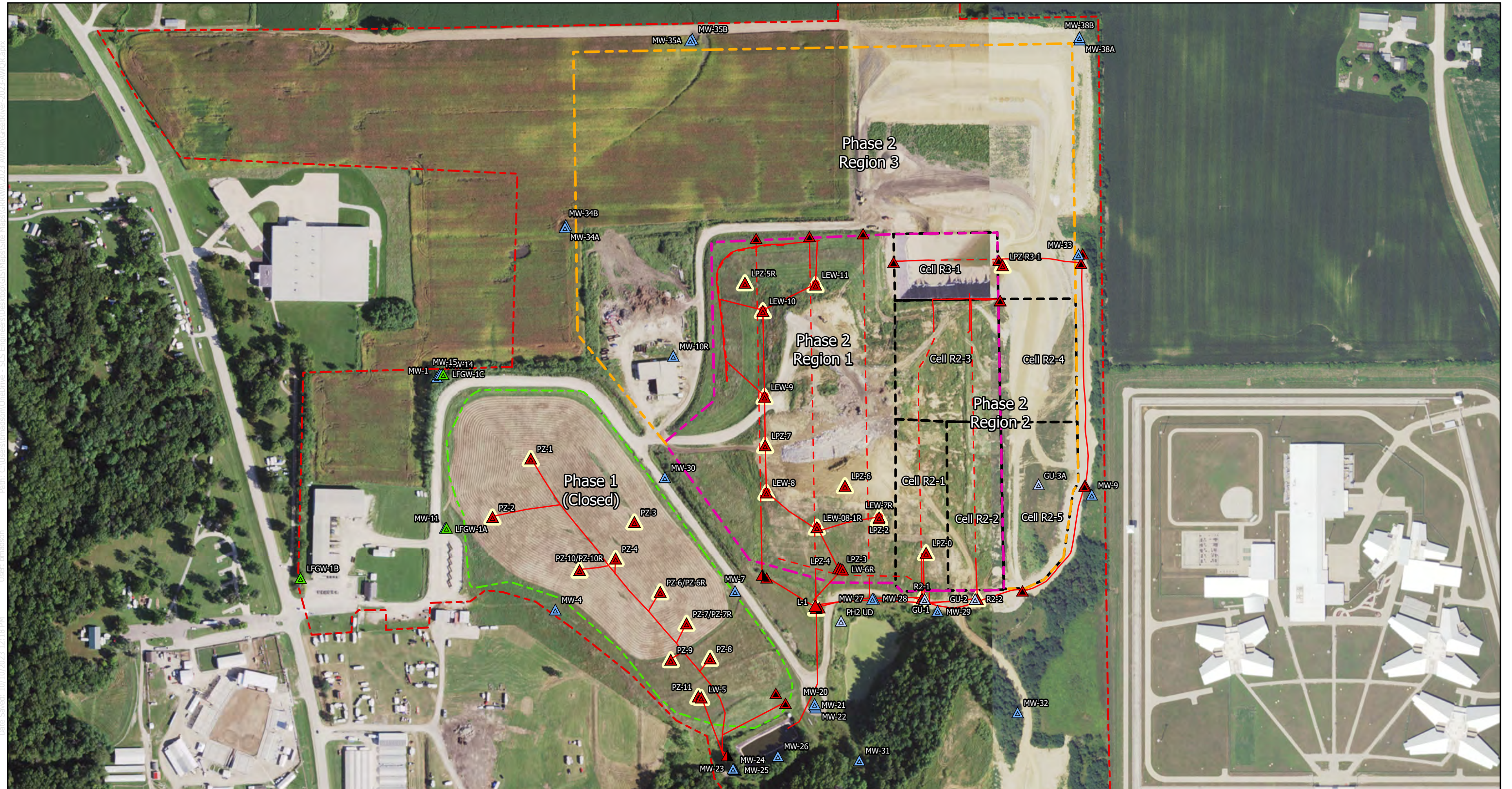
- In correspondence dated August 4, 2020 (Doc #98194), GRRWA proposed a separatory leachate collection layer that will overlie the portions of Phase 2, Region 1 that will receive future waste as part of the 2019 North Lateral Expansion and connect hydraulically to the leachate collection systems of Cell R3-1 and future Cells R3-2, R3-3, R3-4, and R3-7. The first and second portions of the separatory liner were installed and approved in DNR correspondences dated February 1, 2023 (Doc #105724) and July 19, 2023 (Doc #107272), respectively.
- The leachate pump for R1-L in the west pump house was replaced. In addition to the pump, the control panel was damaged in an electrical storm. While waiting for parts to repair the control panel, 140 feet of piping became clogged and required replacement.
- Transducers were replaced in leachate extraction wells LEW-8 and LEW-9 and lift station L-1.

### **1.4 Proposed Changes to System**

SCS recommends continuing to perform the following items to maintain the effectiveness of the leachate control system:

- Continue monthly monitoring of the leachate levels as required in the facility permit.
- Maintain good vegetation over the final cover and intermediate cover over the inactive areas.
- Continue operation and maintenance of the leachate control system in accordance with the approved Leachate Control System Plan. Leachate extraction pumps should be repaired/serviced as necessary.
- Continue recording the volume of leachate conveyed to and treated at the City of Fort Madison publicly-owned treatment works (POTW).
- Continue cleaning the leachate collection system once every three years, or more frequently if leachate head or the volume of leachate collected indicates cleaning is necessary. Cleaning occurred during this reporting period on October 30, 2023.

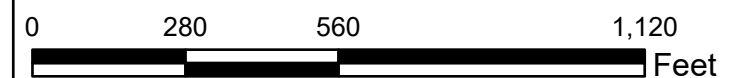
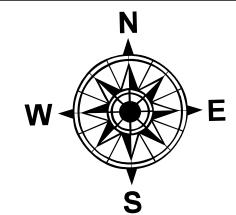




## Leachate Control System

Legend			
	Monitoring Well		Leachate Monitoring Point
	Underdrain Monitoring Point		Lift Station
	Landfill Gas Well		Manhole
	Leachate Piezometer and/or Extraction Well Location		Cleanout
			SolLeachatePipePh1
	Leachate Pipe - Solid		Leachate Pipe - Perforated
	Located Waste Boundary		Approximate Future Waste Boundary - Phase 2
	Approximate GRRWA Property Boundary		Approximate Waste Boundary - Phase 2
	Approximate Location Of Cell Boundaries		

GRRWA Sanitary Landfill  
 Fort Madison, Iowa  
 Project No: 27223129.24  
 Drawing Date: October 2023



**Figure 1**

CS&A, Iowa State University GIS Facility, QGIS/MapInfo, Esri, HERE, Garmin, Frangos, PVI, METI/NASA, USGS, Esri, COGITO, USGS





**Attachment A**

**Leachate Management Summary Table**

**Table 12**  
**Leachate Management Summary**  
**2023 Leachate Control System Performance Evaluation Report**  
**Great Regional Waste Authority Sanitary Landfill - Phase 1 and Phase 2 MSWLF Units**  
**Permit No. 56-SDP-07-80P**

Month	Phase 1 MSWLF Unit											
	PZ-1	PZ-2	PZ-3	PZ-6R	PZ-7	PZ-7R	PZ-8	PZ-9	PZ-10	PZ-10R	PZ-11	LW-5
January	19.20	30.90	6.60	34.80	12.00	13.70	17.00	16.70	42.30	44.40	30.50	28.10
February	19.50	31.20	6.80	35.00	13.20	13.70	17.10	16.90	42.60	44.70	30.80	28.60
March	18.40	30.30	5.70	34.30	13.00	12.90	16.80	16.60	42.30	44.20	30.50	28.20
April	18.80	30.70	6.60	34.80	13.00	13.50	17.10	16.70	42.40	44.70	30.80	28.50
May	18.00	29.70	4.90	34.10	12.50	12.50	16.50	16.30	42.00	43.90	30.30	27.80
June	19.00	31.30	5.90	34.00	12.40	12.30	16.10	16.10	42.20	43.00	30.00	27.60
July	18.60	31.10	5.80	33.80	12.00	12.10	16.10	15.80	42.40	42.50	29.80	27.40
August	18.70	31.00	8.60	33.70	11.90	12.00	15.90	16.00	42.50	42.90	29.60	27.60
September	20.50	32.60	7.90	33.50	11.50	12.40	15.60	16.60	41.70	43.50	29.80	27.80

Month	Phase 2, Region 1											Phase 2, Region 2		Phase 2, Region 3	Discharged to Ft. Madison POTW (gal)	Precipitation (in)
	LEW-08-1R	LPZ-5R	LPZ-6	LPZ-7	LW-6R	LEW-7R	LEW-8	LEW-9	LEW-10	LEW-11	L-1**	R2-1*	R2-2*	LPZ-R3-1		
January	33.50	18.80	Damaged	48.60	60.10	24.30	36.30	33.40	20.30	19.90	5.34	2.03	2.29	0.05	0	1.64
February	33.70	18.80		48.80	60.10	24.40	36.60	33.80	20.60	20.30	5.22	2.05	2.27	0.05	159,000	2.73
March	33.30	18.20		48.20	59.60	23.70	36.30	33.40	19.30	19.70	6.02	2.05	2.25	0.19	430,000	3.37
April	33.70	18.80		48.70	59.80	24.20	36.40	37.70	21.40	20.40	NA	2.02	2.26	0.05	0	0.88
May	33.10	17.70		48.00	59.30	23.40	36.10	32.90	18.90	19.60	NA	1.93	NA	0.05	299,583	4.01
June	32.90	17.20		47.70	58.70	23.20	36.10	32.80	18.90	19.60	NA	2.52	NA	0.05	424	0.66
July	32.80	16.90		47.50	58.60	22.60	35.90	32.60	18.90	19.50	5.76	5.93	3.44	0.05	498	1.41
August	32.90	17.10		47.70	58.80	22.80	35.90	32.70	18.80	19.60	5.71	7.28	2.27	0.06	355,847	6.21
September	33.40	17.40		47.10	58.40	23.30	36.50	33.10	18.60	19.50	5.31	1.87	2.29	0.08	12,632	1.63
<b>Reporting Period Total</b>															<b>1,257,984</b>	<b>22.54</b>

NA - Not available.

\* - The compliance level of R2-1 and R2-2 is 4 feet.

\*\* - The compliance level of L-1 is 21 feet.

Measurements performed by Landfill staff.

- 1) All measurements are thickness in feet: water column in Phase 1, head over liner in Phase 2.
- 2) Reporting Period: January - September 2023
- 3) Last Date of Cleaning and Inspection: October 2023.
- 4) Date for Next Cleaning and Inspection: Leachate line cleaning and inspection will be performed in 2026.
- 5) Volume of Leachate Recirculated: Leachate is not recirculated.
- 6) Volume of Leachate Treated On-Site: Leachate is not treated on-site.
- 7) Volume of Leachate Treated Off-Site: 1,257,984 gallons of leachate were discharged to the City of Ft. Madison POTW during this reporting period.
- 8) Leachate Quality Testing Results: Leachate testing is performed by the Ft. Madison POTW. Results are not provided to GRRWA.
- 9) Precipitation data from [https://mesonet.agron.iastate.edu/ASOS/reports/mon\\_prec.php?year=2023](https://mesonet.agron.iastate.edu/ASOS/reports/mon_prec.php?year=2023).

**Attachment B**

**Historical Leachate Column Thickness Tables and Graphs**



**Attachment B**  
**Phase 1 Leachate Level Measurements**  
**Great River Regional Waste Authority Sanitary Landfill**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

CONSTRUCTED WELL DEPTH (ft)	LEACHATE PIEZOMETER											
	PZ-1	PZ-2	PZ-3	PZ-6R	PZ-7	PZ-7R	PZ-8	PZ-9	PZ-10	PZ-10R	PZ-11	LW-5
	40.0	45.8	39.9	57.0	42.0	41.0	45.1	38.3	63.8	64.0	47.8	46.8
DATE	MEASURED LEACHATE COLUMN (ft)											
1/27/2000	17.27	24.99	3.94	NI	8.16	NI	11.45	9.69	40.84	NI	NI	NA
2/28/2000	15.48	25.34	4.07	NI	8.66	NI	11.71	9.34	40.31	NI	NI	NA
3/29/2000	15.42	9.26	3.90	NI	8.73	NI	7.29	10.09	39.53	NI	NI	NA
4/25/2000	10.48	21.24	3.39	NI	8.64	NI	6.56	9.66	39.58	NI	NI	NA
5/30/2000	10.55	15.26	3.73	NI	8.76	NI	11.52	10.55	40.68	NI	NI	NA
6/28/2000	14.14	17.04	3.77	NI	8.95	NI	11.72	6.55	40.62	NI	NI	NA
7/25/2000	12.58	17.09	3.75	NI	8.86	NI	12.12	7.25	40.82	NI	NI	NA
8/28/2000	15.55	10.49	3.55	NI	8.71	NI	12.09	6.85	40.65	NI	NI	NA
9/27/2000	10.99	16.99	2.75	NI	9.16	NI	12.14	6.90	40.59	NI	NI	NA
10/30/2000	14.09	15.25	3.05	NI	9.22	NI	12.18	6.92	39.55	NI	NI	NA
11/27/2000	15.40	19.80	3.75	NI	9.55	NI	12.85	8.30	41.10	NI	NI	NA
12/26/2000	15.38	20.29	2.75	NI	9.14	NI	12.77	8.85	39.99	NI	NI	NA
1/30/2001	17.25	21.47	4.79	NI	9.55	NI	10.52	9.39	41.05	NI	NI	NA
2/28/2001	17.20	21.38	2.92	NI	9.64	NI	11.71	9.39	40.28	NI	NI	NA
3/29/2001	15.46	23.70	2.72	NI	9.42	NI	10.62	9.15	40.41	NI	NI	NA
4/30/2001	10.50	21.31	3.63	NI	12.06	NI	9.41	9.85	40.28	NI	NI	NA
5/18/2001	16.25	26.75	3.80	NI	15.10	NI	13.65	11.00	40.50	NI	NI	NA
6/29/2001	16.90	26.44	3.92	NI	13.23	NI	13.73	10.05	40.68	NI	NI	NA
7/30/2001	16.35	26.30	3.90	NI	12.50	NI	14.08	11.11	40.75	NI	NI	NA
8/29/2001	16.40	26.05	3.90	NI	12.10	NI	14.32	11.20	40.68	NI	NI	NA
9/28/2001	16.32	25.80	3.87	NI	11.73	NI	14.43	11.04	40.53	NI	NI	NA
10/31/2001	16.46	26.35	3.70	NI	12.79	NI	14.90	11.40	40.65	NI	NI	NA
11/29/2001	16.55	25.80	3.52	NI	11.97	NI	15.09	11.39	40.60	NI	NI	NA
12/26/2001	16.70	25.82	3.59	NI	12.16	NI	15.27	11.77	40.89	NI	NI	NA
1/31/2002	20.02	22.09	3.37	NI	11.48	NI	14.46	11.05	40.35	NI	NI	NA
2/28/2002	16.45	26.03	3.78	NI	12.85	NI	15.30	11.80	40.78	NI	NI	NA
3/28/2002	16.76	26.35	3.72	NI	13.02	NI	15.40	12.06	40.86	NI	NI	NA
4/30/2002	16.75	26.51	4.06	NI	12.61	NI	15.33	11.92	40.62	NI	NI	NA
5/28/2002	16.80	26.63	3.98	NI	12.28	NI	15.45	12.12	40.70	NI	NI	NA
6/27/2002	14.81	26.25	4.04	NI	12.00	NI	15.34	12.06	40.61	NI	NI	NA
7/31/2002	16.85	26.25	4.65	NI	11.58	NI	15.37	12.06	41.45	NI	9.55	NA
8/30/2002	20.50	22.20	3.91	NI	11.96	NI	15.37	11.97	40.36	NI	9.75	NA
9/30/2002	16.80	26.60	3.91	NI	11.55	NI	15.52	12.19	40.40	NI	5.70	NA
10/28/2002	16.94	26.83	4.98	NI	11.46	NI	15.60	12.22	40.54	NI	2.89	NA
11/27/2002	16.84	26.48	4.00	NI	11.14	NI	15.36	11.91	40.20	NI	2.92	NA
12/30/2002	17.15	27.05	4.10	NI	10.70	NI	14.00	11.20	40.72	NI	1.15	NA
1/28/2003	16.90	26.69	4.03	NI	11.07	NI	15.43	12.06	40.27	NI	2.96	NA
2/27/2003	16.92	26.70	4.00	NI	11.44	NI	15.64	12.27	40.36	NI	5.47	NA
3/31/2003	16.90	26.60	3.97	NI	11.30	NI	15.69	12.32	40.22	NI	6.42	NA
4/30/2003	20.80	22.68	4.03	NI	11.27	NI	15.57	12.24	40.16	NI	7.36	NA
5/30/2003	20.90	18.88	4.06	NI	11.21	NI	15.85	12.64	40.53	NI	9.00	NA
6/30/2003	16.85	26.38	4.05	NI	10.97	NI	15.46	12.01	40.00	NI	9.36	NA
7/31/2003	16.98	26.41	4.05	NI	11.07	NI	15.66	12.37	40.18	NI	27.32	NA
8/28/2003	20.51	22.17	3.07	NI	10.95	NI	15.60	12.40	40.20	NI	28.50	NA
11/26/2003	20.89	22.88	4.10	NI	11.49	NI	15.60	12.51	40.30	NI	15.80	NA
12/23/2003	17.23	26.73	4.16	NI	14.15	NI	15.71	12.58	40.34	NI	8.44	NA
1/29/2004	20.77	22.90	4.02	NI	12.65	NI	15.85	12.65	40.16	NI	8.34	NA
2/27/2004	20.90	22.91	4.00	NI	13.80	NI	15.70	12.50	37.95	NI	8.00	NA
3/30/2004	17.33	27.00	4.11	NI	14.04	NI	15.85	12.66	40.17	NI	8.15	NA
4/29/2004	17.21	27.10	4.10	NI	12.85	NI	15.85	12.60	40.10	NI	7.57	NA
5/25/2004	17.23	26.73	4.16	NI	14.15	NI	15.71	12.58	40.34	NI	8.44	NA
6/29/2004	17.00	33.65	4.08	NI	11.00	NI	15.78	12.40	39.85	NI	5.30	NA
7/26/2004	17.08	26.75	3.99	NI	11.80	NI	15.74	12.48	39.86	NI	7.46	NA
8/31/2004	17.05	26.72	4.01	NI	13.16	NI	15.70	12.49	39.88	NI	NA	NA
9/30/2004	17.13	26.83	4.00	NI	12.66	NI	15.82	12.61	39.88	NI	7.90	NA
10/26/2004	17.10	27.05	4.05	NI	12.95	NI	15.71	12.57	39.90	NI	7.62	NA
11/30/2004	17.14	27.10	4.04	NI	13.99	NI	15.80	12.59	39.96	NI	8.06	NA
12/31/2004	17.35	27.45	4.20	NI	13.10	NI	15.90	12.60	39.90	NI	7.45	NA

**Attachment B**  
**Phase 1 Leachate Level Measurements**  
**Great River Regional Waste Authority Sanitary Landfill**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

CONSTRUCTED WELL DEPTH (ft)	LEACHATE PIEZOMETER											
	PZ-1	PZ-2	PZ-3	PZ-6R	PZ-7	PZ-7R	PZ-8	PZ-9	PZ-10	PZ-10R	PZ-11	LW-5
	40.0	45.8	39.9	57.0	42.0	41.0	45.1	38.3	63.8	64.0	47.8	46.8
DATE	MEASURED LEACHATE COLUMN (ft)											
1/31/2005	17.35	27.47	4.06	NI	13.20	NI	15.90	12.55	39.85	NI	7.70	NA
2/28/2005	17.55	27.79	4.11	NI	13.92	NI	16.24	12.99	40.22	NI	8.31	NA
3/29/2005	17.55	27.96	4.30	NI	13.25	NI	16.60	13.00	40.30	NI	7.45	NA
4/28/2005	17.36	27.91	4.18	NI	12.98	NI	16.03	12.65	39.85	NI	7.86	NA
5/31/2005	17.31	27.88	4.20	NI	12.36	NI	15.98	12.63	39.76	NI	7.44	NA
6/29/2005	17.28	27.80	4.20	NI	12.15	NI	16.05	12.65	38.85	NI	7.40	NA
7/25/2005	15.26	27.65	4.18	NI	12.00	NI	16.00	12.67	39.73	NI	7.21	NA
10/24/2005	17.19	27.38	4.09	NI	11.47	NI	15.86	12.60	39.50	NI	16.36	NA
1/23/2006	17.20	27.13	4.16	NI	11.25	NI	15.95	12.56	38.46	NI	17.58	NA
4/14/2006	17.63	27.83	4.20	NI	14.47	NI	16.25	13.09	39.90	NI	29.47	NA
7/27/2006	17.42	27.49	4.30	NI	12.43	NI	16.14	12.88	39.50	NI	27.20	NA
10/20/2006	1.51	19.30	NA	NI	3.48	NI	2.09	1.18	36.57	NI	7.80	NA
1/31/2007	0.02	19.60	0.02	NI	10.19	NI	0.10	1.10	0.25	NI	0.77	NA
4/27/2007	1.70	19.77	4.21	NI	12.58	NI	2.02	1.09	36.40	NI	7.90	NA
7/20/2007	0.86	19.61	4.14	NI	11.67	NI	2.10	0.99	36.44	NI	7.89	NA
10/26/2007	40.00	45.80	3.97	NI	11.27	NI	4.88	0.68	NA	NI	7.88	NA
1/31/2008	1.56	32.20	4.00	NI	11.25	NI	1.85	0.68	NA	NI	7.80	NA
4/29/2008	7.82	33.20	NA	NI	12.60	NI	1.83	0.82	NA	NI	8.12	NA
7/31/2008	13.98	30.99	NA	NI	10.72	NI	1.92	1.08	NA	NI	7.94	NA
10/13/2008	15.00	31.34	4.12	NI	10.90	NI	1.99	1.17	NA	NI	7.98	NA
1/19/2009	16.59	32.69	3.97	NI	11.91	NI	3.62	1.13	36.30	NI	7.99	NA
2/24/2009	16.78	32.68	4.12	NI	5.28	NI	2.05	6.28	13.18	NI	16.95	NA
3/25/2009	16.82	33.56	4.12	NI	5.58	NI	1.92	0.61	4.84	NI	47.80	NA
4/30/2009	16.92	33.79	4.20	NI	5.29	NI	1.98	2.79	4.47	NI	8.77	NA
6/25/2009	16.89	32.75	4.08	NI	12.00	NI	3.86	1.76	36.65	NI	8.10	NA
8/27/2009	16.83	32.57	4.22	NI	5.36	NI	2.10	8.76	3.58	NI	7.82	NA
9/29/2009	16.80	31.89	4.17	NI	5.26	NI	2.01	9.18	3.86	NI	7.97	NA
10/29/2009	17.10	33.40	4.21	NI	7.04	NI	2.12	10.07	10.35	NI	8.34	NA
11/30/2009	17.10	33.76	4.19	NI	5.48	NI	1.95	9.27	4.15	NI	8.35	NA
12/1/2009	17.15	33.50	4.02	NI	5.37	NI	1.96	10.30	3.84	NI	8.02	NA
1/29/2010	17.26	33.92	4.16	NI	5.67	NI	1.97	1.32	4.20	NI	7.99	NA
2/26/2010	17.31	33.15	4.10	31.70	5.58	4.48	1.66	1.63	3.65	5.17	8.03	NA
3/30/2010	17.10	33.67	4.20	33.58	5.97	4.45	8.35	NA	4.21	5.96	8.56	NA
4/22/2010	16.09	33.13	4.21	32.71	5.75	4.41	1.72	1.55	4.01	5.80	8.17	NA
5/27/2010	16.93	32.91	4.18	34.19	5.85	4.56	1.85	2.75	3.90	5.69	15.07	NA
6/27/2010	16.58	31.28	4.18	34.25	6.28	4.68	1.78	2.55	3.84	5.58	16.38	NA
7/21/2010	17.17	32.80	4.22	33.88	5.80	4.47	1.78	8.16	4.00	5.77	28.78	NA
8/23/2010	26.06	22.65	4.30	32.45	5.84	4.60	1.80	9.37	3.77	5.55	30.55	NA
9/28/2010	17.03	32.55	4.30	32.46	5.98	4.48	1.90	10.63	4.01	5.81	31.20	NA
10/26/2010	17.08	32.24	4.45	31.38	6.15	4.52	1.90	10.73	4.10	5.90	31.32	NA
11/30/2010	17.10	31.32	4.44	29.40	5.77	4.48	1.86	1.56	3.70	5.52	30.65	NA
12/22/2010	17.02	30.39	4.19	28.55	5.82	4.28	1.92	1.30	2.00	5.40	29.36	NA
1/27/2011	15.85	31.10	4.34	27.35	5.86	3.88	1.95	10.20	4.29	5.76	27.95	NA
2/23/2011	14.69	30.28	3.78	31.58	5.95	4.45	2.92	NA	3.49	4.85	30.37	NA
3/1/2011	11.15	31.68	3.29	31.32	5.90	4.28	7.18	6.72	3.70	4.16	29.22	NA
4/29/2011	17.86	31.72	3.90	34.19	5.85	4.56	1.85	2.75	3.90	5.69	15.07	NA
5/23/2011	16.69	32.78	4.48	31.25	7.09	5.02	1.95	10.80	4.15	5.85	31.28	NA
6/29/2011	17.92	31.62	3.80	32.38	5.68	4.86	2.00	0.00	4.33	5.86	31.35	NA
7/25/2011	16.88	32.08	3.75	30.59	4.62	3.92	1.86	9.50	3.49	5.38	29.35	NA
8/30/2011	16.79	32.02	3.66	30.60	4.72	3.90	1.89	9.55	3.45	5.47	29.38	NA
9/27/2011	12.82	30.40	3.22	28.19	3.97	3.51	1.88	9.27	3.51	5.28	30.72	NA
10/24/2011	11.95	27.95	2.96	27.96	3.75	3.18	1.90	9.21	3.56	4.99	29.75	NA
11/28/2011	16.86	28.91	4.34	27.86	3.68	3.11	2.12	9.12	3.32	5.02	29.60	NA
12/21/2011	1.59	31.68	3.06	28.35	4.78	3.26	1.92	7.26	3.49	5.06	29.79	NA
1/30/2012	1.48	31.00	4.05	27.96	4.10	3.20	1.89	6.32	3.42	5.24	29.56	NA
2/29/2012	1.52	31.02	4.18	27.92	3.99	3.55	2.00	6.41	3.40	5.30	29.60	NA
3/28/2012	1.60	31.12	4.10	27.82	3.86	3.44	1.97	6.40	3.39	5.28	29.58	NA
4/29/2012	1.60	31.90	4.66	28.77	NA	4.16	1.46	0.82	NA	5.40	20.72	NA
5/31/2012	7.02	11.84	4.12	22.57	5.02	3.90	1.90	8.56	3.56	5.27	10.38	NA
6/27/2012	7.04	10.85	4.12	27.55	4.55	3.88	3.90	8.56	3.56	5.27	12.38	NA
7/30/2012	7.05	10.85	4.28	26.48	4.42	3.90	3.95	8.60	3.60	5.30	12.22	NA
8/28/2012	7.01	10.86	4.25	19.86	4.75	3.00	1.89	0.00	4.82	5.06	17.18	NA
9/27/2012	6.84	10.86	4.38	19.91	4.80	2.58	2.10	9.40	4.88	5.09	17.29	NA
10/23/2012	6.63	10.85	4.18	19.80	4.80	2.18	1.89	0.96	5.06	5.32	17.22	NA
11/27/2012	6.56	10.87	3.86	19.80	4.85	2.10	1.90	0.98	5.07	5.36	17.20	NA
12/18/2012	7.36	10.84	3.82	19.72	4.88	2.15	1.90	1.00	5.05	5.31	17.19	NA



**Attachment B**  
**Phase 1 Leachate Level Measurements**  
**Great River Regional Waste Authority Sanitary Landfill**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

CONSTRUCTED WELL DEPTH (ft)	LEACHATE PIEZOMETER											
	PZ-1	PZ-2	PZ-3	PZ-6R	PZ-7	PZ-7R	PZ-8	PZ-9	PZ-10	PZ-10R	PZ-11	LW-5
	40.0	45.8	39.9	57.0	42.0	41.0	45.1	38.3	63.8	64.0	47.8	46.8
DATE	MEASURED LEACHATE COLUMN (ft)											
1/28/2013	7.50	10.83	3.85	19.70	4.85	2.17	1.90	0.98	5.00	5.32	17.22	NA
2/28/2013	7.47	10.85	4.65	19.69	5.58	2.19	1.09	0.41	5.02	5.49	11.38	NA
3/25/2013	7.51	11.16	3.90	31.75	5.11	4.38	4.02	2.87	5.88	6.15	11.40	NA
4/23/2013	7.49	NA	3.75	32.86	5.10	4.60	4.05	2.90	5.98	6.16	10.91	NA
5/29/2013	7.52	80.69	4.10	34.40	4.60	3.85	4.05	8.60	3.60	6.61	12.30	NA
6/25/2013	7.49	80.70	4.16	33.55	4.52	3.82	6.65	8.00	3.59	6.00	21.95	NA
7/23/2013	7.36	26.71	4.12	30.90	4.50	3.90	11.95	9.25	11.50	13.58	22.00	NA
8/27/2013	7.31	7.50	4.34	29.55	4.15	3.80	10.65	8.40	18.76	20.06	25.89	NA
9/25/2013	7.11	9.42	3.89	28.89	5.05	4.28	12.72	11.90	3.55	5.30	15.85	NA
10/28/2013	6.79	10.80	4.09	28.05	5.00	4.11	11.70	11.40	3.48	5.00	14.75	NA
11/24/2013	6.77	10.65	4.10	28.06	4.99	4.18	11.10	12.36	3.42	5.00	14.70	NA
12/16/2013	6.92	10.86	4.20	26.55	5.00	4.10	9.96	12.40	3.60	5.06	14.30	NA
1/24/2014	44.33	10.88	4.10	28.10	5.00	4.15	11.10	12.34	3.40	5.00	14.66	NA
2/24/2014	35.89	10.83	0.99	18.28	5.40	4.32	4.00	11.41	3.80	6.25	14.75	NA
3/27/2014	7.39	10.85	4.48	18.20	4.99	4.35	NM	10.85	3.56	5.04	14.62	NA
4/26/2014	7.44	10.87	0.99	18.28	5.40	4.32	4.00	11.41	3.80	6.25	14.75	NA
5/29/2014	8.97	10.84	1.06	18.30	5.40	4.30	3.96	11.30	3.80	6.40	14.70	NA
6/30/2014	6.92	10.87	4.36	14.86	5.88	4.19	3.70	11.32	3.85	6.46	14.80	NA
7/28/2014	8.64	10.85	4.28	18.30	5.32	4.28	3.10	11.48	3.75	6.60	11.20	NA
8/27/2014	7.66	10.86	4.30	17.99	5.41	4.30	3.95	11.50	3.79	6.22	14.70	NA
9/29/2014	7.53	10.88	4.20	16.28	5.72	4.26	14.50	Dry	3.80	6.32	13.91	NA
10/22/2014	7.59	10.85	4.26	16.29	5.70	4.25	14.36	Dry	3.82	6.28	13.89	NA
11/26/2014	7.58	10.80	4.16	16.22	5.62	4.25	12.52	Dry	3.86	6.80	13.90	NA
12/17/2014	7.58	10.78	4.06	16.20	4.58	4.30	12.67	Dry	3.84	6.30	9.80	NA
1/26/2015	7.62	10.71	3.98	16.18	4.60	4.40	12.95	Dry	3.85	6.25	13.40	NA
2/28/2015	7.51	10.75	4.30	16.15	5.52	4.30	14.28	Dry	3.80	6.09	7.79	NA
3/30/2015	7.61	11.60	4.42	16.38	5.68	4.18	14.30	5.95	3.80	6.10	7.67	NA
4/27/2015	7.60	11.32	4.50	16.42	4.40	4.20	3.90	11.50	3.79	6.22	14.70	NA
5/27/2015	7.61	11.36	4.40	18.02	4.12	4.52	9.10	11.15	3.83	6.37	14.65	NA
6/24/2015	7.53	11.32	3.18	18.06	4.08	4.50	9.10	11.15	3.95	6.30	13.71	NA
7/27/2015	7.54	11.30	4.30	18.55	4.10	4.55	9.10	11.50	4.00	6.22	14.62	NA
8/27/2015	7.48	NA	3.82	28.96	5.98	4.28	2.69	2.43	10.99	7.18	22.09	NA
9/24/2015	1.92	22.29	3.45	29.58	4.85	4.28	10.95	8.01	11.37	5.28	13.26	NA
10/26/2015	1.96	24.52	4.36	27.42	4.35	4.58	1.69	0.89	9.29	4.18	27.89	NA
11/20/2015	2.00	25.62	4.42	26.96	4.31	4.60	2.09	0.90	9.40	4.52	28.60	NA
12/18/2015	6.99	29.84	4.40	27.00	4.58	4.86	2.95	1.82	9.43	6.08	29.31	29.79
1/28/2016	14.20	32.65	4.70	31.39	6.88	6.85	4.95	3.41	18.79	21.16	32.62	NA
2/29/2016	14.20	32.65	4.40	31.39	8.29	8.59	5.52	9.30	27.10	28.90	32.62	30.65
3/29/2016	13.18	34.15	4.75	31.48	7.00	8.85	5.15	4.25	18.72	31.15	32.66	30.70
4/28/2016	13.20	34.20	4.60	32.00	6.42	9.02	4.95	3.65	18.82	30.10	32.79	30.80
5/28/2016	13.50	33.98	4.60	28.70	6.40	9.29	5.10	11.42	19.95	30.13	32.55	30.80
6/28/2016	12.92	34.30	4.42	28.60	6.20	9.52	6.20	11.50	18.80	31.15	32.55	30.85
7/27/2016	15.39	32.26	3.95	26.80	8.69	9.22	8.76	11.49	19.98	30.26	32.08	30.50
8/24/2016	15.42	32.30	3.89	26.82	8.72	9.91	8.28	11.55	34.64	36.57	32.10	30.88
9/28/2016	7.80	32.24	4.45	25.76	9.80	10.13	19.75	11.29	34.64	36.38	31.35	30.00
10/20/2016	8.42	32.30	4.34	25.42	9.95	10.25	19.80	11.30	34.91	37.28	31.40	31.05
11/29/2016	8.33	32.45	4.18	25.32	9.85	10.44	19.70	11.25	34.79	37.42	31.35	30.91
12/21/2016	7.80	32.30	4.45	25.76	9.75	10.20	19.80	11.20	34.60	36.38	31.40	30.80
1/23/2017	13.90	32.20	4.50	28.92	10.39	10.50	8.68	10.30	36.69	38.62	30.90	29.15
2/23/2017	13.95	32.35	4.49	29.10	10.36	10.72	12.38	14.04	36.75	38.40	30.90	29.20
3/21/2017	14.40	32.75	4.58	28.76	9.95	10.50	9.20	8.85	36.80	37.99	30.90	29.20
4/19/2017	14.18	34.42	4.50	28.99	10.00	11.10	12.68	9.40	39.40	41.30	31.35	39.26
5/22/2017	14.20	34.60	4.71	29.05	9.90	11.15	12.62	9.29	39.00	41.15	31.72	39.35
6/27/2017	15.08	33.35	4.39	29.60	10.18	10.48	12.85	9.06	38.29	40.08	32.36	31.00
7/13/2017	15.99	32.40	3.89	26.70	10.55	10.20	13.60	8.90	38.16	39.99	32.59	31.79
8/17/2017	15.55	32.62	3.90	26.82	10.60	10.25	13.30	8.82	38.20	39.99	32.60	31.70
9/19/2017	15.39	32.79	4.19	27.59	10.28	10.65	14.02	14.02	37.19	39.03	31.62	29.75
10/19/2017	15.46	32.65	3.89	27.72	10.30	9.60	14.06	14.15	37.30	39.15	31.75	29.80
11/15/2017	15.36	31.79	4.62	27.70	10.60	9.75	15.09	14.05	37.91	39.30	30.65	29.70
12/18/2017	15.70	32.40	4.70	26.99	10.55	9.72	13.60	13.65	38.16	39.37	30.79	29.95

**Attachment B**  
**Phase 1 Leachate Level Measurements**  
**Great River Regional Waste Authority Sanitary Landfill**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

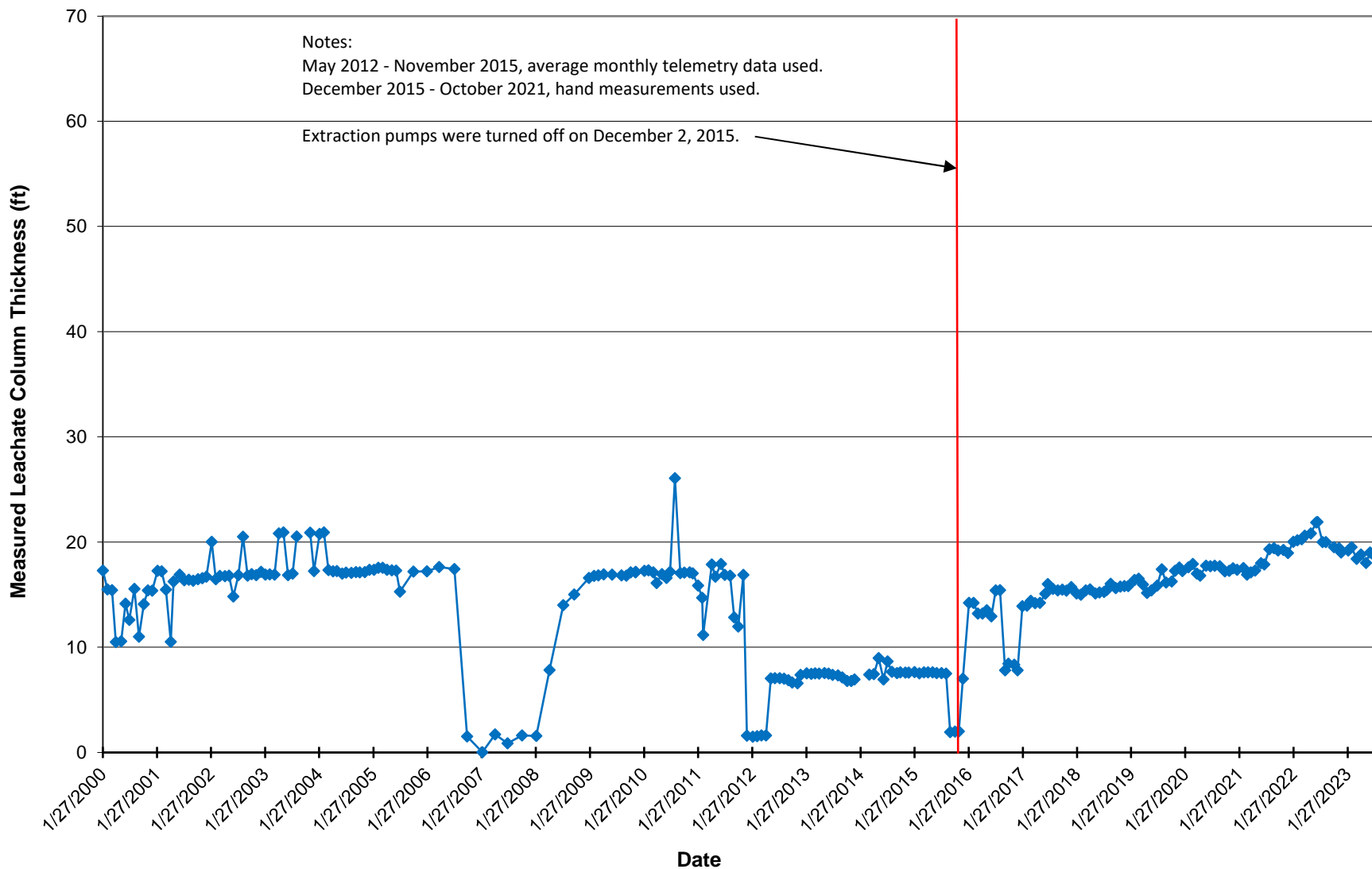
CONSTRUCTED WELL DEPTH (ft)	LEACHATE PIEZOMETER											
	PZ-1	PZ-2	PZ-3	PZ-6R	PZ-7	PZ-7R	PZ-8	PZ-9	PZ-10	PZ-10R	PZ-11	LW-5
	40.0	45.8	39.9	57.0	42.0	41.0	45.1	38.3	63.8	64.0	47.8	46.8
DATE	MEASURED LEACHATE COLUMN (ft)											
1/23/2018	15.10	31.35	4.44	26.90	10.28	9.92	13.20	13.29	38.10	39.22	29.96	28.18
2/21/2018	14.99	31.05	4.45	26.80	9.96	9.88	13.26	13.20	38.10	39.00	29.79	28.10
3/26/2018	15.40	34.71	4.39	26.94	10.15	10.10	14.12	14.07	41.55	43.66	32.22	30.39
4/24/2018	15.50	34.70	4.40	27.00	10.42	9.85	14.10	13.65	41.45	43.60	31.79	29.79
5/30/2018	15.10	31.40	4.44	26.90	10.25	10.02	13.26	13.80	41.34	43.60	31.90	29.80
6/27/2018	15.20	33.30	3.90	23.90	9.60	7.95	13.40	13.29	39.20	41.47	31.70	29.71
7/28/2018	15.25	32.72	3.89	28.90	9.80	11.42	15.32	14.08	38.79	40.88	31.71	29.89
8/15/2018	15.45	31.75	4.60	28.12	11.90	11.20	19.41	13.90	38.72	40.95	31.50	29.55
9/11/2018	16.02	25.29	4.50	28.20	10.64	11.14	15.28	13.95	38.69	41.05	31.40	29.72
10/15/2018	15.60	25.85	4.18	32.60	11.02	11.92	15.68	14.40	41.82	43.79	NA	29.80
11/14/2018	15.75	25.75	4.30	31.55	11.15	11.82	15.42	14.90	41.75	43.94	31.00	29.82
12/12/2018	15.80	25.80	4.10	31.58	11.20	11.99	15.10	14.80	41.65	44.00	31.10	29.85
1/7/2019	15.80	25.80	5.10	31.60	11.95	11.15	15.05	14.85	41.72	44.00	30.80	30.00
2/18/2019	16.39	34.57	6.20	30.99	11.90	11.00	15.22	15.40	41.40	43.82	30.79	30.62
3/19/2019	16.50	34.75	6.40	31.00	11.99	11.15	15.09	15.35	41.37	43.80	30.70	30.60
4/17/2019	15.95	34.80	5.82	30.75	12.00	12.10	15.20	15.29	41.60	43.85	30.82	NA
5/14/2019	15.15	34.20	5.62	31.30	11.90	12.20	15.09	15.21	41.32	43.55	31.40	30.80
6/12/2019	15.40	34.72	5.55	31.60	11.79	12.19	15.20	15.20	41.53	43.90	30.79	30.72
7/22/2019	15.86	34.72	5.85	32.20	9.25	12.60	19.60	14.78	41.40	43.20	31.48	29.80
8/21/2019	17.40	29.88	4.79	30.50	8.80	12.46	15.78	12.50	41.75	43.79	31.10	29.79
9/19/2019	16.15	31.30	5.00	29.68	12.33	12.89	15.40	14.70	41.32	43.82	30.79	29.10
10/28/2019	16.25	31.00	5.15	29.65	12.40	12.81	15.39	14.76	39.23	43.79	30.85	28.96
11/19/2019	17.25	31.35	5.10	30.50	13.85	12.46	15.40	14.41	39.79	43.79	31.05	29.68
12/17/2019	17.57	31.38	5.00	30.52	13.90	13.02	15.48	14.45	NA	NA	31.95	29.72
1/8/2020	17.22	31.42	5.15	30.50	13.90	12.59	15.39	14.55	39.85	43.76	31.90	29.71
2/18/2020	17.60	31.30	5.00	29.99	12.40	12.89	16.10	14.55	41.32	43.82	31.72	29.66
3/17/2020	17.92	33.00	5.40	30.52	13.85	13.10	16.65	14.55	40.08	43.52	31.65	29.68
4/15/2020	16.99	32.70	5.20	30.50	12.90	12.88	16.35	14.45	40.85	43.85	31.85	29.82
5/6/2020	16.79	35.65	9.57	30.82	12.60	12.65	16.40	14.95	42.62	44.77	31.95	29.90
6/15/2020	17.75	37.65	5.09	30.80	10.10	12.86	15.60	14.80	42.56	44.84	31.62	30.05
7/14/2020	17.70	37.55	5.58	30.65	11.02	12.79	15.65	14.88	42.52	44.90	31.40	30.08
8/12/2020	17.74	34.20	5.50	30.55	13.75	11.55	15.70	14.38	41.80	45.15	31.40	30.05
9/15/2020	17.70	34.16	5.20	30.55	13.79	12.20	15.70	14.55	41.75	44.20	31.40	30.35
10/20/2020	17.20	34.00	4.81	30.76	13.20	12.55	15.68	14.20	41.65	43.90	30.95	29.79
11/18/2020	17.25	33.95	4.80	30.80	13.10	12.35	15.52	14.10	41.55	44.00	30.88	29.89
12/14/2020	17.50	32.50	5.18	36.79	12.26	12.65	15.60	13.79	40.20	42.60	29.48	28.05
1/11/2021	17.35	32.60	5.05	36.76	12.32	12.55	15.62	14.10	40.28	43.02	29.85	28.65
2/23/2021	17.52	32.75	5.08	36.76	12.25	12.60	15.60	14.15	40.32	43.15	29.82	28.68
3/19/2021	16.90	37.95	4.57	33.20	16.28	12.53	16.23	15.49	42.95	46.60	31.45	28.95
4/13/2021	17.10	36.20	4.75	33.58	13.90	13.10	16.12	15.46	43.82	47.02	31.75	29.79
5/13/2021	17.28	36.35	4.80	33.06	12.95	12.66	16.80	15.55	43.95	46.95	32.48	30.79
6/21/2021	17.99	35.80	4.95	33.40	13.25	12.00	16.85	15.50	43.85	46.42	32.40	30.85
7/13/2021	17.85	37.05	5.65	33.15	16.20	12.60	16.30	16.40	43.65	46.60	32.05	30.65
8/17/2021	19.30	35.01	5.70	31.40	16.08	12.50	16.89	14.71	44.00	45.70	32.60	30.72
9/16/2021	19.40	35.10	5.10	31.40	15.99	12.22	16.90	14.68	44.05	45.65	32.80	30.70
10/14/2021	19.20	34.75	5.30	31.30	15.22	12.35	16.68	14.10	44.10	45.60	32.76	29.89
11/18/2021	19.25	34.80	5.25	31.35	14.85	12.40	16.85	14.30	43.95	45.70	32.66	29.90
12/19/2021	18.96	34.72	5.25	31.30	14.82	12.30	16.70	14.22	43.79	44.95	31.76	29.70

**Attachment B**  
**Phase 1 Leachate Level Measurements**  
**Great River Regional Waste Authority Sanitary Landfill**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

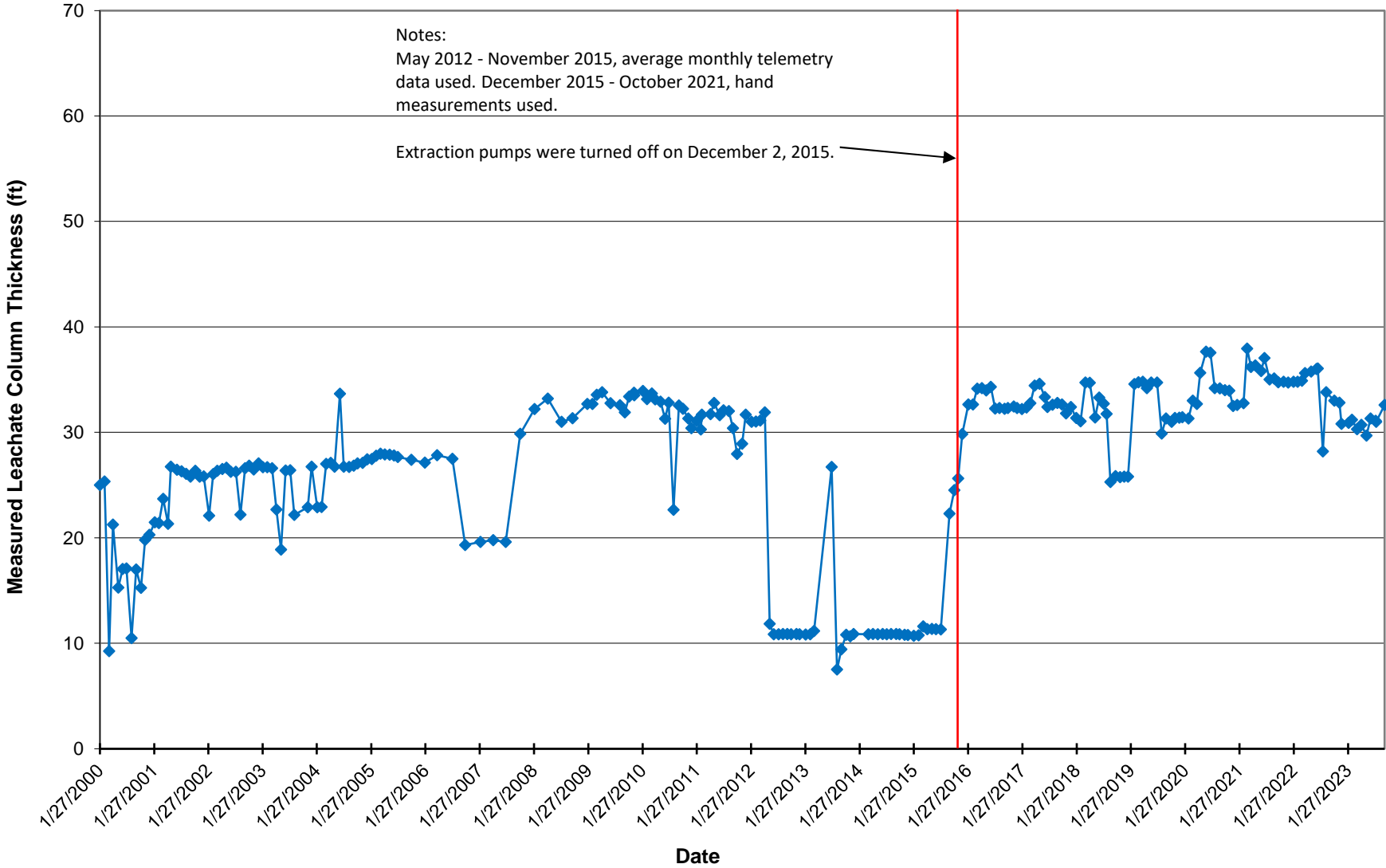
CONSTRUCTED WELL DEPTH (ft)	LEACHATE PIEZOMETER											
	PZ-1	PZ-2	PZ-3	PZ-6R	PZ-7	PZ-7R	PZ-8	PZ-9	PZ-10	PZ-10R	PZ-11	LW-5
	40.0	45.8	39.9	57.0	42.0	41.0	45.1	38.3	63.8	64.0	47.8	46.8
DATE	MEASURED LEACHATE COLUMN (ft)											
1/24/2022	20.02	34.79	6.00	33.20	14.90	12.15	17.20	14.29	43.80	45.05	31.80	29.75
2/22/2022	20.16	34.80	6.80	34.86	15.02	12.52	17.23	14.15	43.70	44.80	31.62	29.69
3/23/2022	20.26	34.90	7.06	33.80	15.05	12.88	17.76	14.40	43.65	45.12	31.85	29.80
4/12/2022	20.60	35.62	7.15	33.55	15.86	13.86	18.20	15.29	43.82	45.55	31.90	29.90
5/24/2022	20.82	35.75	7.89	33.66	16.06	13.35	18.09	15.32	43.86	45.60	31.98	29.79
6/28/2022	21.85	36.00	5.12	30.60	12.50	12.63	16.28	16.45	44.35	45.50	31.86	29.90
7/7/2022	21.90	36.05	5.18	30.59	12.50	12.68	16.30	16.50	44.30	45.48	31.79	29.80
8/10/2022	20.00	28.20	NA	30.00	13.10	11.10	16.90	16.80	42.70	44.90	31.80	30.00
9/1/2022	20.00	33.80	5.40	29.00	14.50	11.50	16.60	16.80	42.80	45.00	31.40	29.80
10/27/2022	19.50	33.00	6.60	35.50	12.40	13.50	16.60	17.70	41.90	44.20	30.60	28.30
11/29/2022	19.40	32.80	6.40	35.30	12.20	13.20	16.20	17.60	42.30	44.50	30.30	27.90
12/14/2022	19.00	30.80	6.30	35.00	11.90	13.40	16.10	17.50	41.80	44.50	30.00	27.70
1/31/2023	19.20	30.90	6.60	34.80	12.00	13.70	17.00	16.70	42.30	44.40	30.50	28.10
2/21/2023	19.50	31.20	6.80	35.00	13.20	13.70	17.10	16.90	42.60	44.70	30.80	28.60
3/28/2023	18.40	30.30	5.70	34.30	13.00	12.90	16.80	16.60	42.30	44.20	30.50	28.20
4/27/2023	18.80	30.70	6.60	34.80	13.00	13.50	17.10	16.70	42.40	44.70	30.80	28.50
5/31/2023	18.00	29.70	4.90	34.10	12.50	12.50	16.50	16.30	42.00	43.90	30.30	27.80
6/28/2023	19.00	31.30	5.90	34.00	12.40	12.30	16.10	16.10	42.20	43.00	30.00	27.60
7/31/2023	18.60	31.10	5.80	33.80	12.00	12.10	16.10	15.80	42.40	42.50	29.80	27.40
8/4/2023	18.70	31.00	8.60	33.70	11.90	12.00	15.90	16.00	42.50	42.90	29.60	27.60
9/29/2023	20.50	32.60	7.90	33.50	11.50	12.40	15.60	16.60	41.70	43.50	29.80	27.80

- 1) Monthly leachate level data provided by landfill personnel.
- 2) NI = Not Installed
- 3) NA = Not Available
- 4) From May 2012 - November 2015, monthly averages from data collected by telemetry systems used.

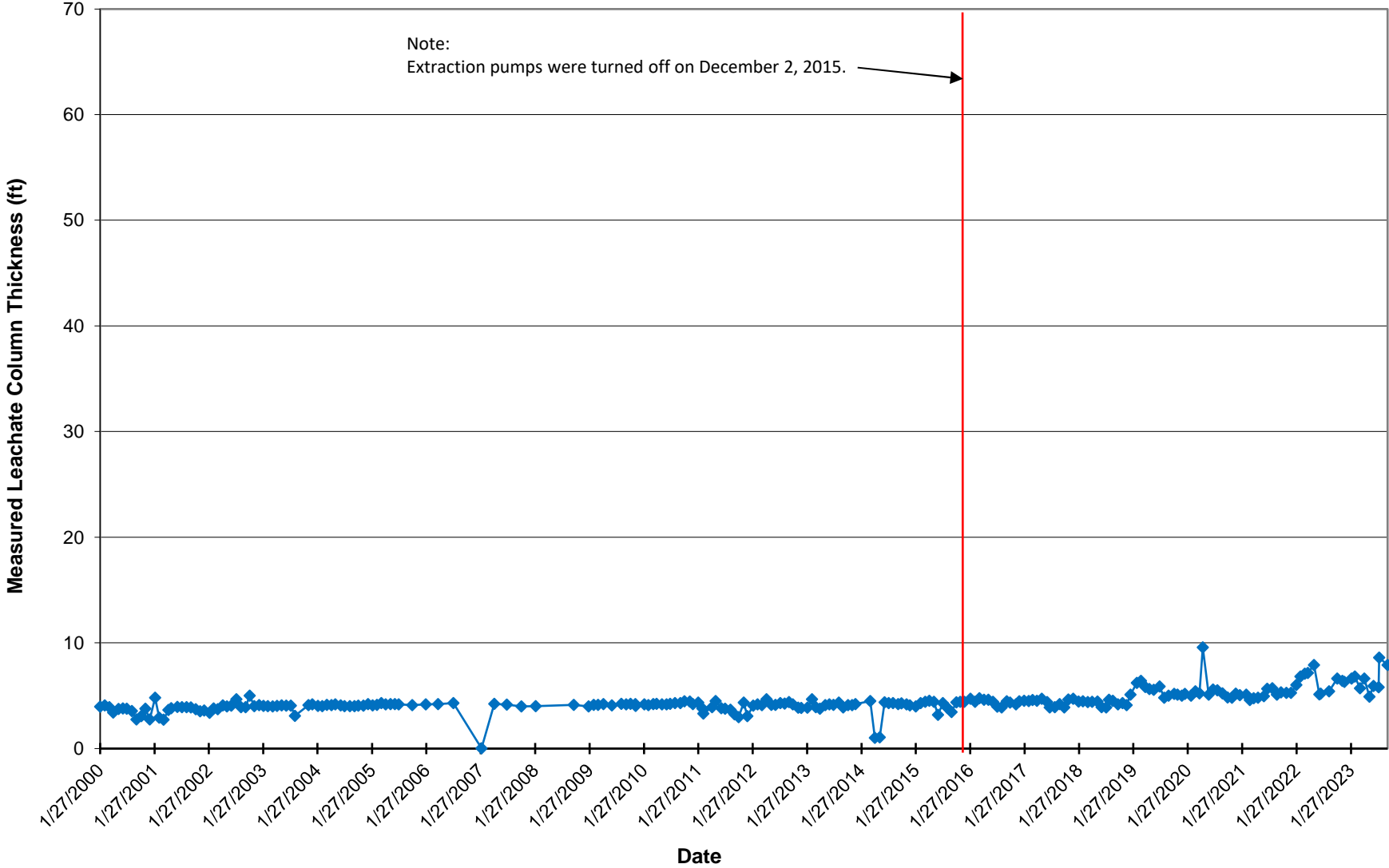
# PZ-1 Phase 1



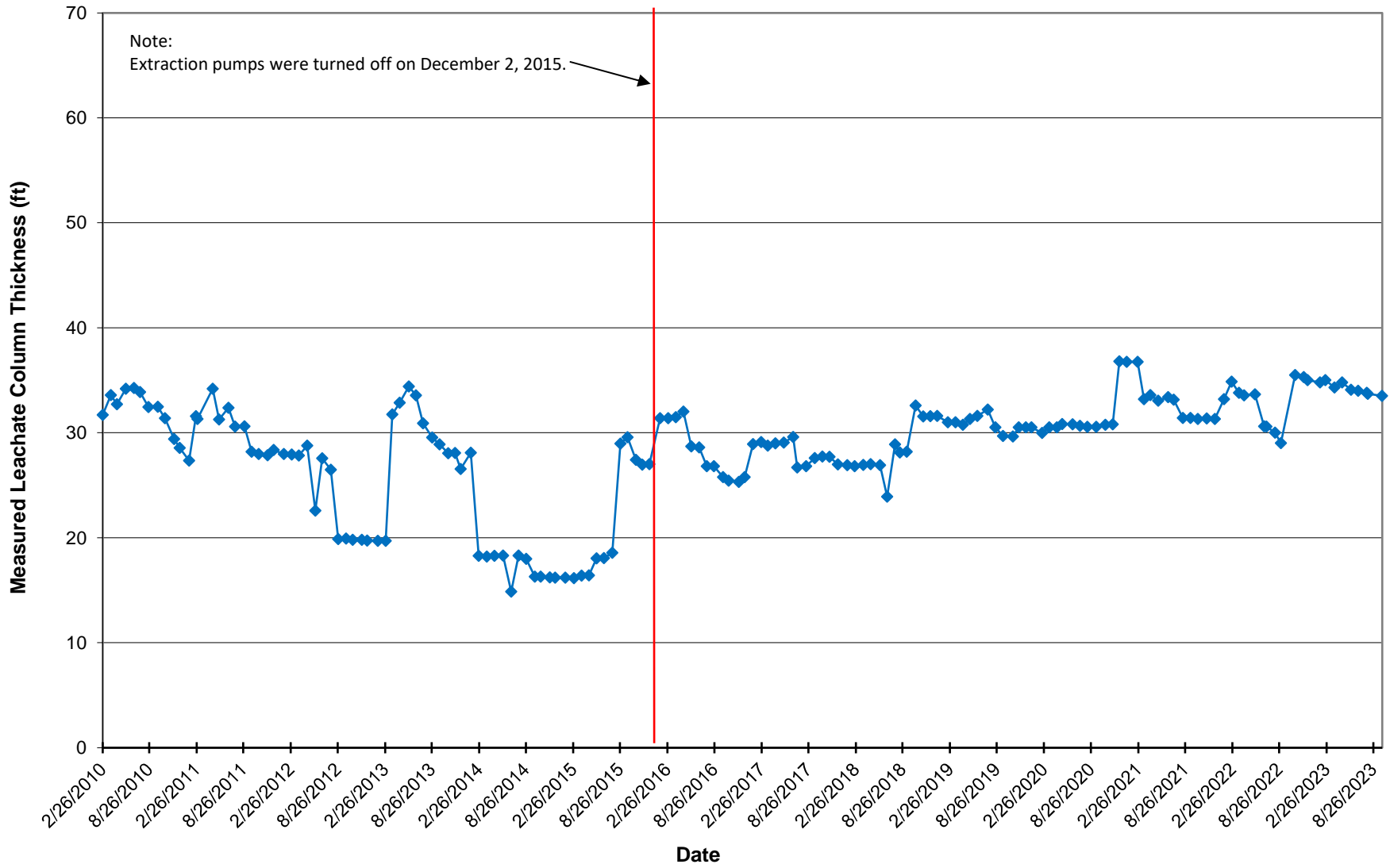
# PZ-2 Phase 1



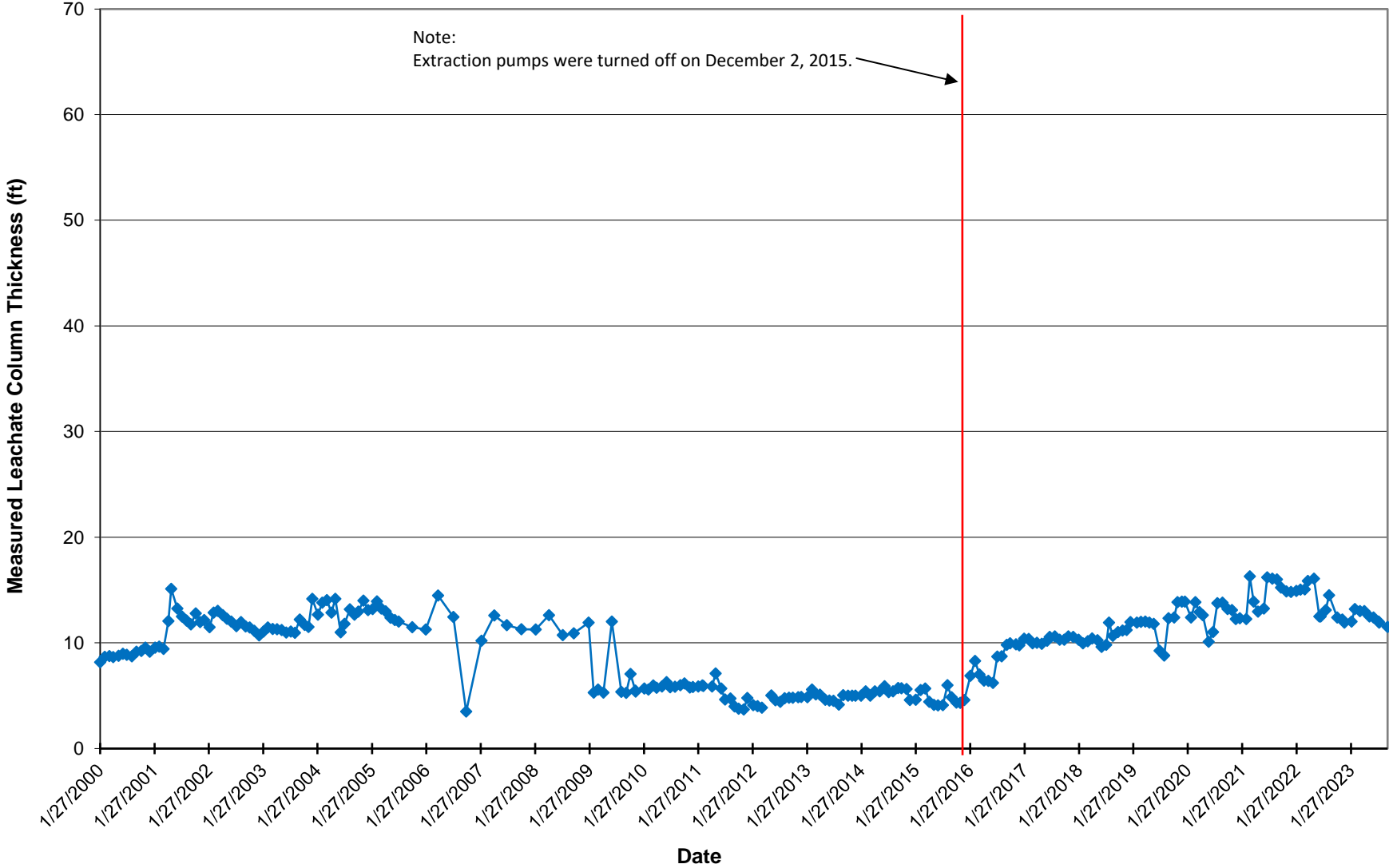
# PZ-3 Phase 1



**PZ-6R  
Phase 1**

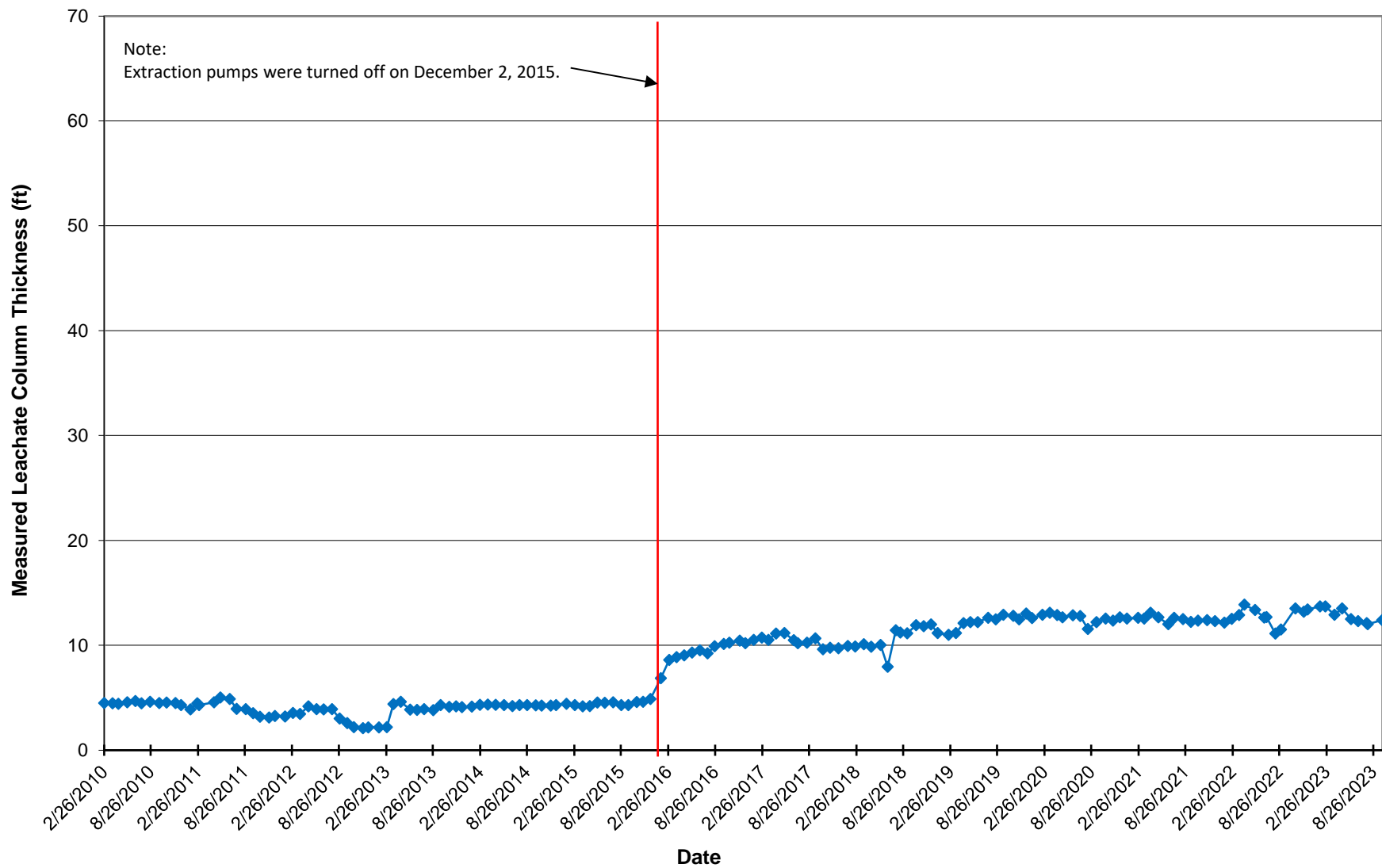


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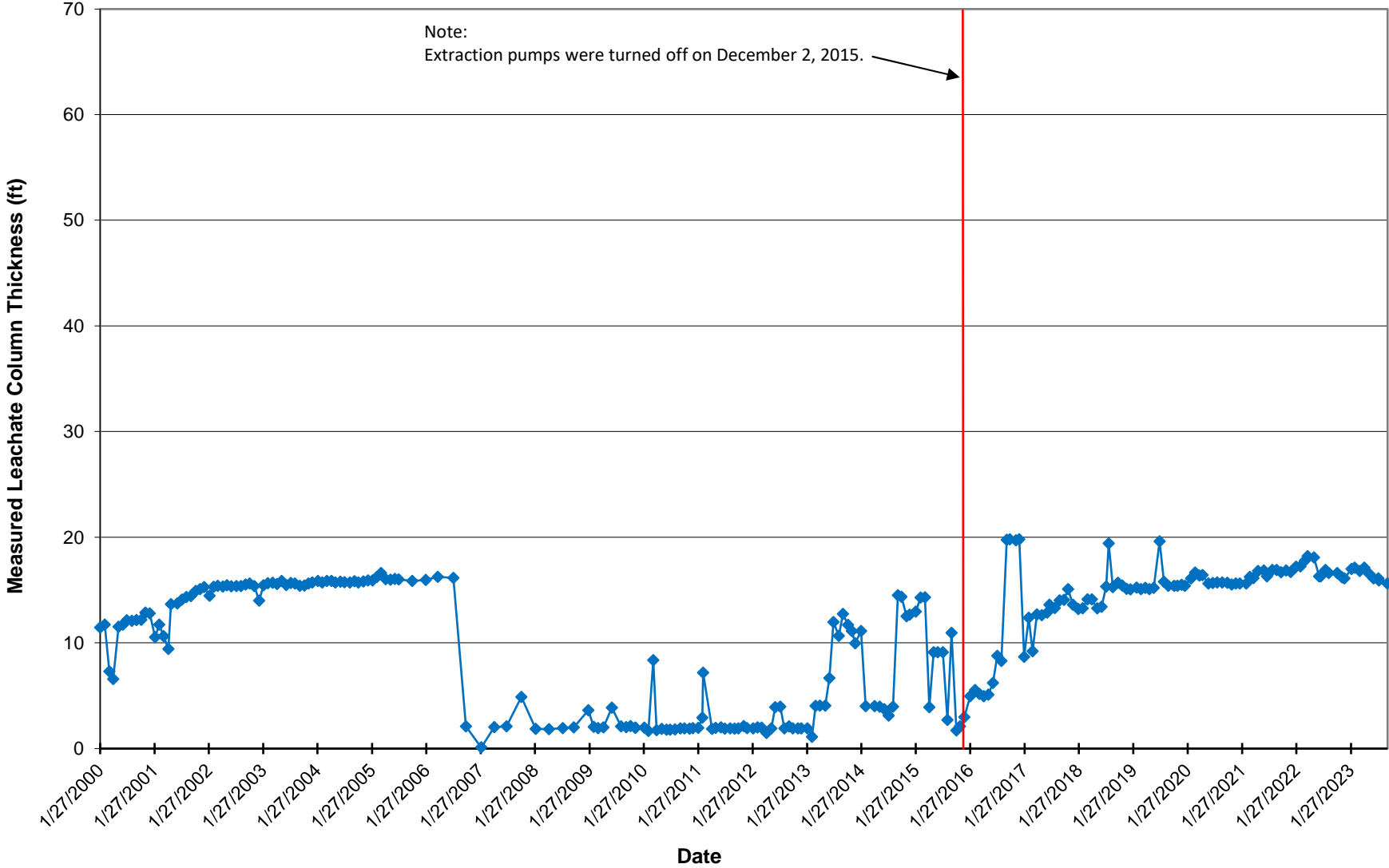




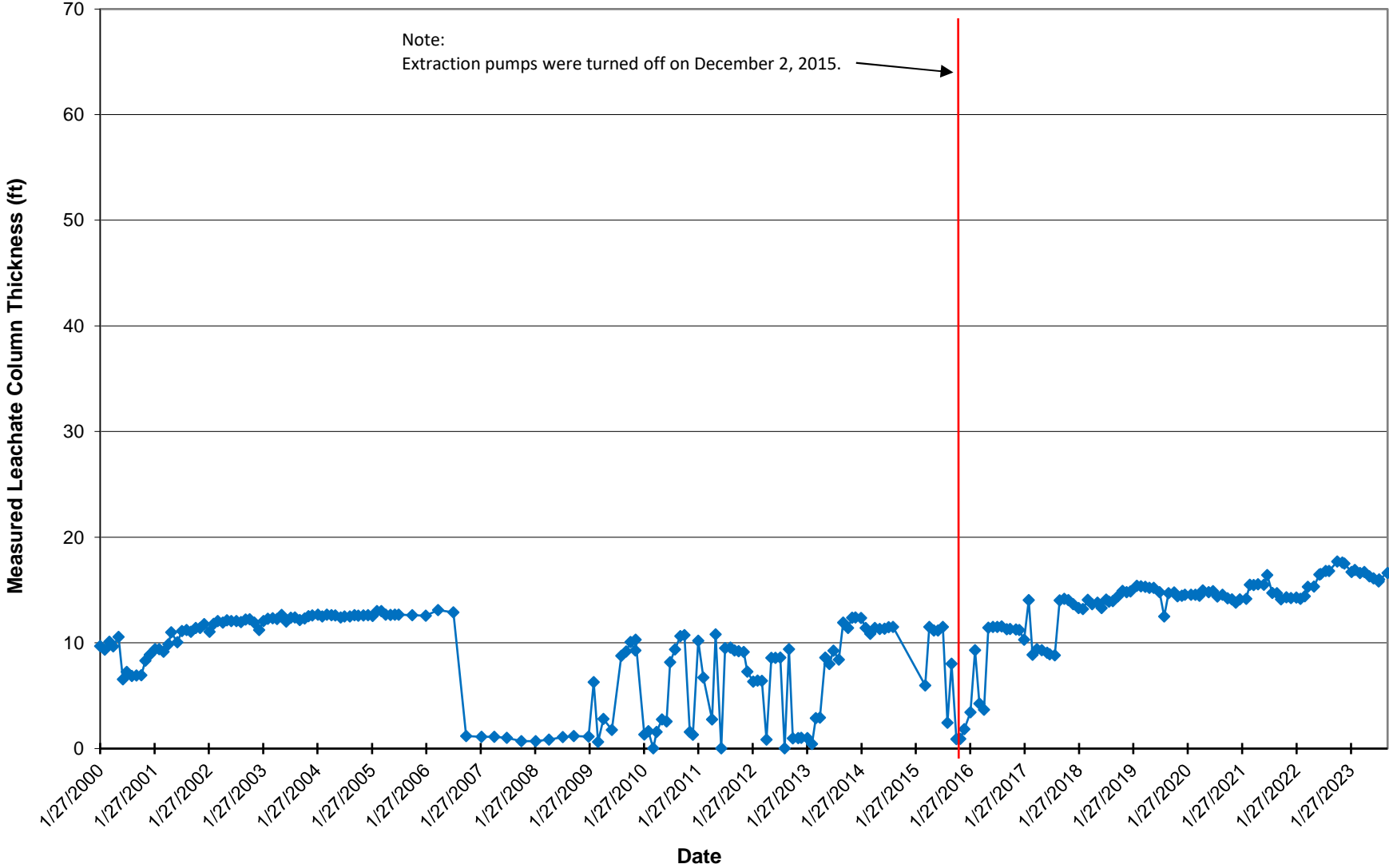
### PZ-7R Phase 1



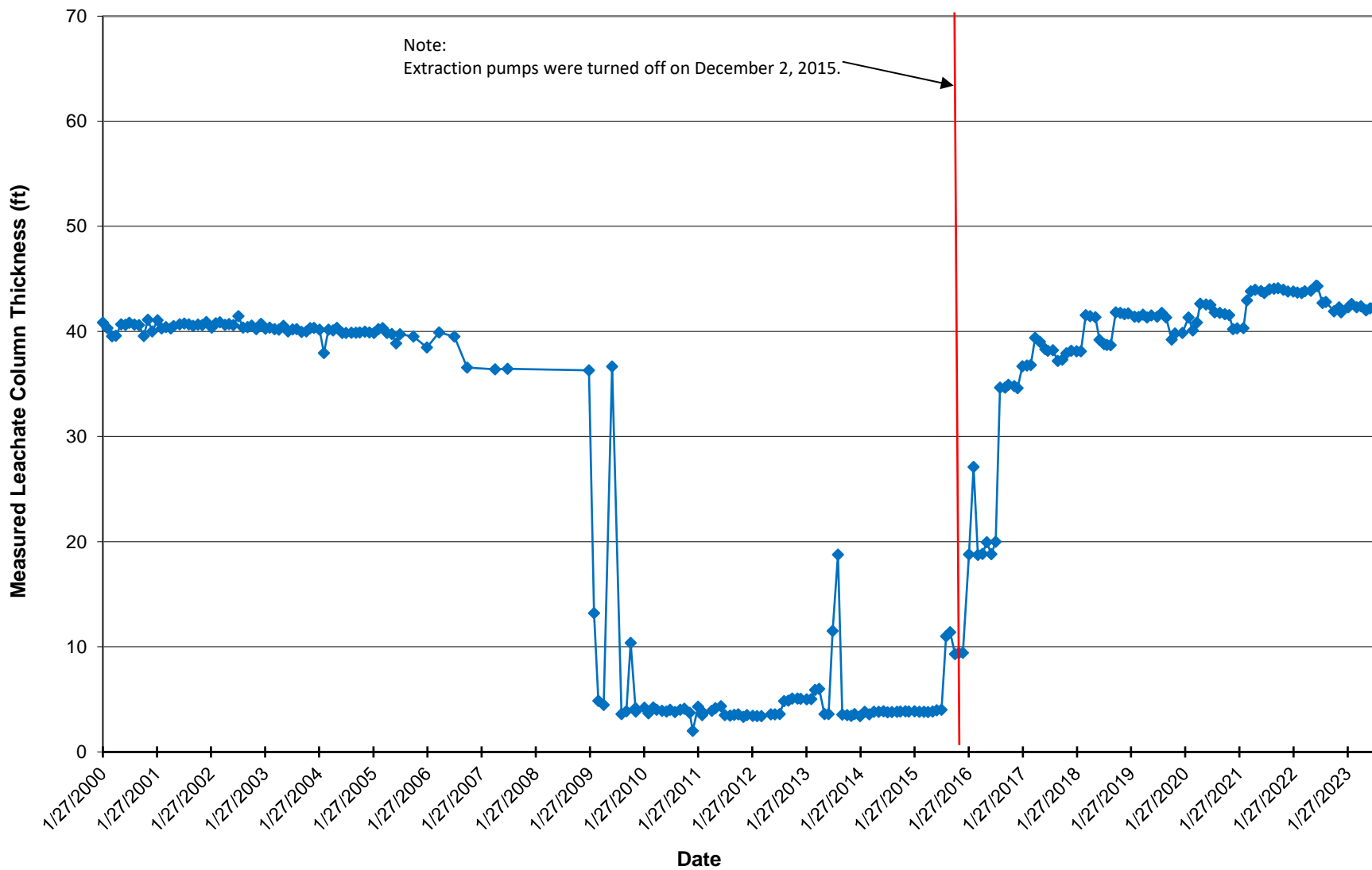
# PZ-8 Phase 1



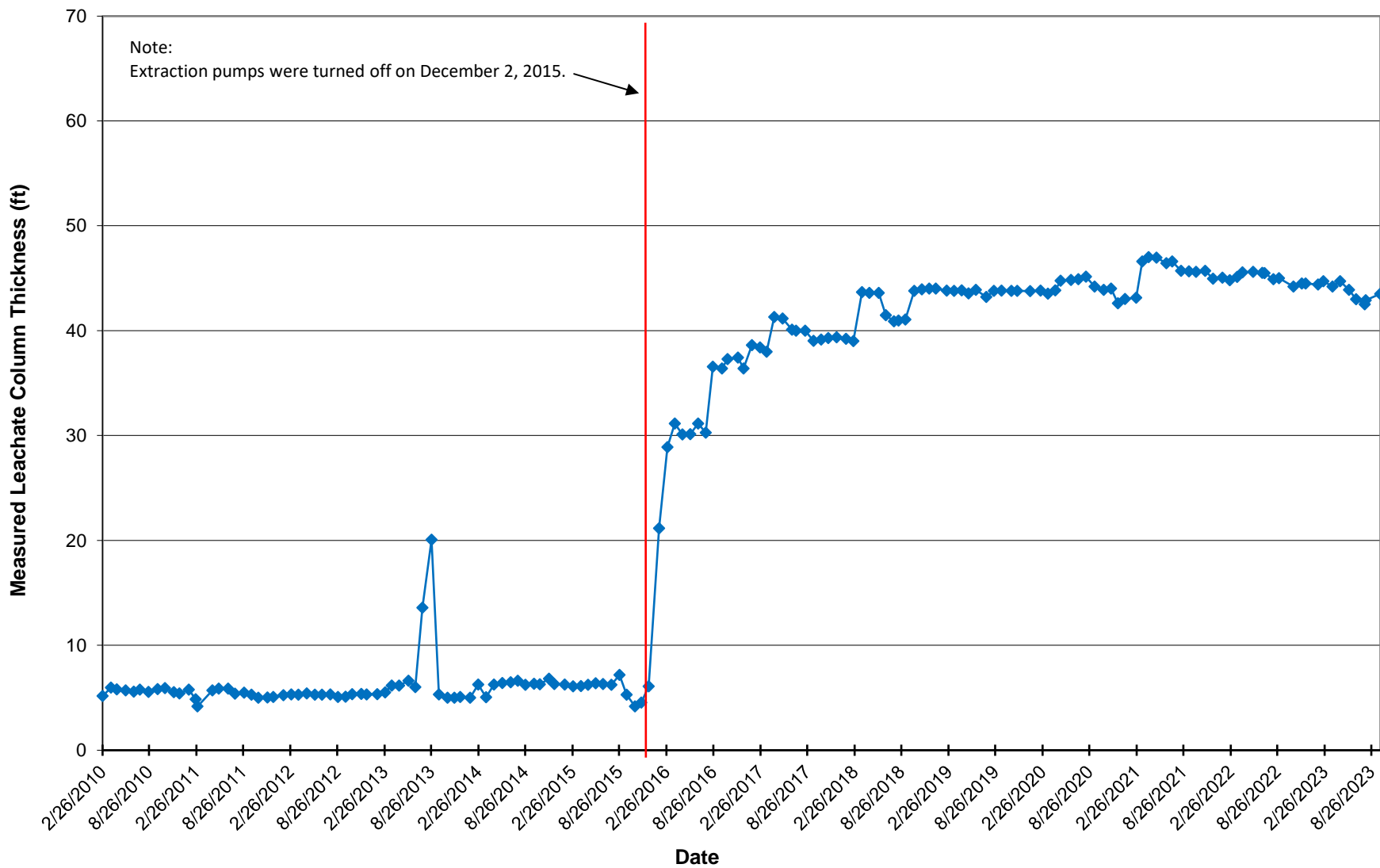
# PZ-9 Phase 1



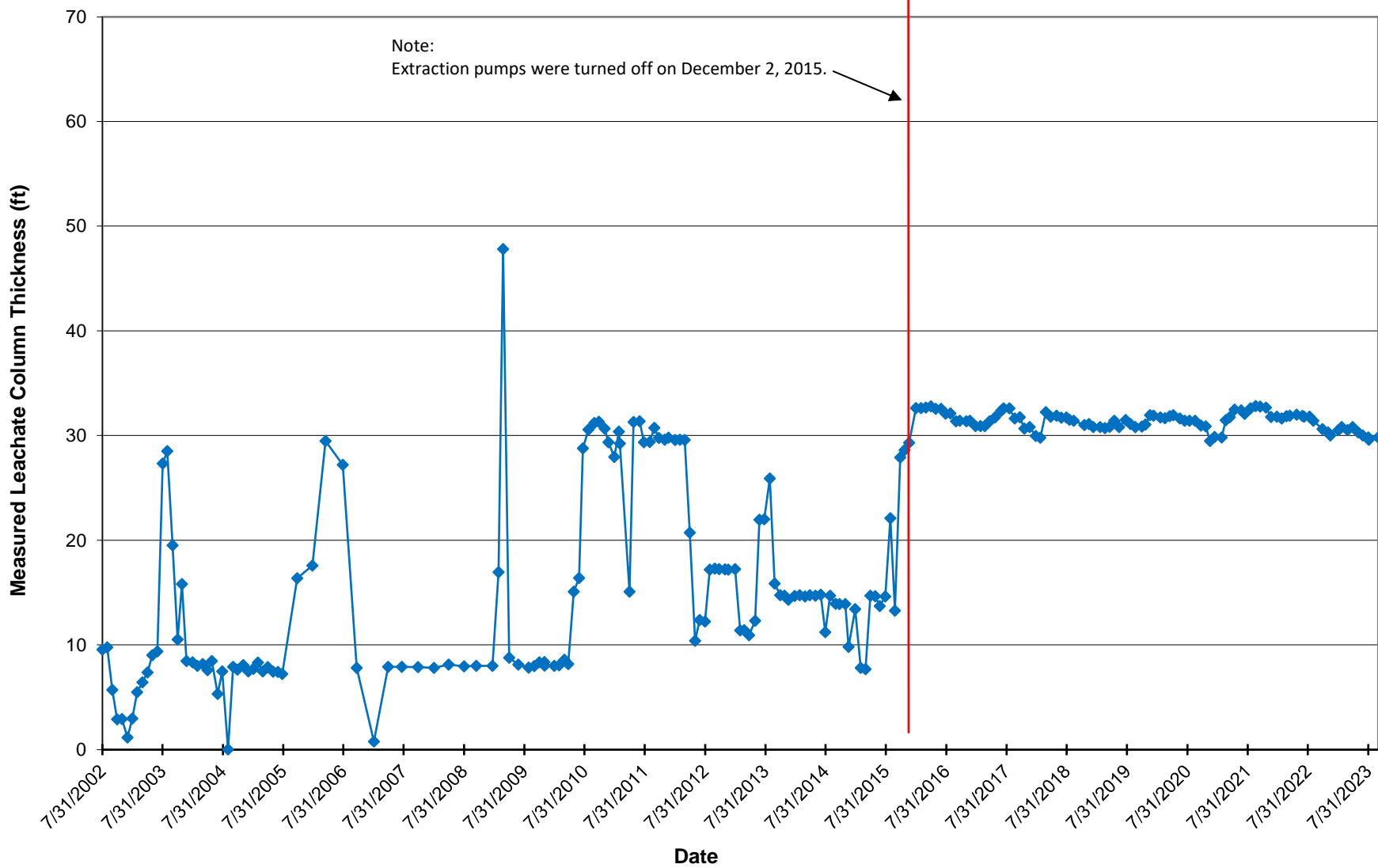
# PZ-10 Phase 1



### PZ-10R Phase 1

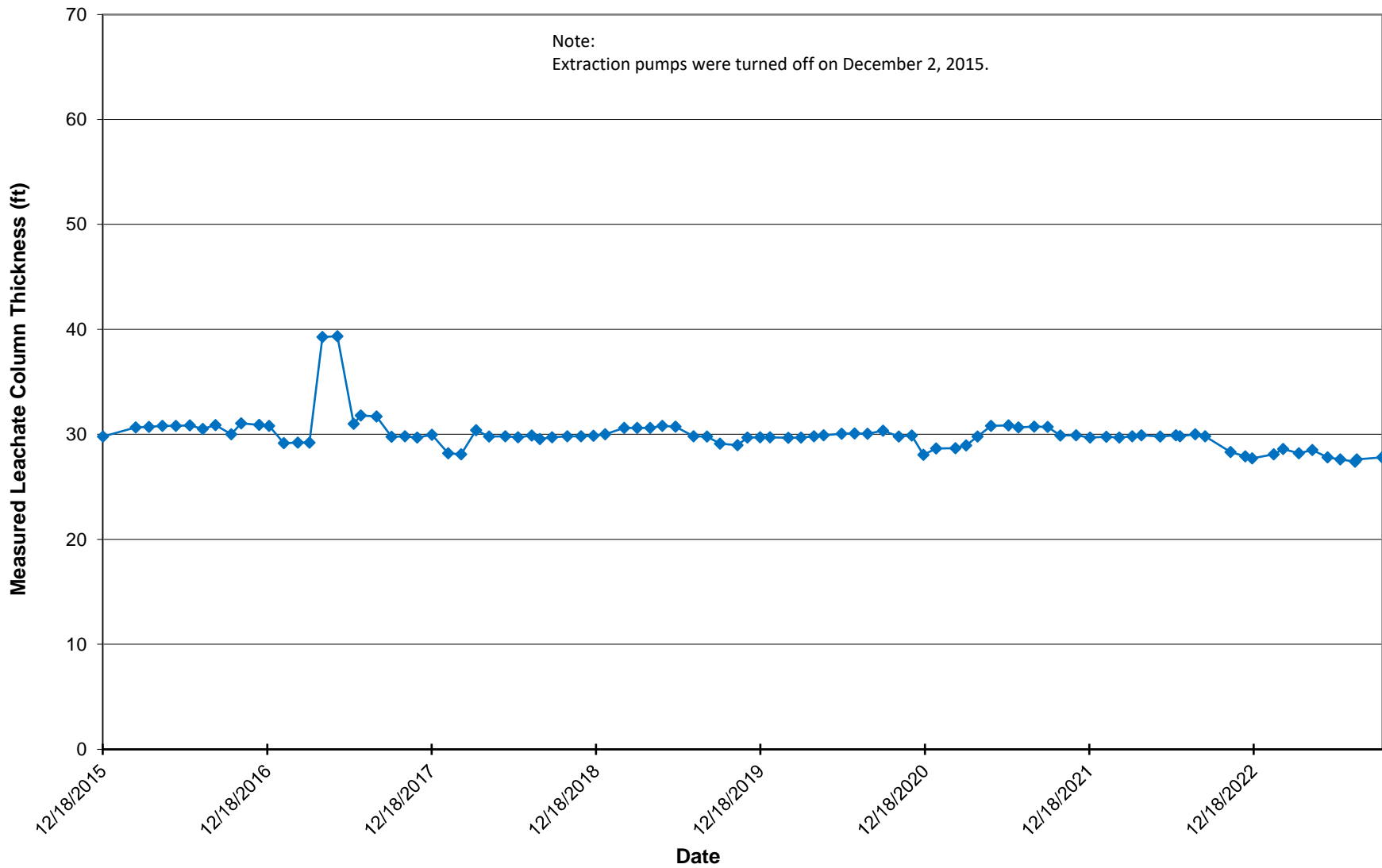


# PZ-11 Phase 1



# LW-5 Phase 1

Note:  
Extraction pumps were turned off on December 2, 2015.







**TABLE B-2**  
**Phase 2 Region 1 Leachate Level Measurements**  
**Great River Regional Waste Authority**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

CONSTRUCTED WELL DEPTH (ft)	LEW-08-1R		LPZ-5R		LPZ-6 <sup>(14)</sup>		LW-6R		LPZ-7		LEW-7R		LEW-8		LEW-9		LEW-10		LEW-11	
	78.0		45.8		79.8		38.0		72.9		90.0		81.0		77.0		60.0		54.0	
	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A(1) (ft)	B(1) (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)
7/5/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/18/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/23/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/31/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/15/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/23/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/16/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/20/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/30/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/16/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/28/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/12/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/20/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/27/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/30/2002	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/13/2003	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/20/2003	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/28/2003	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/6/2003	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/27/2003	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/31/2003	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/30/2003	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/30/2003	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/30/2003	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/31/2003	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/28/2003	NI	NI	26.74	8.36	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/29/2003	NI	NI	26.00	9.10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/3/2003	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/7/2003	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/27/2003	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/26/2003	NI	NI	26.55	8.55	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/23/2003	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/29/2004	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/27/2004	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/30/2004	NI	NI	26.83	8.27	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/29/2004	NI	NI	32.50	2.60	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/25/2004	NI	NI	32.45	2.65	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/29/2004	NI	NI	32.50	2.60	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/26/2004	NI	NI	42.16	Dry	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/31/2004	NI	NI	32.59	2.51	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/30/2004	NI	NI	32.62	2.48	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/26/2004	NI	NI	32.60	2.50	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/30/2004	NI	NI	28.56	6.54	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/31/2004	NI	NI	32.65	2.45	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/31/2005	NI	NI	32.58	2.52	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/28/2005	NI	NI	32.60	2.50	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/29/2005	NI	NI	32.50	2.60	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/28/2005	NI	NI	32.05	3.05	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/31/2005	NI	NI	32.05	3.05	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/29/2005	NI	NI	32.35	2.75	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/25/2005	NI	NI	32.41	2.69	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/24/2005	NI	NI	32.32	2.78	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/23/2006	NI	NI	39.43	Dry	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/14/2006	NI	NI	39.18	Dry	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/27/2006	NI	NI	36.68	Dry	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/20/2006	NI	NI	32.60	2.50	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/23/2007	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/14/2007	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/27/2007 <sup>(9)</sup>	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/26/2007	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/31/2008	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/29/2008	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/31/2008	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/13/2008	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/19/2009	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/24/2009	NI	NI	30.34	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/25/2009	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/30/2009	NI	NI	40.44	Dry	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/25/2009	NI	NI	32.10	24.10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/27/2009	NI	NI	32.42	23.78	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/29/2009 <sup>(11)</sup>	NI	NI	32.36	23.84	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/29/2009	NI	NI	32.68	23.52	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/30/2009	NI	NI	32.68	23.52	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/1/2009	NI	NI	13.00	43.20	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI

**TABLE B-2**  
**Phase 2 Region 1 Leachate Level Measurements**  
**Great River Regional Waste Authority**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

CONSTRUCTED WELL DEPTH (ft)	LEW-08-1R		LPZ-5R		LPZ-6 <sup>(14)</sup>		LW-6R		LPZ-7		LEW-7R		LEW-8		LEW-9		LEW-10		LEW-11	
	78.0		45.8		79.8		38.0		72.9		90.0		81.0		77.0		60.0		54.0	
	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A(1) (ft)	B(1) (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)
Date																				
1/29/2010	NI	NI	35.54	20.66	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/26/2010	NI	NI	32.90	23.30	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/30/2010	NI	NI	33.55	22.65	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/22/2010	NI	NI	33.55	22.65	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/27/2010	NI	NI	33.76	22.44	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/27/2010	NI	NI	34.54	21.66	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/21/2010	NI	NI	35.60	20.60	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/23/2010	NI	NI	35.78	20.42	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/28/2010	NI	NI	35.81	20.39	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/26/2010	NI	NI	35.75	20.45	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/30/2010	NI	NI	36.20	20.00	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/22/2010	NI	NI	36.62	19.58	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/27/2011	NI	NI	36.15	20.05	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/23/2011	NI	NI	33.55	22.65	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/1/2011	NI	NI	35.84	20.36	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/29/2011	NI	NI	35.65	20.55	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/23/2011	NI	NI	35.82	20.38	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/29/2011	NI	NI	35.62	20.58	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/25/2011	NI	NI	35.90	20.30	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/30/2011	NI	NI	36.08	20.12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/27/2011	NI	NI	36.02	20.18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/24/2011	NI	NI	36.45	19.75	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/28/2011	NI	NI	36.48	19.72	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/21/2011	NI	NI	36.58	19.62	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/30/2012	NI	NI	36.67	19.53	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/29/2012	NI	NI	36.54	19.66	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/28/2012	NI	NI	36.54	19.66	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/29/2012	NI	NI	NA	NA	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/31/2012	NI	NI	36.12	20.08	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/27/2012	NI	NI	36.12	20.08	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/30/2012	NI	NI	36.45	19.75	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/28/2012	NI	NI	36.72	19.48	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/27/2012	NI	NI	36.42	19.78	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/23/2012	NI	NI	36.50	19.70	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/27/2012	NI	NI	36.49	19.71	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/18/2012	NI	NI	36.45	19.75	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/28/2013	NI	NI	35.98	20.22	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/28/2013	NI	NI	36.02	20.18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/25/2013	NI	NI	36.02	20.18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/23/2013	NI	NI	36.00	20.20	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/29/2013	NI	NI	36.18	20.02	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/25/2013	NI	NI	35.95	20.25	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/23/2013	NI	NI	35.98	20.22	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/27/2013	NI	NI	36.04	20.16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/25/2013	NI	NI	35.59	20.61	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/28/2013	NI	NI	36.00	20.20	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/24/2013	NI	NI	36.15	20.05	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/16/2013	NI	NI	35.54	20.66	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/24/2014	NI	NI	36.10	20.10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/24/2014	NI	NI	37.14	19.06	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/27/2014	NI	NI	37.15	19.05	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/26/2014	NI	NI	37.14	19.06	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/29/2014	NI	NI	37.10	19.10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/30/2014	NI	NI	37.15	19.05	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/28/2014	NI	NI	37.20	19.00	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
8/27/2014	NI	NI	37.20	19.00	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/29/2014	NI	NI	35.21	20.99	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/22/2014	NI	NI	35.41	20.79	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/26/2014	NI	NI	35.49	20.71	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/17/2014	NI	NI	36.01	20.19	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/26/2015	NI	NI	36.25	19.95	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
2/28/2015	NI	NI	35.40	20.80	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/30/2015	NI	NI	35.38	20.82	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/27/2015	NI	NI	36.04	20.16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/27/2015	NI	NI	36.10	20.10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/24/2015	NI	NI	36.05	20.15	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/10/2015	NI	NI	NA	NA	NA	NA	NI	NI	NA	NA	NI	26.90	64.50	34.10	53.30	6.60	63.80	4.90	59.50	
7/27/2015	NI	NI	36.07	20.13	NA	NA	NI	NI	NA	NA	NI	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/27/2015	NI	NI	36.08	20.12	NI	NI	NI	NI	NI	NI	NI	NI	NA	NA	NA	NA	NA	NA	NA	NA
9/24/2015	NI	NI	36.08	20.12	37.54	52.66	NI	NI	36.96	46.34	NI	76.52	14.88	69.76	17.64	54.94	15.46	48.52	15.88	
10/26/2015	NI	NI	36.08	20.12	36.05	54.15	NI	NI	37.26	46.04	NI	76.62	14.78	69.74	17.66	55.08	15.32	48.50	15.90	
11/20/2015	NI	NI	36.08	20.12	43.15	47.05	NI	NI	37.10	46.20	NI	75.92	15.48	70.04	17.36	55.10	15.30	48.60	15.80	
12/18/2015	NI	NI	37.00	19.20	44.15	46.05	NI	NI	38.91	44.39	NI	74.96	16.44	70.14	17.26	55.28	15.12	48.85	15.55	

**TABLE B-2**  
**Phase 2 Region 1 Leachate Level Measurements**  
**Great River Regional Waste Authority**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

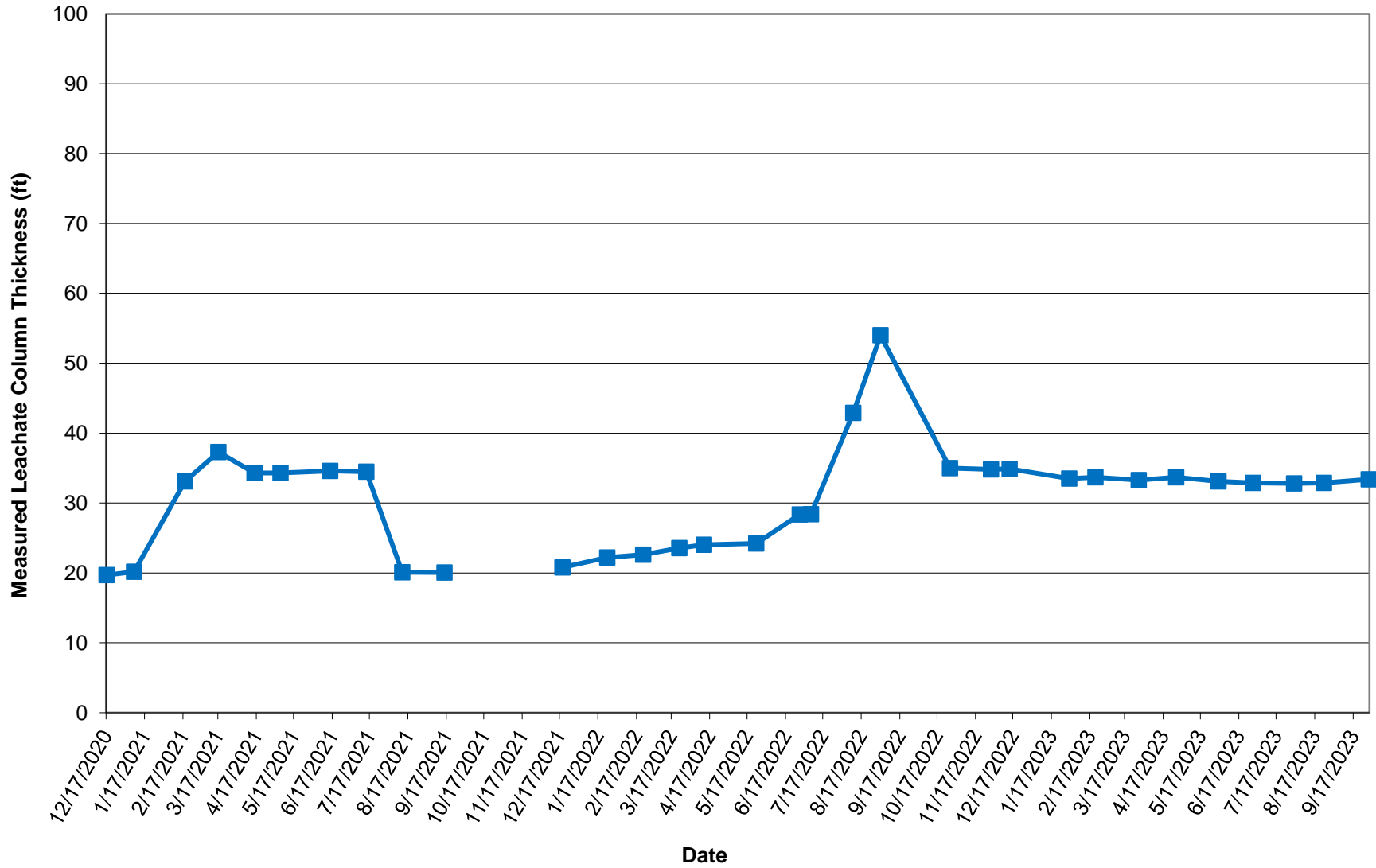
CONSTRUCTED WELL DEPTH (ft)	LEW-08-1R		LPZ-5R		LPZ-6 <sup>(14)</sup>		LW-6R		LPZ-7		LEW-7R		LEW-8		LEW-9		LEW-10		LEW-11	
	78.0		45.8		79.8		38.0		72.9		90.0		81.0		77.0		60.0		54.0	
	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A(1) (ft)	B(1) (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)
1/28/2016	NI	NI	37.89	18.31	44.21	45.99	NI	NI	37.89	45.41	NI	NI	75.01	16.39	69.97	17.43	54.89	15.51	49.05	15.35
2/29/2016	NI	NI	35.89	20.31	44.21	45.99	NI	NI	38.01	45.29	NI	NI	74.95	16.45	69.72	17.68	47.68	22.72	46.74	17.66
3/29/2016	NI	NI	38.01	18.19	45.01	45.19	NI	NI	37.94	45.36	NI	NI	74.92	16.48	69.42	17.98	54.28	16.12	48.62	15.78
4/28/2016	NI	NI	38.45	17.75	44.90	45.30	NI	NI	40.00	43.30	NI	NI	73.91	17.49	70.14	17.26	54.20	16.20	48.70	15.70
5/28/2016	NI	NI	38.50	17.70	45.98	44.22	NI	NI	36.12	47.18	NI	NI	74.05	17.35	69.91	17.49	46.45	23.95	47.84	16.56
6/28/2016	NI	NI	38.01	18.19	43.01	47.19	NI	NI	36.00	47.30	NI	NI	74.00	17.40	69.90	17.50	46.28	24.12	46.28	18.12
7/27/2016	NI	NI	38.21	17.99	45.18	45.02	NI	NI	41.02	42.28	NI	NI	74.00	17.40	70.00	17.40	59.38	11.02	46.42	17.98
8/24/2016	NI	NI	39.54	16.66	45.72	44.48	NI	NI	36.54	46.76	NI	NI	73.94	17.46	69.84	17.56	51.71	18.69	44.64	19.76
9/28/2016	NI	NI	39.42	16.78	46.04	44.16	NI	NI	36.54	46.76	NI	NI	75.68	15.72	71.13	16.27	56.00	14.40	47.00	17.40
10/20/2016	NI	NI	38.75	17.45	46.00	44.20	NI	NI	36.48	46.82	NI	NI	75.70	15.70	70.15	17.25	55.42	14.98	46.75	17.65
11/29/2016	NI	NI	38.40	17.80	46.00	44.20	NI	NI	36.50	46.80	NI	NI	75.80	15.60	70.20	17.20	50.40	20.00	43.40	21.00
12/21/2016	NI	NI	38.40	17.80	45.95	44.25	NI	NI	36.48	46.82	NI	NI	75.68	15.72	70.00	17.40	50.42	19.98	43.35	21.05
1/23/2017	NI	NI	38.85	17.35	44.15	46.05	NI	NI	37.01	46.29	NI	NI	75.00	16.40	70.15	17.25	55.28	15.12	49.52	14.88
2/23/2017	NI	NI	35.65	20.55	43.90	46.30	NI	NI	36.82	46.48	NI	NI	74.80	16.60	55.50	31.90	51.00	19.40	44.62	19.78
3/21/2017	NI	NI	38.60	17.60	38.14	52.06	NI	NI	36.90	46.40	NI	NI	75.30	16.10	52.75	34.65	55.20	15.20	49.40	15.00
4/19/2017	NI	NI	38.42	17.78	38.10	52.10	NI	NI	35.92	47.38	NI	NI	75.32	16.08	52.70	34.70	55.28	15.12	48.80	15.60
5/22/2017	NI	NI	38.65	17.55	38.00	52.20	NI	NI	36.01	47.29	NI	NI	75.52	15.88	52.80	34.60	54.94	15.46	48.52	15.88
6/27/2017	NI	NI	38.40	17.80	37.82	52.38	NI	NI	36.00	47.30	NI	NI	75.49	15.91	52.15	35.25	53.96	16.44	48.05	16.35
7/13/2017	NI	NI	35.81	20.39	35.01	55.19	NI	NI	36.98	46.32	NI	NI	74.08	17.32	46.81	40.59	51.51	18.89	44.81	19.59
8/17/2017	NI	NI	35.80	20.40	35.14	55.06	NI	NI	36.95	46.35	NI	NI	76.98	14.42	46.75	40.65	51.42	18.98	44.71	19.69
9/19/2017	NI	NI	35.14	21.06	44.24	45.96	NI	NI	37.01	46.29	NI	NI	73.32	18.08	45.64	41.76	51.15	19.25	44.72	19.68
10/19/2017	NI	NI	35.19	21.01	35.70	54.50	NI	NI	36.92	46.38	NI	NI	76.85	14.55	45.90	41.50	51.30	19.10	44.89	19.51
11/15/2017	NI	NI	35.20	21.00	35.59	54.61	NI	NI	36.20	47.10	NI	NI	77.01	14.39	45.42	41.98	51.10	19.30	44.70	19.70
12/18/2017	NI	NI	35.15	21.05	34.85	55.35	NI	NI	35.90	47.40	NI	NI	75.62	15.78	46.25	41.15	50.90	19.50	44.72	19.68
1/29/2018	NI	NI	35.20	21.00	34.40	55.80	NI	NI	35.45	47.85	NI	NI	62.80	28.60	45.95	41.45	50.10	20.30	44.20	20.20
2/21/2018	NI	NI	35.15	21.05	34.42	55.78	NI	NI	35.50	47.80	NI	NI	67.84	23.56	46.01	41.39	50.18	20.22	44.22	20.18
3/26/2018	NI	NI	36.01	20.19	43.58	46.62	NI	NI	40.80	42.50	NI	NI	55.20	36.20	43.46	43.94	46.09	24.31	42.42	21.98
4/24/2018	NI	NI	35.18	21.02	43.25	46.95	NI	NI	39.90	43.40	NI	NI	70.10	21.30	46.80	40.60	50.12	20.28	43.08	21.32
5/30/2018	NI	NI	35.90	20.30	43.20	47.00	NI	NI	37.45	45.85	NI	NI	70.05	21.35	63.40	24.00	50.01	20.39	43.00	21.40
6/27/2018	NI	NI	35.00	21.20	44.00	46.20	NI	NI	60.00	23.30	NI	NI	70.00	21.40	46.70	40.70	50.00	20.40	42.90	21.50
7/18/2018	NI	NI	35.74	20.46	40.45	49.75	NI	NI	41.00	42.30	NI	NI	71.31	20.09	54.80	32.60	51.18	19.22	42.90	21.50
8/15/2018	NI	NI	36.08	20.12	45.42	54.78	NI	NI	41.02	42.28	NI	NI	71.45	19.95	51.50	35.90	49.90	20.50	42.95	21.45
9/11/2018	NI	NI	36.45	19.75	45.40	54.80	NI	NI	37.05	46.25	NI	NI	67.10	24.30	49.80	37.60	48.70	21.70	43.20	21.20
10/15/2018	NI	NI	35.18	21.02	43.20	57.00	NI	NI	37.09	46.21	NI	NI	66.92	24.48	46.80	40.60	45.30	25.10	42.51	21.89
11/14/2018	NI	NI	35.45	20.75	44.80	55.40	NI	NI	37.09	46.21	NI	NI	67.10	24.30	47.15	40.25	45.40	25.00	42.50	21.90
12/18/2018	NI	NI	35.40	20.80	44.70	45.50	NI	NI	36.89	46.41	NI	NI	67.00	24.40	47.00	40.40	51.10	19.30	42.11	22.29
1/29/2019	NI	NI	35.20	21.00	40.80	49.40	NI	NI	36.80	46.50	NI	NI	67.80	23.60	45.95	41.45	47.80	22.60	43.90	20.50
2/21/2019	NI	NI	35.10	21.10	41.90	48.30	NI	NI	35.42	47.88	NI	NI	67.50	23.90	45.80	41.60	47.65	22.75	43.25	21.15
3/26/2019	NI	NI	35.20	21.00	41.80	48.40	NI	NI	35.42	47.88	NI	NI	67.50	23.90	53.92	33.48	45.70	24.70	43.20	21.20
4/24/2019	NI	NI	35.15	21.05	41.20	49.00	NI	NI	35.65	47.65	NI	NI	67.30	24.10	53.49	33.91	45.60	24.80	42.90	21.50
5/30/2019	NI	NI	35.45	20.75	41.40	48.80	NI	NI	36.89	46.41	NI	NI	67.05	24.35	53.09	34.31	46.78	23.62	42.11	22.29
6/27/2019	NI	NI	35.40	20.80	41.25	48.95	NI	NI	36.24	47.06	NI	NI	67.28	24.12	53.40	34.00	46.00	24.40	42.10	22.30
7/18/2019	NI	NI	35.65	20.55	43.10	47.10	NI	NI	35.28	48.02	NI	NI	68.70	22.70	59.11	28.29	48.00	22.40	45.05	19.35
8/15/2019	NI	NI	35.70	20.50	43.10	57.10	NI	NI	35.96	47.34	NI	NI	73.95	17.45	67.30	20.10	51.20	19.20	45.42	18.98
9/11/2019	NI	NI	36.08	20.12	41.45	58.75	NI	NI	35.80	47.50	NI	NI	67.32	24.08	48.10	39.30	51.70	18.70	46.20	18.20
10/28/2019	NI	NI	35.90	20.30	42.10	58.10	NI	NI	36.10	47.20	NI	NI	65.95	25.45	61.05	26.35	48.40	22.00	46.01	18.39
11/19/2019	NI	NI	35.85	20.35	41.48	58.72	NI	NI	36.12	47.18	NI	NI	65.80	25.60	59.80	27.60	51.43	18.97	45.42	18.98
12/17/2019	NI	NI	35.86	20.34	41.10	59.10	NI	NI	35.85	47.45	NI	NI	63.75	27.65	67.53	19.87	51.30	19.10	45.48	18.92
1/8/2020	NI	NI	35.82	20.38	41.01	59.19	NI	NI	35.80	47.50	NI	NI	63.70	27.70	67.50	19.90	51.08	19.32	45.38	19.02
2/18/2020	NI	NI	35.70	20.50	41.10	59.10	NI	NI	36.01	47.29	NI	NI	63.75	27.65	62.50	24.90	51.00	19.40	45.15	19.25
3/17/2020	NI	NI	35.61	20.59	41.20	59.00	NI	NI	36.10	47.20	NI	NI	63.80	27.60	59.82	27.58	51.01	19.39	44.90	19.50
4/15/2020	NI	NI	36.01	20.19	41.15	59.05	NI	NI	35.80	47.50	NI	NI	64.01	27.39	59.80	27.60	51.30	19.10	43.98	20.42
5/6/2020	NI	NI	35.98	20.22	41.10	59.10	NI	NI	35.60	47.70	NI	NI	63.95	27.45	59.70	27.70	51.61	18.79	44.01	20.39
6/15/2020	NI	NI	32.60	23.60	41.15	59.05	NI	NI	35.78	47.52	NI	NI	63.80	27.60	59.62	27.78	51.40	19.00	45.54	18.86
7/14/2020	NI	NI	32.60	23.60	41.12	59.08	NI	NI	35.62	47.68	NI	NI	63.75	27.65	39.70	47.70	51.48	18.92	45.48	18.92
8/12/2020	NI	NI	36.73	19.47	NA	NM	NI	NI	35.87	47.43	NI	NI	65.90	25.50	33.10	54.30	51.85	18.55	45.28	19.12
9/15/2020	NI	NI	36.22	19.98	NA	NM	NI	NI	35.87	47.43	NI	NI	65.85	25.55	33.10	54.30	51.80	18.60	45.25	19.15
10/20/2020	NI	NI	36.80	19.40	NA	NM	NI	NI	36.10	47.20	NI	NI	70.95	20.45	68.90	18.50	51.60	18.80	42.80	21.60
11/18/2020	NI	NI	36.75	19.45	NA	NM	NI	NI	36.05	47.25	NI	NI	71.00	20.40	68.85	18.55	42.92	27.48	42.54	21.86
12/14/2020	68.30	19.70	36.58	19.62	33.82	66.38	28.58	54												

**TABLE B-2**  
**Phase 2 Region 1 Leachate Level Measurements**  
**Great River Regional Waste Authority**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

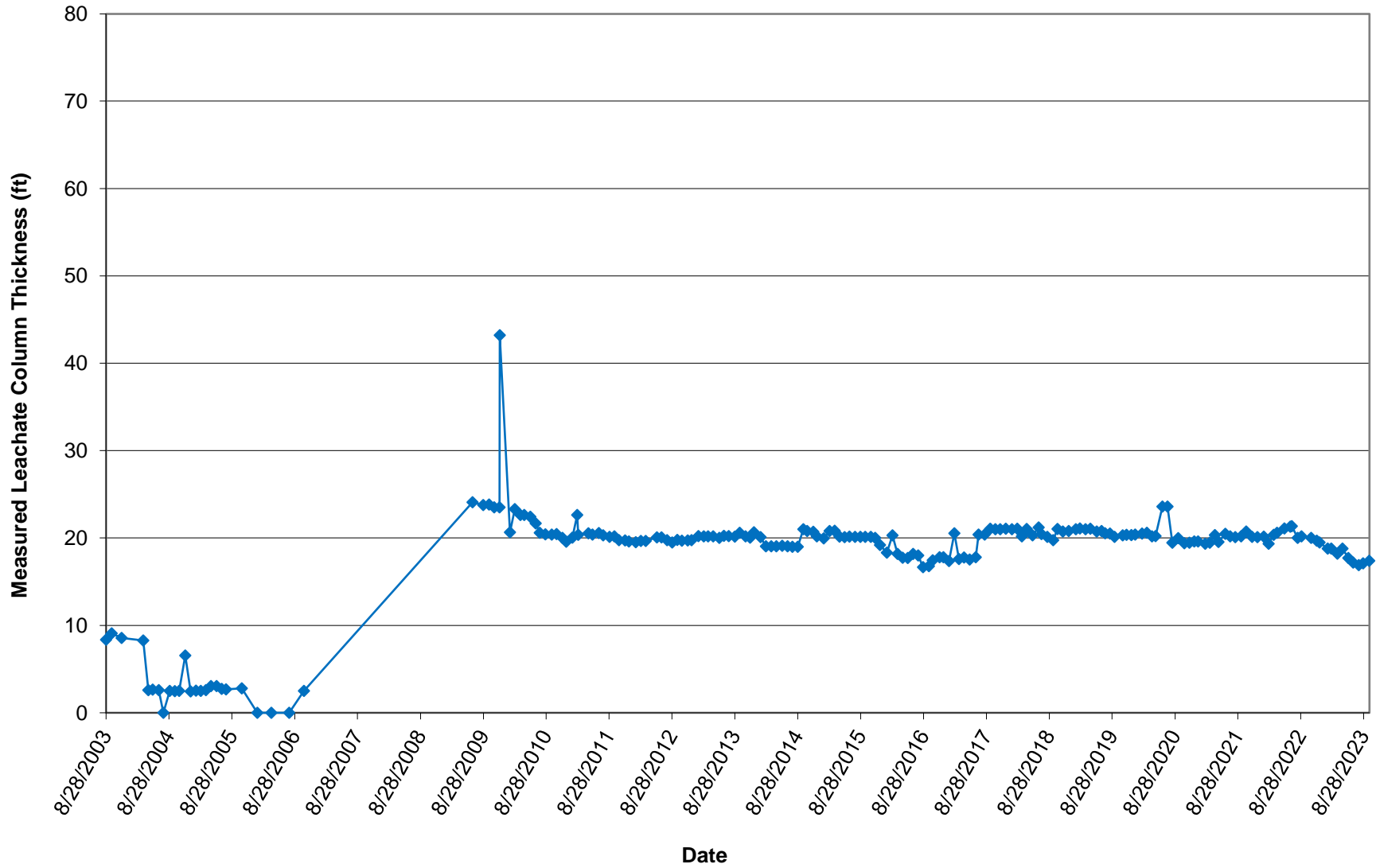
CONSTRUCTED WELL DEPTH (ft)	LEW-08-1R		LPZ-5R		LPZ-6 <sup>(1a)</sup>		LW-6R		LPZ-7		LEW-7R		LEW-8		LEW-9		LEW-10		LEW-11	
	78.0		45.8		79.8		38.0		72.9		90.0		81.0		77.0		60.0		54.0	
	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A(1) (ft)	B(1) (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)	A <sup>(1)</sup> (ft)	B <sup>(1)</sup> (ft)
1/31/2023	54.50	33.50	37.40	18.80	Damaged	NA	23.20	60.10	34.70	48.60	67.10	24.30	55.10	36.30	54.00	33.40	50.10	20.30	44.50	19.90
2/21/2023	54.30	33.70	37.40	18.80	Damaged	NA	23.20	60.10	34.50	48.80	67.00	24.40	54.80	36.60	53.60	33.80	49.80	20.60	44.10	20.30
3/28/2023	54.70	33.30	38.00	18.20	Damaged	NA	23.70	59.60	35.10	48.20	67.70	23.70	55.10	36.30	54.00	33.40	51.10	19.30	44.70	19.70
4/27/2023	54.30	33.70	37.40	18.80	Damaged	NA	23.50	59.80	34.60	48.70	67.20	24.20	55.00	36.40	49.70	37.70	49.00	21.40	44.00	20.40
5/31/2023	54.90	33.10	38.50	17.70	Damaged	NA	24.00	59.30	35.30	48.00	68.00	23.40	55.30	36.10	54.50	32.90	51.50	18.90	44.80	19.60
6/28/2023	55.10	32.90	39.00	17.20	Damaged	NA	24.60	58.70	35.60	47.70	68.20	23.20	55.30	36.10	54.60	32.80	51.50	18.90	44.80	19.60
7/31/2023	55.20	32.80	39.30	16.90	Damaged	NA	24.70	58.60	35.80	47.50	68.80	22.60	55.50	35.90	54.80	32.60	51.50	18.90	44.90	19.50
8/24/2023	55.10	32.90	39.10	17.10	Damaged	NA	24.50	58.80	35.60	47.70	68.60	22.80	55.50	35.90	54.70	32.70	51.60	18.80	44.80	19.60
9/29/2023	54.60	33.40	38.80	17.40	Damaged	NA	24.90	58.40	36.20	47.10	68.10	23.30	54.90	36.50	54.30	33.10	51.80	18.60	44.90	19.50

- Notes:
- 1) A = Distance from top of casing to leachate level. B = Leachate column thickness plus distance from bottom of well to liner.
  - 2) NM = Not measured; NA = Not available; NI = Not installed.
  - 3) Leachate level data provided by landfill personnel.

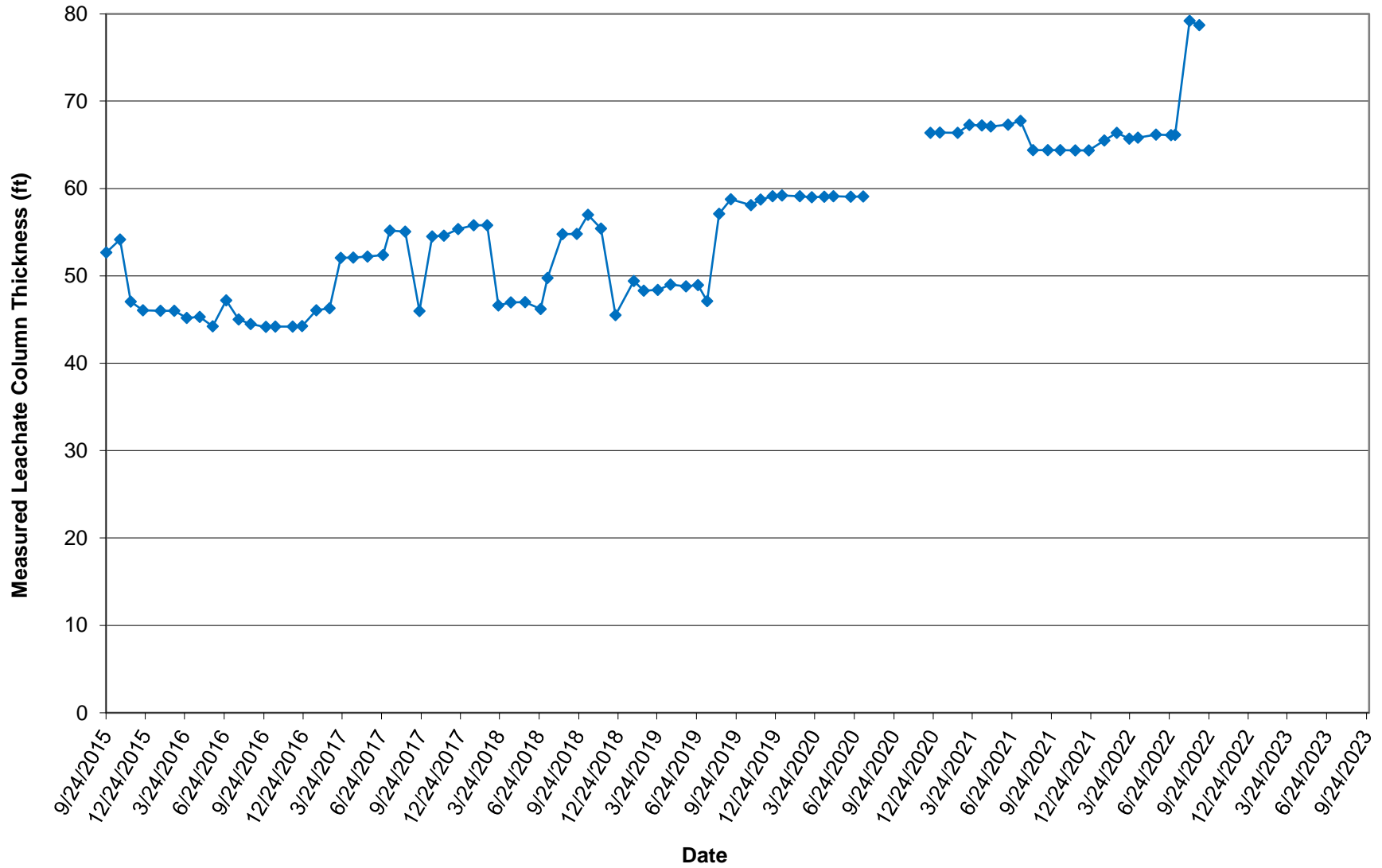
**LEW-08-1R  
Phase 2, Region 1**



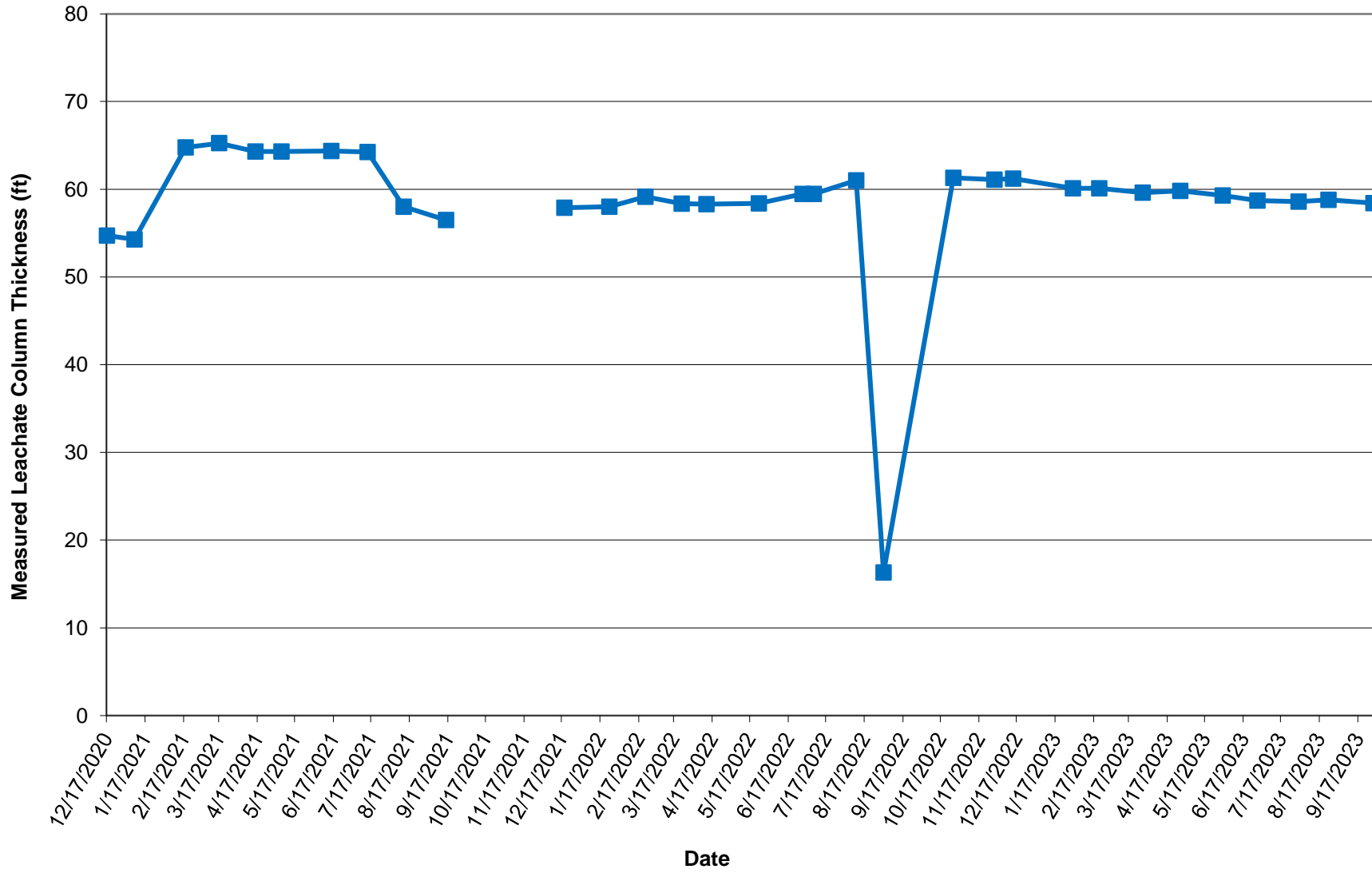
**LPZ-5R  
Phase 2, Region 1**



LPZ-6  
Phase 2, Region 1

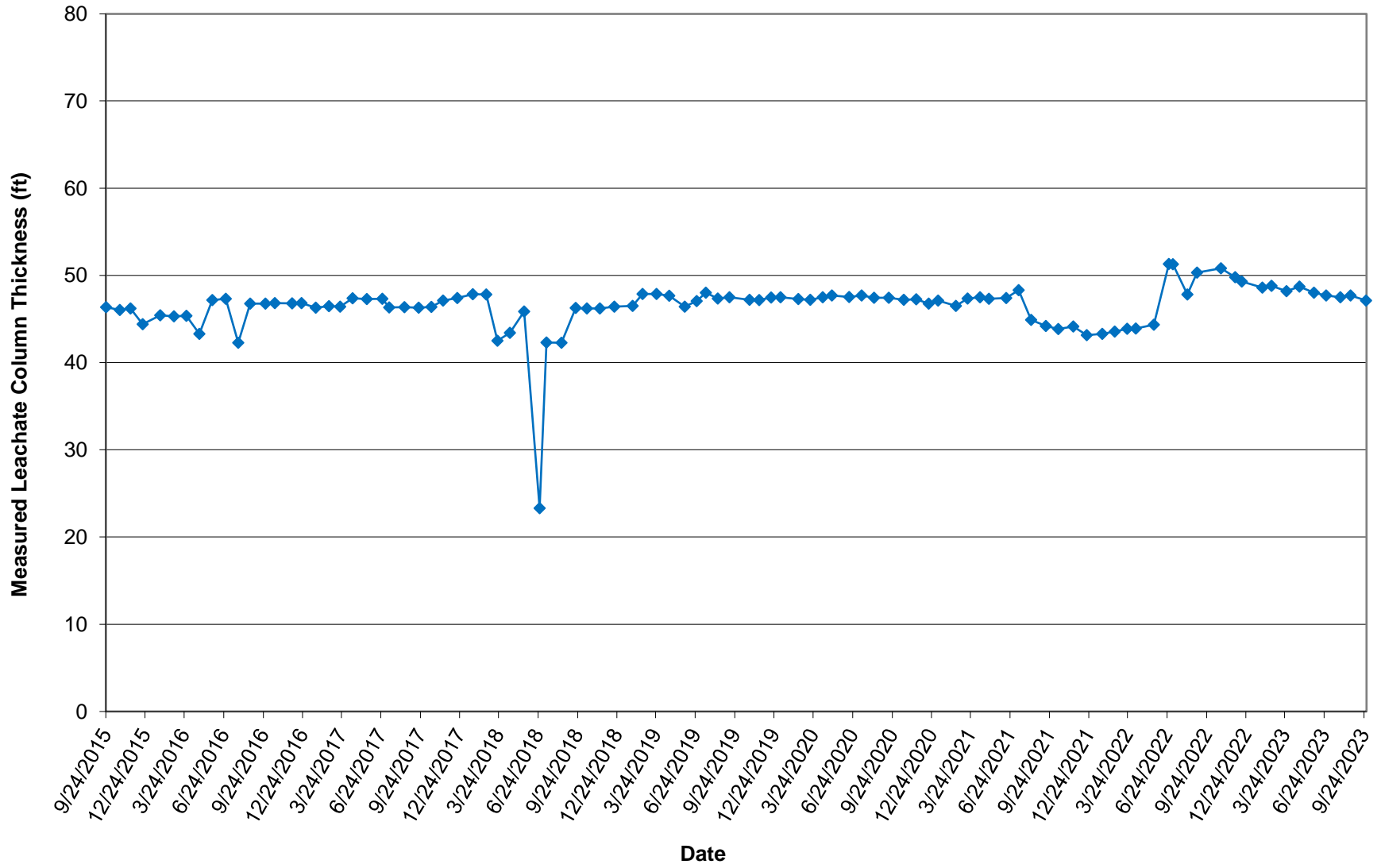


LW-6R  
Phase 2, Region 1

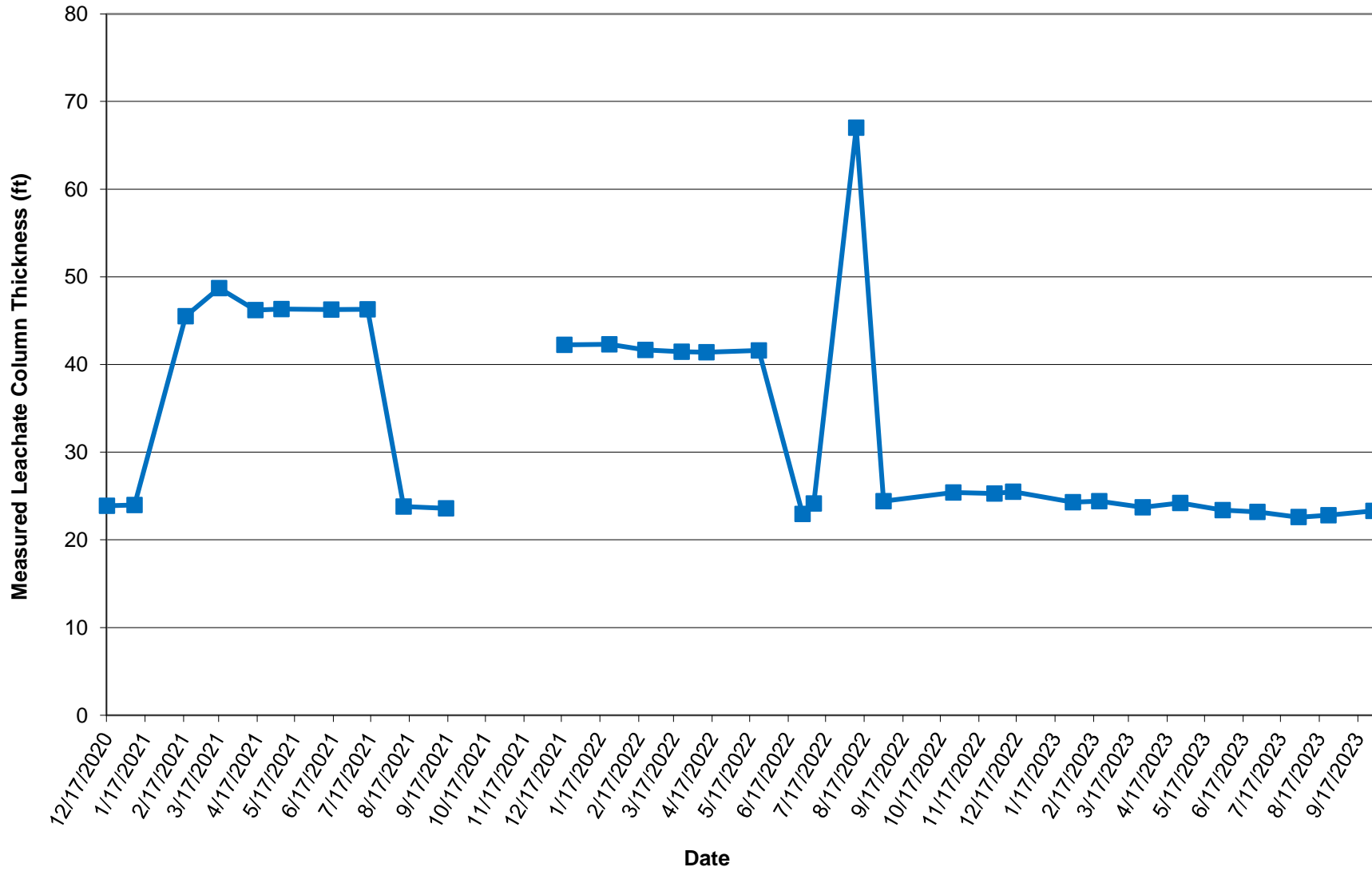




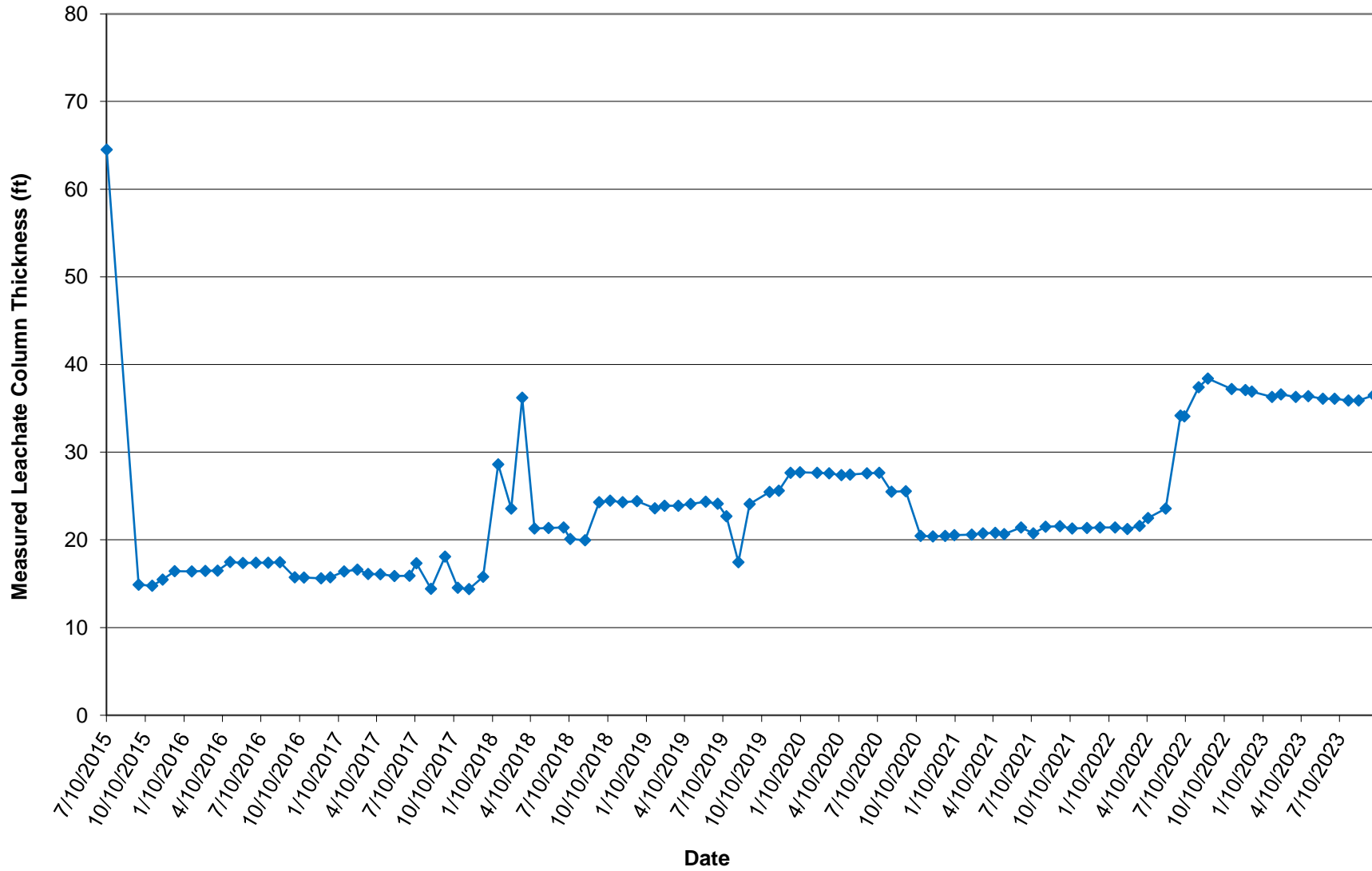
LPZ-7  
Phase 2, Region 1



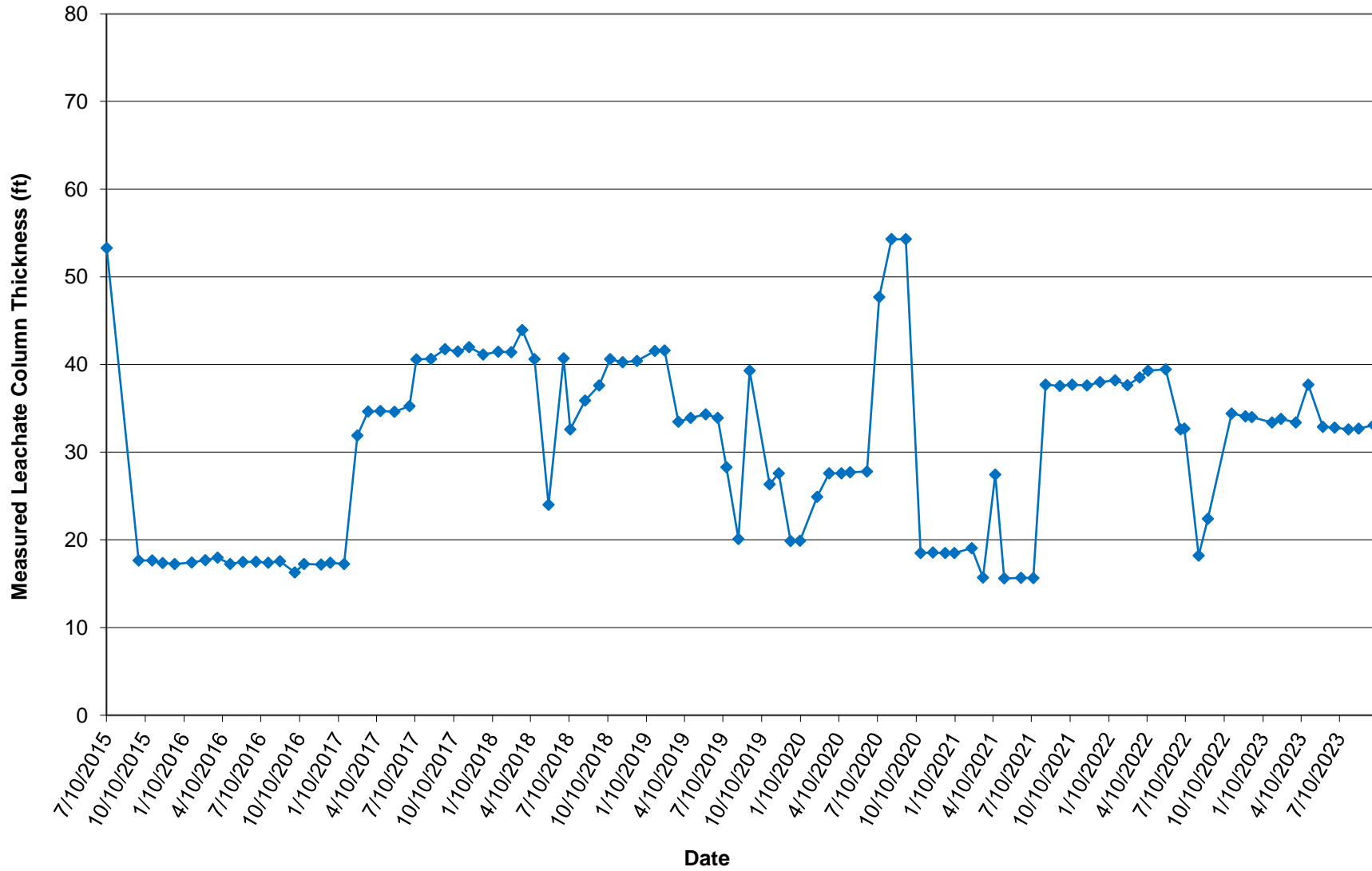
**LEW-7R  
Phase 2, Region 1**



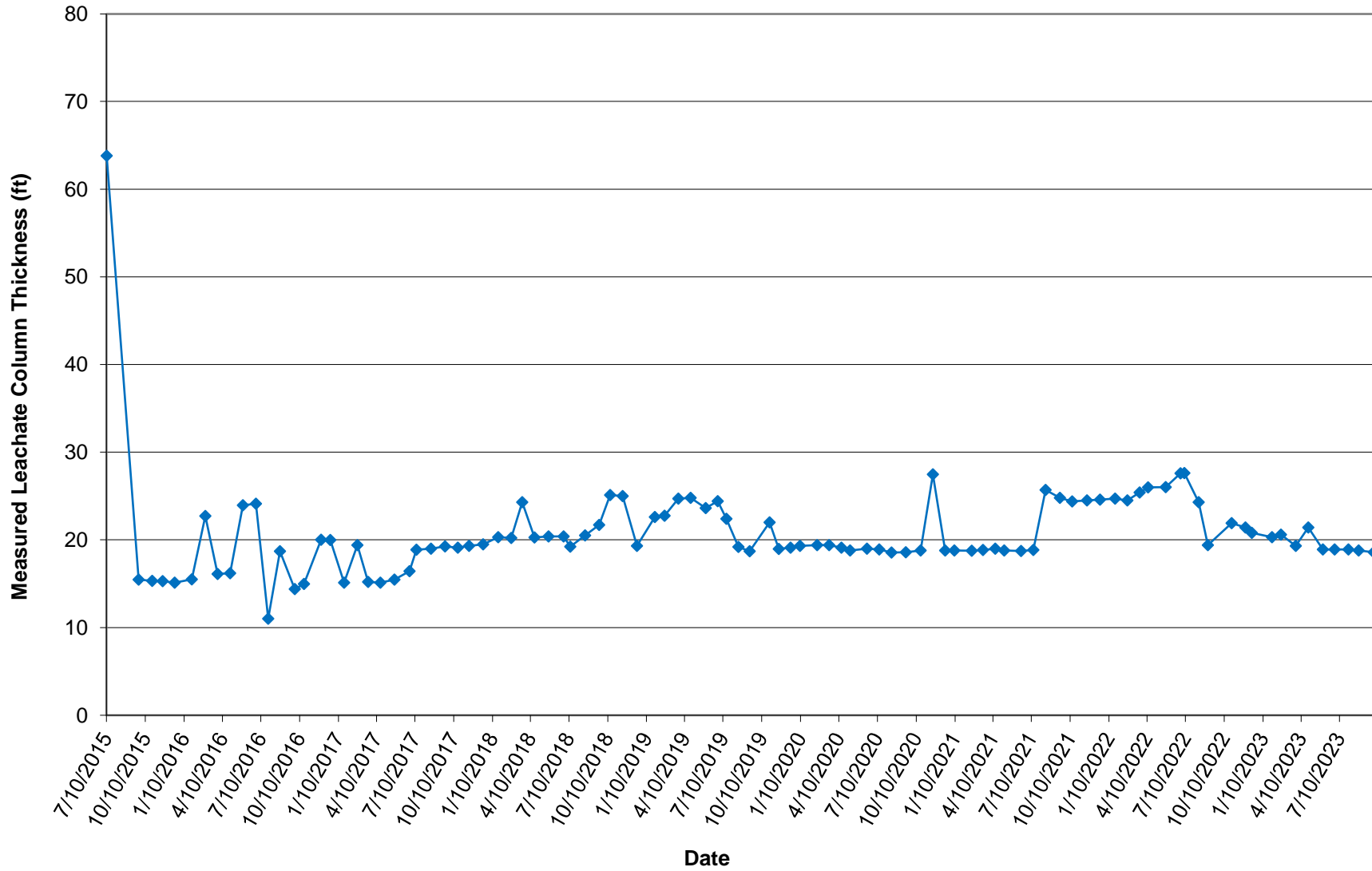
**LEW-8  
Phase 2, Region 1**



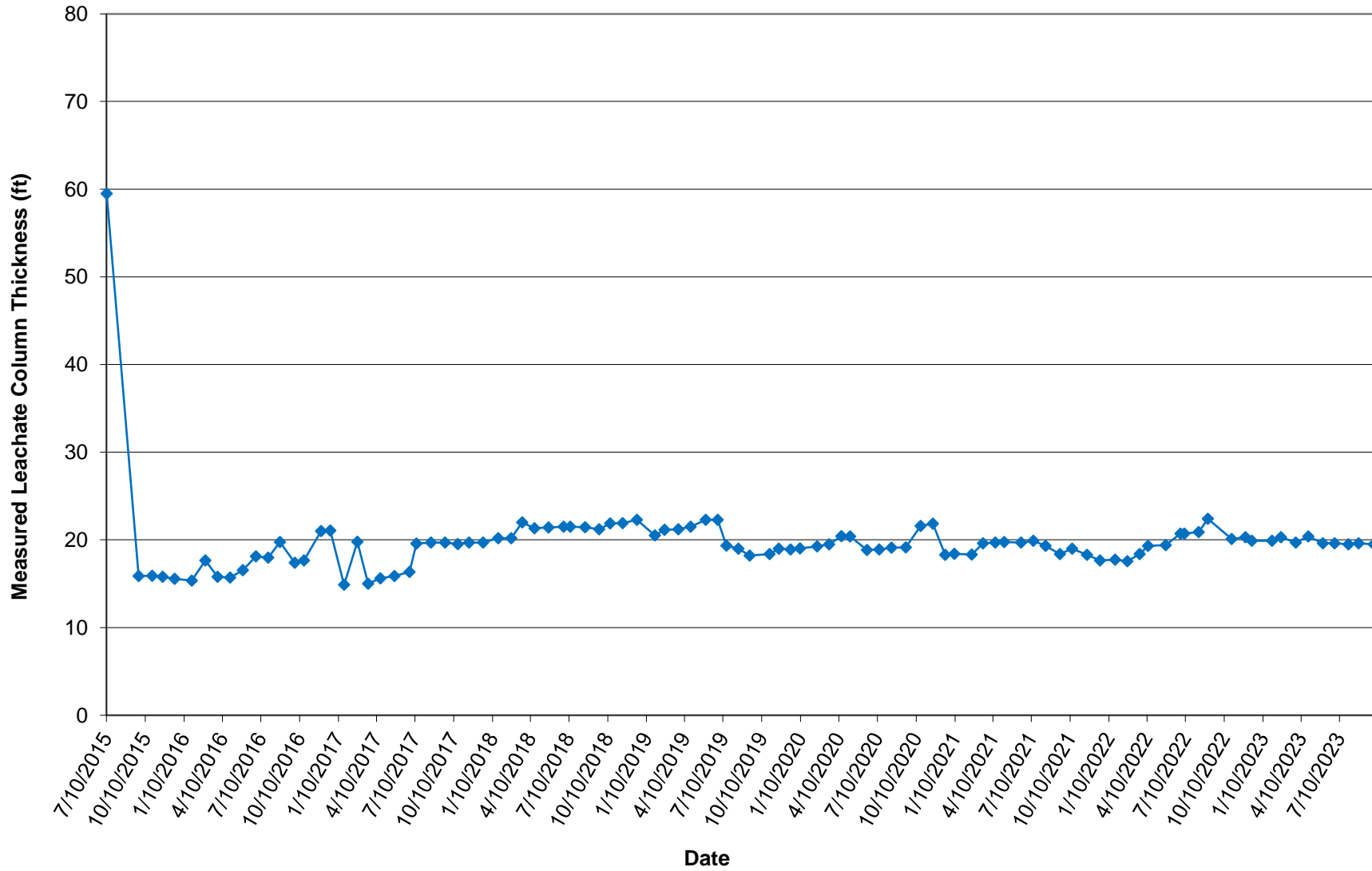
**LEW-9  
Phase 2, Region 1**



**LEW-10  
Phase 2, Region 1**



**LEW-11  
Phase 2, Region 1**



**TABLE B-3**  
**PHASE 2 LEACHATE LEVEL MEASUREMENTS**  
**Great River Regional Waste Authority**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

DATE	LEACHATE PIEZOMETER		LEACHATE SUMP	
	LPZ-R3-1	R2-1	R2-2	L-1
1/1/2015	NI	NR	NR	8.29
2/1/2015	NI	1.21	0.94	7.09
3/1/2015	NI	1.21	1.69	6.90
4/1/2015	NI	1.22	2.11	9.40
5/1/2015	NI	1.23	2.06	17.67
6/1/2015	NI	1.22	2.20	8.82
7/1/2015	NI	1.22	3.04	14.42
8/1/2015	NI	1.21	2.09	6.31
9/1/2015	NI	1.21	2.09	6.38
10/1/2015	NI	1.80	2.12	6.41
11/1/2015	NI	1.88	2.33	6.33
12/1/2015	NI	1.93	6.23	6.22
1/1/2016	NI	1.92	2.89	6.25
2/1/2016	NI	2.03	1.72	6.21
3/1/2016	NI	1.96	2.89	6.29
4/1/2016	NI	2.01	6.32	6.58
5/1/2016	NI	1.95	9.24	6.35
6/1/2016	NI	2.04	2.28	6.26
7/1/2016	NI	2.02	2.25	6.27
8/1/2016	NI	2.02	2.26	6.14
9/1/2016	NI	4.16	2.26	6.26
10/1/2016	NI	2.47	2.26	20.99
11/1/2016	NI	1.96	2.43	7.13
12/1/2016	NI	2.03	2.32	6.20
1/1/2017	NI	2.03	2.25	6.21
2/1/2017	NI	2.02	2.26	6.20
3/1/2017	NI	2.01	2.25	6.17
4/1/2017	NI	2.01	2.25	6.22
5/1/2017	NI	2.01	2.26	6.25
6/1/2017	NI	2.01	2.27	6.25
7/1/2017	NI	2.03	2.27	6.30
8/1/2017	NI	2.05	2.27	6.28
9/1/2017	NI	2.05	2.27	6.20
10/1/2017	NI	2.06	2.26	6.21
11/1/2017	NI	3.10	2.87	6.25
12/1/2017	NI	2.01	2.65	13.20
1/1/2018	NI	2.01	2.65	11.03
2/1/2018	NI	2.31	2.58	7.32
3/1/2018	NI	4.05	3.41	24.96
4/1/2018	NI	2.13	2.26	6.67
5/1/2018	NI	2.53	2.27	6.38
6/1/2018	NI	2.07	2.26	6.33
7/1/2018	NI	2.12	2.27	6.08
8/1/2018	NI	2.14	2.27	6.27
9/1/2018	NI	2.72	2.70	13.00
10/1/2018	NI	2.09	2.26	6.15
11/1/2018	NI	2.10	2.26	6.22
12/1/2018	NI	2.08	2.27	6.29
1/1/2019	NI	2.07	2.43	6.32
2/1/2019	NI	2.02	2.43	6.23
3/1/2019	NI	2.03	2.31	6.31
4/1/2019	NI	2.01	2.25	6.58
5/1/2019	NI	NA	NA	30.99
6/1/2019	NI	6.07	2.28	6.30
7/1/2019	NI	3.30	2.35	7.02
8/1/2019	NI	8.18	NA	6.56
9/1/2019	NI	9.34	2.00	6.29
10/1/2019	NI	7.27	2.79	12.23
11/1/2019	NI	2.49	2.49	12.94
12/1/2019	NI	2.08	2.32	6.42
1/1/2020	NI	2.14	2.40	6.27
2/1/2020	NI	2.14	2.28	6.30
3/1/2020	NI	2.03	2.28	15.91
4/1/2020	NI	1.87	2.27	NA
5/1/2020	NI	1.84	2.28	NA
6/1/2020	NI	1.83	2.28	14.66
7/1/2020	NI	1.84	2.29	8.11
8/1/2020	NI	1.87	2.29	6.29
9/1/2020	NI	1.89	2.29	7.18
10/1/2020	NI	1.95	2.29	6.51
11/1/2020	NI	1.92	2.29	6.22
12/1/2020	NI	2.01	2.32	6.52
1/1/2021	NI	2.17	2.34	11.32
2/1/2021	NI	1.91	2.74	14.75
3/1/2021	NI	1.85	2.25	NA
4/1/2021	NI	1.80	2.25	NA
5/1/2021	NI	3.00	2.64	7.49
6/1/2021	NI	1.78	2.25	6.10
7/1/2021	NA	1.81	2.26	6.06
8/1/2021	NA	2.24	2.40	6.41
9/1/2021	NA	1.79	2.26	6.15
10/1/2021	NA	NA	NA	9.87
11/1/2021	NA	1.46	2.09	27.50
12/1/2021	Dry	NA	NA	NA

**TABLE B-3**  
**PHASE 2 LEACHATE LEVEL MEASUREMENTS**  
**Great River Regional Waste Authority**  
**Fort Madison, Iowa**  
**Project No. 27223129.24**

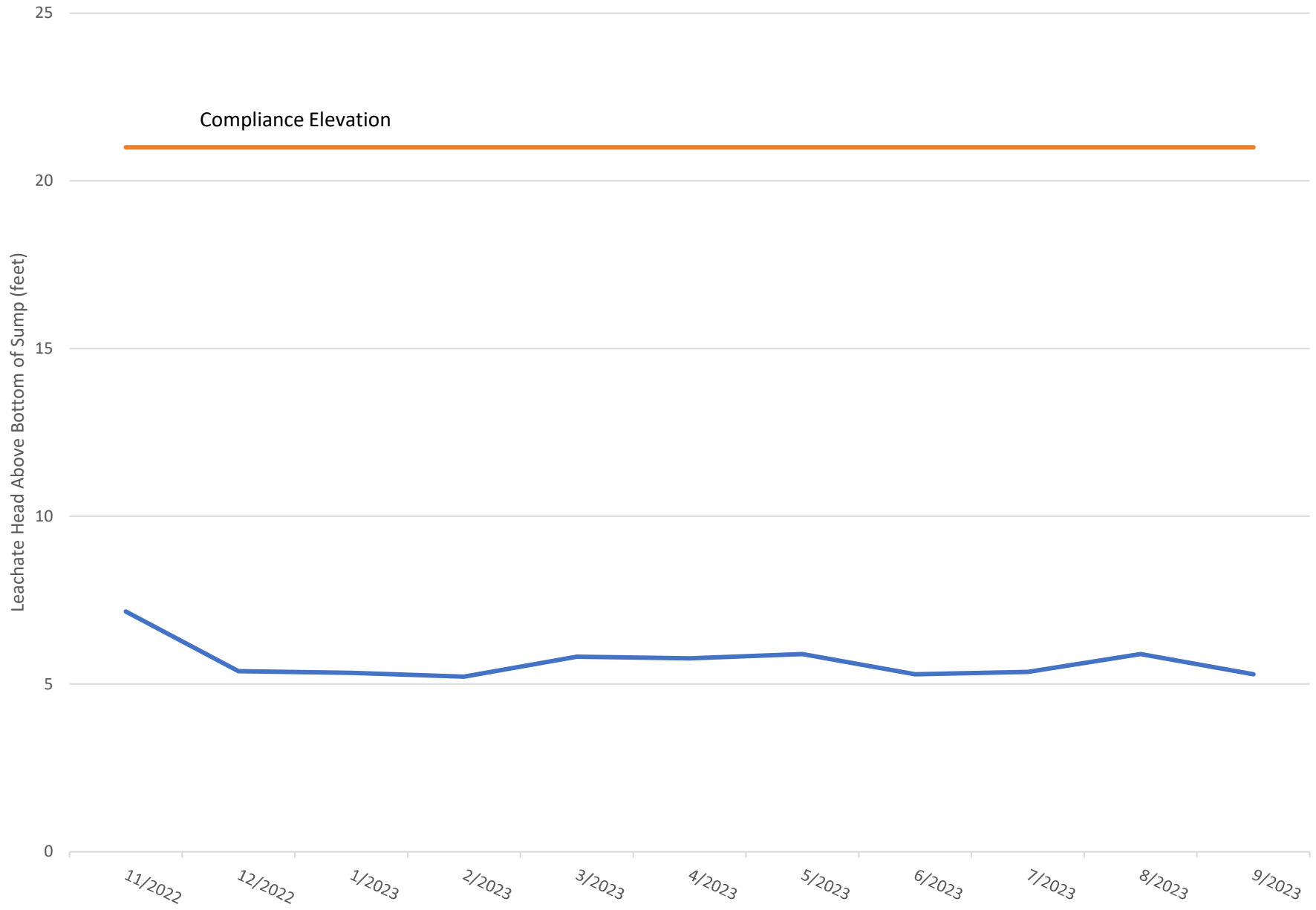
DATE	LEACHATE PIEZOMETER	LEACHATE SUMP		
	LPZ-R3-1	R2-1	R2-2	L-1
1/1/2022	Dry	NA	NA	5.98
2/1/2022	0.10	NA	NA	NA
3/1/2022	0.09	NA	NA	NA
4/1/2022	0.09	NA	NA	NA
5/1/2022	0.52	NA	NA	NA
6/1/2022	3.30	NA	NA	NA
7/1/2022	3.67	NA	NA	NA
8/1/2022	0.71	4.43	NA	16.94
9/1/2022	0.06	6.52	2.46	5.63
10/1/2022	0.06	3.56	3.66	7.57
11/1/2022	0.06	1.99	2.64	6.42
12/1/2022	0.05	2.01	2.40	5.32
1/1/2023	0.05	2.03	2.29	5.34
2/1/2023	0.05	2.05	2.27	5.22
3/1/2023	0.19	2.05	2.25	5.81
4/1/2023	0.05	2.02	2.26	5.77
5/1/2023	0.05	1.93	NA	5.90
6/1/2023	0.05	2.52	NA	5.29
7/1/2023	0.05	5.93	3.44	5.36
8/1/2023	0.06	7.28	2.27	5.90
9/1/2023	0.08	1.87	2.29	5.29

Notes:

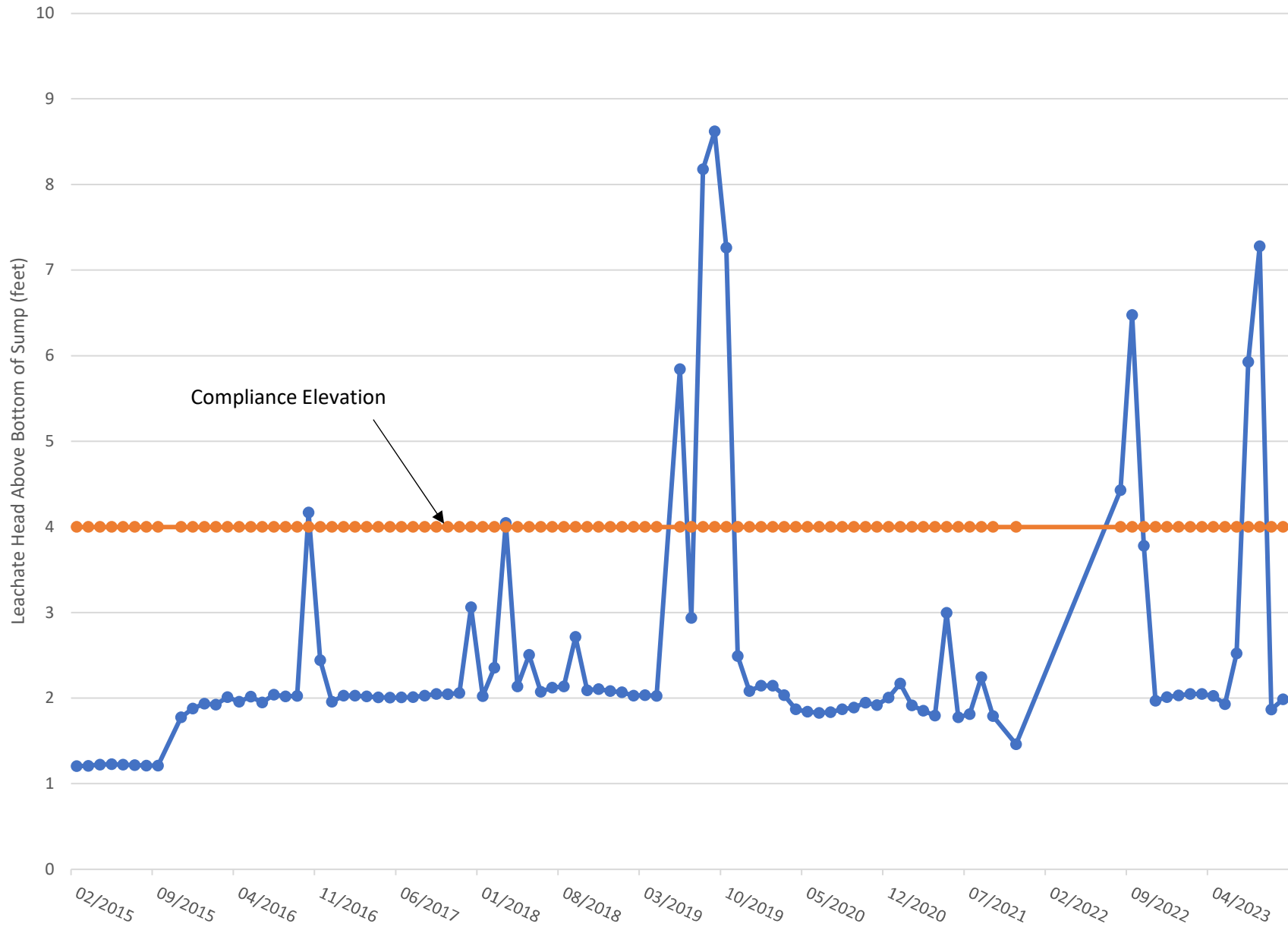
- 1) Leachate column thickness in feet.
- 2) NR = Not recorded; NA = Not available; NI = Not installed.
- 3) Beginning in March 2013, monthly averages from data collected by telemetry systems used.
- 4) L-1 is the leachate sump for Phase 2 Region 1. It is indicated on the figure as "Lift Station."
- 5) Leachate sumps L-1, R2-1, and R2-2 are configured to trigger an alarm if pre-set levels are reached.



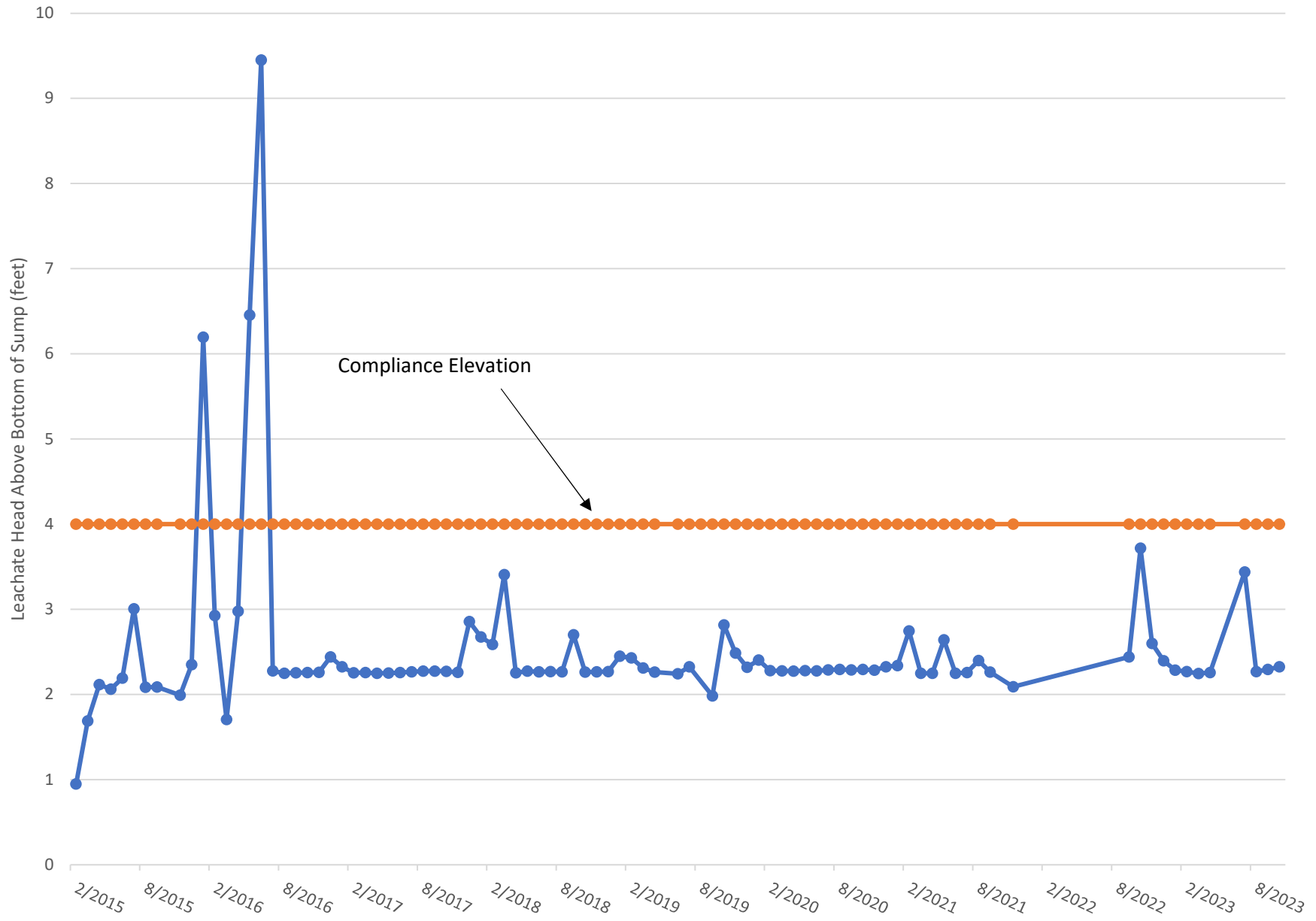
### Phase 2 Region 1 Leachate Sump (L-1)



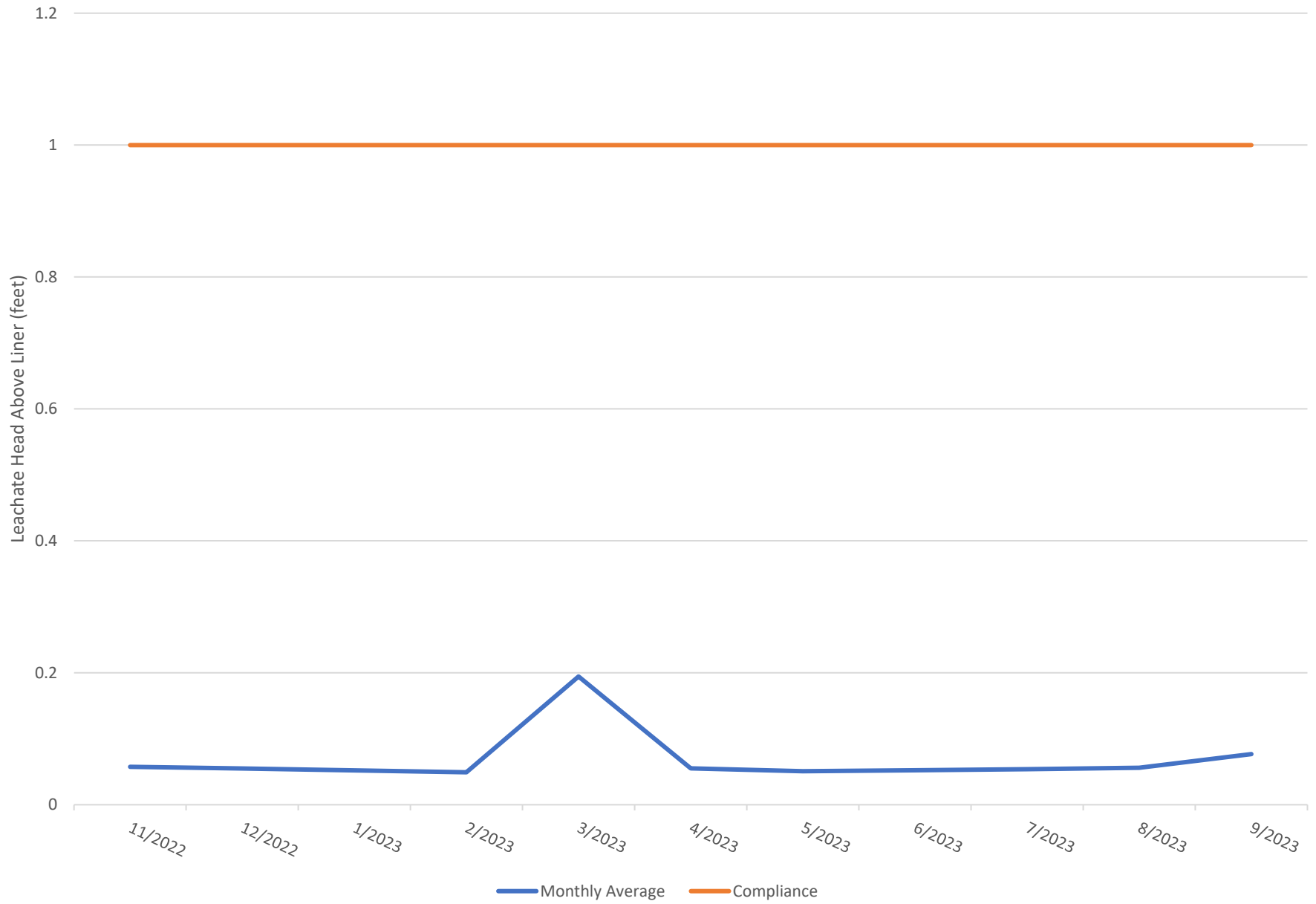
# Cell R2-1 Leachate Sump



# Cell R2-2 Leachate Sump



# LPZ-R3-1



**Appendix F**  
**2023 Landfill Gas Annual Report**



**Table 13**  
**Gas Monitoring Summary**  
**2023 Gas Monitoring Report**  
**Great Regional Waste Authority Sanitary Landfill**  
**Phase 2 MSWLF Unit**  
**Permit No. 56-SDP-07-80P**

Monitoring Points				Methane Results (% LEL)					
Point ID	Name	Type	Description	3/28/2023	S (Y/N)	6/28/2023	S (Y/N)	9/23/2023	S (Y/N)
5	Equipment Building	Indoor	Interior of Maintenance Building	0		0		0	
6	Scalehouse	Indoor	Interior of scalehouse	0		0		0	
7	LFG-GWT01	Subsurface	Wet Well, groundwater interceptor trench west and north of Phase 1	0		0		0	
9	LFG-GUCO1	Subsurface	Vadose zone, groundwater underdrain beneath west side of Phase 2, Region 1 MSWLF unit	>19.9*		>19.9*		>19.9*	
10	LFG-GUCO2	Subsurface	Vadose zone, groundwater underdrain beneath central portion of Phase 2, Region 1 MSWLF unit	>19.9*		>19.9*		>19.9*	
11	LFG-GUCO3	Subsurface	Vadose zone, groundwater underdrain beneath east side of Phase 2, Region 1 MSWLF unit	>19.9*		>19.9*		>19.9*	
12	LFG-GWT03	Subsurface	Vadose zone, groundwater interceptor trench east and north of Phase 2, Region 2 MSWLF unit	0		0		0	
13	LFG-R2-1SHED	Subsurface	Pumphouse shed for leachate/groundwater sump access for Cells R2-1 and R2-3 of the Phase 2, Region 2 MSWLF unit and groundwater underdrain beneath west side of Phase 2, Region 2 MSWLF unit	0		0		0	
15R1	LFG-GUCO4-R1	Subsurface	Relocation of LFG-GUCO4. east of Cell R3-1.	0		0		0	
16	LFG-GUCO5	Subsurface	Pumphouse shed for leachate/groundwater sump access for Cells R2-2 and R2-3 of the Phase 2, Region 2 MSWLF unit and groundwater underdrain beneath south-central area of Phase 2, Region 2 MSWLF unit	0		0		0	
17R1	LFG-GUCO6-R1	Subsurface	Relocation of LFG-GUCO6. east of Cell R3-1.	0		0		0	
18	MW-22	Monitoring Well	Vadose zone, groundwater monitoring point between the leachate lagoon and sediment pond	4	N	3.4	N	0	N
24	LFG-GUP2R3-1	Subsurface	Groundwater underdrain cleanout on the east side of Cell R3-1.	0		0		0	

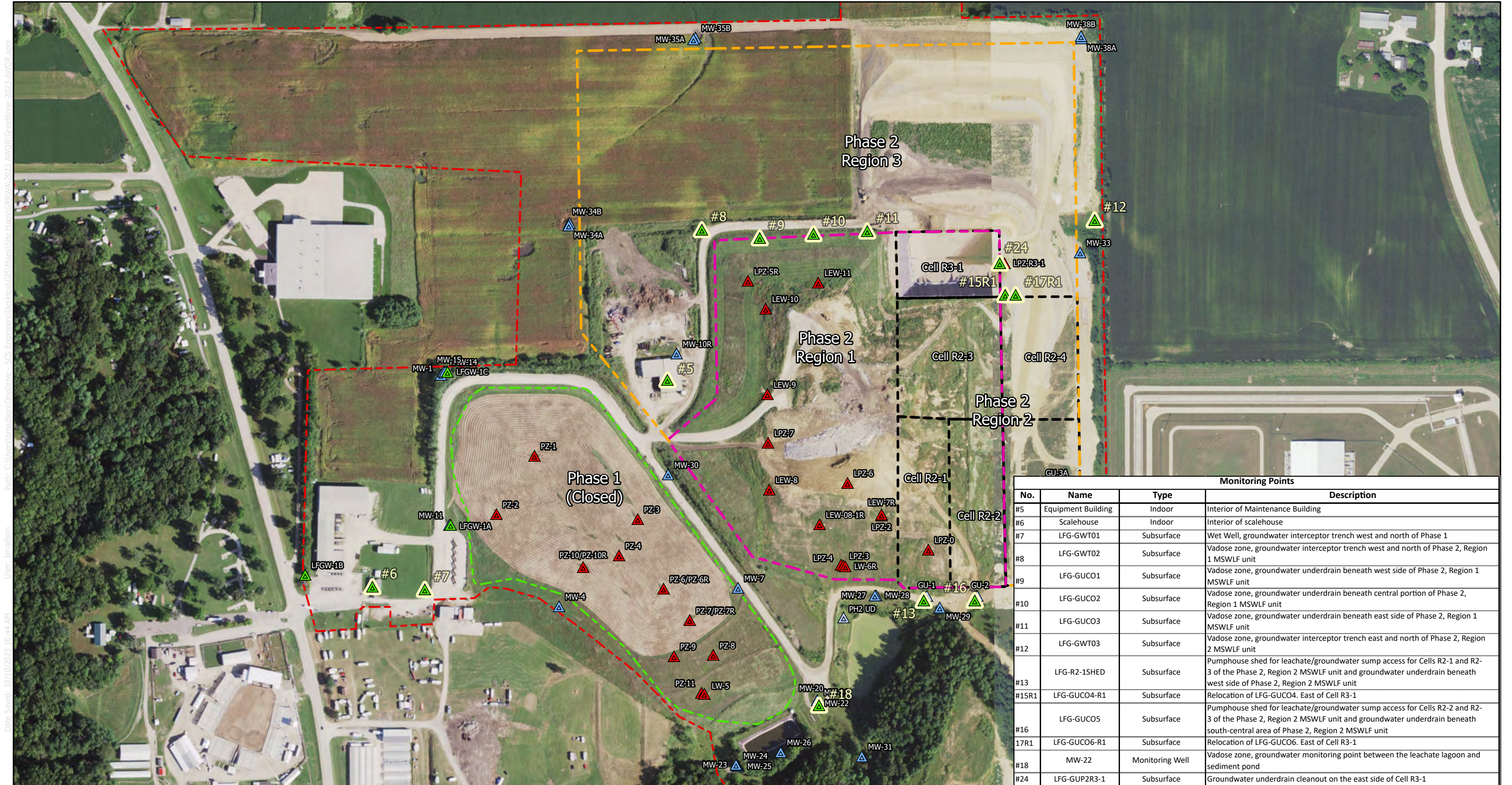
S(Y/N) - Was screen submerged, yes or no or blank is non-applicable

Methane monitoring is performed by Landfill staff.

\* - In October 2023, it was discovered that the methane meter used for monitoring has a maximum sensitivity of 19.9% of the LEL for methane. The Landfill plans to acquire a meter that can measure up to 100% of the LEL. There are no nearby receptors north of the three groundwater underdrains with the >19.9% LEL readings. Excavation resulting from the upcoming construction of Cell R3-2 will partially remove potential subsurface migration pathways from the area.

Methane measurements for the 4<sup>th</sup> quarter of 2023 will be collected after the purchase of a new methane meter and will be included in the 2024 Landfill Gas Annual Report.





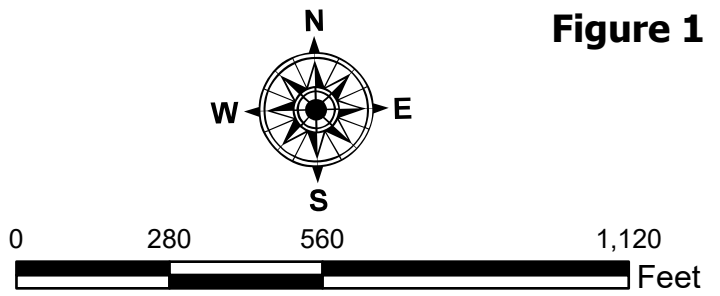
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## Methane Monitoring Network

Legend	
	Methane Monitoring Point
	Monitoring Well
	Underdrain Monitoring Point
	Landfill Gas Well
	Leachate Monitoring Point
	Approximate Future Waste Boundary - Phase 2
	Approximate Waste Boundary - Phase 2
	Located Waste Boundary
	Approximate GRRWA Property Boundary
	Approximate Location Of Cell Boundaries

GRRWA Sanitary Landfill  
Phase 2  
Fort Madison, Iowa  
Project No: 27223129.24  
Drawing Date: October 2023



**Figure 1**

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